Synthetic Overview of the COLLABORATIVE ECONOMY

P2P foundation

orange

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COLLABORATIVE ECONOMY

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About the cover image

At first sight, the image in the cover of this report seems hardly related to its topic, The Collaborative Economy. What does an aerial shot of a medieval village have to do with our exploration of the collaborative future?

The image was posted to a Flicker.com by "post-apocalyptic research institute" on January 4, 2012. It is indeed a picture of a physical model - a 3D print - of a fraction of the virtual world created by the users of a popular indie video game called Minecraft. The caption written by the author under the image reads "A 3D model of a minecraft-village, exported directly out of the game world using a modified minecraft.print() script, colored using CAD software, and printed on a Zprinter 650". To many, this description might seem obscure, but to us it is a powerful formulation: It is a manifestation of the transformative phenomena that will be described in depth in this report. It is a case that shows how all the pieces are falling into place to create a new way of producing. The collaborative way.

Thanks to post-apocalyptic research institute for authorizing use of the image in this report. The photo it's under CC BY SA license and can be downloaded from the following page:
http://www.flickr.com/photos/postapocalyptic/sets/72157628648915115/

Preface

The theme of the following work is the horizontalisation of productive human relationships that has been enabled through communication networks and in particular the Internet. These productive publics can generate their own practices and institutions through bottom-up dynamics, or they can be mobilized by existing institutions. Hence the emergence of the collaborative economy, which comes with many names and with different expressions, such as *commons-based peer production* (Yochai Benkler), *wikinomics* (Don Tapscott), *crowdsourcing* (Jeff Howe), *open innovation* (Henry Chesbrough), *collaborative consumption* (Rachel Botsman), and quite a few others. Different authors have mapped the outlines of those particular expressions of the collaborative economy, but we believe that an overall synthesis was still lacking. While a full account would be a tremendous undertaking, we do believe that the following work captures the essence of developments in this field, which represent a deep transformation of economic practices.

Two main agents of transformation guide this work. One is *the emergence of community dynamics as an essential ingredient of doing business*. It is no longer a matter of autonomous and separated corporations marketing to essentially isolated consumers, it is now a matter of deeply inter-networked economic actors involved in vocal and productive communities. The second is that *the combined effect of digital reproduction and the increasingly 'socialized' production of value, makes the individual and corporate privatization of 'intellectual' property if not untenable, then certainly more difficult , and in all likelihood, ultimately unproductive*. Hence the combined development of community-oriented and 'open' business models, which rely on more 'social' forms of intellectual property.

In this work, we therefore look at community dynamics that are mobilized by traditional actors (open innovation, crowdsourcing), and new models where the community's value creation is at its core (the free software, shared design and open hardware models). We then look at monetization in the absence of private IP. Linked to these developments are the emergence of distributed physical infrastructures, where the evolution of the networked computer is mirrored in the development of networked production and even financing. Indeed the mutualization of knowledge goes hand in hand with the mutualization of physical infrastructures, such as collaborative consumption and peer to peer marketplaces, used to mobilize idle resources and assets more effectively.

This work is of course indebted to those who have described, analyzed and mapped its various expressions separately, and we have used their work to form our own synthesis. Amongst the works we have used more particularly are *We Think*, by Charles Leadbeater, *What's Mine is Yours*, by Rachel Botsman, and *Getting Results from Crowds*, from Ross Dawson. Others have written synthetic essays that were just as crucial in mapping out particular fields or particular aspects. We cannot mention them all separately here, but they are all referenced throughout the text.

This project was undertaken by Michel Bauwens as lead researcher, but was truly a team effort. The P2P Foundation team consisted of Nicolás Mendoza (Colombia) and Franco Iacomella (Argentina), with further assistance from James Burke (Netherlands) and Chris Pinchen (UK). We developed a Case Study appendix focused in France with help from Antonin Léonard and Edwin Mootoosamy.

We also had a secret weapon, Valerie Peugeot of Orange, which played a tremendously active role in guiding, correcting and suggesting avenues for our research. She was truly an extra member of the team, operating as a peer, and not just as a client.

We thank Orange Research for ordering and funding this synthetic overview of the collaborative economy.

This report is comprehensive and very dense with information and analysis. At the same time this is a continuously evolving and very complex field of emergence, and as such, the study is just one step in comprehending an evolving social and technological transition. What we hope is that this is therefore also a good stepping stone for further research efforts.

For the P2P Foundation research team,

Michel Bauwens,
Chiang Mai, April 12, 2012

Organizations

Orange Labs: *Strength of the Research and Development System*

Strategic marketing efforts are based on the strength of research and development systems. With over 3,800 researchers, engineers and scientists, the Group is committed to providing its customers with the best of technology as soon as it becomes available, while factoring in the next technological generations. Thanks to its ability to anticipate developments and trends, R&D is able to detect major technological shifts and changes well in advance, as well as potential new developments.

The Orange Labs network has many locations on three continents: China, United States, France, Japan, Poland, Spain and United Kingdom; but also Egypt and Jordan. Its presence in these research hotspots enables the group to keep at the forefront of technological advances and developments in uses around the world.

Research Object Futurology: decipher the mutations to better grasp them

Within the Social and Human Sciences Lab of Orange R&D, the Research Object Futurology is in charge of detecting and analyzing changes in northern and southern societies —whether their sources are of economical, cultural, technical or social nature —that could impact the Telecom ecosystem, in the mid and long term.

Collaborative Economy: a major trend in the informational society

At the heart of our economies, a diversification and increasing importance of collaborative practices can be observed. By proposing alternative paths of value creation and sharing, these practices open new perspectives in terms of consumption, production and innovation models.

Still on the edge of the core activities of a Telco, they could day after day interfere more with our R&D methodologies, our relationships towards consumers - creators communities, our capacities to take advantage of innovations…

The players of this emerging collaborative economy are diverse: their objectives, attitudes towards collaboration and sharing, their methods of work as well as their business models are heterogeneous.

Consequently, it seemed essential to us to have a mapping of those actors and their initiatives. We have asked the P2P foundation to take the task for elaborating this cartography. Being both at the same time a long time observer and a promoter of these new practices, the Foundation provides us through this report a perception “from the inside” of the collaborative economy.

We would like to thank here all the team of the Foundation, and in particular Michel Bauwens its senior researcher, for their commitment in this project and for the quality of this report. Being as comprehensive as possible, it provides useful elements to structure this complex and rich world and highlights possible opportunities for an operator. It should be a precious tool for the continuation of our works.

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P2P Foundation: *Researching, Documenting and Promoting Peer to Peer Practices*

The P2P Foundation is a non-profit organization, a "Stichting", founded in Amsterdam in 2007, under Dutch law. The local registered name is: Stichting Peer to Peer Alternatives, dossier nr: 34264847. It's legal address is Realengracht 196 - 1013AV Amsterdam, Netherlands.

The P2P Foundation (http://p2pfoundation.net) is a knowledge commons and a global community of researchers and advocates that monitors the emergence of peer to peer dynamics in society, i.e. through peer production, governance, and property models that are characterized by open access, partipatory process of governance, and property formats that guarantee universal access. This is monitored in every field of human activity.

The P2P Foundation community consists of both academics and independent researchers, which collaborate on a number of funded research projects, such as those for the EU Commission. A provisional and incomplete list of academic collaborators can be viewed here. A provisional collation of appreciations by the scientific community of our work and approach can be found here at this link.

A Community

The aims of the P2P Foundation is to act as a global community of researchers, focused on understanding the emerging impact of peer production, peer governance, and peer property. This includes associated phenomena such as open innovation, co-creation and co-design, crowd-sourcing and crowd-funding. Of particular interest is the intersection between the newly enabled 'horizontal' social processes, with the pre-existing, more 'vertically' oriented institutions, such as corporations and governments. The P2P Foundation covers all domains of social activity, combining different experts for different projects. In our research collection we have particularly focused on the sustainability of open practices, i.e. on open business models.

The P2P Foundation members are present in all the world. It has representatives in Europe, Asia, South America, North America and Africa.

Our Impact

The information ecology consists of a blog for the interpretation of current events and trends which according to Topsy is a top 3% **globally** retweeted blog, published four times a day; a wiki with more than **19,000 entries** that have been consulted **17 million + times**; Google gives us **254,000 results**, a Ning forum and several mailing lists for discussions; a network of bookmarks using Delicious and an interconnected set of social bookmarking sites carrying more than **50,000 tagged** information sources. The total interconnected reach of the P2P Foundation has been calculated at **2.000.000 in terms of secondary audience**, during early 2012. In 2011, the P2P Foundation has won research-oriented awards, such as the Next Idea award of Ars Electronica.

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Michel Bauwens *(Lead Researcher)*

Michel Bauwens is the founder of the Foundation for Peer-to-Peer Alternatives and works in collaboration with a global group of researchers in the exploration of peer production, governance, and property. He has co-produced the 3-hour TV documentary Technocalyps with Frank Theys, and co-edited the two-volume book on anthropology of digital society with Salvino Salvaggio. Michel is currently Primavera Research Fellow at the University of Amsterdam and external expert at the Pontifical Academy of Social Sciences (2008- 2012).

Michel currently lives in Chiang Mai, Thailand, has taught at Payap University and Dhurakij Pandit University's International College. He is a founding member of the Commons Strategies Group. In his first business career, Michel worked for USIA, British Petroleum, riverland Publications, Belgacom, and created two internet start-ups.

He is a member of the Board of the Union of International Associations (Brussels), advisor to Shareable magazine (San Francisco) and to Zumbara Time Bank (Istanbul). He functions as the Chair of the Technology/ICT working group, Hangwa Forum (Beijing, Sichuan), to develop economic policies for long-term resilience, including through distributed manufacturing. Michel writes editorials for Al Jazeera English and is listed at #82, on the Post-Carbon Institute (En)Rich list (http://enrichlist.org/the-list/)

He has taught courses on the anthropology of digital society to postgraduate students at ICHEC/St. Louis in Brussels, Belgium and now lives in Chiang Mai, Thailand, where he has taught related courses at Payap University Dhurakij Pandit University. As of 2012, he will be working and teaching at IBICT, Rio de Janeiro.

Franco Iacomella *(Project Manager & Coordinator)*

Franco Iacomella is an Argentine activist, writer and scholar working in universities such as the University of Buenos Aires, Latin American Social Sciences (FLACSO) Institute and the Open University of Catalonia. He is a well known Free Knowledge, Free Software and Commons advocate.

He is very active in Civil Society and Commons oriented initiatives: he serves as Board Member at the Free Knowledge Institute, the Open Web Foundation, the Free Software Foundation Latin America. and he is the current President of the Gleducar NGO, an important organization that works in the field of free education in Latin America. He also collaborates with Marxists Internet Archive as a member of the Steering Committee of the organisation.

His personal site is http://francoiacomella.org.

Nicolás Mendoza *(Research Assistant & Editor)*

Nicolás Mendoza Leal, born in Bogotá, Colombia, 1974. PhD candidate at School of Creative Media, City University, Hong Kong; Master of Global Media and Communication at The University of Melbourne, and Architect from Universidad de Los Andes, Bogota.

Current academic interests include history and philosophy of the digital age, journalism studies, political economy of collaboration and P2P, post-colonialist ontology, digital currencies, Buddhist sociologies, ANT, anthropology of value, Cold War scientists, and anarchism.

He is currently a member of the P2P Foundation phyle and of Team Wikispeed. More on his work and latest efforts, can be found at http://nicolasmendo.wordpress.com.

James Burke *(Technical assistance)*

Interaction designer and user experience, strategy and research across digital and physical domains. Founding member of Hackdeoverheid, bringing geeks and civil servants together to prototype new government services using open government data. Founded the Roomware Project, an open-source framework for making indoor spaces interactive and the P2P Foundation, a global network of people researching peer to peer practises. In 2009 he started VURB, a European framework for policy and design research concerning urban computational systems, together with Ben Cerveny and Juha van Zelfde. Recently i've been behind bringing Quantified Self to the Netherlands

More about him in http://www.lifesized.net/

Chris Pinchen *(Case Studies & Interviews)*

Community activist & organiser since about age 16, using all tools and technologies available to a non-specialist throughout that time period, initially in the peace & ecological movements in the UK. He have organised many of the "social media" type events & barcamps which happen around Barcelona including PodCamp Barcelona (3 years), GobCamp, InnovaCamp Mediterranea, Barcelona Social Media Cafe (more or less monthly), Social Media Picnic and currently CityCampBCN - all

trying to construct a local community of people broadly coming together around the "use of social media for social good". Most of his stuff can be seen at http://cataspanglish.com/

Antonin Léonard *(France Appendix)*

Antonin Léonard, born in Paris, France. He graduated with a Master's degree in International Management from EM LYON Business School in 2011. He is the co-founder of OuiShare, a community of people who believe in and work for the collaborative economy.

His specialties: Open Innovation, Social Media Strategy, Entrepreneurial / Start up Strategy, Collaborative Project Management, New Media Publishing, Community Building, Collaborative Consumption / Economy. More information: http://www.linkedin.com/in/antoninleonard

Edwin Mootoosamy *(France Appendix)*

Edwin Mootoosamy was born in 1988 in France. He is graduated from CELSA Paris IV (School of Information and Communication) and IAE Lille Business School and has specifically studied and written about the new power of communities and new uses of the Internet. As a co-founder and co-animator of OuiShare community -Intelligence & Action for the Collaborative Economy-, he is specifically interested in alternative culture models and socio-economic changes that they induce.

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Introduction

In the last decade or so, many new collaborative practices seemed to have emerged in the business world, ranging from open innovation, co-design and co-creation, but also crowdsourcing, collaborative consumption. With some exceptions, these practices can be interpreted as 'emergent' and they are still mostly marginal in their economic weight relative to the mainstream market economy, with some exceptions however. For example, the open content and open source economy has already been estimated to be one sixth of U.S. GDP, and certain practices, like grouped buying in China, may have a strong local weight in some national economies. In parallel with these collaborative practices and the mutualization of knowledge through open source practices, there is also a very visible growth in distributed infrastructures for material production, such as the rapid evolution of micromanufacturing through 3D printing, the rapid growth of collaborative workplaces such as in co-working, and new modalities of distributed financing, such as crowdfunding and social lending.

What is also important however, is the inter-relatedness and interdependence of this various phenomena, which seem to reinforce each other. They are all linked to each other, because they are the direct or indirect result of the horizontalization of human relationships and the modalities of cooperation they engender. Hence, next to the mainstream economy, consisting of mostly 'vertical' organizations, and, next to the informal and more marginal growth of 'pure' horizontal value creation practices, what is also occurring is the emergence of hybrid models, wherever the horizontal and vertical modalities encounter each other, and mutually influence each other. Hence, there is no question that mainstream business practices will be impacted even more by this horizontalization in the future, and that a diagonal adaptation to these challenges will be on the order of the day.

What follows then, will be a synthetic mapping and overview of the different manifestations of the emerging collaborative economy. While there is a literature describing the various 'individual' manifestations of this 'collaborative economy', what has been lacking is a integrated mapping of these inter-related phenomena, with a view of understanding their overall interconnection. It is to this task that this overview report is dedicated.

The authors of this study, researchers at the P2P Foundation, which is a specialized observatory into the collaborative economy, have collated for over five years the empirical evidence on its emergence. Hence, this report contains an extraordinary richness of concrete examples that are witness to the reality of this shift. On the other, the Foundation is also an advocacy organisation of behalf of these collaborative practices. Hence this report may contain an optimistic bias, with a bit more attention to the drivers of this change, rather than to the obstacles. Nevertheless, in order to arrive at a better understanding of these trends, which may not be obvious to the non-specialized observer, this may be an advantage as well, since it brings to light many under-reported developments.

How to read this report?

There are two ways to read or enter this report.

One way is to read this report for its encyclopedic survey of the various sub-phenomena. For each, you will find definitions, descriptions, and the necessary typologies to understand its deployment. Special boxes outline some extra details, or give concrete examples in practice, and there are also bibliographic references for further reading. All examples and references are sourced, and can generally be find on the Internet. Readers who have a particular interest, may fruitfully read the particular chapter corresponding to it.

On the other hand, the aim of the report is also to offer an overall synthetic understanding, a meta-analysis of how the different emergent phenomena are connected to each other. This is also what we try to do in the very first chapter. However, some readers may prefer to read the specialized and more concrete chapters first, after which our analysis will make more sense. They can thus leave the first chapter for last.

The structure of the study

Chapter One creates a frame of understanding with some general characteristics of the whole field. In order to do this, it attempts to create a general grammar to ease the understanding of the varied phenomena that will be discussed in the rest of the report. It tries to uncover the fundamental drives and explains the basic interconnected concepts. It ends with a first approach to a categorization of the different expressions of the collaborative economy.

Chapter Two looks at user innovation dynamics, and describes how the corporate world has answered their challenge. We examine the emerging figures of the more active 'user' which replaces the traditional figure of the consumer, and sociological categories such as the professional amateur and the lead user. The chapter describes how corporations have adapted by initializing open innovation and by integrating practices for co-design and co-creation of value in their own value chains. We also look at the more independent user-generated media practices, which have been facilitated with the emergence of social media.

In *Chapter Three* we look at two of the new 'diagonal' or 'hybrid' approaches. These hybrids combine entrepreneurship with more horizontal participation, and deepen of the mutualization of both skills and materials. In the case of crowdsourcing, firms appeal to the crowd for both creative/innovative input and for more service-oriented tasks; we try to make sense of this complex ecology. We also look at the emergence of collaborative consumption, in which physical resources and services are mutualized, in order to mobilize hitherto underutilized idle resources. Practices of mutualization characteristic to collaborative consumption also to render existing services more ecologically efficient, as for example in car sharing. We are witnessing here a more profound shift: from ownership to access: this is, access to a wide variety of services. We look at the new possibilities for (dis)intermediation that it generates, but also at the peer to peer marketplaces that it enables.

In *Chapter Four* we look at the more radical community-centric production methods, i.e. the emergence of commons-based peer production, where participating firms have to adapt more stringently to the rules and norms of the initiating communities. After defining peer production, we look at the various ways in which community and corporate dynamics interpenetrate to create a

dynamic field of hybrid economies. We also look at the cultural penetration of these new practices and the current shift of their reach from the more immaterial creation of knowledge and code, to actual physical production through the sharing of designs, as is emerging in the fields of open hardware and distributed manufacturing.

In *Chapter Five*, we look at the infrastructural underpinnings which enable the new forms of distributed production. These range from the very material development of personal fabrication and 3D printing machines culminating in new possibilities for microfactories, but also distributed funding, new accounting and metric systems to measure distributed development, and new hybrid legal forms. These new hybrid legal forms integrate for-profit and non-profit motives, with more potential to generate contributing communities.

Chapter Six is an overview of 'open' (i.e. based on shared intellectual property) and community-based business and monetization models. It answers the crucial question of financial sustainability in the absence of strong IP-based rent income.

Chapter One: When The Vertical Meets The Horizontal

I. The New Horizontality And Diagonality

A new collaborative economy is emerging through the Internet. This process can be narrated as the story of a new verticality, a new horizontality, and a new diagonality.

The first aspect is a new verticality of an ever expanding audience accessing media through a variety of new devices. This is in many ways a continuation of the world of mass media and its attention economy, but it comes with many innovative and disruptive twists.

Indeed, the audience can now talk back. They can react and spread their reactions globally and at increased speed. They can declare their intentions, and an intention economy can develop. Google is the leading exponent of how the commercial world can react to such declared intentions. Facebook has shown how the commercial world can also hope to insert themselves in their multiple interactions, socially engineer them, and profit from new opportunities in between those interactions, harnessing *Metcalfe's Law of the exponential growth of interconnections*[1]. Similarly, "consumers" can pull their intentions together (the pull economy), and benefit from forming groups (group buying).

They can indeed do more than talk to each other, as they do so massively in the emerging world of social networks and social media. In this world, people share their knowledge, affect, and creative expressions, using the new social media platforms. They can coalesce and form groups, as expressed in *Reed's Law of Group-Forming Networks*[2], and the commercial world can engage their creativity and mobilize it for open and distributed innovation, as they 'source' the crowd. As people connect and share, they create content, filter and massage it in new ways. (the world of user-generated content).

But the most radical revolution is that people can organize themselves and create common value together, thereby creating the new social system of commons-oriented peer production, and its new institutions. The new verticality refers to how existing players can adapt, survive and perhaps even thrive by adapting to the new dynamics.

The new horizontality refers to the new dynamics and players emerging through the social interaction, in fact to a wholly new institutional field.

The new diagonality refers to both the new hybrid adaptations that occur when the vertical meets the horizontal, and the new mediating players that may arise after disruptive disintermediation has done its work. This emerging new world of multiple relationalities requires some important distinctions.

1 http://en.wikipedia.org/wiki/Metcalfe%27s_law

2 http://en.wikipedia.org/wiki/Reed%27s_law

II. The Emerging Logic Of Horizontal Intermediation

In our 'Relational Grammar' visualization (see illustration at the end of this chapter), we propose to understand the emergence of the new horizontal *logic of intermediation* as three interconnected potentialities, each of which creates new communication practices, new social demands, and new adaptations by the corporate world.

These emergences are as follows,

- *The logic of interactivity*, where producers and consumers, media and their audiences, now have a possibility of permanent dialogue with each other. The consumer becomes active, a '**prosumer**'. The **intention** of consumers are now directly readable, and the economic logic starts moving from a push economy to a **pull economy**.

- *The logic of 'p2p' connectivity*, whereby consumers/users/audiences can now directly '*talk to each other*', with or without the intermediation of previous dominant players of the mass media era. The prosumer has become an active creator of '**user**' generated media. Through this the mass media logic transforms into **a 'virally-driven' attention economy**, where peer suggestion may become more important than mass marketing.

- *The logic of collaboration*, whereby users can now cooperate and create value, outside of the control of previously dominant players. The user has become a **produser**, engaged in the 'peer production' of value. Communities with their own norms and rules become actors, thereby creating a value-driven '**ethical economy**', in which social impact becomes a more important driver than monetary accumulation.

We explain the effects of these three interconnected changes in a little more detail here below.

A. The Emergence of Interactivity

The first emergence is that of simple interactivity. In the mass media world, communication was directed at aggregate groups that were watching the media at the same time, but relatively isolated in time and space. The new relation is direct, with possibilities for interaction between prosumer and business. The logic here is still mostly about reaching broad audiences, but it also creates a first shift to a pull economy or an intention economy. The Yahoo portal is a first response to the new needs. It was soon overtaken by Google, which directly accesses the intention and the pull of the prosumers as evidenced by their searching behavior.

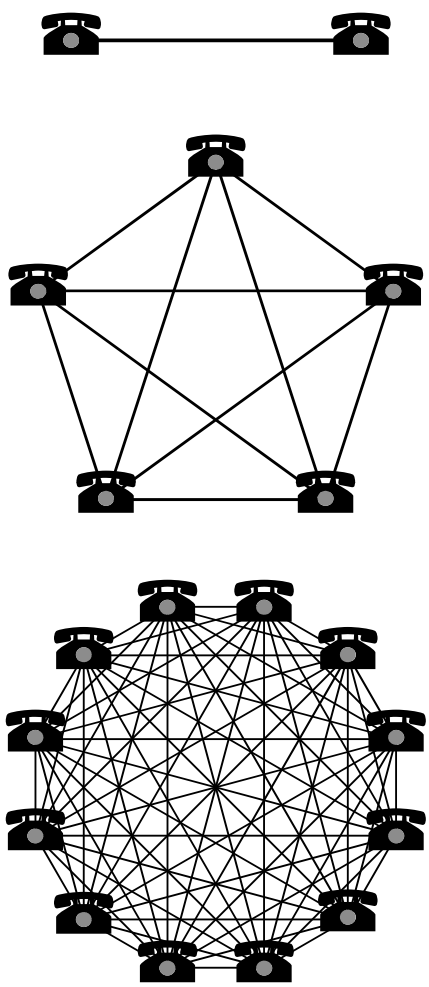

Illustration 1: Metcalfe's network effect representation (http://en.wikipedia.org/wiki/File:Metcalfe-Network-Effect.svg)

Many businesses are still asking the same questions here as to how to make the audience grow, convert users to customers, and monetize wants. They offer mass customization and personalization possibilities so that interactive prosumers can make their choices heard. In the media world, this emergence soon led to the development of the read/write, participatory Web 2.0.

The direct access of supply and demand organically leads to the development of electronic marketplaces and the concepts of user innovation and crowdsourcing. These are seen as opportunities to mine the 'crowd' for innovations. Portal media are still largely driven by *Sarnoff's law*[3], which states that the value of a broadcast network is directly proportional to the number of viewers. Portals and businesses that are focused to this interactivity are still primarily driven by a logic of reaching and communicating with audiences and consumers. However, they are aware that these consumers are empowered.

B. The Emergence of Connectivity

Internet users can not just communicate interactively and 'talk back' to corporations, but they can also connect permissionlessly with each other. This second aspect has become the basis of the emergence of social media and *the platform*. This social form is still determined largely by weak links, i.e. users connect to each other to share their own or other's creative expression, and are not producing anything collectively. This is why sharing communities do not form their own technological and social platforms, but use commercial third party platforms. This is the world of companies like Facebook, YouTube and Flickr, who enable social networking and media sharing, and sell the attention of their platform users (in the form of attention and intention data) to advertising

3 http://en.wikipedia.org/wiki/Sarnoff%27s_law

companies. This is also the world of user-filtered and user-generated content, where individuals want to show their creative expressions to their friends and networks.

But platforms are driven by *Metcalfe's Law* which states that the value of a telecommunication network is proportional to the square of the number of connected users of the system (n2). This means that the game here is not just about increasing the audience, but about increasing the communication transactions between users. Companies, platforms, and advertisers, can then attempt to insert themselves in this flow by understanding and practicing viral marketing techniques. In this new world of connectivity, companies have a vested interested in promoting the number of interactions, since that also augments the opportunities for conversion. But sharing communities, even with their weak links, already create their own cultures, and hence their new cultural demands, to which companies have to adapt. The Creative Commons license is a typical sharing license since it allows creators to determine the level of sharing that they will allow.

C. The Emergence of Collaboration

With interactivity and connectivity, emerges a third and even more disruptive possibility, that of user-driven collaboration.

Users can not just pro-activitely consume and respond, or share and produce with their networks, they can create value together as communities, by coalescing around common objects. This is the world of commons-oriented peer production expressed in the *collaborative production of knowledge* (Wikipedia) and software (free sofware, open source, Linux). Commons-oriented peer production can now increasingly be found in *collaborative making*, as exemplified by Arduino[4], Local Motors[5] or the WikiSpeed car[6]. The concept of the commons is important here, as such communities, which may also consist of enterpreneurs and salaried employees of large corporations, create common pools of knowledge, software or designs, that are held in common through the use of specific licenses such as the *General Public License*[7]. Companies that associate with such communities can create added value on top of those commons, but generally have to respect those commons, and are therefore developing new types of commercial strategies.

The world of collaboration rests on *Reed's Law* which states that the number of possible sub-groups of network participants is 2N, i.e. that it scales even faster than pair connections (*Metcalfe's Law*). This emerging world of collaboration therefore becomes a community-oriented economy. Here institutions are formed around the productive communities (the FLOSS Foundations[8]) consisting of prod*users*[9], and corporations. These institutions insert themselves in the groups, or are created to serve the needs of groups (the Long Tail economy of niche markets). This logic also drives Group

4 http://www.arduino.cc/

5 http://www.local-motors.com/

6 http://www.wikispeed.com/p/wikispeed-fuel-efficient-cars

7 http://www.gnu.org/licenses/gpl.html

8 http://flossfoundations.org/foundation-directory

9 Produser is a concept proposed by Axel Bruns (along with Produsage and Produserism) which stresses the merger of the roles of producer and consumer roles. See Bruns, Axel (2008). *Blogs, Wikipedia, Second Life, and Beyond: From Production to Produsage*.

purchasing and buying, which are very strong in the Chinese market, but are still largely driven by producers and retailers seeking to pool demand. Another example is a possibly more radical shift to authentic Vendor Relationship Management, where associated consumers make their wishes known to an increasingly pull-driven and responsive marketplace.

Collective-oriented processes of open innovation, user-led innovation, co-creation and co-design, through platforms or companies, are manifestations of the recognition of community-driven productive innovation. There is also a strong emergence of collaborative consumption, driven by community sites and the mutualization of physical infrastructures, such as in carsharing. The strong growth of coworking and hackerspaces can be seen as part of this same context.

The emerging social logic, driven by social media, has strong implications. Value creation is no longer limited to clearly bound corporations that use waged labor, but may come for the multitude of networks in which the corporation and its members are inserted. As show by the new internet-era companies like Google and Facebook, where the abundant (use) value is almost exclusively created directly by its users, but the scarcer monetary (exchange) value is still captured by the corporate platforms. This also means that much value can be created outside of the monetary economy, which creates problems for both corporations and its workers, resulting in precarity and a dwindling pool of marketable commodities. This effect can be clearly observed in the cultural industries, where a proliferation of cultural production is coupled with a decline of the mass media companies as well as precarity amongst cultural producers. This 'crisis of value' is not foreordained, but points to a mismatch between current social and economic models, and the new social and economic logics born from the horizontal media logic.

With the more authentic collaborative production emerge new governance and organisational models that grow beyond the dominance of the platform of the connective phase.

The world of the collaborative economy is no longer driven by platforms but by complex ecologies that often combine communities, nonprofit associations, and enterpreneurial coalitions, following agreements on protocols. We are elaborating on this new structure of production and governance in our chapter on peer production. As a non-economic illustrative example from the world of politics, Anonymous can be interpreted as a place-less and platform-lacking ecology, while in business, the Arduino business ecology is developing in a way that is not relying on any single platform.

III. New Conceptualizations Of Business Practice

The inexorable push for business practice to become interactive, connected and collaborative, leads to different ways of conceiving the new social dynamics that have emerged in the collaborative economy. These new conceptions are:

All three of the following are of course inter-related. The intention economy refers to the reversal of initiative, with now active consumers increasingly driving markets; this is what in turn drives the change from a push to a pull economy. As a consequence, pull actors need to be able to capture the attention of productive consumers at the moment that their intention is being expressed, amidst the overflow of information inputs that media users have to cope with.

- The Intention Economy, the ability to declare and discuss intentions
- The Pull Economy, the ability to have demand instead of supply as main driver of economic development
- The Attention Economy, the emergence of an attention logic that co-evolves relatively autonomously from monetary logics

A. The Intention Economy

One of the capabilities of the interconnected audience is that it can declare and discuss its intentions, both with each other, and to the commercial world. While the VRM project considered in the following pages promises an ecology of explicit intentions, social media

The Necessity Of Scale

John Batelle argues that Scale is important for the development of the Intention Economy:

> *"Not every expression of intent is valuable - Those expressions of intent which do correlate to purchase intent or some other monetizable transaction are extremely valuable and can form the foundation of a multi-billion dollar business (monetizable intent is the foundation of AdWords and AdSense). Doing so, however, both requires being able to capture intent and the ability to connect interested parties with people who can fulfill their needs. That is no small task nor is it easy to pull off at scale.*
>
> *You need a lot of intentions across a wide variety of interests to build a service that's useful to a wide variety of advertisers - Being a database of intentions or musings or whatever requires scale. And it's not web 2.0 scale (millions) but Internet scale (tens or hundreds of millions) in terms of users. Twitter has a long way to go to achieve Internet scale usage - Facebook and MySpace are already there and it appears to cost a lot of money to get there."*

Source: Social Computing Magazine (http://www.socialcomputingmagazine.com/viewcolumn.cfm?colid=701)

companies and the search-based Google are already basing their business models on the gathering and interpretation of implicit intentions.

In the current phase of implicit intentions, platforms deduce intentions from the behavior of online participants but it is essentially used to strengthen existing push economy dynamics, i.e. helping firms find clients. In the still hypothetical phase of a full and conscious intention economy as envisioned by Vendor Relationship Management, the individuals and communities have control of their intentions and the infrastructure to realize them, with a flexible set of market players able to respond.

Intention Economy Examples

Events sites

Eventful.com enables users to find and post local events anywhere in the world, but also lets them demand events and performances in their town and spread the word to make them happen. At last count, there were more than 126,000 demanded events on Eventful.

Aggregating Intentions through Teambuying in China

Of particular interest is the tuangou ('team purchase') phenomenon, which involves strangers organizing themselves around a specific product or service. Think electronics, home furnishings, cars and so on. These likeminded then meet up in real-world shops and showrooms on a coordinated date and time, literally mobbing the seller, negotiating a group discount on the spot. Popular Chinese sites that are enabling the crowds to first group online, then plan for actual real world shopmobbing, are TeamBuy, Taobao and Liba, Combined, these sites now boast hundreds of thousands of registered members, making money from ads and/or commissions from suppliers who are actually happy to have the mobs choose their store over a competitor's.

