DELINEATING CROWD SOURCED OWNERSHIP IN THE DIGITAL AGE FOR THE BUILT ENVIRONMENT

What effect will new media and digital technologies have on open innovation and peer exchange in architecture and design?

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Abstract. Time Magazine, had named the “Person of the Year” to “YOU” (the crowd) in 2006, due to the infinite potentials of the thousands and millions of ‘yous’ who control the media and financing within the new digital democracy. These same citizens of digital innovation create the new platforms—seen in the early beta developments of Kickstarter, Twitter, Wikipedia, and Facebook—and contribute to the manipulation of international exchange of information and power, creating value propositions beyond the traditional product complexity of the market. Peer exchange and crowd organizational strategy will be used to innovate the built environment, and it is pertinent for “digital” property and “real” property to recognize and benefit from this emergence. Professional codes of conduct, economic values, and legal regulations have become means to an end of the designing of digital and physical property, as digital barriers lift much of the necessary precautions that is required to govern collaboration. This body of research explores the qualifying factors of open innovation identity between the creators and the consumers, the state of design ethics and ownership uncertainties pertaining to the combinatory methods and mechanisms that employ these technologies.

Keywords. Open Innovation; Crowd source; Authorship; Ownership; Digital Media; Digital Property; Physical Property.

1. Introduction

As we probe into the ever-changing agencies of new media and technologies that assist in the production and future of the digital age and the architectural
practice, we also navigate and research through a glimpse into innovative projects and case-studies that explore the avenue of crowdsourcing, as it emerges larger into the mainstream of the built environment. Unfolding from these discussions the following pages will further the above questions, investigations and interviews with the professionals behind recent architecture and urban projects that rely on crowd sourced and open innovation antics will also be introduced.

The immeasurable shifts in the nature of the profession of architecture and its exponential growth and migration into the digital realm have increased the necessity to evaluate the balance between the ethical and equitable form of design practice. The innovation and development of the Internet since 1989 has allowed the digital practice of architecture to become increasingly geographically limitless and countlessly collaborative. The practice of online collaboration across industries, on one hand has allowed innumerable advances within the global manufacturing practice, including architecture, allowing the ability of borderless information exchange and electronic file distribution; however, has also become an hindrance to the protection of the creators and innovators, due to the myriad of possibilities of duplication, non-permitted file-sharing, and high-speeds of transfer.

This form of open innovation and new media have proven valuable within the fields of consumer goods and corporate vendors, that by the end of 2011, well-known sponsors of open innovation initiatives included international players, and will only continue to complement the field of real property (real estate and urban development) and digital environments.

Successfully funded projects like the +Pool\textsuperscript{2}, an initiative to bring a floating swimming pool to the East River, on the Manhattan and/or Brooklyn banks, in New York City (a permanent location has yet to been determined), which raised over $40,000 through platforms such as Kickstarter, and subsequent donation based fundraising to over $100,000 are public forum projects that seek to break traditional roles of public participation in funding large cultural developments. Other projects, such as the LowLine, “a plan to use innovative solar technology to illuminate an historic trolley terminal on the Lower East Side of New York City. [Their] vision is a stunning underground park, providing a beautiful respite and a cultural attraction in one of the world’s most dense, exciting urban environments”, that originally raised $150,000 through Kickstarter, is currently over the $1 million mark in public funds for novel city-scaled projects, which reap public support.

As a whole, the crux of this paper reveals how new technologies and business strategies are transforming not only business processes, but also the way products and services are created and marketed, the structure and goals of the enterprise between the “firm” and the “community”, organizational strategies for private and public support, and the dynamics of competition
for traditional design practices and real estate developments alike. These factors are just beginning to impact digital property and real property developments.

2. The Participatory Process

The term “crowdsourcing” was coined in 2006 by *Wired* writer Jeff Howe. Organizationally, the basis of crowdsourcing combines three core characteristics: (a) decentralization of conception and execution of problems and solutions, (b) harnessing diverse motivations, and (c) separation of governance and management from property and contract (Benkler, 2009). Open innovation, on the other hand, could be derived from two forms:

1. Self-organized and self-motivated collaborative activity to achieve a common goal.
2. An organizational strategy to broaden innovation boundaries, while retaining to internal R&D agendas³ (Huff, Möslein, Reichwald, 2013).