Taggable Coupon sites in India

Offers For Shoppers is an online coupon site, dipping its toes in the CROWD CLOUT pond by letting customers tag any interesting offer, and thereby revealing their intentions. When the number of potential buyers reaches a pre-determined total (a number that vendors consider a bulk buy), customers are notified and offered a take it or leave it bulk price. Clearly one to be copied by the social shopping sites that are now mushrooming in the US.
Note: Trendwatching explains that: "*Online grouping of citizens/consumers for a specific cause, be it political, civic or commercial, aimed at everything from bringing down politicians to forcing suppliers to fork over discounts.*" (http://trendwatching.com/trends/crowdclout.htm)

Doc Searls[10] , a well-known free software advocate who is also considered as one of the fathers of VRM (see below), expresses the emergence of the intention economy:

> *"The Intention Economy grows around buyers, not sellers. It leverages the simple fact that buyers are the first source of money, and that they come ready-made. You don't need advertising to make them.*
>
> *The Intention Economy is about markets, not marketing. You don't need marketing to make Intention Markets.*
>
> *The Intention Economy is built around truly open markets, not a collection of silos. In The Intention Economy, customers don't have to fly from silo to silo, like a bees from flower to flower, collecting deal info (and unavoidable hype) like so much pollen.* ***In The Intention Economy, the buyer notifies***

10 http://en.wikipedia.org/wiki/Doc_Searls

> ***the market of the intent to buy, and sellers compete for the buyer's purchase. Simple as that.***
>
> *The Intention Economy is built around more than transactions. Conversations matter. So do relationships. So do reputation, authority and respect."* [11]

Two examples of how this can be used innovatively by market players:

Eventful.com is a site where people can not only find and post events, but also express their wish for them to happen, sending signals to performance organizers that there is interest in a particular local area. Igglo is a (now dormant) Finnish real estate site where potential buyers can pre-order houses that aren't yet on the market. This allows potential sellers, event those that are not on the market yet, what the potential value for their house is, and it enables potential buyers to be alerted if one of their houses would become available at any time in the future.

Group or team buying is particularly developed in China, allowing consumers to coalesce and declare their intent to purchase particular items 'en masse', allowing larger discounts. As Alan Moore writes:

> *"Tuangou, or team buying, which involves strangers organizing themselves around a specific product or service. Think electronics, home furnishings, cars and so on. These like-minded consumers then meet up in real-world shops and showrooms at a coordinated date and time, literally mobbing the seller and negotiating a group discount on the spot."* [12]

The as yet unrealized dream of intention economy advocates is the organization of a fully operational 'Vendor Relationship Management' system, that would organize the economy around the intentions and needs of the citizens, obviating the need for marketing.

11 http://www.linuxjournal.com/node/1000035

12 http://communities-dominate.blogs.com/brands/2007/05/flipping_a_new_.html

The As Yet Unfulfilled Promise Of Vendor Relationship Management

According to Doc Searls, VRM refers to

> *"…the inside-out nature of relationships between customers and vendors. That is, customers are at the center —at the inside —and relate outward toward any number of vendors. The idea is not to take the old top-down few-to-many pyramid of vendor-controlled markets and turn it upside down, with customers now on top. Instead, we equip customers with the means to function in more ways inside marketplaces, at the center of relationships with any number of vendors."*

VRM provides customers with tools for engaging with vendors in ways that work for both parties.
Dr. Starcat adds:

> *"Any technology or system that puts the customer at the center of the relationship falls under the general umbrella of VRM, but the canonical version sees you owning all of the information that is currently locked in each vendor's silo and sharing it with vendors as you choose. Obviously a strong sense of Identity along with the principles of Data Portability need to be in place for this vision to become a reality."*

But there are a number of requirements that are not yet in place:

> *"There are a number of technical things that are needed: a robust way for customers to manage their own online identities without getting trapped in any vendor's silo, a way for customers to only share the aspects of identity that they want to share with a particular vendor (perhaps anonymously), and a robust way for vendors to interact with those customers. But more importantly than the technical aspects, the cultural shift of actually putting the customer in charge may end up being the largest challenge."*

Indeed, VRM presupposes a number of customer rights that are not naturally part of commercial platforms:

> *"The ambitions behind VRM:*
>
> *-Provide tools for individuals to manage relationships with organizations. These tools are personal. That is, they belong to the individual, in the sense that they are under the individual's control. They can also be social, in the sense that they can connect with others and support group formation and action. But they need to be personal first.*
>
> *-Make individuals the collection centers for their own data, so that transaction histories, health records, membership details, service contracts, and other forms of personal data aren't scattered throughout a forest of silos.*
>
> *-Give individuals the ability to share data selectively, without disclosing more personal information than the individual allows.*
>
> *-Give individuals the ability to control how their data is used by organizations, and for how long, including agreements requiring organizations to delete the individual's data when the relationship ends.*
>
> *-Give individuals the ability to assert their own "terms of service," obviating the need for organization-written terms of service that nobody reads and everybody has to "accept" anyway.*
>
> *-Give individuals means for expressing demand in the open market, outside any organizational silo, without disclosing any unnecessary personal information.*
>
> *-Make individuals platforms for business, by opening the market to many kinds of third party services that serve buyers as well as sellers.*
>
> *-Base relationship-managing tools on open standards, open APIs (application program interfaces) and open code. This will support a rising tide of activity that will lift an infinite variety of business boats, plus other social goods."*

Sources:

- http://drstarcat.com/archives/29
- http://www.socialcustomer.com/2006/12/vrm_vendor_rela.html
- http://www.customerthink.com/blog/four_fallacies_vendor_relationship_management
- http://cyber.law.harvard.edu/projectvrm/Main_Page#VRM_Development_Work

B. The Pull Economy

An economy that enables the widespread capability to express intent moves from a push production and marketing approach to one that is dominated by pull dynamics, as already expressed in John Seely Brown's book on the *Power of Pull*[13].

Irving Wladawsky-Berger, former VP of IBM explains the basic but disappearing logic of the old push economy:

> *"To best appreciate what the pull economy is all about, it is best to contrast it with the push economy that has so permeated our lives over the past hundred years:*
>
> *"Push approaches begin by forecasting needs and then designing the most efficient systems to ensure that the right people and resources are available at the right time and the right place using carefully scripted and standardized processes. . . Push programs have dominated our lives from our very earliest years."*
>
> *"We are literally pushed into educational systems designed to anticipate our needs over twelve or more years of schooling and our key needs for skills over the rest of our lives. As we successfully complete this push program, we graduate into firms and other institutions that are organized around push approaches to resource mobilization. Detailed demand forecasts, operational plans, and operational process manuals carefully script the actions and specify the resources required to meet anticipated demand."*
>
> *"We consume media that have been packaged, programmed, and pushed to us based on our anticipated needs. We encounter push programs in other parts of our lives as well, whether in the form of churches that anticipate what is required for salvation and define detailed programs for reaching this goal, gyms that promise a sculpted body for those who pursue tightly defined fitness regimens, or diet gurus who promise we will lose weight if we follow a certain menu or choose from particular foods.*
>
> *"Push knows better than you do, and it's not afraid to say, 'Do this, not that!'"*[14]

Commons advocate David Bollier (author, activist, blogger and consultant promoting the commons)[15] writes in the Aspen Institute report *When Push comes to Pull*:

13 John, Hagel III. The Power of Pull: How Small Moves, Smartly Made, Can Set Big Things in Motion. ReadHowYouWant.com, 2010.

14 http://blog.irvingwb.com/blog/2010/04/the-power-of-pull.html

15 http://www.bollier.org/about

> *"A "pull economy" —the kind that appears to be materializing in online environments—is based on open, flexible production platforms that use networking technologies to orchestrate a broad range of resources. … The networked environment radically empowers individuals, and communities of like-minded individuals, to pull the products and services that they want, on their own terms and time requirements. … The Internet now enables small groups of people to easily constitute themselves as an online commons. In so doing, they can often get what they want through social sharing and collaboration, without even using the market!"*[16]

As John Seely Brown, the former director of Xerox PARC, put it,

> *"The collaborative peer production achieved through pull platforms can be radically more efficient than classically structured corporations."*[17]

John Hagel and John Seely Brown write that

> *"Push systems contrast starkly with pull ones (exhibit), particularly in their view of demand: the former treat it as foreseeable, the latter as highly uncertain. This difference in a basic premise leads to fundamentally different design principles. For instance, instead of dealing with uncertainty by tightening controls, as push systems would, pull models address immediate needs by expanding opportunities for local participants — employees and customers alike — to use their creativity. To exploit the opportunities that uncertainty presents, pull models help people come together and innovate by drawing on a growing array of specialized and distributed resources. Rather than seeking to constrain the range of resources available to participants, pull models constantly strive to expand it while helping participants to find the most relevant options. Rather than seeking to dictate the actions of participants, pull models give even people on the periphery the tools and resources (including connections to other people) needed to take the initiative and to address opportunities creatively as they arise. Rather than treating producers as passive consumers whose needs can be anticipated and shaped by centralized decision makers, pull models treat people as networked creators even when they actually are customers purchasing goods and services. Pull platforms harness their participants' passion, commitment, and desire to learn, thereby creating communities that can improvise and innovate rapidly."*[18]

16 http://www.aspeninstitute.org/site/c.huLWJeMRKpH/b.612049/k.612F/Communications_and_Society_Program.htm

17 http://onthecommons.org/node/824

18 http://edgeperspectives.typepad.com/edge_perspectives/2006/05/creation_nets.html

C. The "Viral" Attention Economy

> *"...in an information-rich world, the wealth of information means a dearth of something else: a scarcity of whatever it is that information consumes. What information consumes is rather obvious: it consumes the attention of its recipients. Hence a wealth of information creates a poverty of attention and a need to allocate that attention efficiently among the overabundance of information sources that might consume it. "*[19]
>
> *"In the old world products were scarce - this meant that companies who provided product could profit from the demand. In the digital world, where abundance is key (creating a digital copy costs next to nothing) it is a customer's attention that has become scarce. This means that the customer now holds the value - not the company."*[20]

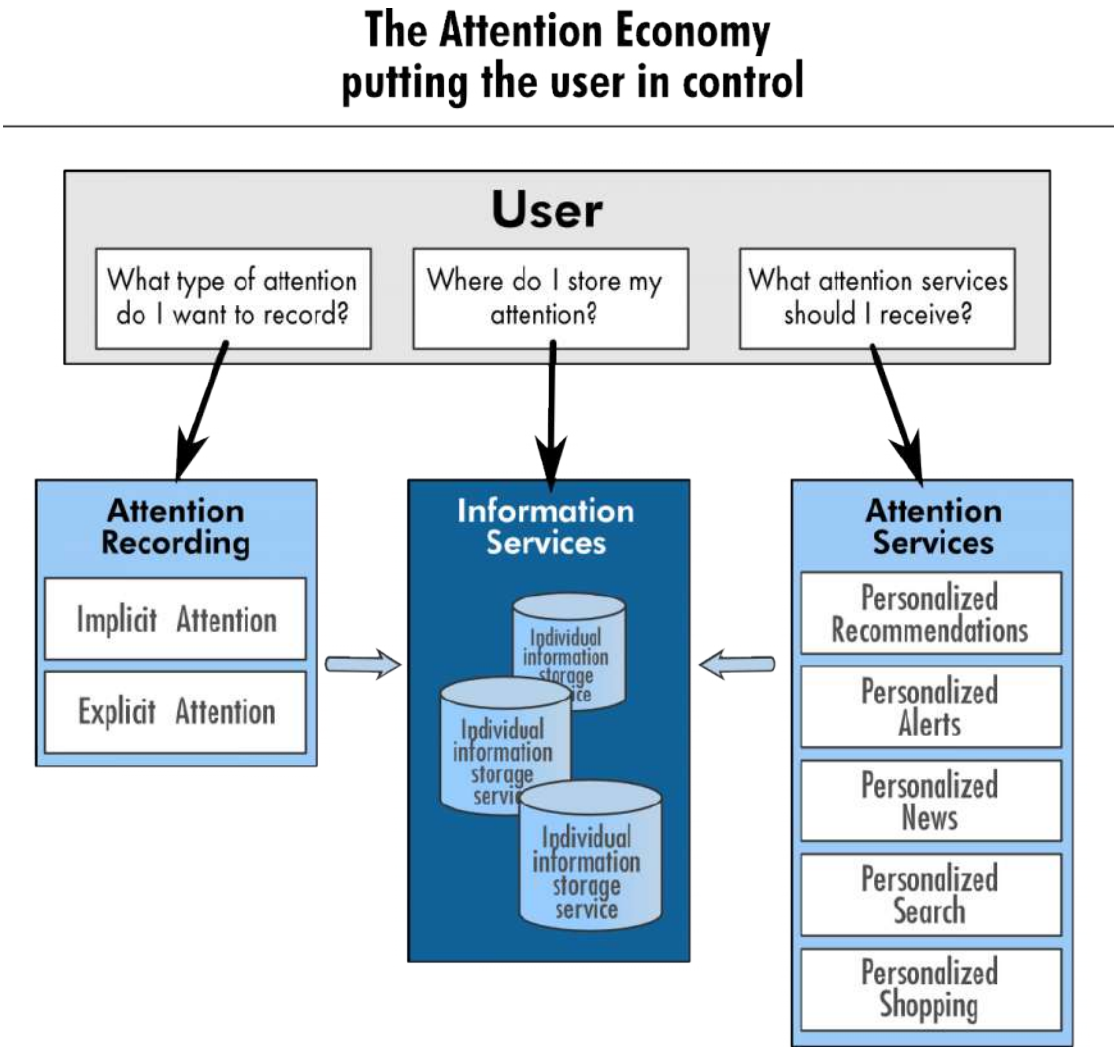

Illustration 2: Source: ReadWriteWeb (http://p2pfoundation.net/File:Attention_economy.png)

19 Herbert Simon, quoted in: Designing Organizations for an Information-Rich World", in Martin Greenberger, Computers, Communication, and the Public Interest, Baltimore, MD: The Johns Hopkins Press

20 Chris Saad 5) http://www.particls.com/blog/2006/06/attention-scarcity-and-demand.html

What is the point of putting forth information if it doesn't garner attention?

This is one of the great contradictions of the so-called 'information economy'. If economics is about the allocation of scarce resources, then it is clear that we do not have an information economy since that is the primary good that is now overabundant. What is scarce in a context in which every user becomes a prod*user*, is 'attention'. Many different commentators have pointed out the emergence of an attention economy. Michael Goldhaber[21] explains that

> *"In the attention economy the major kind of transaction is the passing of attention from one person to another. Because attention is intrinsically scarce, and also highly desirable, the competition for attention tends to create a spiral of ever greater strength, that is more and more intense competition, in as many different forms as anyone can dream up."*[22]

and he argues further that,

> *"There are basically two classes: those who receive considerably more attention than they give — or stars, in a very generalized sense; and those who pay out more attention than they get — or fans. Attention is remembered, so the new kind of wealth is not to be found in banks or material goods or stock ownership, but rather in the minds of one's fans. […] people do not generally want to spread their individual attention equally; they much prefer to give it to those who have already gotten their own or others' prior attention. That leads to attention inequality, which in turn leads to heightened competition for attention. Being a star, hard though it is, comes to seem ever-more desirable. The only way to change this would be for people, individually, and on principle, to decide to give their attention equally to everyone they notice at all, no matter how relatively interesting, entertaining, glamorous or boring each person happens to be. That isn't going to be easy."*

Michael Goldhaber also takes pains to stress that the attention economy is not a monetary economy, that the social and economic logics of allocating attention have no direct relation with monetization, but have their own logic. Alex Iskold[23] also stresses this point:

> *"The notion that in an Attention Economy, a user's information is up for grabs and can be bought and sold is misinformed. Instead, the user chooses what services he/she wants to receive, in exchange for their attention information."*[24]

21 http://goldhaber.org/

22 http://p2pfoundation.net/Attention#Interview_with_Michael_Goldhaber_on_the_Attention_Economy

23 http://alexiskold.wordpress.com/

24 http://www.readwriteweb.com/archives/attention_economy_overview.php

Precarity In An Attention Economy

1. "the fact that authors calculate in the currency of attention can explain their willingness to toil for the best expression of an idea in return for starvation wages. … The production conditions of our literary culture are such that the publisher gets the money and the author gets the attention. If, in addition, the publisher acquires fame and the author wealth, this - in economic terms - is surplus profit: it would not be necessary to keep the system going."
2. "If the attention due to me is not only credited to me personally but is also registered by others, and if the attention I pay to others is valued in proportion to the amount of attention earned by me, then an accounting system is set in motion which quotes something like the social share prices of individual attention. What is important, then, is not only how much attention one receives from how many people, but also from whom one receives it - or, put more simply, with whom one is seen. The reflection of somebody's attentive wealth thus becomes a source of income for oneself. Simple proximity to prominence will make a little prominent. It is in this secondary market that social ambition thrives. It is this stock exchange of attentive capital that gives precise meaning to the expression "vanity fair" . However, the simple quest for recognition should not be called social ambition. Vanity is more than a healthy appetite for being noticed. Ambition is the hustle for a better position."
3. "The immaterial component of the economic process has already reached the apex of its phase of full industrialisation. The economy of attention not only looks back on an ancient pre-history, it also has a long industrial history. It was pre-industrial as long as publication technologies were either of the handicraft type or, respectively, had not yet permeated the entire economy. Attention economy reached its early industrial phase when the first, relatively simple information and communication technologies developed. The technology of printing, radio broadcasting and sound film for the first time assembled critical amounts of anonymously donated attention, turning the star cult into a mass phenomenon. It was then that the business of attraction became professionalised, that deliberate eye-catching became industrial in advertising. We may speak of a phase of full industrialisation since the advent of television. During this last phase, most of the freely disposable, i.e. consuming attention passes through the various media; popularisation, i.e. mass production of prominence, arises. "
4. 'As powerful as the material economy's growth may have been in absolute terms, equally strong - and at the same pace - has been the drop in the relative share of manual labour in the production of value added. It is one of the most significant economic changes of this century that the service of rendering attention has overtaken all other production factors in economic importance."
5. "The tendency of de-materialisation has for quite some time taken hold of the economic process as a whole. It also reaches back into history. Its origins go back to the period when the service sector began to expand to the detriment of the producing and extracting industries. Tertiary services - like agency, administration, sale, consulting - are goods in the shape of attention paid. They used to be classified as non-productive by the economists of former times because they did not produce anything material, nothing which filled one's stomach. It was the drastic lightening of the burden of physical labour by machines and the increasing need for organisation in the production and distribution of goods which demonstrated that the service of rendering attention was not only a productive contribution, but was in fact pivotal to the enforcement of economic rationality. "
6. "The mechanical unburdening and substitution of labour in this sphere became more urgent with the general rise in wages, and especially with the rising share of highly qualified mental labour. Mental labour is particularly expensive because of the education dividend. What was needed, therefore, was the introduction of some technology that would unburden mental labour by substituting its more mechanical components. This was achieved by information technology."

Source: George Franck in Telepolis (http://www.heise.de/tp/artikel/5/5567/1.html)

Key Attention Rights

The healthy development of an attention economy requires that individuals take control of their own Attention Data, argues Chris Saad, who warns for a Google monopoly:

> *"Economy implies that something (property) has value (in this case your Attention Data and Attention Profile). It also implies that you can transfer your property (and its value). You can sell it and leveraged and do all sorts of fancy things. It also requires multiple participants in an ecosystem."*

Therefore, we need a set of principles that define the rules of the attention economy, expressed as basic consumer rights by the Attention Trust project:

Property:
You own your attention and can store it wherever you wish. You have CONTROL.

Mobility:
You can securely move your attention wherever you want, whenever you want to. You have the ability to TRANSFER your attention.

Economy:
You can pay attention to whomever you wish and receive value in return. Your attention has WORTH.

Transparency:
You can see exactly how your attention is being used.

Source: http://www.readwriteweb.com/archives/attention_economy_overview.php

Bibliography Of The Economy Of Attention

> *"To my knowledge, the first person to highlight this phenomenon was the Nobel prize winning Herbert Simon in an article published in 1971.*
>
> *Unfortunately, Simon never really developed this insight further. Michael Goldhaber picked up this theme and developed it significantly and provocatively in a seminal on-line article* The Attention Economy and the Net *published in First Monday in 1997. At the time, he indicated that he intended to write a book on the subject but, alas, the book has yet to appear. Independently, Georg Franck, an Austrian professor of city planning, published an article in 1999 on* The Economy of Attention *that picked up on a number of the same themes.*
>
> *In the meantime, two books have been published on related subjects. My friend and former colleague Tom Davenport wrote a book with John C. Beck in 2001 called* The Attention Economy: Understanding the New Currency of Business.
>
> *While providing very interesting perspectives, the book focused much more on management techniques rather than taking on the task of mapping out a more systematic view of attention economics.*
>
> *So, I was quite excited when I came across a book called The Economics of Attention: Style and Substance in the Age of Information by Richard Lanham, a professor emeritus of English at UCLA. I hoped that we might finally see a systematic exploration of attention economics, made all the more refreshing because it came from someone outside the profession.*
>
> *The book is a fascinating exploration of the dynamic that exists between stuff and fluff —physical goods and information about physical goods. Lanham's basic thesis is that, in an attention economy, stuff recedes in importance and fluff increases in importance. In Lanham's perspective, rhetoricians and artists like Andy Warhol and Christo are the new economists of attention."*

Source: John Hagel (http://edgeperspectives.typepad.com/edge_perspectives/2006/12/the_economics_o.html)

IV. Some Important Clarifications

Working with a community comes at a price, because collaboration entails its own logic and new social demands whose strength depends on the relative strength of the parties at play. In practice, we see the development of open innovation that is firmly organized and controlled by corporate players. These players adopt the form of emerging mediating platforms that bring together user communities and businesses, but also community-centric peer production.

To understand the 'price of community' involvement we could ask a few simple questions. Would you collaborate for a for-profit company or any entity that would privatize your contributions without any reciprocity or reward? Would you contribute if in addition to receive no payment you would not be allowed any participation in the governance of the project you are volunteering for? If one participant is paid but not another, is this done using fair criteria, if at all acceptable? Answers to such question can inhibit or promote collaboration.

This means we have to make a number of important distinctions as issues of governance, rewards and benefits and ownership will have important effects. Governance and ownership can be dominated by corporations, third party platforms, or community-driven ecologies of cooperation with their own hybrid infrastructures.

Finding the right categorization for the emerging collaborative economy is therefore not necessarily a straightforward and easy task. It combines many hybrid forms and factors, as well as a combination of communities, companies, third party platforms and often, non-profit associations such as the FLOSS Foundations.

Each encounter is also always an encounter that brings together two different logics: the market logic of the corporation, and the social logic of the community and participating individuals. In some models the crowd can be expected to adopt market practices (many forms of crowdsourcing, digital marketplaces). However, just as often the market strategy necessitates respect for the independent social logic. Mistaken commercial practices can crowd out social practices and thereby kill the golden goose of participatory innovation and value creation. It is important to know which logic is at work in which part of the hybrid models that are emerging, and the following distinctions can make this clearer:

A. The Differences Between Constructing a Common Object, or Just Sharing

Commons-oriented peer production, as originally defined by Yochai Benkler, author of *The Wealth of Networks*[25], requires not just collaboration that must allow free contributions to a common knowledge, code or design base, but crucially, the ability to work on a common integrated object, be it a universal encyclopedia, like the Wikipedia project, or a universal computing platform, like Linux.

However, other famous platforms of the collaborative economy, such as YouTube for sharing videos, Flickr for sharing photographs, but also Facebook and Twitter for communicating, i.e. 'sharing information', are not about working on such a common object. Rather they are a vehicle for individuals, groups and companies to share what they have found or produced.

This difference is also expressed in the nature of the 'licenses' used.

The social dynamics of a commons-related project are substantially different from the sharing platforms. The former often have strong and even dominant community dynamics with rules and norms that participating companies have to abide by, and manage their common infrastructure through non-profit associations. In the case of the sharing platforms where users are more isolated and individually motivated, the platforms are corporate and there are no nonprofits involved.

B. The Difference Between Creating, Augmenting and Generating/Filtering

In some forms of collaborative production, there is the creation of new material, for example citizen journalism where citizen reporters can produce their own reports or video extracts; but many platforms, like user-filtered news such as Digg and Slashdot, are merely involved in filtering already existing material[26]. Finally, in many forms of collaborative production, users can 'improve' already produced material, in a context that is already furnished by the original creators. For example, citizen journalism can be integrated in classic news sites, as an add-on to professionally produced news.

User communities can be invited to 'improve' existing products or designs. This model is described as prosumption (Tapscott and Williams, 2008), where people who use products have input into their design and production. Despite the rich history of customer innovation, most companies consider the innovation and amateur creativity that takes place in communities of users and hobbyists a fringe phenomenon of little concern or value to their core markets. Firms often resist or ignore customer innovations.

25 Benkler, Yochai. The Wealth of Networks: How Social Production Transforms Markets and Freedom. Yale University Press, 2006.

26 i.e. alerting their platforms or communities about already existing news reports.

C. The Difference Between Creating a Commons or a Commodity

In commons-based peer production free/open licenses guarantee the shared use, modification and use of a commons of knowledge, code and design. These commons are not themselves commodities that can easily be sold on the market place, but they can enable markets in derivative products and services.

For example, free software developers can sell their work-time producing the code, companies such as IBM can become integration consultants for free software based technological infrastructures based on Linux. In the sharing platforms, the possibility exists to use sharing licenses such as the Creative Commons licenses, which also allows non-commercial sharing.

However, it is also possible to produce material for potential sales, based on collaborative work, or on a common platform, i.e. as commodities. Some licenses allow non-commercial sharing but require payment for commercial use or request to contact the original creators to extend its possibilities.

Distinctions Between Players

In **commons-based peer production** one can usually distinguish between:

1. A community of contributors,
2. non-profit (or 'for-benefit') associations that manage the collaborative infrastructure or the continuation of the project; and
3. entrepreneurial coalitions that operate in the market place.

In the **sharing platforms**, we can distinguish between

1. The community of 'sharers',
2. the corporate owners of the platforms who commercialize the attention of the sharers,
3. and the commercial players which pay for advertising.

In **crowdsourcing**, we can distinguish between

1. The free agents who provide the supply,
2. the intermediary platforms, and
3. the buyers. Each form has different combinations, and within each form, each players has different functions, roles, and interests.

D. Differences in Governance and Control

Open innovation processes, in which a company asks for user-input, can be tightly controlled by the operating company or platform, who sets the rules and conditions; however, in commons-based peer production such as Linux, even large companies such as IBM, are forced to adopt to the rules, norms and procedures already set by the community.

E. Differences in Ownership

Collaborative infrastructure platforms can have diverse ownership models. The common stock can be owned by a commercial entity, a nonprofit entity, or can remain the individual property of the participating peers. However, free/open licenses are also very important in setting the conditions of cooperation or sharing. Commons-oriented licenses such as *GPL* (General Public License) create a commons of code that can be used universally, given a set of accepted conditions. Sharing licenses such as the Creative Commons give individuals control over the level of sharing. Corporate sharing platforms often take full ownership over whatever is produced or shared over their platforms. This will have effects on the levels of power and governance as well.

It is with these distinctions in mind that a sensible categorization of the collaborative economy can be created.

V. The Emerging Logic Of Open Business Models

Communication, transaction and coordination costs have always been a strong determinant for economic practice. For example, Ronald Coase explained how the firm emerges under certain conditions when the coordination and transaction costs of the market itself become too heavy[27]. The emergence of a medium where the reproduction costs of digital information becomes marginal can therefore be expected to have an important effect on business strategy and business formats.

The quadrant developed by Steve Bosserman gives particular insight into the competitive dynamics that result from the drastic reduction in the cost of information reproduction and distribution, and why the maintenance of classic proprietary approaches is problematic in the long run.

Bosserman's quadrant is divided in four sections according to two axes.

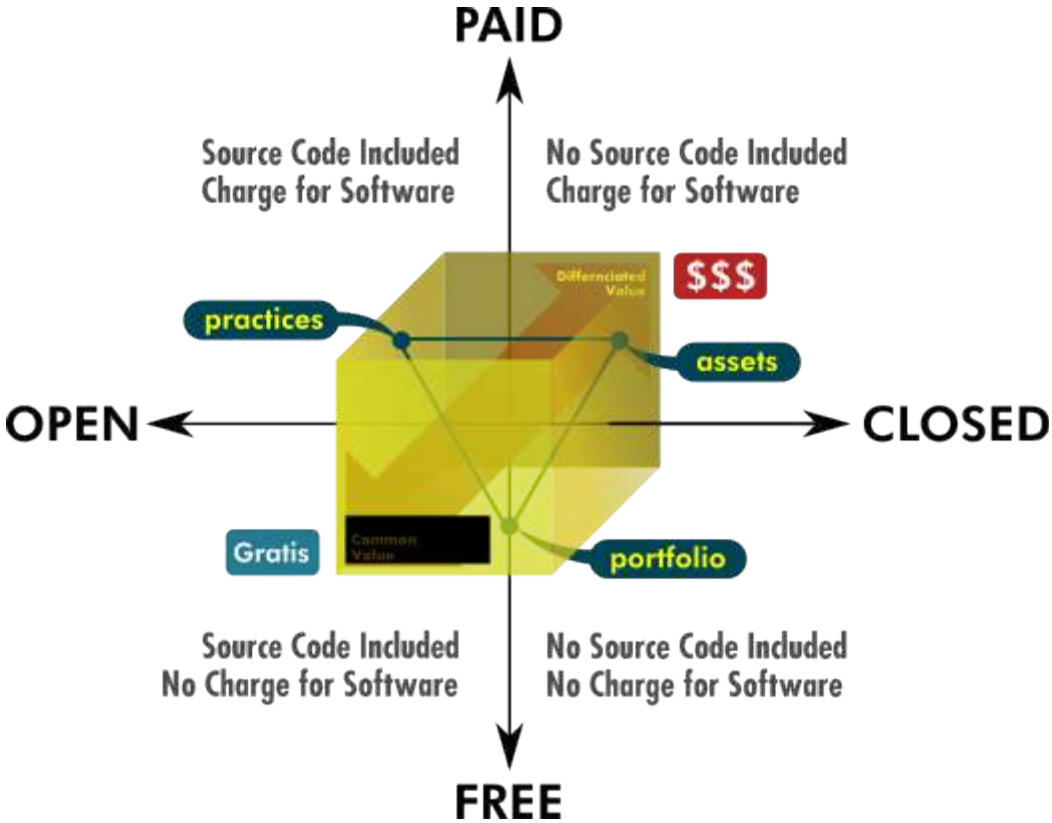

Illustration 3: Steve Bosserman's quadrant (http://p2pfoundation.net/images/Open-free-quadrant.svg)

27 Yochai Benkler discusses Coase's ideas in the context of peer production in his article 'Coase's Penguin, or, Linux and The Nature of the Firm' . http://www.yale.edu/yalelj/112/BenklerWEB.pdf

The first axis highlights the polarity between strategies using on the one hand defensive intellectual property, i.e. “closed proprietary IP” ; and on the other hand strategies based on the open sharing of innovation, i.e. 'open' IP using non-proprietary licenses such as copyleft or the Creative Commons.

The second focuses on strategies that require either payment for the intellectual product (which can be extended to physical products in some cases), or by contrast, strategies based on giving away the immaterial value (or even the physical product) for 'free'.

This gives four quadrants highlighting four main business strategies:

1) top right: closed IP, with products/services sold for payment
2) bottom right: Closed IP, but with freemium strategy, i.e. the product/service is given away for free
3) top left: open IP, i.e. the knowledge/code/design is shared; but the work is done for payment
4) bottom left: open IP, with services given away for free

Let's look first at the quadrants at the right.

1. Top right quadrant: Closed and Paid

The first quadrant, on the top right, combines closed IP, resulting in products that are sold for payment, and whose price typically includes a premium for the protected IP. This is the traditional proprietary strategy and in theory guarantees a premium based on the intellectual property rents. In our new digital context, even if the production costs of a 'first product' may be costly, requiring substantial investment, the cost of its reproduction will be marginal. This means piracy becomes attractive, either through not-for-profit communities of sharers, or through illegal commercial operators who can sell the products are substantial discounts. A way to avoid this, is for companies to pre-empt this through a freemium strategy, which brings us to the second quadrant.

2. Bottom right quadrant: Closed and Free

The freemium strategy, exemplified in the bottom right quadrant, consists of giving the primary intellectual value away for free, and to built a commercial strategies on secondary or derivative value streams. The commercial rationale for such strategies has been discussed by Chris Anderson in his book, *Free*[28]. The important point is that a freemium strategy, even with closed intellectual property, will undercut the pricing strategies of firms that are not giving their primary immaterial assets away for free. For example, this dynamic played out in the market for real-time stock information, which in the nineties saw the emergence of companies giving away stock information with a certain delay, but still requesting fees for real-time access. Very soon after, companies started giving away real-time stock information, but requesting money for added value services. In this context, the high premiums for real-time stock information ebbed away. With internet software, it is now quite customary to give basic versions of a software out for free, but to have premium services available for payment.

28 Anderson, Chris. Free. Random House Publishers India Pvt. Ltd., 2010.

3. Top Left: Open and Paid

On the top left we see see strategies that combine paid strategies, but with open content. This is the strategy of the free and open source software sector, where the code itself is available for download, (though 'premium' paid packages are also often available), but labor and development, and all kinds of derivative value services, are only obtainable through payment. However, because the code itself is free, open source businesses can generally operate with lower pricing structures than their pure play proprietary counterparts. Open source companies following this strategy, forego the intellectual rent that they could get from proprietary IP, but gain competitive advantage through their lower pricing.

4. Bottom Left: Open and Free

Finally, we have the bottom left quadrant, which combines open IP and free services. A paradigmatic example would be the Couchsurfing economy, based on the free sharing of lodging. Obviously, such strategies would definitely impact closed proprietary 'for pay' strategies, but, such demonetized core can still generate economic value. For example, in the case of couchsurfing, it may enable travel by those who would not be able to afford for-pay hospitality services, but because of their travel, would still spend money on transport, food and cultural services in the region that they visit.

In conclusion:

The general point however, is that faced with 3 possible counter-strategies that take into account the free reproduction of immaterial value, pure play strategies based on closed IP, and sold for-pay, face unfavourable competitive dynamics. This makes their continued dominance very problematic, and perhaps, not appropriate for the digital age. The only way to maintain the state-enforced IP monopolies intact are through the criminalisation of the sharing practices of the user communities, or through technological disablement of the networks (DRM, Trusted Computing and other software or hardware models). Both methods create serious problems of legitimacy and hold back on the very innovation that is the mainstay of market processes.

According to Charles Leadbeater in *We Think*[29], social forms of production, i.e. open and collaborative forms of organisation such as the peer production communities, tend to emerge because they tend to outperform traditional corporations in their three critical functions:

A. How to Motivate

Corporations can usually count on extrinsic positive motivation, i.w. work in exchange for money. But other motivations are a rarely achieved uncertain premium, while peer production communities can rely on intrinsic positive self-motivation. According to Yochai Benkler, in peer production, any motivation becomes productive.

29 Leadbeater, Charles. We-Think: Mass Innovation, Not Mass Production. Profile Books, 2010.

B. How to Coordinate

Corporations require heavy, often also costly top-down managerial structures. Peer production communities self-distribute tasks, make the overall work compatible through modular/granular task infrastructure, and use peer review and communal validation to guarantee excellence.

C. How to Innovate

Corporations privatize and thus exclude innovations from common knowledge. The decision-makers are managers, not the innovators themselves. In peer production, innovation can come from any member of the community and is instantly available for further improvement.

These changes and effects are not theoretical and have been confirmed in the analyses of the software industry under the influence of open source models. The study below (Juho Lindman et al.[30]), shows the real effects of open source adoption on managerial realities.

Liz Laffan et al. Have created an *Open Governance Index* which allows the evaluation of the level of openness of an open source project, according to 13 criteria, The conclusion of the study states very clearly that:

> *"A successful open source project demonstrates long-term involvement of users and developers, along with a substantial number of derivatives, and the project continually develops, matures, and evolves over time. Our research suggests that* ***platforms that are most open will be most successful in the long-term****."*[31]

30 How Open Source Has Changed the Software Industry: Perspectives from Open Source Entrepreneurs. Juho Lindman, Risto Rajala. TIM, January 2012. http://p2pfoundation.net/How_Open_Source_Has_Changed_the_Software_Industry#Manager_actions_in_relation_with_FLOSS

31 A New Way of Measuring Openness: The Open Governance Index. Liz Laffan. TIM Review, January 2012. http://p2pfoundation.net/How_Open_Source_Has_Changed_the_Software_Industry#Manager_actions_in_relation_with_FLOSS http://timreview.ca/article/510

Table: Manager actions in relation with FLOSS. Summary of findings including implications for managers of firms engaged in F/LOSS development[32]

Essential themes	Key considerations	Managerial actions
Actions: User involvement	F/LOSS activity emphasizes user involvement in software development and delivery.	Orient the firm toward richer social interactions with the users.
Means: Utilizing external resources	F/LOSS activity emphasizes access to external capabilities, rather than internal resource ownership.	Maintain access to relevant capabilities rather than assimilate new resources.
Goals: Managing the open innovation processes	F/LOSS-based software development urges software innovators to open up their innovation processes.	Consider the purpose of external contribution in the innovation process.
Outcomes: Revenue models	F/LOSS-based public goods change the revenue models of firms taking part in open source development.	Grasp the logic of generating revenues from increasingly service-oriented offerings.

32 A New Way of Measuring Openness: The Open Governance Index. Liz Laffan. TIM Review, January 2012. http://p2pfoundation.net/How_Open_Source_Has_Changed_the_Software_Industry#Manager_actions_in_relation_with_FLOSS http://timreview.ca/article/510

VI. New Distributed Infrastructures For Material Production

The new relational grammar that we have described above, which refers to communication between people and 'immaterial' cooperation, is not limited in its effects to immaterial production of knowledge and software. Parallel with the infrastructure for 'immaterial' cooperation, based on the miniaturization of computers and networks, we see the development of a distributed infrastructure for material production, based on the 'miniaturization' of machinery and other trends characteristic of a 'distribution' of the productive capacities.

Witness the two following examples.

The *Glif*[33] iphone tripod and the *Wikispeed*[34] '100 Mile per Gallon car' are illustrative of an entire productive ecosystem that is now available through distributed media infrastructures.

The Glif team managed to deliver a cutting edge product with virtually zero contact with conventional structures of production. They funded the product development using the *Kickstarter*[35] crowdfunding platform, co-designed it using the online Shapeways[36] 3D design depository, sold it through the Shopify[37] environment, manufactured it on-demand through Premier Source[38], charged for it using the Braintree[39] and Paypal payment systems, and shipped it via Shipwire[40]. Only viral media was used to communicate with their customers and co-funders.

The *WikiSpeed SGT01*, a 4-passenger street-legal car confirming to the highest safety standards, used a team of volunteer mechanics (without any capital), using 1 week design sprints inspired by software methodologies such as Agile, Lean, Extreme Programming and Scrum[41]; used exclusively modular

33 http://www.studioneat.com/products/glif-for-iphone-4

34 http://www.wikispeed.com/

35 http://www.kickstarter.com/

36 http://www.shapeways.com/

37 Http://www.shopify.com

38 http://www.premiersource.us/

39 http://www.braintreepayments.com/

40 http://www.shipwire.com/

41 http://www.wikispeed.com/p/agile,-lean,-and-scrum

designs so that each part of the car can be changed and developed separately and using off-the-shelf parts exclusively. The car is sold for less than $29,000 and its carbon-fiber body costs 1/380th of a normal car body. Whereas the *Local Motors*[42], based on intensive crowdsourced design by a very active community, developed its cars five times faster at 100th of the cost of Detroit, *WikiSpeed* uses the principle of scaling up from one, and its cars can be assembled by any mechanic.

These two examples show the reality of an emerging physical infrastructure for distributed design, using CAD software and online design depositories, distributed funding (crowdfunding, social lending, etc..), distributed manufacturing (3D printing and desktop CNC, multi-purpose machines), distributed labour (skillsharing, online job marketplaces, microtasking platforms), and new metrics and accounting systems that are appropriate for distributed collaboration.

A. What do Distributed Manufacturing Systems Enable that was Previously Difficult to Achieve?

Well-capitalized multinational corporations such as, say, the car industry, or brand-centric coordination systems such as Nike or Apple, have already had access to centrally controlled distributed infrastructures, but this has been rarely the case for small business networks. In addition, the present global system is premised on privatized Intellectual Property, but also on relative cheap fossil fuels that make the transportation of goods, through the container revolution and other advances, an economically feasible strategy.

The new system that is emerging is different. It combines global intellectual cooperation through shared innovation commons, which uses IP in a different manner (including corporate open patent pools). Hence, it can create network ecologies or entrepreneurial coalitions of smaller players that are connected around technical innovation commons. The new emerging 'desktop' manufacturing enables the creation of networks of workshops that can produce locally, creating substantial savings in transportation costs. Finally, they enable global physical coordination between players that are connected through new types of unifying infrastructures.

Already, we find such global-local mutual coordination processes in the production of knowledge (Wikipedia), and software (Linux); the emergence of shared design communities such as Arduino and WikiSpeed show the extension of such methodologies and ecosystems to the sphere of physical manufacturing.

Ezio Manzini, active in the sustainable design community, describes the emergence of a SLOC scenario, Small, Local, Open, Connected:

> *"Today the small can be influential at the large scale as a node in a global network. And the local can break its isolation by being open to the global flow of people, ideas and information. In other words, today we can say that the small is no longer small and a local is no longer local, at least in traditional terms. This change in the nature of the small has enormous*

42 http://www.local-motors.com/

> *implications, for better and for worse. Perhaps the most potentially beneficial implication is that the global network makes it possible to operate on a local and small scale in very effective ways, because, as we will see, the networked and flexible systems that emerge provide the only possibility for operating safely in the complex, fast changing, highly risky contemporary environment."*

He continues:

> *"In the last few decades, there have been long and important debates about how the globalised flow of goods is bringing about the end of places and localities, and it is indeed important to recognise how the flow of goods creates a crisis for traditional places and promotes the spread of homogenised "non-places". But these observations do not capture the entire complexity of the new reality where a growing number of people are actively searching for local traditions and for new forms of locality rooted in the modern context of global interconnectivity. Given the new meanings that the terms "small" and "local" are assuming in the network society, it is useful and important to consider their implications on the architecture of the emerging socio-technical systems: The distributed system architecture."*[43]

In the report by Cornell University, *Factory@Home*, the authors stress the capacity of the new productive infrastructure, to gradually 'scale up from one', i.e. to create demand-driven infrastructures that grow organically around the demand. Both Glif and WikiSpeed are examples of this emerging model.

43 http://www.lcsi.smu.edu.sg/downloads/SocialSpace2011-The%20New%20Way%20of%20the%20Future%20Small,%20local,%20open%20and%20connected%20-%20Ezio%20Manzini%20.pdf

VII. Understanding The Ladder Of Participation

The cooperation of users and companies creates a possible typology of participation based on the relative dominance of one of the two polarities. We can see a trend starting from the classic production model (i.e. a company using waged labor and selling products, with passive consumers) to the new creation, innovation and production models that are driven by peer production communities. Nevertheless, there are quite a few possibilities of hybrid adaptation in between. Therefore, we propose to construct a polarity between corporate-centric and community-centric modalities, as seen below:

A. Corporate-Centric Modalities

The first five are the more classic models whereby companies engage with productive communities:

1. **The classic consumption model**: the company produces, the users consume.

2. **The Self-service**: the companies produce the goods, but consumers acquire it actively without the mediation of company personnel at the point of sale. This is where consumers already start becoming prosumers, but the parameters of the cooperation are totally set by the producing corporation. It's really not much more than a strategy of externalization of costs. Think of ATM's and gas stations. We could call it **simple externalization**.

3. **Do-it-yourself**: the company designs the product, but the users actively assemble it themselves. This is the model that was pioneered by the likes of Ikea, where the consumers. This already requires a complex externalization of business processes.

4. **Company-based Crowdsourcing**: The company organizes a value chain which lets the wider public collaborate in the value creation, but under the control of the company.

5. **Co-design**: the company sets the parameters, but the user communities have a role in actively co-designing the product

B. Community-Centric Models

In the next set, the control moves towards the communities:

1. **Co-creation**: In this stage, the corporation does not necessarily set the parameters, the prosumer is an equal partner in the development of new products. An example is the model used by adventure sports communities and studied by Eric von Hippel in his book *Democratizing Innovation*[44]. However, the corporation controls the value chain.
2. **Sharing communities**: The community creates the value, using Web 2.0 proprietary platforms, without much intervention of the owners of the platform. However, owners control the parameters of the platform and control its design, and monetize the 'attention capital' which has been created by the users.
3. **Peer production proper**: Communities create the value, using a Commons, with assistance from corporations who attempt to create derivative streams of value. Linux is the paradigmatic example.
4. **Peer production with cooperative production**: Peer producers create their own vehicles for monetization. The OS Alliance in Austria[45], and GCoop in Argentina[46], are examples of this type of process.
5. **Peer production communities or sharing communities**: They place themselves explicitly outside of the monetary economy. Many smaller FLOSS communities adhere to this model.

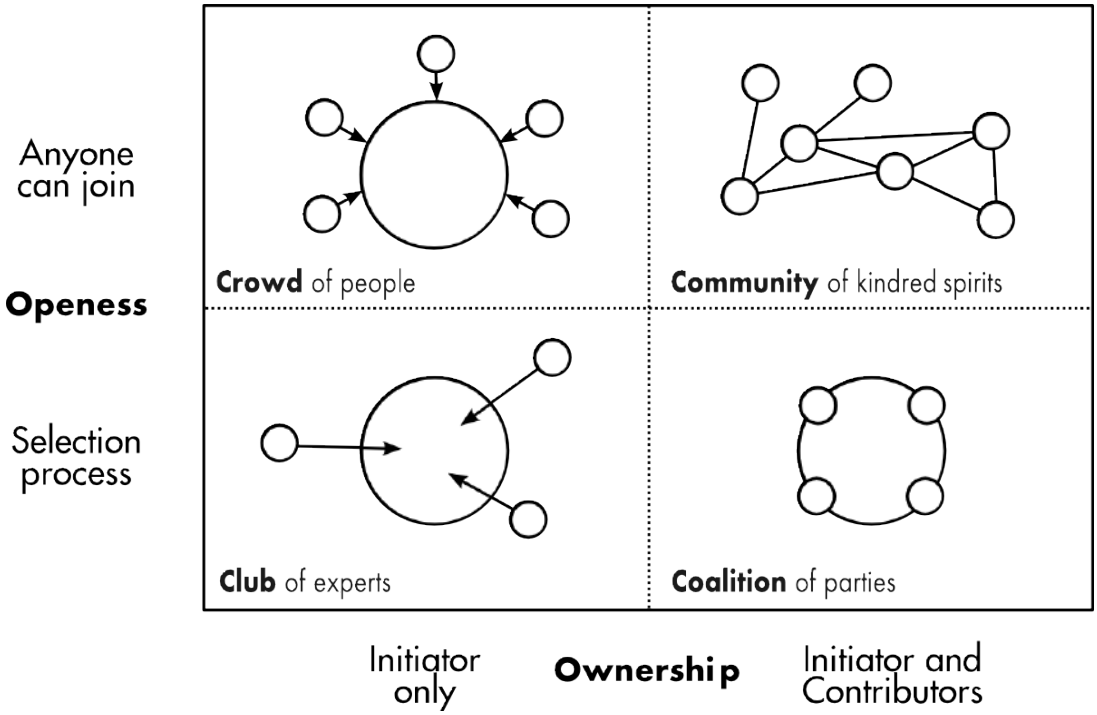

Illustration 4: Four types of co-creation (http://p2pfoundation.net/File:4_types_of_co-creation.png)

44 von Hippel, Eric. Democratizing Innovation. The MIT Press, 2005. http://www.amazon.ca/exec/obidos/redirect?tag=citeulike09-20&path=ASIN/0262002744.

45 http://osalliance.com/about

46 http://gcoop.com.ar/

A *Fronteer Strategy* report[47] distinguishes four types of co-creation in terms of different community dynamics, following two axes. The axis of participation determines who can participate: either everyone (the crowd, i.e. crowdsourcing) or only those who go through a selection process (Club of Experts). The second is the axis of ownership, meaning whether the resulting value is owned by the organizing platform or corporation, or by the creators and/or everybody.

This gives the following four quadrants (expanded information in the box below):

- **Club of experts**: A very specific challenge is needing expertise and breakthrough ideas. Contributors are found through a selection process. Quality of input is what counts (e.g. Nokia)
- **Crowd of people**: Also known as Crowdsourcing. For any given challenge, there might be a person out there having a genial idea that should be given a podium. It's the *Rule of big numbers* (e.g.Threadless)
- **Coalition of parties**: In complex situations, parties team up to share ideas and investments. Technical breakthroughs and standards often happen when multiple parties collaborate (e.g. IBM)
- **Community of kindred spirits**: When developing something for the greater good, a group of people with similar interests and goals can come together and create (e.g. Linux).

An Alternative Financial Architecture Online

Personal finance

- Simple.com —Worry-free alternative to traditional banking
- Fidor.de —Banking with friends
- Movenbank.com —Spend, save and live smarter
- Zopa.com —A marketplace for money
- Wonga.com —Payday loans alternative
- Billguard.com —People-powered antivirus for bills
- Holvi.com —Smart Banking for Group Activities
- ArchiveMe.com —Invoices and expenses in a minute
- Payoff.com —Money made simple, social and fun

Markets and trading

- eToro.com —Your investment network
- StockTwits.com —The financial communications network
- AlphaClone.com —Follow the smart money
- Trefis.com —What's driving the stock
- Estimize.com —Uncover the real consensus

Risk management / insurance

- Climate.com —Total weather insurance
- OpenGamma.com —Unified financial analytics

Wealth management

- Betterment.com —A better investment
- Blueleaf.com —Simple, personal financial tracking
- Covestor.com —Find and follow investing leaders
- Nutmeg.co.uk —Smarter saving and investing

Business banking

- FeeFighters.com —Comparison shopping for SMB finance
- Kabbage.com —Green to help you grow
- FundingCircle.com —Online lending marketplace
- AxialMarket.com —Online network for M&A professionals
- Bilbus.com —Locate your liquidity

Payments

- Square.com —Mobile payments system
- Stripe.com —Payments for developers
- Thecurrencycloud.com —FX payments automation service
- Dwolla.com —The cash inspired payment network
- Ixaris.com —Open payments solutions
- Leetchi.com —Group payment application

Source: Sean Park (http://videos.liftconference.com/m/4604460)

47 http://www.fronteerstrategy.com/uploads/files/FS_Whitepaper-Co-creation_5_Guiding_Principles-April_2009.pdf

Four Types Of Co-creation

Club of experts

The "Club of Experts" style of co-creation is best suitable for very specific, time-pressured challenges that demand expertise and breakthrough ideas. Contributors meet certain specific participation criteria and are generally found through an active selection process. Quality of input and chemistry between participants are key to success. 'No-box' thinkers are the ones you want to have in any project.

- **Example**: Nokia organises 'lead user' and 'expert' co-creation sessions to develop visionary new products and services. We at Fronteer Strategy are a partner of Nokia in these projects, where bold new steps have been designed.

Crowd of People

Also known as "Crowdsourcing", this form is all about the Rule of Big Numbers: anyone can join. For any given challenge, there might be a person 'out there' with a brilliant idea that deserves considering. Using online platforms, people can rate and respond to each other's suggestions. There is often a marketing and seeding component/objective attached to the process. Crowdsourcing 'unleashes the power of the masses', but often takes longer - and you're not sure that the best people will (want to) contribute. For instance, Nokia is a frontrunner when it comes to using lead users, experts and beta testers.

- **Example**: Threadless is a successful online t-shirt platform where contributors can send in and rate t-shirt designs. Profits on sold items are shared with the designer in question. Not bad: a full 30% profit margin selling t-shirts with no R&D cost, low investments (no stock or debtors) and hardly any employees.

Coalition of Parties

In certain complex situations, a "Coalition" of parties team up to share ideas and investments (Co-branding is also an example of Coalition-style co-creation). Each of the parties brings a specific asset or skill to the party. Technical breakthroughs and the realisation of standards often happen only when multiple parties collaborate - especially important when capital expenditures are high. Key success factors include sharing knowledge and creating a common competitive advantage.

- **Example**: Heineken has successfully launched a home draft system called the 'Beertender' in co-operation with Krups. A development period of 10 years resulted in the first true packaging innovation in beer in a long time. Also, Heineken has worked with outsiders to develop for example its aluminium bottle range.

Community of kindred spirits

The "Community" form is most relevant when developing something for the greater good. Groups of people with similar interests and goals can come together and create. This model - so far - works mostly in software development and leverages the potential force of a large group of people with complementary areas of expertise.

- **Example**: The Linux open source operating system software was developed by users and for users. The software code is free to use and owned by nobody. It started with one simple e-mail with a request for help.

Source:
http://www.fronteerstrategy.com/uploads/files/FS_Whitepaper-Co-creation_5_Guiding_Principles-April_2009.pdf

VIII. A First Categorization Of The Collaborative Economy

We suggest to divide those practices first of all around the distinction of focus on immaterial social cooperation or on production of physical material. We suggest that the distinction concerns the 'area' in which 'mutualization' practices are being applied. In the immaterial collaborative economy, what is mutualized is knowledge, software and design, through shared innovation commons usually governed by specific legal licenses. On the other hand, what is mutualized in the collaborative economy for material production are the physical infrastructures.

A. Collaborative Economy with an Immaterial Focus

1. Commons-oriented Peer Production in Knowledge and Software

In this new form of production, first named by Yochai Benkler, a common knowledge base is created, protected through new forms of licensing such as the *GPL*. This is the model used in free software, but also in the Wikipedia.

Communities of contributors, paid and unpaid, employed or volunteer, contribute to a common code base. The collaborative infrastructure and code base is often under the governance of a non-profit, or 'for-benefit association'. An entrepreneurial coalition consisting of free lancers, small businesses and larger corporations create market-based value around the common code base. Linux and Wikipedia are the most well-known examples.

2. Sharing Platforms

In this model, corporate platforms create the possibility for users to share their own creative work, or what they have found, but no common code or knowledge base is created. The platforms are owned by corporations, and the attention and behavioral data are sold to advertisers. Regulations over these platforms are established by the corporate owners. Apart from generic platforms such as Facebook, Twitter, YouTube, Flickr, there are many specialized platforms including for creative work that is shared under 'sharing licenses' such as the *Creative Commons* licensing scheme.

B. Collaborative Economy with a Mixed Focus: shared infrastructures for 'making'

1. Crowdsourced Design and Products

These consist of:

1. Platforms in which designers of both immaterial products and material products can offer their work for sale, but where some form of collective aggregation or filtering takes places.
2. Services that gives companies access to a distributed pool of ideas, talent, services, but are defined by an 'open call' and some form of collective aggregation.
    a. competition platforms uncover the best creative concepts
    b. idea management tools help identity and build on relevant suggestions

2. Shared Design and Distributed Manufacturing

The category of shared design is differs from software because commons-orientation regarding shared designs is directly linked to making. There is a strong cultural linkage between design depositories, makers using open hardware, and the new forms of personal fabrication, using 3D Printing. Fablabs and maker studios will often have open and shared design practices.

Under this category we can also find DIY (do-it-yourself) experiences. These are boosted by web technologies that enables the creation of online repositories of designs and shared know-how.

3. Open Innovation

Companies are increasingly using either open 'third party' crowdsourcing platforms or integrated co-design and co-creation in their own value chain. In this context, too, design and production are closely interlinked.

C. Collaborative Economy with a Material Focus

1. Shared Material Infrastructures for 'Using': Collaborative Consumption

The fast-growing arena of collaborative consumption uses product-service platforms, often under corporate ownership, which allow users and consumers collective access to physical goods. Sharing platforms for renting/sharing of surplus tools and goods are part of this trend. It is used for car-sharing, bikesharing, toolsharing, skillsharing, and many other types of usage and activity.

Rachel Botsman, in her book, *What's Mine is Yours*[48], distinguishes three sectors of Collaborative Consumption.

- Product Service Systems like Bikesharing and Carsharing. Based on a 'usage mindset', meaning you pay for the benefit of a product —what it does for you - without needing to own the product outright.
- Redistribution Markets like Freecycle and eBay. Here used or pre-owned goods are redistributed from where they are not needed to somewhere or someone where they are.
- Collaborative Lifestyles like Couchsurfing, and the Lending Club. These are sharing and exchange of resources and assets such as time, food, space, skills, and money. This includes shared material infrastructures such as coworking spaces.

2. Digital Marketplaces

Though there is considerable overlap with the concept of Collaborative Consumption, we can consider marketplaces as a category of its own.

We define marketplaces as any place where supply and demand can meet. However, in this context 'marketplaces' are not limited to buying and selling, but include gifting platforms, barter and swapping platforms, and rental platforms.

Digital marketplaces such as Ebay are huge, and introduce transparency and collective processes, such as mutual rating, i.e. user to user collaboration, in the market function. Therefore these may also be considered a part of the collaborative economy.

It is possible to distinguish marketplaces by broad area of activity:

- the market for things / objects
- the market for labor / people / services
- the market for ideas / innovations
- the market for money

48 Botsman, Rachel, and Roo Rogers. What's Mine Is Yours: The Rise of Collaborative Consumption. HarperCollins, 2010.

The relational grammar of Internet communication and cooperation. For commentary and explanation, see Chapter 1, section II, page 21 and following.

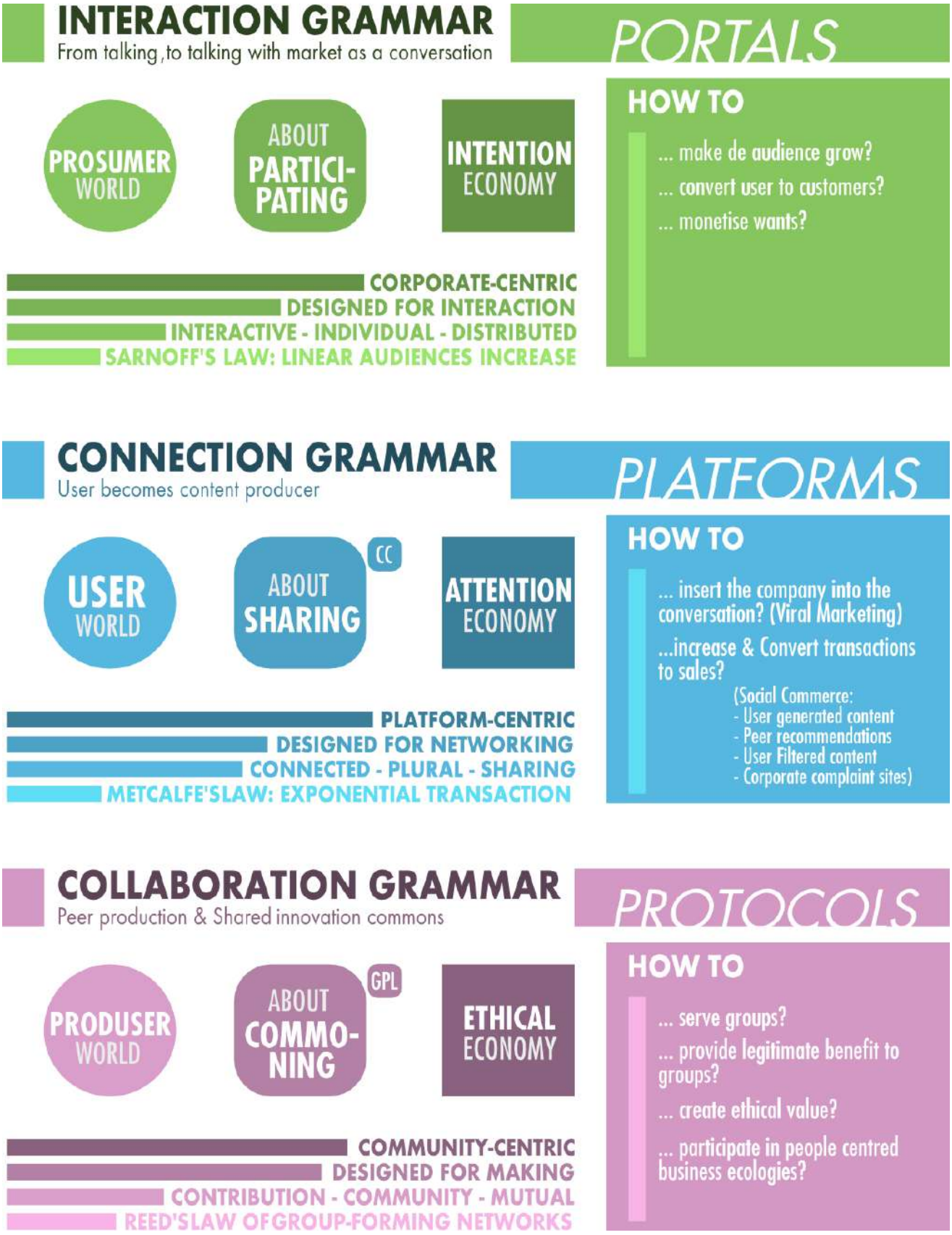

Illustration 5: The relational grammar of Internet communication and cooperation, P2P Foundation.

Chapter Two:

Discovering The User As Value Creator And The Emergence Of A User-Centric Ecosystem

I. The Evolution Of Productive Publics

The evolution of the collaborative economy also has cultural and sociological underpinnings. Various authors have described a process of mass amateurization, creating a class of semi-professionals with a 'cognitive surplus' (i.e. surplus creative time), which can be invested in value creation. Within companies this expresses itself in the increasing role of 'lead users' in the innovation process.

Mass Amateurization and the Pro-Am Revolution

> *"The 20th century witnessed the rise of professionals in medicine, science, education, and politics. In one field after another, amateurs and their ramshackle organisations were driven out by people who knew what they were doing and had certificates to prove it. The Pro-Am Revolution argues this historic shift is reversing. We're witnessing the flowering of Pro-Am, bottom-up self-organisation and the crude, all or nothing, categories of professional or amateur will need to be rethought."*

- Charles Leadbeater, We Think[49]

The collaborative economy is rooted in deep social and cultural transformations. These are essentially a marriage of higher educational attainments and peer to peer technologies for horizontal socialization, i.e. self-aggregation around affinity and common value creation.

Charles Leadbeater and Paul Miller, in a report for the UK think thank Demos[50], describe the shift from professional culture to what they call Pro-Am Culture due to a process of mass amateurization.

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49 Leadbeater, Charles. We-Think: Mass Innovation, Not Mass Production. Profile Books, 2010.

50 The Pro-Am Revolution. How enthusiasts are changing our economy and society. Charles Leadbeater and Paul Miller/ Demos, 2005, http://www.demos.co.uk/catalogue/proameconomy

Note: Charles Leadbeater in We Think, has a section on the Pro-Am movement, at http://wethink.wikia.com/wiki/Chapter_7_part_2

More on Pro-Am culture: Lastowka, Gregory, and Dan Hunter. Amateur-to-Amateur: The Rise of a New Creative Culture, Cato Policy Analysis No. 567, n.d. http://www.scribd.com/doc/13673419/-AmateurtoAmateur-The-Rise-of-a-New-Creative-Culture-Cato-Policy-Analysis-No-567-.

> *"The Pro-Ams are a significant social force: 58 per cent of the population see themselves as Pro-Ams."*

They write that:

> *"in the last two decades a new breed of amateur has emerged: the Pro-Am, amateurs who work to professional standards. These are not the gentlemanly amateurs of old —George Orwell's blimpocracy, the men in blazers who sustained amateur cricket and athletics clubs. The Pro-Ams are knowledgeable, educated, committed and networked, by new technology. The twentieth century was shaped by large hierarchical organisations with professionals at the top. Pro- Ams are creating new, distributed organisational models that will be innovative, adaptive and low-cost."*

For example, they note that in the UK,

> *"About 23 million adults a year undertake some form of volunteering, contributing close to 90 million hours a week. Volunteering has almost doubled in the last decade" and add that "Participation in Pro-Am activities is heavily slanted towards well- educated, middle class people with incomes above £30,000 per year." … "Pro-Ams are a new social hybrid. Their activities are not adequately captured by the traditional definitions of work and leisure, professional and amateur, consumption and production.*
>
> *Pro-Ams demand that we see professionals and amateurs along a continuum (see diagram below). Fully-fledged professionals are at one end of the spectrum, but close by we have pre-professionals (apprentices and trainees), semi-professionals (who earn a significant part of their income from an activity) and post-professionals (former professionals who continue to perform or play once their professional career is over.) These latter three groups of 'quasi' professionals are Pro-Ams."*

See also Clay Shirky's examination of the surplus time available to productive and networked publics, in his concept (and book) on the so-called *Cognitive Surplus*[51].

Their study shows that Pro-Ams are important for innovation, i.e.

> *"Pro-Ams can be disruptive innovators. Disruptive innovation changes the way an industry operates by creating new ways of doing business, often by making products and services much cheaper or by creating entirely new products. Disruptive innovation often starts in marginal, experimental markets rather than mainstream mass markets.*
>
> *Second, Pro-Ams lead innovation in use. The more technologically radical the innovation the more difficult it is to say in advance what the innovation is for. It may be impossible for the 'authors' of the innovation to predict*

51 Cognitive Surplus: Creativity and Generosity in a Connected Age. Clay Shirky. The Penguin Press, 2010

> *exactly how it will be used. It is down to the consumers to work out what a new technology is really for. That requires innovation in use or the co-creation of value between consumers and producers."*

They are also vital to service innovation:

> *"Pro-Am consumers play a critically important role in devising these new scripts, because they are the leading, more informed and assertive consumers. Harnessing Pro-Am service innovators will be vital to the future of public services, especially in health, social care and education."*

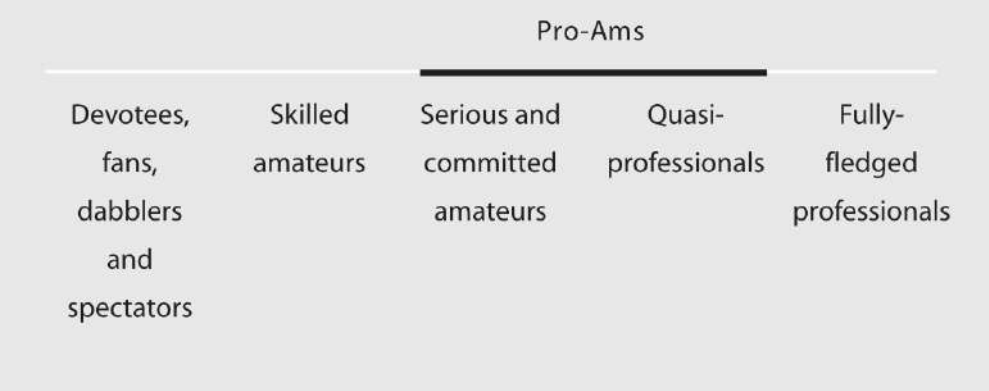

Illustration 6: ProAm categorisation graphic (http://p2pfoundation.net/File:Pro-am_categorisation_graphic.png)

Chris Anderson stresses the important issue of 'passionate engagement' which is a hallmark of Pro-Am production:

> *"No matter how much you love your job, you will eventually end up doing something that feels like work—something that you have to do because your boss asked you to or because the market requires it. At that point, your professional skills may be negated by your lack of authentic interest. But amateurs are by definition volunteers. They choose to spend their time on what they do, and they go exactly where their passions, interests, knowledge and personality takes them—no further. If they lose interest they move on and are replaced by someone bursting with fresh energy. Self-selection ensures engagement. To me that's the difference between amateur and professional content: the first may not be polished, but it's driven by the sort of intense interest that cannot be faked. The second may be better written, spelled more correctly and otherwise competently produced, but all too often it has the arms-length perspective of a drive-by."*[52]

52 http://www.longtail.com/the_long_tail/2008/09/a-passionate-am.html

What Is The Cognitive Surplus?