Online platforms have become an instrument of democratizing interactive architectural and urban open assembly, which has provoked rapid assembly of distributed resources held by individuals who are geographically dispersed throughout the world (Villarroel, 2013). Peer production is the most significant organizational innovation that has emerged from Internet-mediated social practice⁴ (Benkler, 2009). However, the phenomenon most often associated with peer production is crowdsourcing (Howe, 2006).

Functionally, these components make peer production practices highly adept at learning and experimentation, innovation, and adaptation in rapidly changing, persistently uncertain and complex environments. Misleading to the term, crowdsourcing is the context of the word “crowd”, though the success of these projects rarely rely on solely the public, but mostly be an invited participation from engaged members of the public⁵ (Owens, 2013), and at many times, through mediated and precise “communication costs” (Villarroel, 2013).

To make numbers even more evident, women make up 44 percent of investors on platforms such as Kickstarter, according to research by Kauffman and the Hebrew University of Jerusalem⁶. Between 1700 and 1996, the term crowd-funding was still not considered as prominent, but in 1997, the US tour of the British Rock band Marillion was funded by their US fan base by raising over $60,000 online. It was in 2000/2001 when established companies such as artistShare and micro-lending companies, which then furthered the term crowd-funding where it became renewed. Nonetheless, it was not until the 2008/2009, birth of Indiegogo and Kickstarter, did the crowd-funding antics began to influence the 2011 campaign, initiated by President
Obama, called *Start-Up America Partnership*. Similar to Marillion’s method of enabling the crowd and network to raise funds, the LowLine and +Pool used Kickstarter as a donation based fund-raising platform to raise awareness into their design projects, which exhibit the crux of peer innovation. These projects formulate an entrepreneurial spirit and belief, as a technique to breathe life, from vision to reality, into unbuilt and unforeseeable design projects for the built environment. Beyond the smoke and mirrors, the larger question still lingers—what are the economical and legal implications of this new form of public participation for the built environment?

Exploring the potentials of the peer “network” digitally-created and crowd sourced projects, we look into the perspective of “investments” made by the highly connected social networks that make, or break many of these projects. The case studies attempt to question whether digital crowd-sourced innovation in the built environment drives an unruly wrench into our historic method of real property development (i.e. the traditional singular patron model).

Traditionally, designers and architects are considered “makers” and innovators within their own rights under the terms of a single patron. Innovation and its technologies within our ever-changing means of production and future of the real estate and architectural design practice has enabled new means of peer production and crowd motivation to explore the avenue of crowdsourcing as a form of organization strategy that is quickly outperforming traditional organizations, and emerging larger into the mainstream of the built environment.

The “maker movement” was originally coined between 2005 and 2006 by Dale Dougherty, founder of the magazine MAKE and the do-it-yourself (DIY) Maker Faire. Then, Dale also co-founded O’Reilly Media, a technical publisher and conference organizer known for its advocacy of Open Source and the Web. In 2006, the technology publisher pushed the envelope of the appreciation of garage projects through “celebrating the right to tweak, hack and bend any technology to your own will” (TED, 2015), by establishing the Maker Faire series, which has now evolved into an international empire of the makers and has become a global network. Chris Anderson, editor of Wired magazine, on the other hand, defines “makers” as a means of the new industrial revolution, which differs from the imprecise MIT Media lab understanding of the terminology by revolutionizing the tangible world through bits and atoms, and a various means of collaboration.

The delivery of a successfully crowdsourced project moves into the term of public acceptance through many forms and notions, with many crowdsourced platforms sourcing knowledge, money, services, and usually from a large and sometimes undefined group of the public. Crowdfunding platforms, such as Indigogo, Kickstarter, and many others, however, are a
form of financial backing, based on a donation-based funding model, that motivates the crowd financially, which permeates a designed product into the public realm.

In an interview with Dan Barasch, co-founder of Executive Director of the LowLine, Barasch sees crowd participation within a design project as a form of both monetary and ideation support for a project, as it substantiates the design concept by further establishing a public stake and recognition for a project. His view is that “(i)n essence, crowd funding (and sourcing) does two things for an early stage start up: it financially supports an effort, and it signals support for the idea itself.”

3. The Role of the Creator and the Creation

The role of new media in the world of open innovation (Chesbrough, 2003), has shown an increasingly critical notion of how the public participates within social media and web-based journalism, while also offering an evolutionary process of crowdsourcing. As indicated by both Coates (+Pool) and Barasch (LowLine), peer production within social media and online contributions have gained traction within the reportage of urban developments and public projects, and the increased transparency between the public and governmental agencies sometimes hinder the process of potential project realizations, due to the lack of guidance and quality control of social media distribution. The prosperity of new media distribution networks comes with a cost.

A repeated debate since the early recognition of open innovation is fundamental concern between the role of the creator, the contributor, and the creation, yet, is also how the intellectual property of crowdsourced projects can retain its authority and ownership within the value-generating potential. These variables lie in a spectrum from trading “strong” intellectual property goods (e.g. patented products), to “weak” intellectual property goods (e.g. open source), (Chesbrough, 2003). However, before the issues of intellectual property and ownership could be classified, firms and practitioners need to understand that in neither increasingly distributed corporate innovation, nor increasingly open innovation, is either industry dealing with one paradigm replacing another, and many times it’s the organizational strategy that could strong-arm the false policy dilemma relating to the implementation.

The US Leahy–Smith America Invents Act (AIA) was signed into law in September 2011. The law is the first move towards a significant change in US patent laws since the mid-1950s. While governmental policies and legal regimes are slow to adapt to the technological innovations, and peer production advances within potential crowdsourcing opportunities, Eric von Hippel has been among those who argue that innovation will accelerate exponentially, should governmental policies change their intellectual property rights.
Long term viability of changes in organizational strategy and implementation are one part of the highly debated discussions in the business of open innovation (OI) business procedural changes, to create common international procedures and streamlined patent applications, however, the immediate concerns that are brought out by Barasch, indicating that the more public a project, the lesser control by the creator of its creation when distributed online, is still a widely perceived concern.

Within the context of intellectual property, a patent is a grant under the power of law of the right to exclude others from making, using, selling, offering to sells, or importing certain specifically claimed inventors (Rosen, 2005). Usually granted by the US Patent and Trademark Office (US PTO), many of these grants are under the certification of a utility patent. These issues are complex provisions that surround the issues of open innovation and open access (mostly used in the field of publication), as such there is a common misconception where “open” means free, which is distinctly not the case. Classic to this example is the original innovator of Linux, originated as an open source development project coordinated by project leader, Linus Torvalds, in 1991. The process is a collective, rather than a dictatorial decision process, whereby the “contributor agreement” becomes an important part of the open source process.

Given the right platform, the open source process within computational open access could be placed into proactive dialogue with the built environment, as designers, architects, and real estate developers look into new media as a means to create opportunity. These collaborative groups, often times balance out discussions on ownership and intellectual property distribution, and can reach a global scale and cultivate international recognition of peer produced resolutions for regional problems, which could potentially create unprecedented value.

4. Ownership in relevance to collective works

Ownership, according to the US law—17 U.S. Code § 201 (ownership of copyright), in the driest sense of the law is divided into four accounts. However, the creator of a copyrighted work does not always own the copyright. In some cases other persons or entities own the copyright. There are also rules governing copyright ownership when two or more people create the work. Finally, copyright owners can assign rights to the copyright to others, particularly for the purpose of marketing the protected work.

With the advent of innovation in the international artistic arena, especially within the nature of works attributed to appropriation art that relies so heavily on the software, and open innovation disposition in the advancement and interchange of digital media and technology (including CAD and 3D print-
ing, among other forms of digital tools), it brings to question the relevance, purpose, and effective circumvention of Copyright to move into the emerging state of the arts.

Digital tools should be looked upon as a method to enhance, but not replace or surpass, the creator’s ability to interrupt the intellectual or critical analytical process from concept to reality. Within the present regime, the current Copyright law limits the experimental and iterative processes of creative prototyping or versioning, the testing of multiple materials, as well as the creator’s ability to formulate a coherent technical and design methodology, which could be further refined and developed, both physically and theoretically.

5. New Age Implications of the Networked Society and Open Innovation Economy

The core advantages of the ability of peer production and crowdsourced innovation is that the current technological changes are helping innovators quickly connecting across space and time, and have been facilitating contribution, which traditional projects are not able to sustain, or to be considered.