"The thesis is that economic changes have given us free time, and each generation finds ways to invest its free time. For newly industrialized London in the 1700s, the solution was gin. For 1950s US, it was the sitcom. For this generation, it's the Internet and other connectivity tools. That is, this generation's cognitive surplus is no longer completely wasted: people can actually make and share things. In one anecdote, Shirky recounts explaining Wikipedia to a TV producer, who sighs, "Where do they find the time?" "Hearing this, I snapped, and said, 'No one who works in TV gets to ask that question. You know where the time comes from.'"

Bravo. As Shirky passionately argues, the TV generations spent enormous time in the basement comparing Ginger and Mary Ann. The Internet generation - some of it - spends time producing things. Those things might include the innumerable versions of "Bed Intruder" that I surfed on YouTube this morning, sure. But some include the blog post I'm currently writing, which may possibly help someone out, or Wikipedia, or fan fiction. That's not simply because of innate generational differences. "Generations do differ, but less because people differ than because opportunities do"

"Overall, the book is well written and intriguing, and does a great job explaining how "makers" fit in and thrive. I'd recommend it to anyone who's trying to figure out participatory culture."

Source: Clay Spinuzzi's review of the book *Cognitive Surplus*

(http://spinuzzi.blogspot.com/2010/12/reading-cognitive-surplus.html)

How Big Is The Cognitive Surpus?

"So how big is that surplus? So if you take Wikipedia as a kind of unit, all of Wikipedia, the whole project—every page, every edit, every talk page, every line of code, in every language that Wikipedia exists in—that represents something like the cumulation of 100 million hours of human thought. I worked this out with Martin Wattenberg at IBM; it's a back-of-the-envelope calculation, but it's the right order of magnitude, about 100 million hours of thought.

And television watching? Two hundred billion hours, in the U.S. alone, every year. Put another way, now that we have a unit, that's 2,000 Wikipedia projects a year spent watching television. Or put still another way, in the U.S., we spend 100 million hours every weekend, just watching the ads. This is a pretty big surplus. People asking, "Where do they find the time?" when they're looking at things like Wikipedia don't understand how tiny that entire project is, as a carve-out of this asset that's finally being dragged into what Tim calls an architecture of participation.

Now, the interesting thing about a surplus like that is that society doesn't know what to do with it at first—hence the gin, hence the sitcoms. Because if people knew what to do with a surplus with reference to the existing social institutions, then it wouldn't be a surplus, would it? It's precisely when no one has any idea how to deploy something that people have to start experimenting with it, in order for the surplus to get integrated, and the course of that integration can transform society

And this is the other thing about the size of the cognitive surplus we're talking about. It's so large that even a small change could have huge ramifications. Let's say that everything stays 99 percent the same, that people watch 99 percent as much television as they used to, but 1 percent of that is carved out for producing and for sharing. The Internet-connected population watches roughly a trillion hours of TV a year. That's about five times the size of the annual U.S. consumption. One per cent of that is 100 Wikipedia projects per year worth of participation."

Source: Clay Shirky, *Cognitive Surplus*

(http://www.niemanlab.org/2010/12/i-have-found-the-cognitive-surplus-and-it-hates-pigs/)

II. The Emergence Of Lead Users

Part of the emergence of 'mass amateurization' and 'Pro-Am' is the discovery of the role of *Lead Users*, which have been studied by Erik von Hippel in his landmark book, *Democratizing Innovation*.[53]

Von Hippel writes:

> *"Users that innovate can develop exactly what they want, rather than relying on manufacturers to act as their (often very imperfect) agents."*[54]

And, as Janet Hope concludes,

> *"The user innovation literature points to empirical evidence that users, rather than manufacturers, are in fact the primary innovators in many contexts."*[55]

Some of the better known examples of user innovated products are email the mountain bike, sports bra, desktop publishing, Gatorade, and white-out liquid. Von Hippel mentions the important aspect that

> *"3M products based on lead users, are 8 times higher sales than market research driven innovations.*[56]

Lead users are users with a high incentive to solve problems, and that often develop solutions that the market will want in the future. Von Hippel argues that a user-centered innovation process —one that harnesses lead users —offers great advantages over the manufacturer-centric innovation model that has been the mainstay of commerce for hundreds of years. One of the important findings of von Hippel is the prevalence of user innovation over manufacturing centric innovation, in every phase of the history of industrial evolution, yet there is a clear evolution towards more and more autonomy of the user, enabled by the growth of collaborative platforms.

53 von Hippel, Eric. Democratizing Innovation. The MIT Press, 2005. http://www.amazon.ca/exec/obidos/redirect?tag=citeulike09-20&path=ASIN/0262002744.

54 http://crowdsourcing.typepad.com/cs/2008/05/chapter-5-the-r.html

55 http://www.gene-watch.org/genewatch/articles/18-1Hope.html

56 http://crowdsourcing.typepad.com/cs/2008/05/chapter-5-the-r.html

In his book, von Hippel explains:

> *"The user-centered innovation process just illustrated is in sharp contrast to the traditional model, in which products and services are developed by manufacturers in a closed way, the manufacturers using patents, copyrights, and other protections to prevent imitators from free riding on their innovation investments. In this traditional model, a user's only role is to have needs, which manufacturers then identify and fill by designing and producing new products. The manufacturer-centric model does fit some fields and conditions. However, a growing body of empirical work shows that users are the first to develop many and perhaps most new industrial and consumer products. Further, the contribution of users is growing*

Interview With Eric Von Hippel

OB: What do you mean by Democratizing Innovation?

> *Eric von Hippel: I mean that users of products and services — both firms and individual consumers — are increasingly able to innovate for themselves. It gives more power to users and these user-centered innovation processes offer great advantages over the manufacturer-centric innovation development systems. Those have been the norm for hundreds of years. Now innovation can happen in a much more decentralized way from the bottom up.*

OB: This sounds great for consumers and small time entrepreneurs, but what makes it possible?

> *Eric von Hippel: Sophisticated design tools are far more widespread, less costly and easier to use. By and large the vast improvements in computation has been the driving force. And most importantly the increasing communication between users, because of the internet, has made it much easier to share knowledge and drive innovation.*

OB: Do you think Intellectual Property laws as they are block innovation?

> *Eric von Hippel: Certainly. Property owners will try to control the process and block everything that threatens their business models. But free materials will increasingly become an effective competitor for non-free materials and content.*

OB: How does this change businesses and business models?

> *Eric von Hippel: Well, users have a natural advantage in the innovation process. They know what they need and can distribute their ideas much more effectively than large corporations. You know there is a general rule —markets start small —therefore corporations tend not innovate at the cutting edge of social and commercial demands. Manufacturers tend to concentrate on markets they like and understand. And they had no real access to users and their demands. Innovations therefore were quite often not need-oriented. Now users can connect, debate their needs and create solutions in a much more seamless way. Businesses in this environment need to be far more connected to their users and integrate them directly in the innovation process.*

Source: Open Business (http://www.openbusiness.cc/2006/01/20/democratizing-innovation-a-conversation-between-openbusiness-and-eric-von-hippel-2/)

> *steadily larger as a result of continuing advances in computer and communications capabilities."*[57]

See the Box "Examples of lead user innovation", for an insight into the historical permanence, but also technological evolution, of such user innovation.

As we can read from the historical examples, already **at the dawn of the industrial era,** collective invention was evident in the example of the Cornish tin mines (cited by Charles Leadbeater in his book *We Think*).

For the modern industrial era, Eric von Hippel has uncovered compelling evidence on the prevalence of user innovation in industry (80% of instrument innovation, 67% of process innovations in the semi-conductor industry, 57% of drug therapy innovations, etc …).

However, it should be noted that the concept of a lead user and user-innovation used by von Hippel predates the current concepts of bottom-up innovation by 'amateurs'. Most frequently the users referred to in this type of literature are in fact the professional clients of the firm itself. User innovation statistics as the ones mentioned here should therefore not be confused with the modern usage of 'crowds', as we discuss later in our section on crowdsourcing.

Von Hippel continues his review through examples from **the dawn of the information era,** such as the development of the mountain bike by an autonomous extreme sports community.

Finally, in the peer-driven innovation era, new consumer electronics like Buglabs, Arduino, and the Chumby, are specifically designed to rely on user innovation, through the 'downsourcing' of the innovation to 'user innovation communities'.

As von Hippel explains,

> *"Customers don't innovate in a vacuum. … Individual users do not have to develop everything they need on their own: they can benefit from innovations developed and freely shared by others." They form, in von Hippel's terminology, "user innovation communities." "They do this not so much out of a need to socialize with like minds — though that surely plays a role as well — but because the community structure offers considerable advantages to the individual innovators."*[58]

Research is currently being conducted by Eric von Hippel, and in general by the user innovation research community, following **key characteristics of user innovation**:

- the problem of the **stickyness of information**:

> *"the information required to come up with new technological developments is "sticky" — it is costly to transfer from one person to another. It makes more sense for a user who already has most of that information to invent a new piece of technology than it does for*

57 http://web.mit.edu/evhippel/www/books/DI/Chapter1.pdf

58 http://crowdsourcing.typepad.com/cs/2008/05/chapter-5-the-r.html

> *a manufacturer, who would have to invest in researching what users need and how that particular innovation would function in a given industrial setting."*[59]

- **free revealing**, or the willingness of user innovators to share their findings, thereby benefitting an ecology of enterpreneurs and users, not just one particular firm. This generates conflict with IP protection, but it also benefits companies.
  - Janet Hope mentions the biotech *SNP* consortium[60]:

> *"which pays academic scientists to place genome sequence data in the public domain. For these companies, giving away data is not a charitable act — it avoids having to negotiate IP access among themselves and with other companies down the line. Interestingly, the human genome sequencing project considered adopting open licenses, but the idea was abandoned because it was decided that any restrictions on the data, even in the form of a license designed to ensure it stayed non-proprietary, would create a dangerous precedent. In that case, open source development was successfully taken to its extreme."*[61]

- **Collective invention**, which comes about when enough innovators adopt free revealing approaches to producing a particular innovation. The result is a cycle of free revealing developments. There are several conditions that favor the development of a collective invention regime in any given industry. Two are particularly relevant to biotechnology. First, collective invention is more likely to take root where R&D is expensive and its outcomes are uncertain.[62]

- **Community support**. See our remark on user innovation communities above.

- **Distributed production**. As Janet Hope explains:

> *The potential for distributed production is less clear-cut. Distributed production is a non-issue for information-based products, as it can be transported and reproduced by users with no real cost. For physical goods, production and distribution involve economies of scale that are best exploited by manufacturers." However, "it is clearly not a major factor in relation to self-replicating biological materials, such as seeds."*

Eric von Hippel also explains the cycle of user innovation:

> *"The cycle is most likely the following:*
>
> *1) individual user develops innovation (invention, prototyping phase);*
>
> *2) user diffuses innovation through networked media (information diffusion phase)*

59 Janet Hope, http://www.gene-watch.org/genewatch/articles/18-1Hope.html

60 http://snp.cshl.org/

61 http:www.gene-watch.org/genewatch/articles/18-1Hope.html

62 The above has leveraged the use of 'coopetition' strategies between firms involved in the development of drugs

> *3) a community forms around it and develops a working prototype (pre-commercial replicaton phase);*
>
> *4) a manufacturer may develop a commercial version adding some features (commercial phase) The commercialisation phase should not obscure the fact that user innovation communities can bypass manufacturers altogether."*

Distinctions Between User Innovation And Manufacturer-driven Innovation

> *"When I say that innovation is being democratized, I mean that users of products and services — both firms and individual consumers — are increasingly able to innovate for themselves. User-centered innovation processes offer great advantages over the manufacturer-centric innovation development systems that have been the mainstay of commerce for hundreds of years. Users that innovate can develop exactly what they want, rather than relying on manufacturers to act as their (often very imperfect) agents. Moreover, individual users do not have to develop everything they need on their own: they can benefit from innovations developed and freely shared by others. The trend toward democratization of innovation applies to information products such as software and also to physical products.*
>
> *The user-centered innovation process just illustrated is in sharp contrast to the traditional model, in which products and services are developed by manufacturers in a closed way, the manufacturers using patents, copyrights, and other protections to prevent imitators from free riding on their innovation investments. In this traditional model, a user's only role is to have needs, which manufacturers then identify and fill by designing and producing new products. The manufacturer-centric model does fit some fields and conditions. However, a growing body of empirical work shows that users are the first to develop many and perhaps most new industrial and consumer products. Further, the contribution of users is growing steadily larger as a result of continuing advances in computer and communications capabilities. In this book I explain in detail how the emerging process of user-centric, democratized innovation works. I also explain how innovation by users provides a very necessary complement to and feedstock for manufacturer innovation. The ongoing shift of innovation to users has some very attractive qualities. It is becoming progressively easier for many users to get precisely what they want by designing it for themselves. And innovation by users appears to increase social welfare. At the same time, the ongoing shift of product-development activities from manufacturers to users is painful and difficult for many manufacturers. Open, distributed innovation is "attacking" a major structure of the social division of labor. Many firms and industries must make fundamental changes to long-held business models in order to adapt. Further, governmental policy and legislation sometimes preferentially supports innovation by manufacturers. Considerations of social welfare suggest that this must change. The workings of the intellectual property system are of special concern. But despite the difficulties, a democratized and user-centric system of innovation appears well worth striving for. "*

Source: Eric von Hippel (http://web.mit.edu/evhippel/www/books/DI/Chapter1.pdf)

Examples include kite-building communities where some firms are moving to 'build-only' formats leaving innovation to the user communities, and Lego mindstorm communities, which grew rapidly without company involvement and were later incorporated by Lego into its R&D processes.

According to von Hippel, users are very articulate about their demands, and so the richest 'needs' information is available at user sites. By contrast, the most extensive engineering and problem solving skills are more readily available within the professional producers. This means the richest 'solutions' information are available at manufacture sites.

Von Hippel concludes that user sites are more diverse and can generate more different perspectives. Users tend to invent novel functional abilities (new sports nutrition bar), while manufacturers tend to offer 'dimension of merit' innovations (better tasting bar).

Eric von Hippel offers the following typology of user innovators:

> *"A Single User Innovator is a single firm or individual that creates an innovation in order to use it. Examples are a single firm creating a process machine in order to use it, and an individual consumer creating a new piece of sporting equipment in order to use it.*
>
> *A producer innovator is a single, non-collaborating firm. Producers anticipate profiting from their design by selling it to users or others: by definition they obtain no direct use-value from a new design. We assume that through secrecy or intellectual property rights a producer innovator has exclusive access and control over the innovation, and so is a monopolist with respect to its design. Examples of producer innovators are: (1) a firm or individual that patents an invention and licenses it to others; (2) a firm that develops a new process machine to sell to its customers; (3) a firm that develops an enhanced service to offer its clients.*
>
> *An Open Collaborative Innovation project involves contributors who share the work of generating a design and also reveal the outputs from their individual and collective design efforts openly for anyone to use. The defining properties of this model are twofold: (1) the participants are not rivals with respect to the innovative design (otherwise they would not collaborate) and (2) they do not individually or collectively plan to sell products or services incorporating the innovation or intellectual property rights related to it. An example of such a project is an open source software project."*[63]

63 http://www.hbs.edu/research/pdf/10-038.pdf

III. Opening Innovation To The Input Of The Crowd

From the point of view of the corporations needing to produce innovations, a shift to user-inspired or user-generated innovation makes more and more sense. There has been a strong development of 'open innovation' practices, conducted independently by large corporations, or using third-party platforms and mediators. There is a kind of hierarchy of increased density of participation going from open innovation under the control of corporate plays, to more active user input processes for which the concepts of Co-Creation and Co-Design have been used in the literature.

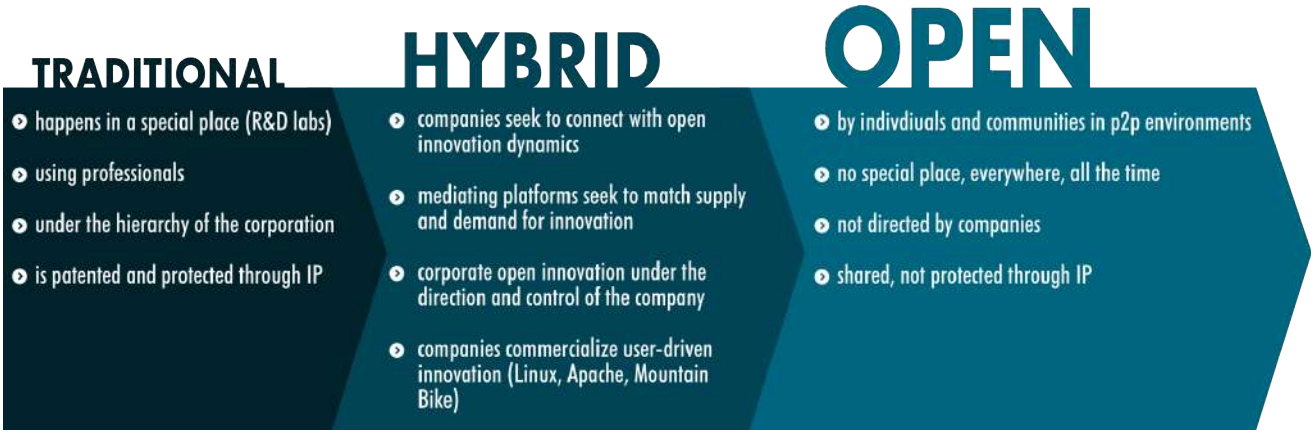

Illustration 7: Traditional to Open by P2P Foundation (http://p2pfoundation.net/File:Traditional-to-open.svg)

A. Open Innovation

Open Innovation refers to business processes where innovation is no longer dominated through internal mechanisms in the firm, but through the cooperation, participation and sourcing of both internal and external inputs. It is connected to the emerging world of user innovation that we introduced before. However, the concept is used essentially for processes where the firm is still in control and at the center of the value chain. It is associated with related terms such as co-design, co-creation, and sourcing the crowd, i.e. crowdsourcing.

Innovation has become a very distributed and 'diffuse' process, as echoed by Business Week:

> *"To get an idea of how diffuse the innovation process has become, try dissecting your new PDA, digital cameraphone, notebook PC, or cable set-*

> *top box. You will probably find a virtual U.N. of intellectual-property suppliers. The central processor may have come from Texas Instruments (TXN) or Intel, and the operating system from BlackBerry (RIMM), Symbian, or Microsoft. The circuit board may have been designed by Chinese engineers. The dozens of specialty chips and blocks of embedded software responsible for the dazzling video or crystal-clear audio may have come from chip designers in Taiwan, Austria, Ireland, or India. The color display likely came from South Korea, the high-grade lens from Japan or Germany. The cellular links may be of Nordic or French origin. If the device has Bluetooth technology, which lets digital appliances talk to each other, it may have been licensed from IXI Mobile Inc., one of dozens of Israeli wireless-telecom companies spun off from the defense industry."*[64]

The key insight of open innovation theory is that innovation is now primarily coming from the 'outside', as exemplified in the case of *Lego Mindstorms.*

Henry Chesbrough writes that

> *"Open innovation is the use of purposive inflows and outflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively. [This paradigm] assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as they look to advance their technology."*[65]

The firm centric view is also expressed here, by John Wilbanks and Carolina Rossini:

> *"The Open Innovation theory builds on the observation that an institution sits in an ecosystem of empowered individuals and other institutions, but that in a pre-network world the transaction costs of accessing the innovations of those actors was too high to justify. Thus, the institution develops its own internal knowledge creation and governance systems (technology transfer offices, tenure and review boards, etc). In a network culture there is the opportunity to connect more and more of those smart people to an institution's mission: to contribute to internal projects from the outside, to take a project that fails to gather internal support forward using outside funding, to generate novel projects outside and "spin into" new internal projects"*[66]*. (See also Julia Cohen's research on the mistaken assumptions of IP rights in an age of cooperation)*[67]

The same article warns that if networked infrastructures enable such open innovation, the IP practices and legislation of an earlier era hold it back:

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64 http://www.businessweek.com/magazine/content/04_41/b3903409.htm

65 http://www.openinnovation.net/

66 http://www.cyber.law.harvard.edu/commonsbasedresearch/sites/commonsbasedresearch/images/Genomics_Knowledge_Governance.pdf

67 http://papers.ssrn.com/sol3/papers.cfm?abstract_id=663652

> *"A world of purposeful information flow in and out of institutions is at odds with many of the business structures of the last 50 years - especially intellectual property rights. Copyrights govern the copying, distribution, and reuse of the documents containing actionable knowledge, from software to scholarship. Trade secrets and knowledge leakage on the public web are completely at odds with one another. And patents prevent institutions from acting on useful knowledge, even if the action would be far afield from the business concerns of the patent owner. Business models incorporate these knowledge "properties" as assets to be protected, and build infrastructures of lawyers and compliance offices precisely to prevent their flow out and usage in the external world. Thus, the business model often forms a block to the institution's adoption of an open innovation-based knowledge governance model, even if the ideas and theories of open innovation are attractive to the management and leaders of the institution."*[68]

There are however, important critiques to the firm-centric approach of open innovation, expressed here by Jon Lebowski:

> *"Closed innovation gave way to the more open model because the workforce started churning, and it became increasingly difficult to contain the ideas that resulted from the best thinking and experimentation within any one company. There's also been a knowledge sharing movement facilitated by the Internet, and the Open Source movement's commons-based peer production model, which is oddly excluded from Chesbrough's consideration. This is where I had a problem with the book —it didn't go far enough. The model Chesbrough describes is an extension of the top-down corporate model, failing to acknowledge promising "small is beautiful" emergent approaches to innovation and business. Open source is one example, the bootstrap approach*[69] *(favored by fast-growing groups like Bootstrap Austin) is another. I do recommend the book for its value in setting context, but I don't think it's truly worldchanging".*[70]

Open Innovation can occur organisationally in different forms. The first are major internal platforms that are organized by corporations themselves, such as Procter and Gamble Connect and Develop, or the Philips Sensing Platforms. The second are major third part external platforms such as Innovative. Finally there are also many specialized smaller platforms and start-up experimentation in this field.

68 Ibid. note 62

69 Bootstrapping: to start a company without outside financing. http://www.en.wikipedia.org/wiki/Bootstrap_Network

70 http://www.worldchanging.com/archives/004759.html

Co-creation Examples

1. **Blank Label** - co-created dress shirts (style the collar, cuff, placket and really make it your own)
2. **chocri** - co-created chocolate bars (pick your favorite chocolate base and mix in the toppings you love!)
3. **Spreadshirt** - co-created t-shirts, sweaters and hoodies (add graphics or text and get it personalized for you)
4. **LaudiVidni** - co-created handbags (for the woman that really knows style and is tired of the Coach and LV bags)
5. **Gemvara** - co-created jewelry (one-of-a-kind gemstone jewelry with 16 different gem varieties and eight precious metal choices)
6. **Shoes of Prey** - co-created women's shoes (style the heel (or no heel), tor, fabric, color and embellishments)
7. **Wagner Skis** - co-created skis and snowboards (uniquely suited to your style, strength, weight and mission profile)
8. **Gemkitty** - co-created jewelry (customize semi-precious gemstone jewelry. Choose from seven necklace, five earring styles and hundreds of gemstones)
9. **Snaptotes** - co-created totes (add photos to your bags to further cherish the memories)
10. **Element Bars** - co-created nutrition bars (energy and protein bars with the ingredients you favor)
11. **YouBars** - co-created protein bars, shakes, trail mix, cookies and cereal (mix the ingredients you love and need)
12. **Red Moon Pet Food** -co-created pet food (for that particular pet with a special diet or just because your pet deserves more)
13. **Rooms By You** -co-created bedding and soft goods (home décor customized on demand)
14. **Artaic** - co-created mosaics (build your own art by uploading the photos you love)
15. **Melboteri** - co-created handbags (select the style, components, and color of each handbag)
16. **Indidenim** - co-created jeans (jeans designed with your preferences in mind and made to measure)
17. **Kidlandia** - co-created home decor and puzzles (from dozens of designs, your personalized creations make memorable puzzles, wall décor, and other unique, high-quality gifts)
18. **Maguba** - co-created clogs and women's sandals (style your footwear however you want!)
19. **Personalwine** - co-created wines (personalize award winning wines with your unique label)
20. **Proper Cloth** - co-created luxury dress shirts (for the guy that loves Egyptian cashmere and is a luxury buyer)

Source: Mass Customizations (http://mass-customization.blogs.com/mass_customization_open_i/2010/08/mass-customization-friday-on-facebook-at-august-8.html)

Corporate Open Innovation Platforms

Procter & Gamble's Connect & Develop

"The strategy "Connect & Develop" implemented by him had the goal to develop about 50 percent of all innovations outside the company's own research department. The following restructuring made the company one of the most impressive examples for the enormous potential within the concept of Open Innovation.

Today, more than 35 percent of P&G's new products in market contain elements originally developed outside of P&G. 45 percent of all initiatives within the product development portfolio possess key elements discovered externally. Through Connect and Develop in combination with other improvements in production costs, design and marketing, the R&D productivity of P&G has been increased by almost 60 percent. The success rate of innovations has been doubled, while the costs of innovations declined. Investments in R&D relative to sales have been reduced from 4.8 percent in 2000 to 3.4 percent today.

Principally it is very easy to summarize P&G's line of action: building and exploiting innovation networks of all kinds. Today, these networks reach from supplier networks being encouraged to send in new ideas right up to web platforms like NineSigma or Innocentive on which P&G is actively searching for solutions to special problems. This way, P&G does not only fall back upon its 7500 own researchers, but on millions of experts situated all around the world. Furthermore a staff of innovation scouts was installed, searching internationally for new ideas and improvements to existing products."

Source: Openeur (http://www.openeur.com/blog/en/2006/12/03/pgprobably-the-largest-rd-department-in-the-world/)

Philips Sensing Platforms

Philips for example, has launched two sensing platforms: Lead Users and Live Simplicity. Philips is a dutch multinational, offering technology products for lifestyle and healthcare sectors. On Leadusers.nl (dutch website) they conducted studies with lead users on specific topics, like video technology and sleep quality. The initiative was thus aimed at gaining knowledge on the specific subjects as well as sensing new product demands and opportunities.

The new Live Simplicity website is partly a marketing instrument to promote Philips' Sense and Simplicity slogan, but definititely also a tool to acquire knowledge on what people think in Philips-relevant areas of life. The sensing platform facilitates discussions in 6 areas (Business, Communication, General, Internet & Technology, Lifestyle & Social, and Wellness). Each discussion starts with a short description and two contrasting viewpoints (A and B). Visitors are invited either to vote for a viewpoint, or register as contributor and write a comment. The initiators also thought of incentives for contributors and have set up a rating/reward system. Each contributer has a rating, shown as an icon. This is calculated based on how many times that contributer has made a point and had others agree or disagree with it. Each posting has an agree/disagree button next to it, and the combined results of these are displayed in the Rating. So contributors can develop themselves as respected members of the site. It must be said, although one may expect otherwise, the reactions and opinions on the platform are indeed of high quality. In addition, high-rating contributers are often selected to contribute to certain discussions. Philips has also developed a visual tracker, which enables contributors to track their favorite topics from their desktop."

Source: Openeur (http://www.openeur.com/blog/en/2007/08/09/bespractice-nespresso-philips-muji/)

Check The Appendix:

Third party open innovations

B. Co-Creation

Co-Creation may be considered as a logical outcome of open innovation, with an equally very broad meaning referring to any process whereby different stakeholders are participating in a creative process.

OSBR magazine indeed stresses that

> *"Co-creation is a very broad term with a broad range of applications. We define co-creation as any act of collective creativity that is experienced jointly by two or more people. How is co-creation different from collaboration? It is a special case of collaboration where the intent is to create something that is not known in advance."*[71]

The Wikipedia writes that

> *"Co-creation is the practice of developing systems, products, or services through the collaborative execution of developers and stakeholders, companies and customers, or managers and employees. Isaac Newton said that in his great work, he stood on the shoulders of giants. Co-creation could be seen as creating great work by standing together with those for whom the project is intended."*[72]

A report from the Promise consulting group remarks that

> *"A quick search on Google Scholar confirms the pattern: from only 23 articles citing 'co-creation' in the 1970s, the 1980s delivered a paltry 102, the 1990s a more substantial 658, while the first 9 and a bit years of the 21st Century has already spawned an impressive 3,660."*[73]

Their literature review stresses that the concept is very undefined. They stress the two following observations:

> *"1. The wide range of contexts, interpretations and applications of co-creation in the literature. Co-creation is used to describe versions of highly focused crowdsourcing, but also large-scale, ongoing, innovation programmes that engage customers in communities of innovators or developers with powerful application in the public sector, e.g. the co-creation of health services.*
>
> *2. The term co-creation is often used fairly synonymously with related ideas such as open innovation, collaborative innovation, customer-led innovation and so on. Mass customisation. Working out which is a subset of which and identifying the 'distinctions' that allow us to identify the co-creative is a challenge."*[74]

71 http://www.osbr.ca/ojs/index.php/osbr/article/view/1012/973

72 http://en.wikipedia.org/wiki/Co-creation

73 http://www.promisecorp.com/blog/?p=116

74 http://www.promisecorp.com/blog/?p=116

Chris Lawer's Characteristics Of Co-creation

In the following twelve statements, I develop a logic that concludes in a concise definition of "co-creation" and how firms may derive competitive advantage by facilitating co-created value.

1. Traditionally, customer value has been defined and differentiated by product quality (Features, Attributes and Benefits - the old Kotlerist FAB of 1950-1990s marketing textbooks).

2. Open source product innovation (or "co-production" not co-creation) emphasises the technical co-production of new and improved products, their features and attributes with customer's direct involvement in the idea-generation, concept development stages of the innovation process; it is limited to the design, development and testing of enhanced functional "things", "objects" or "technologies" with individuals or in communities of users.

3. Increasingly though, value is migrating from products to experiences as customers seek out personalised value to satisfy their situational needs. (Drivers: demand for better experiences, technology enablers, enhanced cognition, new sources of knowledge, increased socialisation, product functional similarity, etc.)

4. Customers are therefore placing increased value on the quality of the experiences they have when they interact with firms and their products (and services).

5. The quality of an experience is determined by how relevant or personalised the experience is for an individual customer; experience quality is a combination of the functional and emotional elements specific to the situational and temporal context of each customer or context.

6. The locus of value-creation therefore shifts from product quality and design innovation to experience design and quality innovation, or service design.

7. As value-creation is "innovation", traditional firm-centric innovation processes are becoming distributed in order to provide the means to deliver ongoing, adaptable, personalised, unique experiences for individual customers in unique space —time —event contexts (or "experience environments").

7. Therefore, the locus of innovation is shifting towards the individual in distributed experience environments.

8. In distributed experience environments, the firm and customers come together to create value; value in the form of personalised unique experiences for customers; knowledge, capability for both and revenues and profits for the firm; the by-product of which is know-what and know-how to continue to deliver and shape that value.

9. Therefore, co-creation defines the processes of distributed value-creation between firms and customers or between customers directly, to create personalised experience value and knowledge, or enhanced cognition defined in the broadest sense and goes beyond "rational inference, know-what and know-how, to include perception, interpretation, value judgments, morality, emotions and feelings" (after Nooteboom's Cognitive Theory of the Firm, 2009).

10. Markets are therefore forums for the co-creation of personalised experiences; value is differentiated according to the quality and relevance of personalised experiences for customers (as in Prahalad and Ramaswamy, The Future of Competition, 2004).

11. To facilitate co-creation, firms must therefore develop platforms that bear capabilities for the creation and release of heterogeneous, personalised customer experiences or distinctive, unique value. These platforms provide the foundation for deriving competitive advantage arising from enhanced service and experience quality, knowledge capability, and novel learning mechanisms for developing dynamic capabilities for ongoing innovation performance.

Source: http://chrislawer.blogs.com/chris_lawer/2010/03/developing-a-concise-definition-of-cocreation-as-a-foundation-for-innovation-and-competitive-advanta.html

Chris Lawer, an analyst of the co-creation scene, has summarized a set of twelve observations on why co-creation is emerging as a default practice.

Liz Sanders & George Simons make a very important point, which is that the mobilization of users in a joint process comes at a price for companies, i.e. they have to shift from a sole focus on monetary value to a focus on 'experience' value and 'social' value.