These projects themselves can lead to the discussion on how the projects and design of the projects are not crowdsourced, but are created through cultural motivation, where the basis of these projects that result in “design costs”, balance out the dynamics of return on investment of the “communication costs” as the marketing aspect is crowdsourced. These details could be reviewed on Figure 4.0, which diagrams the “producer squeeze problem – the higher the communication costs, the lower the design costs, based on the Moore’s law”. For there to be a business opportunity, the product complexity must exceed what the individuals and groups alone must achieve (Villarroel, 2013). There is an interesting phenomenon on the balance of a “design cost” based on a "design product" vs "communication cost" discussion that emerges out of a crowdsourced project.
While the way online self-organization works is fascinating, the various issues of closed firms versus open practices and how it operates are still of high concern to traditional operators.

Beneficial to the organizational operations of real property is evidently shown in the ability for digital open innovation projects that allow individual users and the public, who are not purely company employees, to become the primary source of value contributors within the projects, in both monetary and support (in the form of free-agent “broadcasters”). Demonstrating the ability of democratizing innovation (von Hippel, 2005), as a form of product, service and process of “free revealing” (von Hippel, 2005) has a practical solution for creators, contributors, and the creation to be realized. These types of modular collective problem solving projects, such as the Lowline and the +Pool, recognize an opportunity for peer leaders to promote a common view of work that could be done in an open organizational structure, often times diminishing communication costs relied on traditional marketing and strategic research, which at many times are limited in larger public or governmental organizations due to initial funding overhead.

Many times, crowdsourced and peer produced types of projects are achievable due to their intrinsic rewards and limited design costs by the public, due to ready-made propositions of diligent individuals willing to work on
problems outside the common public’s specialty. Whether in digital or real property, leaders of public and larger organizations who would like to tap into these sorts of opportunities and sources would be required to tap into the resources of smaller incubators and practices, or source for peer generated organizational strategies, rather than take on the problem-solving role themselves (Lakhani, 2013).

Crowdsourcing is an approach that calls for strategic and organizational excellence that increases closed knowledge-intensive firms to embrace an emergent organizational design method (Villarroel, Gorbatai, 2011a, b). Traditional firms and real estate developers that work in strong cultures of internalized R&D structures could feel threatened by the high threshold of open innovation disclosure, limited privacy, and the appropriability of intellectual property. However, these same firms have the ability to learn hugely beneficial lessons from companies such as Microsoft, GitHub, Google, and various digital media companies that have adapted successfully to crowdsourced, peer production, and open innovation models that reach out to the public domain for information commons licensing, and could also benefit from the advantages of the crowd. Ultimately, and in all innovation cycles, without sharing, openness, and the public, there is little to no chance of a real implementation of crowdsourcing.

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References


Endnotes


2. Leahy–Smith America Invents Act (AIA): The Leahy–Smith America Invents Act (AIA) is a United States federal statute that was passed by Congress and was signed into law by President Barack Obama on September 16, 2011. The law represents the most significant change to the U.S. patent system since 1952, and closely resembles previously proposed legislation in the Senate in its previous session (Patent Reform Act of 2009). Accessed: January 9, 2015

3. Linux: Developed in the 1990s, born in 1991, from the name of Linus Benedict Torvalds (born 1969), a Finnish software engineer who wrote the first version of the system, + -x; as in UNIX. Since 1991, the resulting Linux kernel has been marked by constant growth throughout its history. It has grown from a small number of C files under a license prohibiting commercial distribution to the 3.10 version in 2013 with more than 16 million lines of source code under the GNU General Public License.

4. An important note: Contributors to the open source software or system can be individuals or companies, and there is much iteration of contributions that are at the project level, and have become larger corporate entities.

5. The Copyright Act of 1976 grants a number of exclusive rights to copyright owners, including the:
   a. Reproduction right -- the right to make copies of a protected work
   b. Distribution right -- the right to sell or otherwise distribute copies to the public
   c. Right to create adaptations -- the right to prepare new works based on the protected work (called derivative works), and
   d. Performance and display rights -- the rights to perform a protected work or to display a work in public.

6. Moore’s law: "Moore's law" is the observation that, over the history of computing hardware, the number of transistors in a dense integrated circuit doubles approximately every two years. The observation is named after Gordon E. Moore, co-founder of the Intel Corporation, who described the trend in his 1965 paper.