They explain:

> *"In Co-creation experiences: the next practice in value creation, C.K. Prahalad and V. Ramaswamy noted that* ***"The meaning of value and the process of value creation are rapidly shifting from a product- and firm-centric view to personalized consumer experiences".*** *… The experience value of co-creation applies not only to products and services, but also to brands and branded environments. There is a new attitude that a brand is really an emotional connection, built fundamentally on trust, and a gauge of how invested a customer feels about a company's product/service. A charismatic brand develops an allegiance whereby followers are concerned and invested in not only the brand's survival but also its growth. Followers are willing to get involved in making these brands stable and successful. "*[75]

Here is the way that C.K. Prahalad and V. Ramaswamy contrast firm- vs customer-centric approaches in their book the Co-Creation Connection:

> *"The balance of power in value creation is tipping in favor of consumers. How do companies co-create valuable experiences with consumers?*
>
> *The traditional company-centric view says:*
>
> > 1. *the consumer is outside the domain of the value chain;*
> > 2. *the enterprise controls where, when, and how value is added in the value chain;*
> > 3. *value is created in a series of activities controlled by the enterprise before the point of purchase;*
> > 4. *there is a single point of exchange where value is extracted from the customer for the enterprise.*
>
> *The consumer-centric view says:*
>
> > 1. *the consumer is an integral part of the system for value creation;*
> > 2. *the consumer can influence where, when, and how value is generated;*

75 http://www.osbr.ca/ojs/index.php/osbr/article/view/1012/973

> 3. *the consumer need not respect industry boundaries in the search for value;*
>
> 4. *the consumer can compete with companies for value extraction;*
>
> 5. *there are multiple points of exchange where the consumer and the company can co-create value."*[76]

According to Alan Moore, this entails the following cultural adaptations within firms, under the pressure of the demands of the emerging co-creating public:

> *"1. Dialogue at every stage of the value chain encourages not just knowledge sharing, but, even more importantly, understanding between companies and customers. It also gives consumers more opportunity to interject their view of value into the creation process.*
>
> *2. Access challenges the notion that ownership is the only way for the consumer to experience value. By focusing on access to value at multiple points of exchange, as opposed to simply ownership of products, companies can broaden their view of the business opportunities creating good experiences.*
>
> *3. Risk reduction assumes that if consumers become co-creators of value with companies, they will demand more information about potential risks of goods and services; but they may also have to bear more responsibility for handling those risks.*
>
> *4. Transparency of information is required to create the trust between institutions and individuals."*[77]

Sanders and Simons stress that co-creation allows the emergence of a kind of corporate 'public sphere' (an emerging public sphere that acts at the intersection between the business and its customers), and creates the need for much denser relationships:

> *"The social value of co-creation is fueled by aspirations for longer term, humanistic, and more sustainable ways of living. It supports the exploration of open-ended questions such as "how can we improve the quality of life for people living with a chronic illness?" When working within this context one does not generally have preconceived notions of the outcome since determination of the form of the outcome is part of the challenge. Co-creation of this type involves the integration of experts and everyday people working closely together. Rapid prototyping and collective visualization of ideas and opportunities can enhance their collective creativity. Direct personal involvement between people is needed for this type of co-creation.*

76 http://www.amazon.com/Co-Creation-Connection-C-K-Prahalad/dp/B00006L5AZ

77 http://communities-dominate.blogs.com/brands/2008/02/the-wonderful-w.html

> *Multiple divergent points of view need to be expressed, listened to and discussed. Empathy between co-creators is essential. Although social networks may be used to help identify and locate the participants, the real work in this form of co-creation favours more personal interactions and conversations."*[78]

Traditional market research practices, based on the assumption of a firm boundary between the firm and its customers, are therefore becoming obsolete, there is no longer a traditional 'Voice of the Consumer'.

Chris Lawer:

> *"Traditional Voice of the Customer approaches to customer needs identification tend to emphasise the value-added concept at the expense of value-in-use in their assumptions about customer needs and value. For example, the House of Quality first defined a set of capabilities and a process for collecting customer needs. Since then, many methods have been developed for translating VoC data into inputs into the value-creation process. In each instance, the firm tries to identify known or latent needs/wants of customers through a variety of mechanisms such as interviews, surveys, observational techniques, and so on. In these approaches, the firm's capabilities are designed to help it learn about customer needs that exist in the market, beyond the boundaries of the firm. The company does the asking, the listening, the observing, experimenting and learning; customer needs/wants are the object of the study. After the firm learns about customer needs and wants, it then develops and delivers the goods and services that it feels will provide value to customers.*
>
> *Now however, co-creation demands an alternative process for "co-creating the voice of the customer", one where the customer and the firm are engaged together in the asking, listening, observing and experimenting —that is, both are engaged in learning. Importantly, the subject of the value-creation process is both the firm's needs and wants and the customers' needs and wants."*[79]

And he concludes that:

> *"By stepping into a co-creation frame of mind, which at long last is aligned with how customers actually perceive and seek value, firms can move closer to supporting the customer to achieve their ultimate goals. Co-Creation is therefore just a natural way for organisations to help their customers meet their goals in the lifetime of use of their products. But they can only do so if*

78 http://www.osbr.ca/ojs/index.php/osbr/article/view/1012/973

79 http://chrislawer.blogs.com/chris_lawer/2007/05/value_value_val.html

> *they embrace a different view of value and start building back from the customer's view of value, not the firm's."*[80]

Of course, such a radical re-orientation of business practice remains a huge challenge. A white paper by the Fronteer group has summarized them.[81]

Check The APPENDIX:

Organisational and psychological/social Barriers to Co-Creation

B.1. Placing Co-Creation in the history of production and consumption

The *Co-Creation blog*[82] attempts a summary of the rough history of co-creation efforts, rooted in the evolution of consumption practices. The author distinguishes the following phases:

1. Small Scale (Bespoke) Production

Before the industrial revolution and the emergence of mass production in the mid 1800s production was small scale. Depending on the type of product, it would be made on a small scale or bespoke.

2. Mass production / Transactional Marketing

During the first half of the 19th century the industrial revolution started in the UK and spread throughout the world. With it came mass production, making many products available to the masses that had been previously been the privilege of the rich. Mass production first popularized by Henry Ford's Model T in the early 20th century continued to develop and dominate for much of the century. With increasing labour and production prices in Western Europe and North America, production was shifted to the Far East and later Eastern Europe in an attempt to maintain low production costs for mass produced products. With mass production came mass standardization and uniform products.

3. Mass Customization / Customer relationship marketing (customer retention)

With continued development standardized products lost their original appeal and a movement towards customization started. Mass customization only went mainstream in the 1980s and 1990s. Consumers, driven by the desire for choice and personalized products, demanded more than just one model or type of product. The company that could best satisfy consumers' demand would remain

80 http://chrislawer.blogs.com/chris_lawer/2010/03/a-few-more-thoughts-on-cocreation.html

81 http://www.fronteerstrategy.com/uploads/files/FS_Whitepaper-9_Ways_to_get_your_team_ready_for_co-creation-February_2011.pdf

82 No longer online, but accessible through the Internet archive at: http://wayback.archive.org/web/*/http://www.co-creators.co.uk

ahead of the game and benefit financially. Still, companies seemed unable to satisfy their customers, who were unable to find products that they really wanted.

4. Co-created Products

Unsatisfied with mass customized products, consumers are looking for more input into the products they buy. With the development of the internet's communication channels they are able to communicate these desires not only with their fellow consumers, but also with the companies they expect to make these products. What was true for mass customization also applies to co-created products —companies that can better satisfy their customers will stay ahead of the game. However, the step from mass production to mass customization was infinitely smaller than the step from mass customization to co-created products. The reason for this lies in the fact that this step requires not only business processes to change (considerably), but also for the managers' mindsets to change who lead this change.

5. The Co-created Business

The co-created business follows on logically from co-created products. And indeed, why stop at products, if you can co-create the entire business. Let consumers have a say in creating the business that will be creating "their" products. Example: The Ladybank Company of Distillers Club

6. Post co-creation = Small scale production?[83]

We will develop this last theme in our section on the distributed manufacturing infrastructure.

Corporate Use Of Co-Creation

1. Large corporations who engage with a community of advocates to co-create on an ongoing basis. (Lego Mindstorms)
2. Large corporations who call for agencies to submit ideas to then partner with or broker a deal. (P&G with NESTA)
3. Consultancies or agencies who set up and facilitate the whole co-creation project to act as a bridge between a network of collaborators and a corporation. (Companies such as us —Sense Worldwide!)
4. Large corporations who call for ideas by offering a one-off contest with prize money or a manufacturing run. (Muji Design Award)
5. Large corporations who outsource briefs to communities that are fostered online. (Innocentive, Kluster, Crowdspirit)
6. Large corporations that host an online platform where individuals submit ideas or requests based on the brand, which that business can then select for development. (Cuusoo with Muji)

Refer to the appendixes to find a complete visualization of this document.

Source: Jess Charlesworth
http://www.thespiritofcocreation.com/the-co-creation-landscape/

83 http://www.co-creators.co.uk/?page_id=25

A Hierarchy Of Co-creation Processes By Level Of Complexity

1. Value Co-creation:

"Truffle-tree.co.uk allows customers to adopt a truffle tree in France. Customers who adopt a tree (annual price £145 / $239 plus an annual maintenance fee) will either receive the truffles from "their" tree or can choose to pool their "harvest" with others to spread the risk of a low harvest. The experience of adopting, and being able to visit, your tree adds value, in comparison to otherwise just buying truffles, but does not provide for co-creating further, for example by planting the tree or actually harvesting your own truffles.

Other, similar, examples are Kuhleasing or Nudo-Italia where you "adopt" a cow for cheese or an olive tree for olive oil."

2. Item/Product Co-Creation:

"At CrushPad customers can participate in the decision making process in order to get to the end result of your own bottled wine. Customers can define the type of grape, the recipe and many other factors making the item/product a personal creation. In comparison to the Category "V" businesses CrushPad does not only have an adoption scheme, but involves and educates the customer beyond the initial and superficial level.

At Threadless.com customers can send in their own t-shirt designs, which are subsequently voted on by the other customers and visitors to the site. The winning design is then printed and sold as a newly created item/product. Again, consumers have a direct participation in and influence on the final outcome of the product development process. By the way, the winning design is rewarded with a cash prize as well as other benefits."

3. Process/Business Co-creation

"the Process/Business Co-creation level requires an almost completely new business structure that is fully supported by the management, its structure and its processes".

Source: Co-creators (http://www.co-creators.co.uk/?page_id=10)

B.2. Typologies of Co-Creation

The Co-Creation blog distinguishes three basic processes for co-creation. They are related to each other by increased requirements for complexity.

Fronter Strategy distinguishes four main types of value created by co-creation processes[84]:

Direct Results

The direct result of a co-creation project, then, is the economic value generated by these new introductions.

> *"eBay in The Netherlands (Marktplaats) did a co-creation project involving 'Large volume sellers'. One of the products developed in the project was a new feature that allowed people to put an ad for their product into an 'other category'. This relatively simple product (turning something 'not allowed' into a 'valuable service') has so far generated revenues 10 times the investment that went into it."*

84 http://www.fronteerstrategy.com/uploads/files/FS_Whitepaper-Co-creation_5_Guiding_Principles-April_2009.pdf

Future Results

A successful new product introduction will be followed-up by new extensions or inspire others to introduce new products. It can generate a snowball effect within a category. It can create a new family of products.

> *"Example: The Senseo coffee machine collaboration by Philips and Sara Lee has created a revolution in the coffee category: easy individual home use of coffee. Since its launch in 2001, 25 million Senseo coffee makers have been sold worldwide."*

Direct Spinoffs

Some results cannot be measured in terms of profit, but create enormous value. Next to the direct results - the ones that correspond with the project goals that have been set - unexpected effects will take place.

> *"Example: Amazon started out aiming to be the largest bookstore on the internet. By being highly customer-centric from the start - more than anyone else - and letting readers create the content around the books, Amazon has become the largest book review site."*

Future Spinoffs

The authors here mention how the invention of filesharing capabilities led to a not readily predictable resurgence in the role of live performance of musicians.

The Co-Innovative blog distinguishes six possible corporate strategies to elicit contributions.

Fronteer Strategy also offers a consise summary of the ideal process requirements for co-creation to occur[85]:

> *" 1) Inspire participation: Trigger people to join your challenge: open up and show what's in it for them (e.g. P&G Connect & Develop)*

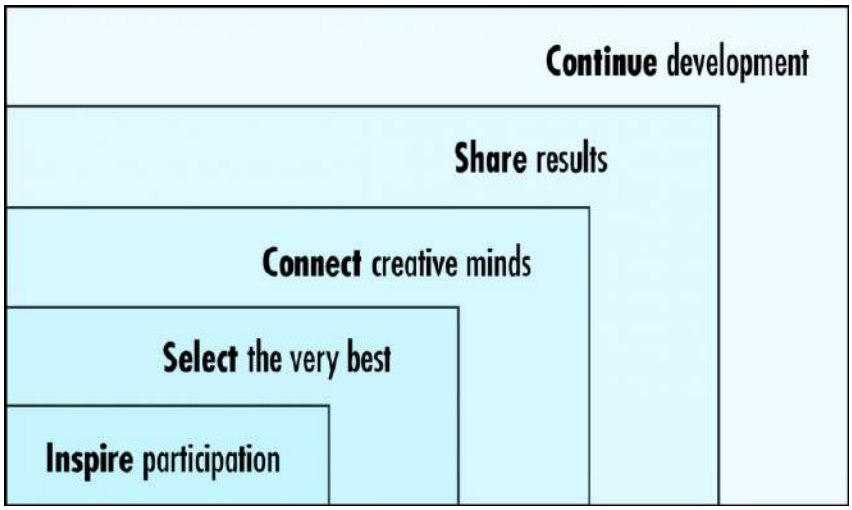

Illustration 8: The Five Guiding Principles of Co-Creation —Source: Fronteerstrategy.com (http://p2pfoundation.net/File:5_principles_of_co_creation.png)

85 http://2.bp.blogspot.com/_2cX3Z4TlN64/Sd3C70d74QI/AAAAAAAAADQ/LH2pOQrzdqE/s400/FS+-+5+guiding+principles+in+co-creation.jpg

> *2) Select the very best: You need the best ideas and the best people to deal with today's complex issues (e.g. Innocentive)*
>
> *3) Connect creative minds: You have to enable bright people to build on each others ideas, both on- and off-line (e.g. Lego)*
>
> *4) Share results: Giving back to people - and finding the right way to do it - is crucial (e.g. Apple iPhone App store)*
>
> *5) Continue development: Co-creation is a longer-term engagement, in- and outside your company. Only then it will deliver results (e.g. Dell Ideastorm)"*[86]

A discussion by the Promise Corp. stresses the important of processes rather than outputs:

> *"We think that thinking about co-creation requires a greater focus on the processes, not just outputs.*
>
> *Our analysis highlights the following:*
>
> *1)* ***The over-reliance on technology platforms*** *as the means of co-creative production. Offline and hybrid techniques receive less attention and are probably underutilised.*
>
> *2)* ***The centrality of the facilitator*** */ facilitating organisation. Skilled moderation techniques are a feature of the co-creation approach that differentiate it from, say mass customisation.*
>
> *3)* ***The importance of fostering a transitional space and 'play' as a constituent ingredient in the innovation*** */ co-creation process.*
>
> *4) The potential of co-creation to reduce risk and increase speed to market (for new product development) but also* ***the impact on word-of-mouth advocacy*** *(among participants) and, internally, the potential for co-creation to increase belief and focus.*
>
> *5)* ***A current lack of measures or frameworks for understanding success.****"*[87]

Check The APPENDIX:

Corporate Use of Co-Creation

86 http://fronteerstrategy.blogspot.com/2009/04/co-creations-5-guiding-principles-or.html

87 http://www.promisecorp.com/blog/?p=116

C. Co-Design

Co-Design has a much more specific meaning than Co-Creation, as it focuses more narrowly on the process for creating new products and services:

> *"The concept of co-design is directly related to co-creation. By co-design we refer to collective creativity as it is applied across the whole span of a design process. By these definitions, co-design is a specific instance of Co-Creation."*[88]

Examples Of Co-Design Practices

Examples of ongoing structured collaboration

BMW Connected Drive

the BMW Customer Innovation Lab was BMW's first true CUSTOMER-MADE environment. Participants were handed an online tool-kit, helping them develop ideas and showing how the firm could take advantage of advances in telematics, online services and driver assistance systems. From the 1,000 customers who used the tool-kit, BMW chose 20 and invited them to meet its engineers in Munich.

Kaiser Beer, Brazil

In Brazil, Kaiser Beer embarked on a CUSTOMER-MADE adventure last year by asking their customers to co-create its Kaiser Novo Sabor: a new premium beer reflecting the opinions and personal taste preferences of more than 11,000 contributors in 130 cities across Brazil. The beer was an instant hit, with the initial 11,000 contributors eager to play the role of brand ambassador.

Examples of design contests:

Peugeot Concours Design

> *"The third Peugeot Concours Design was launched in September 2004 at the Paris Motor Show, and the final results were shown at the Geneva Motor Show last month. After aspiring car designers were asked to design the Peugeot of their dreams for the near future, 3,800 projects (compared with 2,800 in 2002 and 2,050 in 2000) were sent in, from 107(!) countries."*

IKEA's "fiffigafolket" contest

> *"Asked amateur outsiders to send in clever designs for storing home media (hifi sets, TV, DVD etc) in the living room. Out of 5,000 ideas submitted, fourteen winners will be invited to IKEA headquarters for a workshop, and will receive EUR 2,500. More interestingly, the designs will actually get produced and end up in IKEA stores for all to see, buy and assemble."*

Companies based around the co-design by customers : Threadless T-Shirts

> *"Threadless, an ongoing t-shirt design competition urges users to submit shirt designs, which are put into the running to be scored for seven days. After those seven days, the highest scoring designs are chosen to be printed and sold in the shop section."*

A well-known example of co-design, in a community setting with a collective voting procedure, is Threadless:

> *"an ongoing t-shirt competition, lets users submit t-shirt designs which the Threadless community can vote on for a period of seven days. The Threadless team picks t-shirts to be printed among the top scoring designs and sells these in their online shop. Not every user may get to wear his or her own design, but all the t-shirts are user-designed."*[89]

88 http://www.osbr.ca/ojs/index.php/osbr/article/view/1012/973

89 http://www.openbusiness.cc/2007/10/08/open-customization/

Such collaborations can take different forms, from one-time contests, to ongoing structural collaborations involving complex co-design toolkits that are offered by companies to their customers.

D. Mass customization as 'user creation lite'

Mass customization is not to be considered full co-design as it limits the role of the consumer to changing a limited number of configurations. Nevertheless, advances in manufacturing allow the retention of economies of scale, to be combined with ever larger degrees of customization, even though this also requires intensified involvement by customers in the value chain.

Frank Piller explains that *"personalization is using technology to accommodate the differences between people"* and that *"Mass customization then could be seen as a process for implementing personalization."*

It is important to note that mass customization does not demand lot sizes of one, what matters is the perception of the customer. Custom products can indeed be produced in larger quantities for an individual customer. "Customers are looking for products that fit their needs, and they do not necessarily care whether those offerings are physically built to their order or whether those items come from a warehouse —just as long as their needs are fulfilled at a reasonable price."[90] Mass customization aims to marry the demands for personalisation with the price-point competition that industrial scale production can afford.

The easiest form to realize this promise involves both a digital front-end and a digital back-end, as with Amazon, but it is now entirely possible to combine a digital front-end with a physical back-end:

> *"Digital Front End/Physical Customization and Assembly: Most current mass customization companies would fall into this bucket. You design something with a web based cad interface and then some factory produces it using modified traditional manufacturing processes. Think NikeID, Fashion Playtes, or Paragon Lake."*[91]

There are now many successful examples of this trend, explains Frank Piller:

> *"Many initiatives of consumer mass customization have been developed recently. Indeed, not a month has gone by without a major mass customization initiative by an established company or a new start-up. Some good examples of mass customization in consumer goods that were launched recently are Germany's MyMuesli (customized cereal), Blends For Friends (create your own tea blend), Conde Nast's TasteBook (customized cookbook with your favorite recipes), or John Maeda's innovative configurator for Reebok that turns the favorite song of a user into a custom sneaker style. A segment of mass customization that has been exploding recently is the*

90 http://mass-customization.blogs.com/mass_customization_open_i/2010/10/term-wars-personalization-versus-mass-customization-a-review-of-the-definitions.html

91 http://replicatorinc.com/blog/2009/10/mass-customization-can-create-value-profit/

> *market of user-created photo books, including providers such as Picaboo, LuLu, CeWe, Blurb, Moo, and many others. Zazzle and Cafepress take a similar approach of selling custom printed T-shirts, coffee mugs, mouse pads, and more. There are also mass customizing companies producing children books (flattenme), customized jewellery (Paragon Lake), dolls (My Twinn) and even bras (Zyrra). All these companies reported high double-digit sales and growth in the last year."*[92]

He stresses that: *"**the real drivers of mass customization are consumers not any longer willing to compromise, and new tools allowing them to design their own offerings"*** … and gives the following evolutionnary account of its development:

> *"In line of business strategies focusing on the creative consumer, mass customization can be regarded as the first elaborated concept, with a history of more than two decades (the term was coined in 1987 by Stan Davis)".*

For Frank Piller, somewhat exagerratedly, *"Mass customization now seems to become the standard of the 21st century."* and he continues:

> *"The term denotes to an offering that meets the demands of each individual customer, but that still can be produced with mass production efficiency. To reach this efficiency requirement, a mass customization system is defined by a fixed solution space, characterized by stable but still flexible and responsive processes. As a result, the costs associated with mass customization should allow for a price level that does not imply a switch into an upper market segment. The solution space is utilized by customers who are integrated in the value creation process of the manufacturer by defining, configuring, or modifying their individual solution within a given set of choice options. Without the customers' deep involvement, the manufacturer would be unable to adequately fill each individualized product demand. Dedicated toolkits should enable the customers to perform this configuration tasks on their own."*

He stresses the linkage with the general trend towards co-creation and co-design:

> *"Mass customization offers companies the flexibility to minimize new product development risk, but this flexibility does not come without costs. This strategy requires a redesign of the products and processes. This includes the creation of modular product family structures and often heavy investments in new flexible machinery equipment. For mass customization, also an elicitation system has to be in place to access the preferences of each individual customer and to transfer them into a precise product definition. Thus, while mass customization has plenty of opportunities, it will not become the dominating strategy of user co-creation."*[93]

92 http://www.we-magazine.net/volume-01/mass-customization-and-beyond/

93 Ibid.

The development of rapid prototyping and personal fabrication technologies such as 3D Printing is likely to herald a new phase in the development of mass manufacturing, with less human involvement in the production process.

Sung Park, who is sometimes called the grandfather of mass customization, gives a threefold typology of mass customization.

- **Type 1** is like Amazon's personalisation features, combining a Digital Front End with a digital Digital Back End; This type of personalisation is entirely virtual and serves the capacity to enhance the value and usefulness of suggestions and recommendations. (In the case of Amazon, further book suggestions which may lead to more sales.)

- **Type 2** refers to physical products, which combine a Digital Front End with physical assembly. This is the case when the choice of the customer leads to the fabrication of a personalized physical product (NikeID).

- **Type 3** is a type which maximally avoids human intervention altogether by automating both ends, i.e. selection AND production. This would be the case if a automated input device, for example an intra-oral imaging system for the dental market, would be directly linked to a desktop 3D printer that would immediately manufacture the resulting product with only minimal human intervention.

A Taxonomy Of Customization

In the book *Mass Customization* author Joseph Pine offered up a taxonomy of customization/modularity that helps clarify thinking on the subject.

Component Sharing Modularity

Component swapping modularity enables customization of products by reusing a functional module across a variety of products. It could be a single motor across a line of power tools or, in the case of Bug Labs, reusing the computational module to enable customization of consumer electronics. In most cases the end user can't customize the product themselves, but the modularity enables cost effective development for niche products. Value is created by reducing complexity in the supply chain which provides time and margins to introduce more products.

Component Swapping Modularity

Component swapping modularity adds value to commodity products. The print on demand market is a great example of of this, the base products are blank postcards, books, and coffee mugs, but when photo modules are added by customers significant value is created. Moo has created a service that allows people to design business cards and have unique images on each card. Unlike component sharing modularity the bulk of the value comes from what is placed on the "base", not the base itself.

Cut-to-Fit Modularity

Cut-to-fit modularity is as simple as it sounds, you have a product that is functional at a wide range of sizes and sell just enough to meet the customers needs. Made to order clothing is the classic example, but the funky soap store Lush sells its esoteric offerings to customers by cutting off chunks of soap from large decorative batches.

Mix Modularity

Mix Modularity products are comprised of two or more components mixed together to provide additional value. Industrial soaps are the canonical example, but YouBar is a more customer friendly example. YouBar allows you to tailor your ideal energy bar combining various nuts, berries, flakes, and supplements.

Bus Modularity

Bus Modularity enables customization by providing an architecture that can contaim a diverse set of components while maintaining control over the final product. In the case of Ridemakerz they developed a magnetic connection system that allows kids to design a custom car by combining chasis, wheels, engines, and other parts while ensuring the finished product still looks like an attractive car.

Sectional Modularity

Sectional Modularity creates value by enabling the user to create something with a kit of parts then rearrange it if required. Office cubicles are one example of this, but Lego is far more fun and the images are infinitely better.

Source: Replicator blog (http://replicatorinc.com/blog/2009/04/6-types-of-mass-customization/)

IV. The User-Generated Ecosystem

Open innovation, co-creation and co-design refer to the mobilisation of bottom-up user innovation for the benefit of firms. But users are also independently congregating using Web 2.0 participative read-write media and social media platforms that are dedicated to sharing user-filtered or user-generated content. As we will see, this is also creating a user-centric infrastructure and corresponding business practices and models.

A. The Emergence of Users-Generated Content

Indeed, users are not just innovating and contributing to manufacturing or producer-centric processes, they are moving to the self-production, both in terms of the 'immaterial' production of content, and in the context of the emerging 'maker communities'.

In this section, we focus on user-generated content. This capability has created a huge new social media and social content industry, which has to be distinguished from the models of commons-oriented peer production in free software and open hardware.

It is important to note that "Users" and the movements and companies associated with them are not just producing content. **They are creating an entire ecosystem of services, or more usually, an infrastructure is created for them**. The very creation of these infrastructures also bases itself on user input in .

It is important to see that this ecosystem has substantially disintermediated old media mechanisms, and then re-intermediated them through content, social media and social networking centric platforms.

A report from the CATO Institute, Amateur to Amateur[94], has a good summary of this disintermediation of the content production value chain:

> *"The creative content cycle entails seven discrete functions: (1) creation, (2) selection, (3) production, (4) dissemination, (5) promotion, (6) purchase, and (7) use. Every one of the functions involved in this process is being decentralized and "amateurized."*

94 Policy Report: Amateur-to-Amateur: The Rise of a New Creative Culture. by F. Gregory Lastowka and Dan Hunter. Cato Institute, April 2006. http://www.cato.org/pub_display.php?pub_id=6359

Here we present the summary:

CYCLE	BEFORE	AFTER
Creation	"This first stage, in which a creator writes, composes, draws, paints, or otherwise creates fixed expression, is "creation." Historically, for example, aspiring filmmakers were unable to produce motion pictures without the help of financial backers and technical specialists. […] The dominant means of organizing all those people is the firm.	Advances in technology, however, are dramatically reducing the costs of formerly expensive creative genres. […] Individuals now have many of the creation tools that were formerly available only to professionals in the content industries.
Selection	"The next function in the traditional chain of copyright practices is selection. By "selection" we mean the exercise of some discriminatory judgment about which creative works warrant reproduction and distribution. Selection is the process whereby someone decides which works are worthy of the additional investment in conveyance to society.[…] Tens of thousands of "speculative" screenplays are created each year by aspiring writers and mailed to agents, producers […] Most such scripts go unread, a number are rejected, and a very tiny percentage is actually judged worthy of commercial development.The decision that a script is worth considering for turning into a movie is the epitome of the selection function. […]Selection is absolutely necessary because investments should not be made in works that will not recoup investments.[…] In high-risk industries like pop music and movies. Those industries are based on a venture capital model of risky production: No one knows what type of content is going to be successful, so many bets are placed on various alternative products […] one high-performing "hit" will more than cover the costs of a large number of failures.Someone, somewhere, must make decisions about whether a given work is worth exploiting.	Distributed selection is increasingly a more reliable predictor of preferences than are the traditional industry selection agents — commissioning editors, movie executives, and so on. Distributed selection is real-time, individually tailored, and resistant to the personal generalities, inconsistencies, and information deficits that plague traditional industry agents. The average selection agent makes a gut reaction decision about the interest level in a particular market or submarket. The algorithmic distributed selection agent makes individualized predictions based on the end user's interests.In the music field, for example, AudioScrobbler is a plug-in for various music-playing applications. […] AudioScrobbler checks your ratings against the playlists of other users and finds those users whose rankings are most similar to yours. It then recommends songs that those users rate highly but are not on your playlist.[…] The technology news and commentary sites of Kuro5hin and Slashdot provide a distributed selection mechanism through their moderation process. Any posting on those sites is rated by multiple users, and an average score is assigned to the posting. Other users can then set their threshold, to see only those postings that are rated above a certain level. […] It seems inevitable that the function of content selection in the future will be more socially distributed. Central selection agents will lose their relative power in much the same way that the proliferation of cable television channels has led to the decline in prominence of the three major American broadcast networks.

Production	In the production function, someone invests in preparing a work for the market.[…] production invariably entails the re-production of the work.In book and magazine publishing, the text and graphics are typeset and multiple copies are run off from that master version.	The last 20 years have profoundly altered production and reproduction of content. This started with the introduction of consumer reproduction technology: Xerox reprography, audio cassettes, and VCRs. […] Today, with the advent of perfect digital copies, the public can take care of the production function on its own. […]Not only is the computer a production device, but, as noted above, the Internet itself is a technology of production.[…] The genius of cheaper, decentralized production is, not just that people who otherwise would publish can do so more cheaply, but that those who never considered that they could publish are now free to do so.
Dissemination	Dissemination has historically entailed the distribution of copies of works to outlets for purchase. Physical distribution beyond one's immediate sphere invariably requires the coordination of supply chains.	The Internet revolutionized distribution at the same time it revolutionized production. Consumers still have to be made aware of the content and be convinced that they need it. And that is the job of the promotion function.
Promotion94	The most important function in the copyright business has always been promotion […] individual consumers must somehow be made aware of the work's existence and, more important, be convinced to purchase the work (or access to it).[…]In the past, the processes of selection and promotion were separate, both temporally and strategically. The work of a selection agent was to find the diamonds in the rough, but the promoter was a specialist in selling […] The importance of the promotion function to copyright industries is hard to overstate, and it is ignored in almost all accounts of copyright. "Brand licensing" is one of the success stories of the entertainment industries of the second half of the 20th century.[…] The promotion function is primarily about finding a mechanism to connect potential consumers with content they are interested in using. Promotion is probably the most important function making the difference between successful and unsuccessful exploitation of copyrighted content.	Increasingly, however, we are seeing the decentralization and consequent amateurization of the promotion function. In fact, the selection and promotion functions are merging.The rating of a particular movie, book, or article by people who are just like you may be a much better mechanism of promotion than any of the mechanisms that centralized actors have had at their disposal. The review function in Amazon.com is one in which individuals are, essentially, promoting content in a decentralized manner.[…]Distributed recommendation systems like Epinions have been built to express opinions on all manner of things, people, and content.
Purchase and Use	Purchase, in the traditional theory of copyright, creates the incentive for creation and also subsidizes the previous five processes. In exchange for cash, a consumer acquires the right to access a work […] A	[…] Content is giving way to individual authorship and selection designed to build an artist's brand and personal reputation or to establish a person's membership in an online social community. […]Use is an integral aspect

	traditional purchase function is possible, and easy, for decentralized actors. Five years' experience with online payment demonstrates how simple it is for purchases to be made through the Internet […]It also must be observed that a direct financial return is not the foremost goal of many players in the content chain.[…] The final function in the content chain is use: the experience or manipulation of the content by the purchaser.	of the life cycle of creative content. If one thinks of use under the traditional copyright model, use is merely passive reception of the content, and nothing has changed. However, if one sees use as adapting, retransmitting, modifying, or otherwise building upon the content, much has changed. In essence, whereas the "use" stage of the creative process in the past was when a creation reached the public, the "use" stage in the amateur-to-amateur model is merely the beginning of the next stage in the creative cycle. The amateur end user may become the amateur recreator or redistributor.

Of particular importance are the new 'distributed selection' mechanisms which lead to a decentralisation of taste.[95] As the New York Times writes:

> *"...music consumers are increasingly turning away from the traditional gatekeepers and looking instead to one another — to fellow fans, even those they've never met — to guide their choices. Before long, wireless Internet connections will let them chatter not only on desktops, but in cars and coffee shops, too. And radio conglomerates and MTV, used to being the most influential voices around, are beginning to wonder how to keep themselves heard."*[96]

Typology Of Consumer Generated Media

- CGM: Consumer Generated Media (example: unaided review on message board or blog)
- CGM2: Consumer Generated Multimedia (example: "I love my iPod video")
- CFM: Consumer Fortified Media (example: Dove "Evolution" video spot)
- CSM: Consumer Solicited Media or "co-creation" (example: "create your own" Super Bowl ads)
- CCGM: Compensated Consumer Generated Media (benign example: Revver, ugly scenario: PayPerPost meets video)

Source: Consumer Generated Media (http://notetaker.typepad.com/cgm/)

Culturally, writes John Battelle, we are witnessing a shift from 'Packaged Goods Media' to 'Conversational Media'[97]:

> *"There are two major forms of media these days. There is Packaged Goods Media, in which "content" is produced and packaged, then sent through*

95 http://www.readwriteweb.com/archives/interview_with_1.php

96 http://www.nytimes.com/2006/09/03/arts/music/03leed.html

97 http://battellemedia.com/archives/003160.php

traditional distribution channels like cable, newsstand, mail, and even the Internet. Remember when nearly every major media mogul claimed that the Internet was simply one more media distribution channel?

The second major form of media, is far newer, and far less established. I've come to call it Conversational Media, though I also like to call it Performance Media. This is the kind of media that has been labeled, somewhat hastily and often derisively, as "User Generated Content," "Social Media," or "Consumer Content." And while the major media companies are unparalleled when it comes to running companies that live in the Packaged Goods Media world, running major companies in the Conversational Media field require quite a different set of skills, and consideration of radically different economic and business models - models which, to be perfectly frank, conflict directly with the models which support and protect Packaged Goods Media-based companies."

Trendwatching's newsletter on the 'Customer-Made' trend is a very good overview of how companies are attempting to use UGC to their own advantage in a wide variety of different fields[98]*. In this context, it is sometimes called 'Consumer Generated Media', with a strong informal component: it "encompasses opinions, experiences, advice and commentary about products, brands, companies and services —usually informed by personal experience —that exist in consumer-created postings on Internet discussion boards, forums, Usenet newsgroups and blogs."*[99]

Consumer Generated Media As Influencer Of Consumer Decisions

More than 50% of respondents to the Compete study said they used consumer-generated media to make or narrow their choices, 23% used CGM to confirm a decision and 15% used CGM to determine what their top choice should be.

Some key findings from the study:

- - 71% of car and travel consumers are influenced by CGM
- - Only 35% of the same consumers are influenced by brand
- - Auto buyers prefer consumer reviews and ratings over company websites (32%) and car dealers (32%)
- - 2/3 of travelers prefer consumer reviews.

Compete estimates that around $2 billion from the Travel Spend is influenced by CGM.

Source: Compete (http://www.competeinc.com/news_events/pressReleases/174/)

98 http://trendwatching.com/trends/CUSTOMER-MADE.htm

99 Sandeep Krishnamurthy and Wenyu Dou, Note from the Guest Editors: Advertising with User-Generated Content: A Framework and Research Agenda | JIAD, n.d 2008. http://jiad.org/article99.

B. Special forms of user generated content

User-Generated content is powering the growth of the major social media platforms such as Google, Facebook, YouTube and others. Many media outlets now rely on user-generated content as an adjunct as well, such as CNN's iReport. Many special forms of UGC have emerged:

Examples Of User Generated Content

Here is one recommended example of user-generated advertising:

> *"The Converse Gallery should really have been part of our initial CUSTOMER-MADE piece, as it was launched last August, and has since then set the standard for CUSTOMER-MADE commercials. The site features dozens of 24-second films, CUSTOMER-MADE by Converse fans, who are asked to express what Converse shoes mean to them. The chosen films are then broadcast on Converse's website, with the possibility of being aired on MTV and other cable networks."*

This example of an ad for the iPod covered by Wired magazine.

Source: http://www.wired.com/gadgets/mods/commentary/cultofmac/2004/12/66001

Participatory design, for example through design competitions, is another domain:

> *"Core 77, the industrial design site, teamed up with watch maker Timex for a global design competition called Timex2154: THE FUTURE OF TIME (celebrating Timex's 150th anniversary). Designers from more than 72 countries explored and visualized personal and portable timekeeping 150 years into the future, resulting in over 640 entries. Winners can still be viewed in the Timex Museum."*

A well-known example in the fashion industry is Threadless:

> *"At Threadless, an ongoing t-shirt design competition urges users to submit shirt designs, which are put into the running to be scored for seven days. After those seven days, the highest scoring designs are chosen to be printed and sold in the shop section."*

B.1. Circular Entertainment

Nokia produced a study, *A Glimpse of the Next Episode*, carried out by *The Future Laboratory*, which interviewed trend-setting consumers from 17 countries about their digital behaviors and lifestyles signposting emerging entertainment trends.

The study concluded:

> *"From our research we predict that up to a quarter of the entertainment being consumed in five years will be what we call 'Circular'. The trends we are seeing show us that people will have a genuine desire not only to create and share their own content, but also to remix it, mash it up and pass it on within their peer groups —a form of collaborative social media," said Mark Selby, Nokia's VP of multimedia, in a prepared statement."*[100]

100 http://www.informationweek.com/blog/main/archives/2007/12/where_will_you.html

B.2. Player Generated Content, User-Generated Worlds, Fan Fiction

3D worlds such as *Second Life*, among many other games, have built their platforms, business models, and development strategies based on the need for substantial user input. Platforms and games are often unfinished and allow the users and gamers to continue to build the gaming universe, often with specialized 'user innovation toolkits', including the ability to write player-driven stories[101]. Examples of Games with such toolkits include *Little Big Planet*, *Quake*, or *The Elder Scrolls* saga. One step further are games like *Minecraft* or *Sims Online*, where the gameplay largely revolves around the collective building of the gameworld itself.

Metaverses like *Eve Online* or *World of Warcraft* are in fact also "player-run economies" i.e. vibrant system in which players meet the needs of fellow players.

Cultural commentators like Henry Jenkins have noted the emergence of very strong fan fiction[102], fan cinema[103] and fan funding communities.

C. New Intermediaries for UGC

If the massive self-production and sharing/filtering of content created a distintermediation for the traditional players in the content creation industry, it at the same time creates the need for new intermediation mechanisms, and gives rise to what some have called a new 'curation economy'.

C.1. The Curation Economy

In User-Filtered Content, the content is not generated, but shared, linked, commented or annotated, and it is also creating new aggregators such as *Digg* and *Reddit*, which some have called a 'curation economy':

> *"As the cost of the creation of content continues to come down, more content creators will come online. This will create a huge influx of unfiltered material, and create a significant demand for filters and editors who can find/sort/select and recommend contextual quality content within verticals. This "Curation" function has the potential to give media enterprises whose current business models are under tremendous pressure a new and important role in the web media world. What makes the Curation Economy so powerful, and so disruptive, is that the core resource required to building a high-quality curated experience is not capital, but knowledge. This will drive an emerging class of content entrepreneurs - people who are able to turn their trusted personal brands into high-quality filtered content destinations. As the number of publishers grows dramatically, content*

101 http://massively.joystiq.com/2012/01/06/some-assembly-required-a-virtual-world-round-up/

102 http://p2pfoundation.net/Fan_Fiction

103 http://henryjenkins.org/2009/03/home-made_hollywood_an_intervi.html

> *consumers will hunger for new trusted sources. These many creators and consumers on the move will fuel whole new businesses and categories."*[104]

C.2. Citizen Journalism and Citizen Media

Citizen journalism[105], also known as Participatory Journalism is the act of citizens "playing an active role in the process of collecting, reporting, analyzing and disseminating news and information"[106]. An alternative concept, Networked Journalism, is now proposed by Jay Rosen:

> *"network journalism is when groups of people come together through the Internet to work on a single story. Like stand-alone journalism it is a conscious decision, but the work is not done by a lone reporter. Instead, it requires a group of people. Network journalism rests its fate on two principles: First -- the "wisdom of the crowd," the notion that a large network of people will have a collective intelligence that is greater than any single reporter. The second is "crowdsourcing" ... the idea that a group of people will be able to tackle a large investigation in a more efficient manner than a single reporter."*[107]

Typologies Of Citizen Journalism

Ethan Zuckerman (http://petesview.net/2007/04/16/citizen-journalism/) talks about 3 distinct models for Citizen Journalism:

- Opportunistic —being in the right place at the right time
- Participatory —creating or engaging around a themed project
- Citizen Experts —subject matter experts deepening discussion

Bruno Giussani (http://petesview.net/2007/04/16/citizen-journalism/) takes these models and relates them to the ingredients that the newsroom needs to manage. He sees three broad trends:

- Assembled media —embedding info assembled elsewhere
- Read/Write Media —involving the 'audience'
- Media as Places —connection points for community"

Check The APPENDIX:

Interview with Axel Bruns on Produsage in Citizen Journalism

104 http://www.huffingtonpost.com/steve-rosenbaum/5-trends-that-will-change_b_155119.html

105 http://globalvoicesonline.org/2008/01/16/an-introductory-guide-to-global-citizen-media/

106 We Media: How Audiences are Shaping the Future of News and Information, by Shayne Bowman and Chris Willis http://www.hypergene.net/wemedia/weblog.php?id=P36

107 http://www.newassignment.net/blog/david_cohn/sep2007/06/network_journali

The Content Hierarchy Of Citizen Journalism

Steve Outing distinguishes a hierarchy of 11 layers. The full article (http://www.poynter.org/content/content_view.asp?id=83126) gives an extensive analysis of the various models with concrete examples for each.

1. The first step: Opening up to public comment

2. Second step: The citizen add-on reporter

A small step up the ladder is to recruit citizen add-on contributions for stories written by professional journalists.

3. Now we're getting serious: Open-source reporting

The term generally is understood to mean a collaboration between a professional journalist and his/her readers on a story, where readers who are knowledgeable on the topic are asked to contribute their expertise, ask questions to provide guidance to the reporter, or even do actual reporting which will be included in the final journalistic product.

4. The citizen bloghouse

A great way to get citizens involved in a news Web site is to simply invite them to blog for it. A number of news sites do this now, and some citizen blogs are consistently interesting reads.

5. Newsroom citizen 'transparency' blogs

A specific type of citizen blog deserves its own category here. It plays on the notion of news organization "transparency," or sharing the inner workings of the newsroom with readers or viewers. This involves inviting a reader or readers to blog with public complaints, criticism, or praise for the news organization's ongoing work.

6. The stand-alone citizen-journalism site: Edited version

This next step involves establishing a stand-alone citizen-journalism Web site that is separate from the core news brand. It means establishing a news-oriented Web site that is comprised entirely or nearly entirely of contributions from the community.

7. The stand-alone citizen-journalism site: Unedited version

This model is identical to No. 6 above, except that citizen submissions are not edited. What people write goes on the site: blemishes, misspellings and all.

8. Add a print edition

For this model, take either No. 6 or No. 7 above (stand-alone citizen-journalism Web site, either with edited submissions or a hands-off editing approach) and add a print edition.

9. The hybrid: Pro + citizen journalism

The next step up the ladder creates a news organization that combines citizen journalism with the work of professionals. South Korean site OhmyNews is the best example of this approach.

10. Integrating citizen and pro journalism under one roof

Now we enter the world of theory, because I've yet to find anyone taking this bold step yet. Imagine, then, a news Web site comprised of reports by professional journalists directly alongside submissions from everyday citizens. This is slightly different than No. 9, above, because on any one page there will be a mix of professionally written (paid) and citizen-submitted (free) content —labeled appropriately so that the reader knows what he/she is getting —rather than the more typical walling-off of citizen content as a way of differentiating it from the work of professionals.

11. Wiki journalism: Where the readers are editors

Finally, in the "way out there" category, comes wiki news. The most well known example is the WikiNews site, a spinoff of the famed Wikipedia public encyclopedia, which allows anyone to write and post a news story, and anyone to edit any story that's been posted. It's an experimental concept operating on the theory that the knowledge and intelligence of the group can produce credible, well-balanced news accounts.

Alex Bruns uses the concept of Gatewatching[108] and Open News[109]:

> *"Sites such as Slashdot.org (news for nerds, and stuff that matters) with its 450,000 registered users publishes what might usefully be termed 'open news', more or less explicitly adapting existing open source principles of collaborative software development to arrive at a highly successful form of collaborative news coverage."*[110]

Steve Outing distinguishes a hierarchy of 11 layers. The full article gives an extensive analysis of the various models with concrete examples for each.[111]

D. From Content to Tools: New Distributed Infrastructures

User input can be considered as a form of capital that can be used to develop a new type of distributed infrastructure that relies on such user deployment instead of centralized capital allocation, such as in the models used by Skype and Fon. In addition, the spread of the internet capabilities to mobile networks has led to a application economy that is based on user input, and is also increasingly developed by participants of user communities.

D. 1. User-constructed infrastructures

Yochai Benkler has coined the term of *User-Capitalized Networks* to indicate how users can mobilize or be mobilized in building technical infrastructures.

One of the exaples he cites is Skype:

> *"You can build platforms and tools that assume that what you're doing is facilitating sharing —as opposed to producing a finished product to a consumer. Look at Skype. It has built a platform that allows us to share our PCs' excess capacity to produce connectivity. No one has built a network for Skype —all the million or 2 million people online are contributing resources. There's no commercial transaction between us. Just imagine trying to build a global voice-over-IP [VoIP] network. The cost would be unimaginable. The costs are unimaginable, except they're borne by a million or 2 million different people instead of by a company. It hasn't become less capital-*

108 http://bjr.sbpjor.org.br/index.php/bjr/article/view/355/331

109 http://subsol.c3.hu/subsol_2/contributors3/brunstext.html

110 Bruns, Axel. Community Building Through Communal Publishing: The Emergence of Open News. Mediumi 2 (2003). http://eprints.qut.edu.au/245/

111 http://www.poynter.org/content/content_view.asp?id=83126

> *intensive. The way in which it's financed has changed. It's user-capitalized networks."*[112]

The argument is echoed by Clay Shirky, who uses the concept of *Customer-Build Network Infrastructures*:

> *"If the economics of internet connectivity lets the user rather than the network operator capture the residual value of the network, the economics likewise suggest that the user should be the builder and owner of the network infrastructure." The creation of the fax network was the first time this happened, but it won't be the last. WiFi hubs and VoIP adapters allow the users to build out the edges of the network without needing to ask the phone companies for either help or permission."*[113]

Zennström and Friis, co-founders of Skype who had earlier created the P2P filesharing system KaZaa, explain why this makes economic sense:

> *"in the normal system you have a marginal cost for every unit you add. If your network is client/server-based, you have to add a new network card for each new Web server, central switch, and so on. But in a peer-to-peer network, you're reusing the system resources in the network, so the marginal cost of producing a phone call or a file transfer or something else is zero."*[114]

The other example of such a strategy is the WiFi Network initiative FON, build by their customers, as Bruce Sterling writes about their social strategy:

> *"People who have bought a Fon wireless router (or installed free Fon software on their own router) are Foneros; those who haven't are dismissed as Aliens. Some Foneros choose to share their connections with one another in return for free Net access at any Fon hot spot; they're called Linuses (after Linus Torvalds). Others, known as Bills (as in Gates), choose to pay for access at Fon hot spots. In return, they get a cut of the revenue when an Alien pays to log on through their router. In the old days, building an international telecom infrastructure and growing its market share required a colossal pool of capital. Today, Foneros do both of those jobs themselves."*[115]

112 http://www.businessweek.com/magazine/content/05_25/b3938902.htm

113 http://shirky.com/writings/zapmail.html

114 http://www.businessweek.com/magazine/content/04_44/b3906091_mz063.htm

115 http://wired.com/wired/archive/14.06/posts.html?pg=7

Fon has signed a substantial numbers of agreements with telecommunication companies such as the BT Group in the UK and Belgacom in Belgium (100,000 hotspots[116]) and has reached 4 million members and unlike Skype, it shares revenue with its customers[117]. It has been profitable since 2009. However, a common characteristic of both Skype and Fon is that their revenue models are dependent on traditional telecommunication operators, with whom they have revenue-sharing agreements. Fon's issues with finding an appropriate business model are described in Wired magazine[118].

The mobilisation of user capital by Skype, and the dependency of Fon on the collaboration and support of the traditional telecom players is an interesting illustration of the logic of a diagonal economy that requires the convergence of different stakeholders to be successful, including the important role of businesses and entrepreneurs, as well as financial partners.

D. 2. User-Generated Applications

Once platforms became accessible to mobile devices and users needed to carry out all kinds of practical tasks, applications moved to full commercial scale, co-existing with a parallel world of user-created applications, but which generates a specific and quite thriving economic sector, sometimes called the *App Economy*.

Michael Mandel has a very useful summary of the App Economy, which generated half a million jobs in the U.S. alone, and a turnover of over $20b in 2011 alone:

The App Economy

A new study out today documents the impact of apps on the U.S. economy, concluding that 466,000 jobs have been created by the "App Economy" since 2007 — including programmers, marketers, interface designers, managers and support staff working on apps and infrastructure for platforms including Android, Apple iOS, BlackBerry, Facebook and Windows Phone.
The New York Metro area has the largest proportion of jobs in the sector, at 9.2 percent. The Seattle region is fourth, at 5.7 percent, behind San Francisco and San Jose.
The research was conducted by economist Michael Mandel for industry group TechNet based on trends in help-wanted ads, in addition to other economic data. A summary of the findings is available here.
The report says,

> *"Every major consumer-facing company, and many business-facing companies, has discovered that they need an app to be the public face of the business. In some sense, that makes the App Economy the construction sector of the 21st century, building a new front door to everyone's house and in some cases constructing a whole new house."*

Source: Todd Bishop (http://www.geekwire.com/2012/study-app-economy-created-466000-jobs-2007)

> *"The App Economy lends itself to several types of metrics. For example, it's relatively easy to count the number of apps in a particular app store, how many different developers, and even how many times apps have been downloaded. For example, the Apple App store had 529,550 active apps as of December 12, 2011, according to 148apps.biz, uploaded by 124,475 active publishers.*
>
> *Another important metric is revenue. By one estimate, the App Economy generated almost $20 billion in revenue in 2011.6 This includes app downloads, in-app revenues, sales of virtual goods, and sales of physical goods and services."*

Source: Michael Mandel (http://www.technet.org/wp-content/uploads/2012/02/TechNet-App-Economy-Jobs-Study.pdf).

116 http://blog.fon.com/en/archivo/partners/fon-and-belgacom-launch-100000-hotspots-in-belgium.html
117 http://corp.fon.com/en/this-is-fon/money-making-wifi/
118 http://www.wired.co.uk/magazine/archive/2011/09/features/open-access-fon

'App', in the sense that we mean it today, did not exist before the iPhone was introduced in 2007. Apps are relatively lightweight programs, specifically designed to run on mobile platforms such as the iPhone and Android phones. In the past couple of years, the term 'app' has been extended to Facebook applications as well. In the prospectus for its initial public offering,

Zynga described the App Economy in this way:

> *"In order to provide users with a wider range of engaging experiences, social networks and mobile operating systems have opened their platforms to developers, transforming the creation, distribution and consumption of digital content. We refer to this as the 'App Economy'. In the App Economy, developers can create applications accessing unique features of the platforms, distribute applications digitally to a broad audience and regularly update existing applications."* [119]

The term 'App Economy' started coming into use in early 2009, and was popularized by a prescient November 2009 BusinessWeek cover story. The combination of ease of development and ease of delivery makes possible a stunning variety of apps.

But the App Economy is much more than a better delivery channel for software. From the economic perspective, we can think of the App Economy as a collection of interlocking innovative ecosystems. Each ecosystem consists of a core company, which creates and maintains a platform and an app marketplace, plus small and large companies that produce apps and/or mobile devices for that platform. Businesses can belong to multiple ecosystems and usually do.

There are two vectors that drive the app economy. First the combination of new kinds of input built into mobile devices: integrated accelerometers, light sensors, touchscreens, dual cameras, GPS, keyboards and microphones. The convergence of diverse kinds of data in these compact devices opens countless unexplored combinatory possibilities to developers. Second, their high degree of mobility and connectivity, through wi-fi, 3G or Bluetooth brings previously irrelevant contextual data to the center stage. The possibility to integrate these two vectors into Internet-native platforms and protocols creates a new three-dimensional universe for app economy development: new kinds of input, new modes of connection, and new glocal platforms. This three-dimensional app-space, combined with the fast rate of adoption of devices able to use it, account for the current explosion of app development.

However, these are the early stages of a much larger and deeply transformational process. The app economy itself also presents behavior consistent with 'diagonalization' processes described in the introduction to the first chapter of this report. This means that the pool of app developers, previously reduced and controlled by software giants, is constantly expanding and operating through models with growing degrees of autonomy. Similar to how media consumers became media creators through platforms like Youtube, platforms like Android or iOS foster the eventual mutation of app users into app developers. Just as in other realms of economic and social activity, the process towards self and peer production of apps is developing in parallel with the commercial field, as users solve their issues and add functionality to their mobile and geo-located experiences, such as in the field that is now

119 http://sec.edgar-online.com/zynga-inc/s-1a-securities-registration-statement/2011/12/15/section4.aspx

called the Quantified Self, civic applications such as open supply chain mapping, or the communities around Pachube's machine to machine infrastructure.

New app-learning initiatives such as Code Academy (codeacademy.org)[120], and in general the trend to take code literacy to the masses, are attracting increased attention.. Through a system based on free gamified interactive lessons sent weekly to their personal email, Codeacademy users can learn the basics of web app development. Further, other users can use the Codeacademy platform to create more advanced, or more specific, lessons that are shared with other users. Simplified learning process, simplified development environments, and simplified OS platforms, combined with the collectvisation of learning, make the barriers to app development drop to a significant degree.

120 http://www.codeacademy.org/

Chapter Three:

Infrastructures For 'Sourcing The Crowd' And Mutualizing Idle Resources

Introduction

In Chapter 1 and 2 we have described the emerging social logic of horizontal collaboration and participative value creation that corporate institutions and other market entities have to adapt to. In this chapter, we examine two of the major ways in which they are attempting to do this. One is mobilizing wider participation through crowdsourcing, which we may interpret as the 'mutualizing of immaterial resources'; this is a type of activity that allows firms to tap into a wider pool of distributed innovation or labor. The second part concerns the mobilizing of idle material resources which may be in the hands of a distributed public, i.e. so-called 'collaborative consumption', which we may interpret as a 'mutualizing of physical resources'; this is a type of activity in which firms attempt to create 'use communities' around access and service systems.

Our third chapter reviews crowdsourcing and collaborative consumption, two major trends in the collaborative economy. We will attempt the mapping of their corresponding infrastructures. First, we look at crowdsourcing interpreted as activity that allows firms to tap into a wider pool of distributed innovation or labor. Second, we look at collaborative consumption as a major trend to create 'use communities' around access and service systems. These systems are based on the mutualization of resources and infrastructures, and the recuperation of the manifold idle resources that have been created by our consumerist society. These idle reserves are now, in an age of increasing resource scarcity, being rethought.

I. Crowdsourcing

A. Defining Crowdsourcing

The narrow definition of crowdsourcing focuses on the aspect of an 'open call' to the general public, as opposed to systems that try to profit from more exclusive 'lead user' contributions. For example, see the following definition, taken from an excellent overview essay by Katarina Stanoevska-Slabeva, from which we will quote more later on:

> *"Crowdsourcing is the act of taking a job traditionally performed by a designated agent (usually an employee) and outsourcing it to an undefined, generally large group of people in the form of an open call."*[121]

Indeed for Jeff Howe, the coiner of the term in 2006, the open call is crucial:

> *"The crucial prerequisite is the use of the open call format in the wide network of potential laborers."*[122]

According to James Surowiecki, author of the best-selling The Wisdom of Croweds,

> *"a crowd can be defined as a large set of anonymous individuals. Implicit in this definition is the idea that a firm cannot build its own crowd. The strength of the crowd is the possibility to choose from the contribution of many contributors with different backgrounds, qualifications and talents."*[123]

In practice however, crowdsourcing has acquired the more general meaning of sourcing contributions to an outside public, even if selection procedures are being applied.

Both methods are used, i.e. crowds vs. experts, as explained by Patrick Philippe Meier, who uses and monitors crowdsourcing in the generation of disaster area mapping:

> *"the term 'crowd' can mean a large group of people (unbounded crowdsourcing) or perhaps a specific group (bounded crowdsourcing, also*

121 http://crowdsourcing.typepad.com/cs/advertising/index.html

122 Stanoevska-Slabeva, Katarina. Enabled Innovation: Instruments and Methods of Internet-based Collaborative Innovation. 1st Berlin Symposium on Internet and Society (2011). http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf

123 Ibid.

> *called expertsourcing). Unbounded crowdsourcing implies that the identity of individuals reporting the information is unknown whereas bounded crowdsourcing would describe a known group of individuals supplying information. The term "allsourcing" represents a combination of bounded and unbounded crowdsourcing coupled with new "sourcing" technologies. An allsourcing approach would combined information supplied by known/official sources and unknown/unofficial sources using the Web, e-mail, SMS, Twitter, Flickr, YouTube etc. I think the future of crowdsourcing is allsourcing because allsourcing combines the strengths of both bounded and unbounded approaches while reducing the constraints inherent to each individual approach."*[124]

Bounded, Unbounded Crowsourcing And Allsourcing

One main important advantage of unbounded crowdsourcing is the ability to collect information from unofficial sources. I consider this an advantage over bounded crowdsourcing since more information can be collected this way. The challenge of course is how to verify the validity of said information. Verifying information is by no means a new process, but unbounded crowdsourcing has the potential to generate a lot more information than bounded crowdsourcing since the former does not censor unofficial content. This presents a challenge.

At the same time, bounded crowdsourcing has the advantage of yielding reliable information since the reports are produced by known/official sources. However, bounded crowdsourcing is constrained to a relatively small number of individuals doing the reporting. Obviously, these individuals cannot be everywhere at the same time. But if we combined bounded and unbounded crowdsourcing, we would see an increase in (1) overall reporting, and (2) in the ability to validate reports from unknown sources.

The increased ability to validate information is due to the fact that official and unofficial sources can be triangulated when using an allsourcing approach. Given that official sources are considered trusted sources, any reports from unofficial sources that match official reports can be considered more reliable along with their associated sources. And so the combined allsourcing approach in effect enables the identification of new reliable sources even if the identify of these sources remains unknown.

Ushahidi is good example of an allsourcing platform.

Source: http://irevolution.wordpress.com/2009/12/17/end-of-crowdsourcing-2/

Many of the best known crowdsourcing platforms, such as *Innocentive*[125] and *NineSigma*[126], are in fact 'expertsourcing'. Crowdsourcing is also sometimes used interchangeably with approaches that put supply and demand together in digital marketplaces. In this much broader acception of the term, it has become known to mean "sourcing the crowd". For example, here is the much broader definition used by Ross Dawson in his comprehensive mapping of crowdsourcing practices, in the book *Getting Results From Crowds*[127].

124 http://irevolution.wordpress.com/2009/12/17/end-of-crowdsourcing-2/

125 http://www.innocentive.com/

126 http://www.ninesigma.com/

127 Dawson, Ross, and Steve Bynghall. Getting Results from Crowds: The Definitive Guide to Using Crowdsourcing to Grow Your Business. Advanced Human Technologies Inc, 2011.

He stresses the collective aspects of crowdsourcing:

> *"The term crowdsourcing, coined by journalist and author Jeff Howe in 2006, has helped us to frame the concept of using crowds to get work done.* ***Implicit in the idea of crowdsourcing is the ability to create value that transcends individual contributions****, crystallizing collective insights through structured aggregation. For example competitions, prediction markets, idea filtering, and content rating are all mechanisms by which collective contributions can create better outcomes than individuals or small groups."*

In this collective aspect, crowdsourcing should not be confused with the more specific definition of the 'wisdom of crowds', which stresses special applications where averaging the judgement of crowds beats the individual judgments of experts, on the condition that the individuals are isolated from each other[128].

Since the definition of crowdsourcing has become so generalized and includes many different practices, it should always be used with specifications as to the context and to the particular characteristics of the particular practice.

Historical Examples Of Crowdsourcing

"Without the ambitious innovation of the crowd, we wouldn't have modern shipping, canned soup, or even margarine. Yes, each of these discoveries were made through bounties being cast to an open crowd in search of a solution.

Canning

While canning food may not seem as important as preventing the pre-industrial globe's primary means of transportation from running aground, it may in fact be more important. When Napoleon began his invasion of Europe in the 18th century he quickly ran into the problem of feeding his army once they left the safety and abundant food found on French farms. To solve the problem, he established a prize of 12,000 francs for the most innovative and effective means of staving off the troop's hunger. After a few years of experimentation, Nicolas Appert submitted the winning solution: boiling wax sealed jars to preserve food from spoiling. Once again, it was due to the simple act of turning away from one team to a diverse collection of individuals to source the idea that would change modern food production.

Margarine

Canning food wasn't the last time the Napoleon family would crowdsource a solution through a contest. When Napoleon III saw the appetite of his military and nation was surpassing production of butter, he once again set a prize for the first to develop a suitable supplement to replace this staple of the French diet.

In 1869, a French chemist by the name of Hippolyte Mege-Mouries found that melted down fat and milk could make a satisfactory replacement for butter. He named it oleomargarine, later shortened to margarine. Interestingly enough, Mouries later sold the patent to the company Jurgens, which later merged with another company to become Unilever—a company that has been quick to adopt creative crowdsourcing in recent years."

Source: Peter LaMotte (http://dailycrowdsource.com/2011/07/11/crowd-leaders/crowd-leader-peter-lamotte-crowdsourcing-isn%E2%80%99t-new-only-the-word-is/)

128 http://humergence.typepad.com/the_never_ending_quest/2006/03/book_review_the.html

B. Classifying Crowdsourcing

According to Katarina Stanoevska-Slabeva:

> *"In literature two basic approaches to classify crowdsourcing can be identified:*
>
> *1) based on the type of task that is crowdsourced. A representative classification in this context is the classification provided by Howe (2008), and*
>
> *2) based on the initiator of crowdsourcing. A representative classification according to this criterion is given by (Gassmann et. al. 2009). Both classifications are summarized below.*
>
> *- Classification based on task*
>
> *- Crowdsourcing Idea Game*
>
> *- Crowdsourced Problem Solving*
>
> *- Prediction Markets*
>
> > *- Crowdsourcing typology by initiator*
> >
> > *- Crowdsourcing initiated and supported by intermediary platforms.*
> >
> > *- User initiated crowdsourcing*
> >
> > *- Company initiated platforms*
> >
> > *- Idea market places*
> >
> > *- Public crowdsourcing initiatives"* [129]

In terms of initiation, or control of the platform and processes, the most important distinction is company vs. third part platform.

In terms of the methodology for soliciting input, Jeff Howe distinguishes two major practices, i.e. collective intelligence vs. crowdcreation, depending on whether the crowd is used holistically through group dynamics, or as a collection of isolated individuals competing with one another.

Check The APPENDIX:

A Typology of Crowdsourcing

Collective Intelligence

> *"The first type assumes that the masses are smarter than individuals. Spiceworks, an Austin, Texas-based software firm, built a free application that helps IT managers of small businesses manage all their software and hardware. Integral to the product is a feature that invites users to comment on its various components and vote on others' suggestions."*[130]

129 http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf

130 http://p2pfoundation.net/Crowdsourcing

Crowdcreation

The second type, crowdcreation, has been successfully used by companies including Threadless and 99 Designs, a site on which those in need of logo, business card or website design can post an assignment and fee, and designers submit designs for consideration. The contest sponsor then chooses one design and awards the fee."[131]

Current Trends In Crowdsourcing

Quality Improvements

As microtasking gains in adoption, more crowdsourcing platforms are seeing success with adding an extra level of quality control on top of the basic input —output model made popular by MTurk. Sites like Serv.io & Microtask have added extra redundancy and QA checks to ensure high levels of accuracy. If a client requests it, Serv.io can maintain perfect accuracy when needed. As this option becomes more available, people will be demanding 99.9%-100% accuracy, considering it doesn't incur a lot of extra expense.

The Standardization of Crowdsourcing

As it's been pointed out, crowdsourcing is not an industry, it's currently an undefined space. The current leaders in crowdsourcing are working to define this space and standardize as much as we can. Daily Crowdsource, along with David Alan Grier, are leading the pack towards standardization. Grier has been pushing for a trade association for quite some time, and recently has begun publicly discussing it. Daily Crowdsource, Grier, and other leaders are working to define the official taxonomy of crowdsourcing. All these recent motions are to help standardize crowdsourcing in order to ensure a healthy future.

Corporate Acceptance

Crowdsourcing isn't just a fad for early adopters. In fact, several Fortune 100 corporations have taken a big step into crowdsourcing. General Electric is leading the charge with multiple million dollar open innovation projects. Others like General Motors, Procter & Gamble, and PepsiCo continue to execute crowdsourcing projects (not just one-off publicity stunts). Amazon even built one of the largest crowdsourcing platforms. It's not often a new process is adopted so quickly by large corporations, but this will make it easier for other Fortune 100 corporations to begin crowdsourcing, which will trickle down to smaller corporations.

Early Adoption

Although you may be familiar with the term, crowdsourcing is still in the early adoption phase. A very small percentage of people are familiar with everything crowdsourcing can do. Sure, any tech geek can name 99designs, but can you list 10 other uses of crowdsourcing? Were you aware you could build a car, stress test your website, or volunteer your "waiting in line" minutes to a charity all with the help of crowdsourcing?"

Source: David Bratvold (http://www.businessesgrow.com/2011/08/31/the-top-five-crowdsourcing-mega-trends/)

David Bratvold, editor of the Daily Crowdsource blog[132], **makes an interesting distinction between micro- and macrotasking platforms**:

> *"Today crowdsourcing extends far beyond simple graphic design and can be broken down into … subcategories:*
>
> ***Microtasks**: Taking a project and breaking it into tiny bits as seen on Amazon's Mechanical Turk ("the online marketplace for work."). Each crowd worker can only see his little bit of the project. You could hire one person to label 1,000 photos or hire 1,000 people to each label 1 photo.*

131 Ibid.

132 http://dailycrowdsource.com/

> ***Macrotasks**: Similar to microtasks, however, workers can see more, if not all, of the project and can get involved with any portions they are knowledgeable in. This form is most common with solving complex problems such as the X-Prize or seeking out a better recommendation algorithm for Netflix."*[133]

David Bratvold also offers a status update on crowdsourcing in an overview of its recent evolution. One of his evaluations concerns the increased adoption of 'expert' sourcing (bounded crowdsourcing), which he calls the trend towards 'Curated Crowds':

> *"The bigger your crowd doesn't necessarily mean better output when it comes to crowdsourcing. This has been made apparent with the early days of crowdsourcing design sites. A design contest yielding 1,000 designs can become simply unmanageable. If you offer a prize large enough, any monkey with a crayon could contribute. I'm not saying a large crowd produces bad results, I'm simply stating there will be bad among the good. Luckily, there are almost always a lot of great designs, but it takes extra time to sift out the bad. Sites like Genius Rocket have begun shifting to a curated crowd model. Anyone can request to join their crowd, however, they must prove they're talented before being able to participate in some projects, or even at all. LogoTournament has been silently curating their crowd since the early days."*[134]

133 http://www.businessesgrow.com/2011/08/31/the-top-five-crowdsourcing-mega-trends

134 http://www.businessesgrow.com/2011/08/31/the-top-five-crowdsourcing-mega-trends/

C. Details on the emerging Crowdsourcing Infrastructure

In this section we divide the emerging infrastructures in two major groupings.

The first grouping concerns the various ways in which business forces attempt to mine innovation through a wider public, either in-house or through mediating platforms. We can call this the distributed innovation platforms. They allow firms to "seamlessly weave internally and externally available invention and innovation services to optimize the profitability of their products, services, and business models."[135]

The other set of infrastructures is meant to allow firms to obtain direct and distributed market access to labor required for pre-defined tasks (including tasks requiring creativity), instead of in-house allocation through employees.

C1 . Distributed Innovation Platforms

Innovation Markets

Competition platforms respond to challenges posted by firms and organisations, usually with the promise of a pre-specified reward. They are often used by large organizations for high level-R&D. Well-known examples are *Innocentive* or *NineSigma*.

The process is generally the following: 1) register a crowd; 2) post a challenge; 3) search and connect; 4) participants submit ideas; 5) review and interact; 6) reward; 7) transfer IP.

Ross Dawson specifies the IP practices of Innovation Platforms:

> *"In general, full intellectual property rights for the winning solution become the*

Working For A Crowdsourced Competition Platform

Sakin Shrestha runs his highly successful software and web development business out of Nepal. In 2007 Shrestha started out as a solo developer, working freelance with a number of local clients. He specialized in HTML/CSS/PHP/Wordpress and used oDesk to bid for work. Wanting to expand, he decided to join an established company, Digital Max. The team was already on oDesk and as Shrestha knew the marketplace well it seemed to be a good fit. He took the lead on oDesk and was able to significantly expand Digital Max's client base. Within 2 years Shrestha had taken the company's total working hours on oDesk from 500 to over 10,000.
In 2009, Shrestha decided he wanted to work on his own again. He already had some contacts, but also took various oDesk approved tests to help establish his resume and portfolio.
He comments, *"It was a bit hard getting the first job. But if you try applying for jobs carefully after reading the requirements and address the specific questions then you will win the work."*
Having established an excellent reputation and starting with his existing clients from oDesk, Shrestha started his own company, Catch Internet. Further building working hours, feedback, and ratings has allowed him to grow a global client base. Now the company no longer submit job applications, with all work coming from existing clients and invitations to be interviewed. The team recently clocked up 2,000 working hours. The company now consists of Shrestha, four developers, two web designers, and two support function roles.
Source: Getting Results from Crowds. pp. 196

135 http://www.thedailybeast.com/newsweek/2008/03/05/revenge-of-the-experts.html

> *property of the client organization. Those who did not win retain the rights to their ideas or proposed solutions."*[136]

Examples Of Innovation Platforms

InnoCentive

> *"Formed in 2001 and the current market leader, InnoCentive tends to present technical R&D or scientific challenges from blue chip organizations such as NASA (occasionally in branded 'pavilions'), with bounties which range from $10,000 to $1,000,000. There is a tightly controlled process to protect IP."*

Ideaken

> *"Ideaken is a Software-as-a-Service platform based around collaborative innovation. It is aimed at the enterprise market, but is also used by some smaller organizations. It claims to be both scalable and flexible, allowing for a range of innovation scenarios that can include posting challenges to a nominated set of individuals, internal groups, external communities, or combinations of all these."*

NineSigma

> *"NineSigma mainly services large global corporates, for example GlaxoSmithKline, in addition providing a number of value-add services such as consulting, training, and implementation. NineSigma gives access to a network of commercial and academic experts from over 135 different countries. Although the specialists cover diverse sectors and capabilities, NineSigma currently specializes in sustainability issues."*

Innovation Exchange

> *"Innovation Exchange describes its client base as "Global 5000 companies and not-for-profit organizations". Financial rewards are usually between $50,000 to $100,000. Challenges cover new product concepts, marketing, and wider social issues such as child poverty. The platform also facilitates social networking, encouraging individual innovators to connect and form teams to respond to challenges.*

The Example of a NASA project at InnoCentive

> *"NASA has been an active supporter of using distributed innovation and competitions to solve specific issues it is facing. For example in the past six years it has set a number of "Centennial Challenges" based around different themes, including "Sample Return Robot" and "Nano-Satellite Launch".*

Source: Getting Results from Crowds, p. 150

Idea Management Platforms

Ideation platforms support the continuous generation, filtering and action on innovation ideas, and they can be used both internally, or using third party external platforms. Financial incentives are more optional than in the innovation platforms discussed previously.

An example of an internal idea management platform is that of the Swedish Avanza Bank[137], which has developed a system that lets consumers suggest and vote on each other's ideas for potential implementation.[138]

The process at work is generally the following:

1) brand site; 2) define community; 3) provide guidance; 4) submit ideas; 5) community voting and feedback; 6) idea development; 7) organization feedback; 8) selection; 9) reward and recognition; 10) analysis

136 Ibid.

137 https://labs.avanzabank.se/home

138 http://www.springwise.com/financial_services/avanzabank/

Prediction Markets

Melanie Swan explains that prediction markets allow

> *"individuals to log their predictions of the outcomes of a variety of events ... Either fictitious or real money or points are used to keep score. Economists like Wharton Professor Justin Wolfers have shown that the Wisdom of Crowds of Prediction Markets often beats traditional forecasting methods. Prediction Markets are becoming an increasingly important venue for price, opinion and information discovery. There are several existing prediction markets and free platform software like Zocalo for users to develop their own."*[139]

For example, HSX is an online simulation, where registered users can trade in movie stocks:

> *"Participants start with a total of 2 million so-called Hollywood dollars, and can manage their portfolio by strategically buying and selling stocks" (Elberse & Jehoshua Eliashberg 2003). HSX participants trade in movie stocks based on their information about the star power, trailers or other advertising products (e.g. press releases) in the prerelease period. Single movie stocks and ranking lists of price changes on the HSX are an explicit aggregation of the opinions of the involved HSX participants and opinion leaders. The HSX ranking lists are an important predictor of the first weekend and overall box-office sales of a movie."*[140]

Apart from the external prediction market platforms such as the Iowa *Electronic Markets*[141], *Nadex* (A real financial exchange using real money)[142], and *Lumenlogic*[143], there are also many important internal prediction markets used by companies for their own purposes. Google has an internal prediction market.[144]

139 http://www.melanieswan.com/social_finance.htm

140 Stanoevska-Slabeva, Katarina. Enabled Innovation: Instruments and Methods of Internet-based Collaborative Innovation. 1st Berlin Symposium on Internet and Society (2011). http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf

141 http://tippie.uiowa.edu/iem/index.cfm

142 http://www.nadex.com/

143 http://www.lumenogic.com/www/index.html

144 http://news.com.com/Tech+lessons+learned+from+the+wisdom+of+crowds/2100-1014_3-6143896.html

A Typology Of Idea Management Platforms

Centralized Aggregators:

- Get Satisfaction
- SuggestionBox
- FeVote
- Featurelist

Anyone can start a product or company page on these sites to submit ideas, suggestions, or complaints, which are then voted up or down, Digg-style, and commented on. Companies pay for access to this data, more powerful features, and the ability to "claim" pages and register official employee moderators. Like review sites such as Epinions, conversation happens on these sites with or without you.

Tool Providers:

- SalesForce Ideas Management
- UserVoice
- IdeaScale
- Get Satisfaction
- Kindling

These systems provide similar functionality to that of the centralized aggregators listed above but are controlled and run by the companies themselves. They include features such as ratings (or up/down votes), moderation, the ability to limit the number of votes per user or the access of certain groups, time-limited contests, and automatic searching for duplicate idea submissions.

Integrated Innovation Management Suites:

- Imaginatik
- BrainBank
- SalesForce Ideas Management
- Brightidea
- Spigit

Source: ReadWriteWeb (http://www.readwriteweb.com/archives/get_satisfaction_leads_among_idea_aggregators.php)

Check The APPENDIX:

Examples of Idea Management Platforms

C2. Digital Talent Marketplaces

Service Marketplaces

Labor-as-a-service marketplaces paid over $2 billion to workers around the world. In one example, *ODesk*[145], freelancers logged 830,000 hours, in the first quarter of 2009. Labor marketplaces do not necessarily lead to off-shoring or outsourcing abroad, but also to a strengthening of a domestic economy of freelancers working from home. Indeed, The research firm IDC says homeshoring is growing by 18 percent a year.[146]

The following example shows the growth of a domestic freelance economy that parellels large-scale outsourcing. In the best of cases it can allow emerging professionals to gain experience though this access to the marketplace and develop their own independent client base.

145 https://www.odesk.com

146 Figures from http://www.nytimes.com/2009/06/25/business/smallbusiness/25freelance.html

Ross Dawson, provides insight into the nature of the 'service marketplace' model:

> *"Some argue that service marketplaces are not true crowdsourcing, as work is done by individuals or small teams rather than distilling the wisdom of many. However the use of service marketplaces is today the primary way in which the power of crowd work is having an impact. All of the major service marketplaces emphasize their work management processes and structures, including communication, collaboration, project management, structured payments, and reporting. As such their role is not just one of matching buyers and sellers of services, but more broadly that of facilitating global distributed work."*

Thomas Malone, author of *The Future of Work*[147] complements:

> *"A small-business person in a company of one can look to the world like a very large company and have access to all kinds of services — and that's largely because of this kind of model."*[148]

Fabio Rosati, chief executive of *Elance*[149], describes a shift in the character of his customer base: from an earlier wave of technology-oriented companies towards more traditional small businesses, which now represent about 80 percent of his clients. These include mom-and-pop retail stores, manufacturing companies, real estate agencies and physicians. "We're shifting from early adopters to mainstream."[150]

These emerging labor-as-a-service marketplaces include general freelance marketplaces (Elance, oDesk, etc.) and others offering specialties like software (*Rent A Coder*[151]), personal assistants (*virtualassistants.com*[152]), graphics (*99designs*[153]), or creative services (*CrowdSpring*[154]).

Ross Dawson explains how they work:

> *"**Charges**: Service marketplaces make their money by taking a commission — usually somewhere between around 7% and 10% - on every job. Sometimes the cost is added on to whatever you bid so effectively is passed on to the employer, or is taken out of what you bid. Some marketplaces have subscriptions you can pay to lower the commission rate they take.*

147 Malone, Thomas W. *The Future of Work: How the New Order of Business Will Shape Your Organization, Your Management Style, and Your Life*. Harvard Business Press, 2004.

148 http://www.nytimes.com/2009/06/25/business/smallbusiness/25freelance.html

149 https://www.elance.com/

150 http://www.nytimes.com/2009/06/25/business/smallbusiness/25freelance.html

151 http://www.rent-acoder.com/

152 http://www.virtualassistants.com

153 http://www.99designs.com

154 http://www.CrowdSpring.com

> ***Receive payment**: Payments are usually held using an escrow system so that money is held by the marketplace and then released when the project or milestones towards it are completed, though the process can vary slightly from site to site. Some marketplaces also have guaranteed payments for hourly jobs, usually if parties agree to use a monitoring tool which shows when a provider has logged in, and may take snapshots of their desktop. Finally many marketplaces allow flexibility in withdrawing money to a foreign bank, PayPal, or other facility. The cost and ease of doing this varies."*[155]

A recent study by Eren Cil and others gives some details about these mediating platforms:

> *"We distinguish between three degrees of involvements of moderating firms in such markets:*
>
> *(1) No-Intervention: the moderating firm restricts its involvement to providing the facility for agents to advertise their services, set their prices, and for customers to compare among the different agents.*
>
> *(2) Operational efficiency: the moderating firm provides additional mechanisms which facilitate efficient matching between customers and service providers. These mechanisms aim at reducing the inefficiency associated with having the right agent with the right capability (with the right price in mind) idle while a customer with similar needs waiting in line for another agent. … A system in which customers post their needs and name their price is an example of such a mechanism.*
>
> *(3) Enabling Communication: the moderating firm may allow providers to communicate among themselves and exchange information on prices and job requirements."*[156]

155 Ibid.

156 http://www.kellogg.northwestern.edu/FACULTY/allon/htm/Research/Service_MatketPlace.pdf

Examples Of Labor-as-a-Service Marketplaces

oDesk, CloudCrowd, CrowdFlower, ClickWorker, crowdSPRING, LiveOps, and editLift

"A typical example of such a marketplace is oDesk.com where around 250,000 programmers compete on providing software solutions. oDesk.com allows for two types of interaction between customers and service providers. Customers can go directly to a programmer and ask him to provide the service. The customers are then queued for this specific agent. In this type of interaction, most of the time is spent waiting for the agent to complete his previous jobs (36% of the waiting time is spent from the moment the customer chooses the agent until the agent begins working.1). On the other hand, oDesk.com also allows customers to post jobs and wait while agents apply for the job. In this type of interaction, a negligible amount of time passes until more than 10 agents apply, leaving the decision at the hands of the customer.

Another large-scale, online service marketplace is ServiceLive.com, which is a start-up owned by Sears Holding Company. ServiceLive.com (with the slogan of "your price, your time") caters to time and price-conscious customers and service providers in the home repair and improvement arena. ServiceLive.com allows customers to choose among multiple agents after naming their price and describing their project. This type of interaction between customers and service providers is equivalent to the second one described for oDesk.com. Both oDesk.com and ServiceLive.com receive 10% of the price of the project at service completion. In both marketplaces, the moderating firms allow the customers to browse among tens of thousands of agents and communicate with different providers to make the service transaction "one-click- away."

Rent A Coder connects businesses with a global freelance market of programmers, and today, an astonishing 136,837 buyers and 285,700 coders from all over the world make up the Rent A Coder marketplace. Posting of work requests is free, but Rent A Coder takes a 6-percent to 15-percent cut of the final transaction. In 2008, the most recent data available, revenue was $2.4 million—more than double what it was in 2004. This year, Ippolito expects $3 million and will rename the site vWorker.com—for virtual worker. Ironically enough, Rent A Coder has become a company that hires its own employees. For now, it has 12.

99Designs.com

"Here's how it works. Business owners post what type of design they want and how much they'll pay. Contenders submit designs within seven days. The quality and quantity depend on the size of the cash prize the customer will pay (many bids fall in the $500 range). The average customer receives 95 designs from across the globe. The customer gets the design, the designer gets paid and 99designs takes a cut ala Ebay and Etsy. Don't like any designs? The customer gets the money back.

99designs currently taps a talent pool of 100,000 designers that now submit an idea roughly every 4 seconds. This huge market makes it simple and cheap for business owners and individuals to get custom sites and logos quickly and on the cheap. "Rather than getting bids and proposals, you're getting actual concepts from designers all over the world" Mickiewicz says.

Customers can get quality too. Artists from the 99designs community created the book cover for Tim Ferriss's 4-Hour Body, the Website for the Queen of Jordan, and the T-shirts for SXSW and the San Francisco marathon."

Source: Forbes (http://www.forbes.com/sites/stevenbertoni/2011/04/28/facebook-backer-accel-bets-35-million-on-crowdsourcer-99designs/2/)

Comparison of Major Service Marketplaces[157]

	Elance	Freelancer.com	Guru.com	Odesk.com	Vworker.com
URL	www.elance.com	www.freelancer.com	Pittsburgh, PA, U.S.	Redwood City, CA, U.S.	Tampa, FL, U.S.
Head Office	Mountain View, CA, U.S.	Sydney, Australia	Privately owned, $500,000 from Fairview Funds in 2000.	Privately owned, three funding rounds 2006 -08 for total of $29 million from Globespan Capital, Benchmark Capital, and others	Privately owned and funded.
Ownership / Funding	Privately owned, funding from Kleiner Perkins Caufield & Byers, NEA, Stipes Group and other investors. $65 million funding announced in 2000.	Privately owned, undisclosed funding from Startive Capital.	1998. Branded as Guru.com In 2004.	2003	2001 as Rentacoder.com, rebranded as vWorker.com In 2010
Founded	1999. Sold off enterprise business in 2006, and re-launched in 2007 as a web-based platform.	2004. Acquired and rebranded as Freelancer.com in 2009.		$411 million	
Total billings	$450 million	$105 million since payments were made mandatory through site (2.5 years).		300000	170000
Number of active project buyers	190000	440000	250000	1450000	350000
Number of active freelancers	550000	2500000	10000	100000	15000

157 Getting Results From Crowds. By Ross Dawson and Steve Bynghall. Advanced Human Technologies, 2011

Avg. projects posted monthly	60000	50000	75000	210000	23000
Monthly unique visitors(Compete.com)	279000	270000			
Alexa ranking	355	348	2609	462	2497
Top countries for freelancers (by projects, freelancers or hours)	By freelancers:1. U.S. (39%)2. India (15%)3. Pakistan (8%)	By freelancers:1. India (23%)2. U.S. (13%)3. Pakistan(9%)	By freelancers: 1. U.S. (58%) 2. India (18%) 3. Canada (3%)	By hours: 1. Philippines (24%) 2. India (16%) 3. U.S. (14%)	By projects: 1. India (21%) 2. Pakistan (13%) 3. U.S. (10%)
Top countries for employers (by projects, employers or hours)	By employers:1. U.S. (54%)2. U.K. (8%)3. Australia (7%)	By employers:1. U.S. (32%)2. U.K. (11%)3. India (9%) / Australia (9%)	By employers: 1. U.S. (80%) 2. U.K. (6%) 3. Canada (4%)	By employers: 1. U.S. 2. U.K. 3. Australia	By projects: 1. U.S. (47%) 2. U.K. (11%) 3. Canada (7%)
% of IT work vs. non-IT work (by earnings)	59%	81%		59,00%	
Commission	8.75% (drops to 6.75% after $10,000) from freelancer.	6.5% to 15% commission paid by employee depending on the structure of the project (minimum fee is $3.00).	Freelancers are charged 7.45% or 11.95% of an invoice depending on the freelancers Status.	10,00%	6.5% to 15% commission paid by employee depending on the structure of the project (minimum fee is $3.00).
Number of tests / exams	430	180	706	344	
Escrow available?	Yes	Yes	Yes	No	Yes
Dispute arbitration?	Yes, free to both parties. Independent external arbitration also available for	Yes, for a fee of 5% or $5, whichever is higher (refunded to the winner of the	Yes, for a fee of 5% (minimum $25) deducted from the total	Yes, free to both parties.	Yes, free to both parties.

	$99.	dispute). Only for users who have elected to use the milestone payment system.	amount in scrow.		
Worker PC monitoring software	Yes	No	No	Yes	Yes
Buyer registration fee	$10	Free	Free	Free	Free

Competition Platforms

These are not the innovation competion platforms, but competitions for carrying out specific pre-defined tasks. As Ross Dawson explains:

> *"Based on information contained in the brief, individuals enter the contest, get feedback from the client, and submit revised entries if they wish. The client then chooses a winner who gets a pre-defined reward. (In some cases runners-up are also given prizes, or a broader range or participants are given payment for participating. The client gets the design or new idea and owns the copyright.) There are a number of web platforms that facilitate this process, with some of them focusing on one particular area such as graphic design, video production, or data analytics. The platform has a pre-registered crowd of workers, and also provides the technology that allows the competition to be run effectively."*[158]

He distinguishes between open contests that allow those entering to see each other's entries and often the feedback others receive. By contrast, closed contests keep the entries private.

While

> *"Using a competition platform allows especially smaller businesses to be exposed to a wide variety of ideas and approaches that may not be available in-house"*[159] ,

and while

> *"it is usually significantly less expensive than going to a traditional design agency for straightforward tasks such as product logo design."*[160].

158 Ibid. note 7

159 Ibid.

160 Ibid.

Microtask Platforms

Microtask platforms reduce projects to a series of small and well-defined tasks that can be taken up by workers in different parts of the world. They are suited for data-gathering and checking, and many other small taks such as search-engine optimisation. Amazon Mechanical Turk is a well known example.

Using Microtasking At Amazon's Mechanical Turk, An Example

For Shiny Orb (wedding apparel), we ran two price tests. We first paid $0.03 to get the length, neckline, and sleeves classifications for each dress. For the second test, we decided to offer $0.01 for all three. We found no difference in quality, The downside to offering less compensation is that fewer workers do your gigs, making it slower to receive results. Still, we had no problem getting all dresses categorized within half a day.

From our tests, clarity affects quality more than anything else. By that I mean, we found significant improvement in results by clarifying the definitions for our categories and placing those definitions upfront and center.

In particular, in our first Turk test, one of the choices we had for neckline and sleeves was "Other," which workers tended to select a lot.

Our success rate of correct categorizations for that test was:

- 92% for length, 64% for neckline, and 64% for sleeves

In our second test, we made it very clear that "Other" basically shouldn't be chosen, which increased our success rate in the neckline and sleeves categories to:

- 90% for length, 86% for neckline, and 87% for sleeves

Lastly, we found that in order to get these fairly high quality numbers, we had to run the same gig with three workers. I.e. have three workers categorize each dress. We took the majority "vote" of the categories and found this to improve our quality significantly."

Source: Via Ross Dawson, Getting Results from Crowds

C3. Vertical Platforms and Specialized Applications

Crowdsourcing emerges in many specialized fields. Here are some examples. The unsourced one are generally taken from Ross Dawson's Getting Results from Crowds.

Crowdsourced Consumer Research: an opportunity for brands to receive rich and valuable data to identify customer preferences. Two examples are 1) *Clickadvisor*[161], self defined as "online consumer research agency". It provides a platform to receive advice, innovate, and co-create with the crowd, and 2) *Crowdtap*[162], offering a more self-service approach. Its consumers are usually recruited through social networks and its platform offers a variety of tools such as polls and discussion boards to test consumer reactions.

161 http://www.clickadvisor.com/

162 http://crowdtap.com/

Typology Of Microtask Platforms

Amazon Mechanical Turk

Mechanical Turk dominates the microtask landscape. It is the longest established platform, draws on a huge labor pool, and has advanced APIs. It describes microtasks as "Human Intelligence Tasks" (HITs). The platform can only be used by project owners with a US-based bank account.

Other microtask platforms

For non- U.S. based project owners and those looking to tap other worker pools there are a variety of other platforms including Clickworker, Microtask, ShortTask, and Samasource.

Service marketplaces

Some employers choose to post what are effectively microtask projects on to the larger service marketplaces, but here you will need to individually manage providers or teams.

Niche platforms

Some niche platforms such as Jana (for researching consumer insights) cover specific types of microtask work.

Aggregators and managed services

Aggregators and value-add services that provide interfaces and management to microtask workers.Aggregators provide a managed service and platform usually as a layer on top of Amazon Mechanical Turk.

Source: Via Ross Dawson, Getting Results from Crowds

Crowdsourced Data Analysis:

Here workers are aasked to add or verify data.

> *"Australian-based Kaggle, which recently raised $11 million in funding. Kaggle uses the mechanics of a competition platform and sets up predictive modelling challenges for its crowd of data scientists, many of them academics."*[163]

Crowdsourced Patent Research:

The dominant platform in crowdsourced patent research is *Article One Partners*[164]. Article One claims to have over 1 million registered researchers and to have distributed over $1 million in rewards.

Crowdsourced Translation:

Crowdsourcing is particularly suited for parallel distributed translation efforts. For example, 84000 is a non-profit that aims to translate all of the words of the Buddha[165], but there are a multitude of others:

> *"Projects such as dotSUB (http://dotsub.com) harness volunteer energy to translate public-minded content so that it can travel across national and linguistic boundaries. Documentary films, political speeches, and instructional videos have all been translated by users of this service. Project Lingua (http:// globalvoicesonline.org/lingua/) invites readers of the Global Voices site to translate its content. Translators are active in more than 15 languages, including Spanish, French, Serbian, Arabic, Farsi, and Chinese."*[166]

163 Ibid. note 7

164 http://www.articleonepartners.com/

165 http://84000.co/

166 http://www.centerforsocialmedia.org/resources/publications/public_media_2_0_dynamic_engaged_publics

Crowdsourced User Testing:

This involves paying users to test bugs and features in software programs.

Some examples here are:

> *"uTest is the market leader for crowdsourced software testing is uTest, which claims to have over 40,000 registered testers on their books. 99tests, an Indian start-up that uses the mechanics of competition platforms and has the tagline "Meet the Bugs". Mob4hire, a platform specifically for mobile application testing, specializing in usability."*

Examples Of Crowdsourcing Platforms

CrowdSpirit

This French startup plans to use crowds to develop and bring to market tangible, inexpensive, electronic devices such as CD players, joysticks for video games, and Web cams. The community will handle all aspects of the product cycle — its design, features, technical specifications, even post-purchase customer support.

Freelancer

Freelancer was founded in Sweden as getafreelancer.com in 2004. I first wrote about it in 2005 in an overview of the space. For many years it was the dominant online services exchange in Europe, and one of the top three globally. In May 2009 it was bought by Australian company Ignition Networks, which also acquired the domain Freelancer.com. The company is run by veteran tech entrepreneur Matt Barrie, who most recently founded and ran specialty processor firm Sensory Networks Inc.

99designs

99designs has clients set a design brief and budget, and then provide feedback to designers during the design phase, ultimately selecting a winner who is awarded the full budget. It has been very successful though its model has many detractors in the design community. I wrote a post titled 9 practical steps to getting great outsourced design on 99designs reflecting on my experiences using the site.

DesignCrowd

DesignCrowd began life as DesignBay, using a similar prize-driven model to 99designs. Late last year it acquired the US company DesignCrowd and adopted its name. DesignCrowd is using more nuanced approaches to awarding prizes, including giving second place prizes and participation payments.

D. Players Involved in the Crowdsourcing Process

There are three players involved in the crowdsourcing process,

- The company which provides the problem, the request and the funding
- An eventual intermediary platform which organizes the process and provides a platform
- The crowd of participants who provide solutions

D.1. The company

Katarina Stanoevska-Slabeva stresses that company-initiated crowdsourcing can be done internally as well:

> *"Global enterprises have crowds of employees at their disposal. Involving everybody from the executive level to the operational level represents a new form of expertise sharing and competitive intelligence that encourages a type of informality helping to reduce existing or perceived barriers, hierarchies and distances. Good examples are the Lufthansa wiki and Wal Mart Blog, both calling for ideas to reduce energy consume.*

In order for a company to be able to use crowdsourcing it has to have an open innovation culture … Another important aspect of the companies as a player in crowdsourcing is also their willingness to accept the solutions as a result of the crowd activities.

Companies can apply crowdsourcing in two ways: 1) As an ongoing activity, or 2) as single activities that are initiated once or from time to time. Examples for ongoing activities are Tschibo[167] , Starbucks[168] and others. A successful example of a single crowdsourcing activity is the idea sourcing for the kiosk of the future of the company Valora Retail[169] . Permanent crowdsourcing activities are typically supported by an own platform that is set up and managed by the company itself, while single activities are rather executed in cooperation with intermediaries."

Check The APPENDIX:

Examples of Corporate Crowdsourcing

D.2. The platform

Ms. Stanoevska discusses *Innocentive* as an example of an intermediary platforms. These platforms are conceptualised in the following terms:

"Intermediaries provide the platform where companies can place their requirements while users can provide their solutions. Depending on the type of the problem, the intermediaries provide different kind of support, starting from helping the company to describe the problem to different possibilities for the crowd to contribute. One of the most important services of intermediaries regarding the crowd is also assuring that relevant participants can contribute to a specific problem of a company. The platform provides the necessary tools and instruments for the users in order to enable an efficient participation. This basically means registration possibilities, then search for requests by companies, different kind of design tools for contributions, then different possibilities for communication among the crowd, evaluation of content and similar. With this, the intermediaries play an important role, in particular providing opportunities for crowdsourcing also to companies that don't embrace this as a continuous process but from time to time use it in order to solve very specific problems. Some companies have created their own platform as for example Migipedia, the crowdsourcing platform of the retailer Migros in Switzerland."

167 Tchibo Ideas, the open innovation platform of the German consumer goods retailer, https://www.tchibo-ideas.de/index.php/loesungen/realisierte

168 http://blogs.starbucks.com/blogs/customer/default.aspx

169 Case study, http://www.im.ethz.ch/publications/amcis11

Ross Dawson offers concrete criteria for companies to choose amongst platforms (see the Box: Criteria for choosing different platforms) and also offers detail of what he calls 'Crowd Process Providers':

> *"They include both aggregating microtask platforms as well as performing a range of value-add functions. Some companies will project manage all aspects of a microtask-based assignment from task definition to assessing data quality through to providing the technology platform. Particularly for more complex tasks, the chances of successful outcomes are greatly enhanced by using these services. Crowd process providers include CrowdFlower, Data Discoverers, and Scalable Workforce. … Crowd process firms effectively take the advantages of leveraging the power of the crowd —such as large throughput and lower cost —and combine these with the convenience and guaranteed service levels of a Business Process Outsourcer. "*[170]

Springwise has a good example to explain what such value-added services can accomplish:

> *"Veeel (http://www.veeel.com) is … closely managing the process from beginning to end.*
>
> *Also based in Amsterdam, Veeel works with a pool of some 1,000 freelance designers to offer product development services for a variety of brands and corporations. Designers are classified into four categories, ranging from junior to specialist. And rather than simply offering a platform enabling clients to tap those crowds, the company itself plays a key role in the process. It explains: "We work together with our clients during all project phases. We present every step of progress during the whole process and implement input and know-how of internal production and marketing departments, making the product innovation a joint effort. Veeel selects the best experts and specialists for the benefit of the project and by doing so, a creative, efficient process is guaranteed, including the best result in the end. … Philips, Unilever and PWC are all among those that have already benefited."*[171]

170 Dawson, Ross, and Steve Bynghall. Getting Results from Crowds: The Definitive Guide to Using Crowdsourcing to Grow Your Business. Advanced Human Technologies Inc, 2011.

171 http://www.springwise.com/style_design/veeel/

The Five Processes Of Crowdsourcing

The specific activities in the five processes phases of crowdsourcing can be summarized as follows:

Preparation

In the preparation phase, the problem or task is identified that is going to be crowdsourced. Furthermore, necessary contracts with intermediaries are defined.

Initiation

In the initiation phase of the crowdsourcing process, all preparation activities take place. The concrete wording of the description of the task or problem is defined (see for example Dubach et. al. 2011), the evaluation criteria and procedures are selected, the online publication is prepared and eventually a crowdsourcing platform is developed and set up, and fu

Execution

In the execution phase the requests by the company is published and the crowd provides their solution proposals. The company might provide support in form of: clarification, answers to participants' questions and other kind of support to the participating individuals (see for example Dubach et. al. 2011). In this phase, a critical success factor is also the prevention of malfunction and misuse of the platform. Furthermore, an intensive quality control is necessary (see for example O'Neil 2010, and Giles 2005).

Evaluation

After all contributions are collected, they are assessed and evaluated by the company in the evaluation phase. Depending on the number of contributions, this can be a resource and zime consuming process. Thus, the availability of sufficient resources inb the company is a critical success factor (Dubach et. al. 2011). The evaluation phase ends with the selection of the winning contribution of the crowd and the remuneration of the winners.

Exploitation

In the exploitation phase, the company translates the solution provided by the crowd in products, services and/or their features and involves them to the innovation and implementation process."

Source: Gassman et. al. 2010 (http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf)

Criteria for choosing different platforms[172]

Specialist or general	Most marketplaces are general in nature and cover all kinds of jobs such as programming, marketing and administration. There are some that are particularly strong in areas such as web development. It is worth starting off on a general marketplace.
Reach	Some marketplaces have a strong geographical bias, for example featuring more US-based providers or being focused on a specific country. Some of the marketplaces provide an analysis of the location of their registered providers so you can make comparisons.
Features	There are a variety of useful features on each platform which can help you operationally. These include a variety of collaboration and monitoring tools, team rooms, and easy payment of providers. All of the platforms are consistently adding more useful features so check the latest.
Charging model	The fees from the marketplaces are generally similar —between 7 and 10% on each transaction — but some provide different models for frequent users.
Hourly or fixed fee model	Marketplaces usually handle both types of jobs, but some have developed features for hourly payments.
Recommendations	Speak to other users if you can. Personal recommendations and experiences will give you direct insights.

172 Getting results from the crowd. Ross Dawson. 2011. pp. 50-51

D.3. The crowd

> *"In the literature the need to attract the right crowd has been stressed as one important key success factor (see for example Howe 2006). For example in case of crowdsourcing of design tasks, a higher potential for getting interesting results is by having a high number of representatives which have a creative background (see also Howe 2006). In this context one important role is played also by intermediaries that are able to attract crowds with specific background. See for example Jovoto.com a German crowdsourcing platform for designers.*
>
> *Further aspects that are considered as important and related to the users are:*
>
> *Are the members of the crowd known to each other and can they see each other's contributions? For some types of crowdsourcing as for example prediction or information market, the analysis of the user behavior has shown that the results are better if members of the crowd don't know each other and cannot see the contributions of others' (see Howe 2006)."*

A recent study noted an ongoing change in participation:

> *"The worker population has changed over time, shifting from a primarily moderate-income, U.S.-based workforce towards an increasingly international group with a significant population of young, well-educated Indian workers. This change in population points to how workers may treat Turking as a full-time job, which they rely on to make ends meet."*[173]

Check The APPENDIX:

Specialty Crowd Process Providers

173 http://www.ics.uci.edu/~jwross/pubs/RossEtAl-WhoAreTheCrowdworkers-altCHI2010.pdf

E. Limitations and Critiques of Crowdsourcing

A very common critique from within the corporate world is that crowdsourcing often fails to deliver results. The three most common criticisms of crowdsourcing: that individuals' limited view about firms' products leads to the contribution of mainly niche ideas; that consumers' limited knowledge about firms' cost structure leads to too many infeasible ideas; and that firms' lack of response to customers' ideas leads to customer dissatisfaction. As stated in the 2011 study *Crowdsourcing New Product Ideas Under Consumer Learning*, conducted by Carnegie Mellon University researchers:

> *"Although [crowdsourcing] initiatives are being widely adopted in many different industries, the number of ideas generated often decline over time, and implementation rates are quite low"*[174]

However, the authors say firms can learn from those that have been successful:

> *"Our findings, however, suggest that a better understanding of the dynamics at work in the crowdsourcing process can help us to address the common criticisms and propose policies that draw out the most consistently valuable ideas with the highest potential for implementation from crowdsourcing efforts in virtually any industry."*

The policies for effective crowdsourcing suggested by the study rely on the implementation of a system for peer evaluation, rapid company response to ideas that receive significant positive endorsement from the community of idea contributors, provision of precise cost signals that enable contributors to assess the feasibility of their ideas, and a system to reward contributors whose ideas are implemented rather than one that rewards individuals when they post ideas.

Why The Open Source Way Trumps The Crowdsourcing Way

Open source way seems so much more elegantly designed (and less wasteful) to me than what I'll call *"the crowdsourcing way."*

- 1. Typical projects run the open source way have many contributors and many beneficiaries.
- 2. Typical projects run the crowdsourcing way have many contributors and few beneficiaries.

Let's look at an example of something being run the crowdsourcing way. I'll pick on 99designs, a site where designers compete to design logos and other materials for clients. It's truly astounding — some of the 99designs projects have hundreds of designers contributing ideas.

Yet in most cases only one designer is the beneficiary of something in return — the designer whose idea is chosen by the client. All of the other design work, representing in some cases 100s or 1000s of hours of time, is wasted.

Hundreds of contributors, but only three beneficiaries: 1) the company that requested the design 2) the designer who produced the winning work and 3) 99designs, the company that hosted the project.

Such inefficient system design makes me cringe.

At least in an open source project like Linux, even if your code isn't accepted, you still benefit from being able to use the distribution. In an extreme crowdsourcing example like the one above, you get nothing.

Source: OpenSource.com (http://opensource.com/business/10/4/why-open-source-way-trumps-crowdsourcing-way)

174 Yan, Huang, Param Vir Singh, and Kannan Srinivasan. Crowdsourcing New Product Ideas Under Consumer Learning (2011). https://student-3k.tepper.cmu.edu/gsiadoc/WP/2011-E40.pdf

> *"Using a peer voting system, consumers are empowered to both contribute their own ideas and vote on the ideas submitted by others, enabling firms to infer the true potential of ideas as they begin to screen for ideas that are truly worthy of implementation,"*

… the initial field of ideas generated in a crowdsourcing effort tends to be overcrowded with ideas that are unlikely to be implemented as consumers overestimate the potential of their ideas and underestimate the cost of implementation.

> *"However, individuals learn about their abilities to come up with high-potential ideas as well as the cost structure of a firm through peer voting and the firm's response to contributed ideas, and individuals whose ideas do not earn the favor of their peers or the backing of the firm drop out of the process while contributors of high-potential ideas remain active," … "Over time, the quality of generated ideas — in terms of their actual potential for implementation — improves while the total number of ideas contributed through crowdsourcing decreases,"*[175]

Katarina Stanoevska-Slabeva makes the very important point that the success of crowdsourcing is dependent on how the initial conditions have been defined:

> *"What are the major limitations of crowdsourcing as it is defined right now? First of all, the biggest limitation comes from the way how crowdsourcing happens today. It is applied to already well identified and defined innovation problems and requirements from within the companies. This means that the specific problems that is crowdsourced stems from the company and is shaped from the internal cognizance of the company. Many examples show that crowdsourcing for pre-defined problems can provide very interesting and innovative results, which companies might not have developed on their own without the contributions from the crowd (see for example Dubach et. al. 2011 or Bjelland and Wood 2008). However, because these solutions are oriented already to a pre-defined problem, crowdsourcing will hardly result into disruptive, i.e. ground breaking and radical innovation ideas that go beyond the existing imagination of the companies."*[176]

Crowdsourcing is definitely seen by many critics as corporate-centric and directed towards the exploitation of the crowd, seen as a resource and not as a community. This means that crowdsourcing is often contrast to more genuine community-centric innovation processes. Or, as Hugh McGuire writes:

> *"Crowdsourcing sounds like it is about extracting resources from a crowd (like a strip mine, exploiting resources)… when in fact the real power (and*

175 Ibid. note 18

176 Ibid. note 2

> *beauty) is in creating a community that wants to contribute *into* something.*
>
> *I think you will find common elements that crowdsourcing doesn't catch:*
>
> *- people want to contribute to the public sphere (with idealist motivations)*
> *- participating in the project becomes a highly social, almost family-like activity*
> *in short, the opposite of crowd, and the opposite of sourcing"*[177]

Example Of User-Initiated Crowdsourcing

In summer 2009, two Facebook users established, independent of each other, a group on Facebook dedicated to the request and wish to have the product Snacketti-Zwiebelringe (onion rings) back on the Swiss market. The same product was produced earlier by the company Zweifel. It was taken off the market 14 years ago because the market was not considered big enough by the company. Within 1 year of the launch of the groups, the groups were able to recruit together 12,000 'likers' and contributors. The voices requesting the onion rings back on the market became louder and more demanding.
The company Zweifel at first only observed what was going on at the two groups. As the groups became more popular and were able to recruit a critical mass of users, they started to communicate with the groups and considered the request on strategic level. As soon as the company started to think about the request of the users on a strategic level, they started also to communicate the different steps of the process within the two groups. Finally the users were informed that Zweifel has decided to start the production of onion rings and to introduce the product again to the Swiss market. In September 2010, 380 users, members of the two groups, participated on the opening event of the production of the onion rings.
This example of the onion rings is not the only one, where users initiate and coordinate crowdsourcing processes. In the same period in 2010 for example, about 20,000 Facebook users requested and were able to bring back on the market the product 'Yogi Drink Apfel' produced by the company Emmi.
Even more, specialized intermediaries such as CrowdTogether.com are emerging that intermediate the process of crowdsourcing among users. Thereby, the initiatives of the users are not limited to co-creation and crowdsourcing of knowledge, ideas and information. For example, the user-founders of localmotors.com claim to build the car of the future and have attracted a community of users that support them by providing car designs and other contributions. Users increasingly take over the initiative and create ideas for products that they want and impose their requirements on the companies.

Source: Katarina Stanoevska-Slabev (http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf)

As Chris Grams explains in the source article of Why the open source way trumps the crowdsourcing way[178], this is not just an ethical critique, but a critique regarding the efficiency of the crowdsourcing process. In the open source methodology, all input can be used and improved upon. In contrast, in crowdsourcing the process is often set up as contests with few beneficiaries where unused contributions will be discarded. This may be interpreted as an enormous waste of human resources.

177 http://www.billionswithzeroknowledge.com/2006/10/30/crowdsourcing-community-production-hugh-mcguire-libribox-interview/

178 http://opensource.com/business/10/4/why-open-source-way-trumps-crowdsourcing-way

Here is an other typical example of a critique, but from within the corporate world, from a company often cited as an example of crowdsourcing practice, i.e. *Threadless*[179], even though they refuse the term.

As Cam Balzer, the *Threadless* VP of Marketing writes:

> *"Crowdsourcing is antithetical to what we're doing. That's because crowdsourcing involves random sets of people who suddenly have a say in how the business works, but that's not how Threadless operates. We've got a close-knit group of loyal customers and have worked hard to build that. The people who submit ideas to us, vote and buy our products aren't random people, and they aren't producing random work. We work closely with our consumers and give them a place on our site, the Threadless forum, where they can exchange ideas with one another--ideas that go beyond designing T-shirts. We have consumers who have voted on 150,000 designs, which means they've spent hours interacting on our site. People who do that aren't jumping into a random crowd. They're part of the community we've cultivated."*[180]

Ross Dawson gives an interesting overview of risks associated with crowdsourcing. See the following table:

Costs	
Learning	Building capabilities in using crowdsourcing effectively requires time and effort.
Quality assurance	Sometimes additional resources need to be allocated to checking quality of external work.
Process implementation	More sophisticated approaches where crowdsourcing platforms and approaches are integrated into existing internal business processes require work and possibly technology development.
Risks	
Reduced quality	There is the potential that internal or client-facing work and projects will not meet existing standards.
Project overruns	It is easier for projects to overrun in costs or time if there is less control over the resources on the project.
Loss of intellectual property	There may be greater exposure of intellectual property to theft or loss.
Staff motivation	If the adoption is mismanaged then employees feel their contributions are not valued.
Loss of capabilities	If inappropriate functions are passed over to crowd work then core competences of the organization could erode over time.

179 http://www.threadless.com

180 http://shareable.net/blog/two-reasons-why-the-term-crowdsourcing-bugs-me

Though Crowdsourcing differs from voluntary commons-based peer production in that most of it is done in the context of payment, and this crowdsourcing is not so much affected by the crowding out of non-monetary motivations, the payment issue is by no means straightforward.

Andy Oram, a blogger for O'Reilly publishing, asks the very important question:

How can you set up crowdsourcing where most people work for free but some are paid, and present it to participants in a way that makes it seem fair?

For the answer, see Payment Issues in Crowdsourcing box below.

An important and ongoing debate concerns the effect of crowdsourced labour on the incomes of workers in developed markets and countries. While crowdsurcing opportunities may look attractive to part-time workers, professional amateurs, and new entrants, particularly participants of developing countries, there is a legitimate fear that a global labour market would depress wage levels.

For example, this concerns the no-spec movement which campaigns against design competition platforms:

> *"There are many in the graphic design community who refuse to participate in competitions and actively lobby against them. They believe that participating in competitions devalues the work of professionals because they are providing "on spec" work that they will likely not be paid for, as well as leaving them open to intellectual property theft."*[181]

An example illustrating both the relative inefficiency of a competition process, and the low pay issue: "Sarah Sturtevant of Integrated Marketing Solutions posted a competition on Crowdspring, getting 122 entrants to compete for a $375 logo assignment."[182]

That such a pool compete for a relatively low task, illustrates the problem posed by crowdsourcing platforms.

Check The APPENDIX:

Examples of Idea Management Platforms

181 Ibid. note 7

182 Ibid.

Payment Issues In Crowdsourcing

How can you set up crowdsourcing where most people work for free but some are paid, and present it to participants in a way that makes it seem fair?

This situation arises all the time, with paid participants such as application developers and community managers, but there's a lot of scary literature about "crowding out" and other dangers. One basic challenge is choosing what work to reward monetarily. I can think of several dividing lines, each with potential problems:

Pay for professional skills and ask for amateur contributions on a volunteer basis

The problem with that approach is that so-called amateurs are invading the turf of professionals all the time, and their deft ability to do so has been proven over and over at crowdsourcing sites such as InnoCentive for inventors and SpringLeap or 99 Designs for designers. Still, most people can understand the need to pay credentialed professionals such as lawyers and accountants.

Pay for extraordinary skill and accept more modest contributions on a volunteer basis

This principle usually reduces to the previous one, because there's no bright line dividing the extraordinary from the ordinary. Companies adopting this strategy could be embarrassed when a volunteer turns in work whose quality matches the professional hires, and MySQL AB in particular was known for hiring such volunteers. But if it turns out that a large number of volunteers have professional skills, the whole principle comes into doubt.

Pay for tasks that aren't fun

The problem is that it's amazing what some people consider fun. On the other hand, at any particular moment when you need some input, you might be unable to find people who find it fun enough to do it for you. This principle still holds some water; for instance, I heard Linus Torvalds say that proprietary software was a reasonable solution for programming tasks that nobody would want to do for personal satisfaction.

Pay for critical tasks that need attention on an ongoing basis

This can justify paying people to monitor sites for spam and obscenity, keep computer servers from going down, etc. The problem with this is that no human being can be on call constantly. If you're going to divide a task among multiple people, you'll find that a healthy community tends to be more vigilant and responsive than designated individuals.

Source: Andy Oram (http://radar.oreilly.com/2010/05/crowdsourcing-and-the-challeng.html)

F. The Advantages of Tapping into Crowd-Accelerated Innovation

Despite the limitations outlined in the debates above, crowdsourcing can also count on staunch defenders. Though Chris Anderson, organizer of the famous TED[183] conferences, interprets *crowd* here in the general sense of self-aggregating publics, he stresses the leap in collective learning that it represents:

> *"I believe that the arrival of free online video may turn out to be just as significant a media development as the arrival of print. It is creating new global communities, granting their members both the means and the motivation to step up their skills and broaden their imaginations. It is unleashing an unprecedented wave of innovation in thousands of different disciplines: some trivial, some niche in the extreme, some central to solving*

183 http://www.ted.com/

> *humanity's problems. In short, it is boosting the net sum of global talent. It is helping the world get smarter."*[184]

To illustrate his argument, he gives an example from the cultural sphere, but it is worth quoting at length as it is easy to imagine such dynamics in the world of product innovation as well:

> *"At last year's Academy Awards, in front of a global audience of millions, a new troupe, the Legion of Extraordinary Dancers, or LXD, performed a jaw-dropping number. It was, many thought, the best part of the whole spectacle. The dancers were electric, exciting, and altogether unprecedented: Their routine of tricks and moves was hitherto unknown to dance.*
>
> *Several of the dancers were self-taught. Or more precisely, Internet-taught. And they had been recruited by a filmmaker, Jon M. Chu, in part because of their YouTube reputations.*
>
> *Chu formed the LXD based on a simple revelation: Because of the web, specifically online video, dance was evolving in Internet time. A series of challenge videos by rival groups of street dancers had created an upward spiral of invention as they strove to outdo one another. The best videos were attracting tens of thousands of views. Much more than pride was at stake. Chu knew something weird was happening when he saw a YouTube video of Anjelo Baligad, a 6-year-old boy from Hawaii who had all of the moves of a professional.*
>
> *In fact, he wasn't as good as a professional — he was better. This tyke, known as Lil Demon, was demonstrating tricks few adult dancers could pull off. If 6-year-olds could do this now, Chu imagined, what was dance going to look like in 10 years? As he remarked at last February's TED conference, where the LXD gave a breathtaking performance: "Dancers have created a whole global laboratory for dance. Kids in Japan are taking moves from a YouTube video created in Detroit, building on it within days and releasing a new video, while teenagers in California are taking the Japanese video and remixing it to create a whole new dance style in itself. This is happening every day. And from these bedrooms and living rooms and garages with cheap webcams come the world's great dancers of tomorrow."*[185]

184 http://www.wired.com/magazine/2010/12/ff_tedvideos/3/

185 http://www.wired.com/magazine/2010/12/ff_tedvideos/

II. The Emergence Of Collaborative Consumption

A. The Driving Forces for Collaborative Consumption: from ownership to access

The emergence of collaborative consumption (i.e. the change from consumption as the buying of goods that are owned by individual, to system that allow access to products-as-a-service) is rooted in a convergence of different developments.

Survey: The Main Drivers Of Sharing

75% of respondents predicted their sharing of physical objects and spaces will increase in the next 5 years.

Technology

- Online sharing is a good predictor of offline sharing. Every study participant who shared information or media online also shared various things offline — making this group significantly more likely to share in the physical world than people who don't share digitally.
- 85% of all participants believe that Web and mobile technologies will play a critical role in building large-scale sharing communities for the future.

Environmental concerns

- More than 3 in 5 participants made the connection between sharing and sustainability, citing "better for the environment" as one benefit of sharing.

Community

- 78% of participants felt their online interactions with people have made them more open to the idea of sharing with strangers, suggesting that the social media revolution has broken down trust barriers.
- Moreover, most participants (78%) had also used a local, peer-to-peer Web platform like Craigslist or Freecycle where online connectivity facilitates offline sharing and social activities.

Global recession

- Participants with lower incomes were more likely to engage in sharing behavior currently and to feel positively towards the idea of sharing than did participants with higher incomes. They also tended to feel more comfortable sharing amongst anyone who joins a sharing community.

Source:Latitute Research survey results summarized by Neal Gorenflo (http://latdsurvey.net/pdf/Sharing.pdf)

A.1. The cultural shift

The first reason is a palpable cultural and psychological shift amongst sectors of the population from ownership as a partially status-driven pursuit, to more 'post-materialist' practices that can be satisfied with having access to products and services. This trend, already evidenced as a leasing economy in the corporate world, has found its way to the activities and needs of consumers. Indeed, many infrastructures are no longer owned but contracted out as services.

This cultural shift has been documented by the World Values Survey studies of Ronald Inglehart[186], and the sociological research by Paul Ray on the emergent sector of 'Cultural Creatives'[187]. The emergence of Millenials as digital natives, socialized through the horizontal intersubjectivity of the internet, substantially strengthens that trend, as are the necessities for more personal and collective resilience in the face of the global economic crisis.

Why Access Trumps Ownership

According to the principle of dematerialization, all goods are having their atoms infused with bits, decreasing their weight per performance, so that all material goods increasingly behave as if they were intangible services. This means that lumber, steel, chemicals, food, cars, plane flights —everything made — can also be governed by the principles of intangible goods. As goods become disembodied, infused with slivers of mind, and packed full of bits, they will also obey the new dynamics of property. Soon enough everything manufactured will potentially become social property.

As cars become more "electronic" or digital, they will tend to be swapped and shared and used in a social way. The more we embed intelligence and smarts into clothing the more we'll treat these articles as common property. We'll share aspects of them (perhaps what they are made of, where they are, what climate they see), which means that we'll think of ourselves as sharing them.

Sharing intangibles scales magnificently. This ability to share on a large scale without diminishing the satisfaction of the individual renter is transformative. The total cost of use drops precipitously (shared by millions instead of one). Suddenly, ownership is not so important. Why own, when you get the same utility from renting, leasing, licensing, sharing?

But more importantly why even possess it? If you lived inside of the world's largest rental store, why would you own anything? If you can borrow anything you needed without possessing it, you gain the same benefits with fewer disadvantages. If this was a magic rental store, where most of the gear was stored "downstairs" in a virtual basement, then whenever you summoned an item or service it would appear at your command.

The internet is this magic rental store. Its virtual basement is infinite, and it provides omni-access to its holdings. There are fewer and fewer reasons to own, or even possess anything. Via omni-access the most ordinary citizen can get hold of a good or service as fast as possessing it. The quality of the good is equal to what you can own, and in some cases getting hold of it may be faster than finding it on your own in your own "basement."

Access is so superior to ownership, or possession, that it will drive the emerging intangible economy. In traditional property regimes only owners have the right to modify or control the use of the property. The right of modification is not transferred in rental, leasing, or licensing agreements. But they are transferred in open source content and tools, which is part of their great attraction in this new realm. The ability and right to improve, personalize, or appropriate what is shared will be a key ingredient in the advance of omni-access. But as the ability to modify is squeezed from classic ownership models (think of those silly shrink-wrap warranties), ownership is degraded.

Source: Kevin Kelly (http://www.kk.org/thetechnium/archives/2009/01/better_than_own.php)

186 http://en.wikipedia.org/wiki/World_Values_Survey

187 http://en.wikipedia.org/wiki/Cultural_creatives

Rachel Botsman, author of *What's Mine is Yours*[188] writes about this shift (pp. 97-98, chapter five):

> *"The relationship between physical products, individual ownership, and self-identity is undergoing a profound evolution. We don't want the CD, we want the music it plays; we don't want the disc, we want the storage it holds; we don't want the answering machine, we want the messages it saves; we don't want the DVD, we want the movie it carries. In other words, we don't want the stuff but the needs or experiences it fulfills. As our possessions "dematerialize" into the intangible, our preconceptions of ownership are changing, creating a dotted line between "what's mine," "what's yours," and "what's ours." This shift is fueling a world where usage trumps possessions, and as Kevin Kelly, ... founder of Wired magazine, puts it, where "access is better than ownership."*

Simon Smith's *Transumer Manifesto* contextualizes collaborative consumption trends in the shift to a 'experience economy':

> *"Research on well-being has long attempted to correlate material wealth with happiness. And findings consistently show that money only makes us happy to a point (about $60,000 per year, according to some research). What's more, purchasing experiences make us happier than purchasing material stuff. One of the reasons is that our nervous system becomes accustomed to our stuff, the way drug addicts become accustomed to their drugs and must increasingly up the dose to get high. A Porsche in the driveway will make you happy today, perhaps, but one year out you'll be pining for a Ferrari. But you're just treading water; you have to keep upping the ante just to maintain the initial high. Experiences, like travel (and, say, having access to, but not ownership of, cool cars), are different. They appear to provide lasting value, in part because they give us stories to tell repeatedly, and because they often form the foundation for happy memories."*[189]

Check The APPENDIX:

Specialty Crowd Process Providers

Check The APPENDIX:

Surveying the new sharing attitudes (USA)

188 Botsman, Rachel, and Roo Rogers. What's Mine Is Yours: The Rise of Collaborative Consumption. HarperCollins, 2010.

189 http://shareable.net/blog/a-transumer-manifesto

The Campbell Mithun Survey describes the generational affinity for sharing, in their survey of U.S. "millenials":

> *"The study broke down participants by generation, with Gen X coming ahead in terms of passion for collaborative consumption. Gen X edged out Gen Y (or Millennials) when it came to the "very appealing" designation for sharing with 31 percent and 24 percent responding, respectively. Both generations, though, handily topped Baby Boomers who only had 15 percent in the "very appealing" category. Researchers noted that a number of factors, both rational and emotional, contributed to each group's affinity for sharing."*[190]

Millenials Are Sharing

"The Sharing Economy movement has gone mainstream. According to a national consumer study, not only did a 60 percent of overall respondents find the concept of sharing appealing, but a full 71 percent of those who have used shareable products expect to continue.

The data confirms both the health of the trend and the need for marketers to acknowledge related shifts in the marketing landscape. Minneapolis ad agency Campbell Mithun commissioned the study and partnered with Carbonview Research to quantify consumer response to the sharing concept nationwide.

"This trend is no longer emerging, it's here," says Lynn Franz, Campbell Mithun's director of strategic planning. "And the marketplace should accommodate a consumer wanting nimble access to things instead of outright ownership of them. That drastically changes the go-to-market strategy."

The national quantitative survey gathered opinions from nearly 400 consumers about the Sharing Economy. Also called collaborative consumption, the trend is characterized by the sharing of expertise, goods and services in new and innovative ways, often powered by the social web.

In a measure of general appeal, opinions of GenXers and Millennials aligned: 62 percent of both groups found sharing appealing. But surprisingly, more GenXers than Millennials found the concept "very appealing" (31 vs 24 percent) —a statistically significant difference.

"GenXers are in the thick of the giving years," said Franz. "With obligations to kids and mortgages, this stretched, practical group is saying the concept aligns with their needs."

Boomers, as expected, had the fewest respondents finding the concept "appealing" (53 percent) or "very appealing" (15 percent).

Perceived "benefits" of sharing: a personalized value

Respondents ranked lists of both rational and emotional benefits of participating in the Sharing Economy. No surprise: "saving money" topped the rational benefits list. But this show-me-the-money response becomes significant when considered alongside the top reported emotional benefit: "generosity to myself and others."

"Consumers want to own less but gain more," Franz continued. "The perceived rational benefits all center on reduction and practicality, but the emotional ones deliver affirmation and belonging. So the marketer's brand must deliver value with meaning, which becomes personal depending on the consumer."

Barriers to sharing: it's all about trust

Issues of trust shaped two thirds (67 percent) of consumers' perceived fears about participating in the sharing economy. Biggest barrier: concern that a lent item would be lost/stolen (30 percent), followed by worries about trusting the network (23 percent) and privacy concerns (14 percent).

Fears also addressed issues of value and quality, articulated as concerns about "sharing not being worth the effort" (12 percent), "goods/services being of poor quality" (12 percent) and "other factors" (9 percent).

Source: http://www.campbell-mithun.com/678_national-study-quantifies-reality-of-the-sharing-economy-movement

190 http://www.shareable.net/blog/study-finds-sharers-want-value-with-meaning

A.2. The dramatic reduction in transaction costs

The second driver of the emergence of collaborative consumption originates in the dramatic reduction in transaction, coordination and communication costs. This reduction makes direct peer to peer marketplaces and the management of a collective resource, much cheaper than before.

For instance, earlier bike-sharing schemes would often flounder due to vandalism, because there was no easy way to monitor and locate the bikes. This problem that can now be solved by integrating digital security into geo-location based access devices and sensors, which allows for the monitoring of the whereabouts of the physical artifact and their users.

It should also be remembered that sharing, bartering and gifting are more personal and community driven relationships, generally requiring a higher threshold of engagement than impersonal and neutral market transactions. The availability of internet-based coordination changes such sharing and mutualization behavior to much lower threshold activities, lowering the required investment in time and effort for both users and coordinators. Higher and more complex value offerings are therefore possible at much lower thresholds than what the buying of commodities would offer.

In her book *The Mesh*[191], Lisa Gansky explains this interconnection between the platform and the product:

> *"That's possible because of our GPS-enabled mobile devices move in real space and time with us. The network can connect us to the things we want exactly when we want them. We can increasingly gain convenient access to these goods, greatly reducing the need to own them. Why buy, maintain, and store a table saw or a lawn mower or a car when they are easily and less expensively available to use when we want them?*
>
> *Something else has changed, too. The credit and spending binge has left us with a different kind of hangover. We need a way to get the goods and services we actually want and need, but at less cost, both personal and environmental. Fortunately, we're quickly gaining more power to do so. A new model is starting to take root and grow, one in which consumers have more choices, more tools, more information, and more power to guide these choices. I call this emerging model "The Mesh."*[192]

This article in *Knowledge@Wharton* outlines how collaborative consumptions was prefigured in the B2B sphere, also because of the role of transaction costs:

The author notes:

> *"While the trend toward consumers monetizing unused assets is picking up steam, Clemons says* ***corporations have been doing this for years****. For example, he notes, aerospace firms Boeing and Grumman formed time sharing computer services divisions as far back as the 1970s to allow*

191 Gansky, Lisa. *The Mesh: Why the Future of Business Is Sharing*. Penguin Group USA, 2012.

192 http://www.theatlantic.com/business/archive/2011/08/do-more-own-less-a-grand-theory-of-the-sharing-economy/244141/

> *government and commercial customers to tap into their computing capacity. … This combination of monetizing assets when you can, or getting them off the balance sheet and then paying for them when you need them, has been motivating companies for a long time".*

The key to this trend, he adds, was diminishing transaction costs. If the costs and risks of handing over critical functions to outside vendors were high, companies wouldn't do it. But as more firms emerged to handle those tasks, and developed into trusted providers with proven track records, those transaction costs fell. The result was that over time,

> *"companies did more and more outsourcing, and they became less firm-like and more market-like".*[193]

A.3. Sustainability Advantages: the war against waste and idle resources

Alex Steffen[194]:

> *"Combined purchasing power and shared facilities could also make the best available sustainable products more accessible. Services like CSAs (Community Supported Agriculture[195]) would be a snap, but that's only the beginning. If I as an individual buy a super-green washing machine, it may take years to "earn out" (to have saved me more in water and energy costs than the difference in price between the green machine and cheaper, more wasteful alternatives). Ten people using that same machine, however, would earn out much more quickly (as well as reducing their individual backstory footprints), meaning they could live more sustainably, more cheaply. Similarly, with a shared facility, pushing the building itself to reflect cutting-edge best practices would become more cost-effective. … The money we saved would be our own."*

The third driver for the emergence of collaborative consumption is ecological. It is related to the increased awareness, and experience of, resource depletion. Mutualizating certain infrastructures, say for example for transport such as carsharing, can have huge positive implications for sustainability. The enormous waste and idleness of resources in our consumerist society, can now be tackled through the recycle and re-use of idle resources.

193 http://knowledge.wharton.upenn.edu/arabic/article.cfm?articleid=2714

194 http://www.worldchanging.com/archives/006082.html

195 "A customer commits to pay a certain amount of money every month or week for a certain amount of product every month. This system answers a critical cash flow issue for the farmer and adds stability to their sales as well as helps them determine more accurately what seeds to plant. The buyer gets a stable supply of food and can plan meals around the deliveries." (http://www.slowmoneynw.org/2010/07/rovers-restaurant-offers-gift.html)

Marina Gorbis of the *Institute for the Future* describes the problem:

> *"We have excess of stuff, talent, ideas, information--in our homes, in our communities, and in our organizations. We are over-producing and under-utilizing resources all over the place. Witness the recent example of clothing retailers like H&M deliberately mutilating and tossing unsold clothes in the trash. Many experts in retail concede that the practice is not uncommon--for some unfathomable "economic" reason it makes more sense to destroy clothes than to release them into a local community. The situation is even worse when it comes to food. We over-produce and waste a lot of it. According to the USDA, just over a quarter of America's food -- about 25.9 million tons -- gets thrown into the garbage can every year. University of Arizona estimates that the number is closer to 50 percent. The country's supermarkets, restaurants and convenience stores alone throw out 27 million tons between them every year (representing $30 billion of wasted food). This is why the U.N. World Food Program says the total food surplus of the U.S. alone could satisfy "every empty stomach" in Africa. How about empty stomachs in our own communities? The list goes on and on. We have surplus of space--many commercial buildings, schools, corporate and government spaces are underutilized, while many small organizations and individuals are struggling to find spaces for their work. We also have excess of talent--musicians, artists, designers, educated unemployed people, young and old--needing audiences, venues to work in, or contribute ideas to."* [196]

Rachel Botsman, in the first chapter of *What's Mine Is Yours*, mentions filmmaker Annie Leonard's discovery (in her documentary *The Story of Stuff*[197]), that 99% of the stuff used by consumers is trashed within 6 months. She adds that this excess has led to the emergence of 53,000 self-storage facilities in the U.S., representing 2.3b sq.ft. or 38,000 football fields, with 70% dedicated to non-business usage.

In chapter four, Botsman adds that the 50 million power drills owned by U.S. households are used on average 6 to 13 minutes in a lifetime. 80% of objects owned are used less than once a month. In chapter 6, she cites Paul Hawken, who writes that one hundred pound of product creates 3,200 pounds of waste product and that 98% of waste is industrial (only 1% is consumer-based).

The sharing platform *Uniiverse*[198] has collated some startling figures detailing the opportunity space of 'idlesourcing':

- There are one billion cars on the road, 740 million of them carrying only one person, and 470m would be willing to carpool.

196 http://boingboing.net/2010/02/08/marina-gorbis-crowds.html

197 Story of Stuff, Full Version; How Things Work, About Stuff, 2008. http://www.youtube.com/watch?v=gLBE5QAYXp8

198 https://www.uniiverse.com/

- There are 460 million homes in the developed world, with on average $3,000 worth of unused items available; and 69% of households would share these items if they could earn some money from it.
- 300 million people in the developed world spend more than 20% of their waking hours alone and are looking for connection.
- Of the 2 billion internet-connected people in the world, 78% declare that their online experience has made them more amenable to sharing in the 'real world' (this conversion from online to offline sharing behaviour is confirmed by the Latitude Research survey). 80% of the 7 billion people on the planet today would declare that sharing makes them more happy.

Here is how Alex Steffen explains the ecological advantages of PSS systems in that context of waste:

> *"Transforming one's relationship with objects from one of ownership to one of use offers perhaps the greatest immediately available leverage point for greening our lives.*
>
> *Take power drills. … what we want is the hole, not the drill. That is, most of us, most of the time, would be perfectly happy not owning the drill itself if we had the ability to make that hole in the wall in a reasonably convenient manner when the need arose. What if we could substitute, in other words, a hole-drilling service for owning a drill?*
>
> *We can. Already there are tool libraries, tool-sharing services, and companies that will rent you a drill when you want one. Other models are possible as well, and such product-service systems are not limited to hand tools."*[199]

Car-sharing is a good example to see the sustainability effects of sharing a collective infrastructure, as explained by Alex Steffen.

Rachel Botsman says that car-sharing saves $600 per month in costs, reducing miles by 44% and carbon use by 50%.

According to a review by *Worldchanging*[200], both the *UNEP Global Survey of Sustainable Lifestyles*[201], based on a survey of 8,000 young urban adults, and the Product-Service Systems and Sustainability report[202], co-written by sustainability designer Ezio Manzini, give credence to the sustainability effects of asset sharing schemes.

The sustainability effects of collaborative consumption are prompting a new generation of young eco-conscious designers to design for sharing.

199 http://www.worldchanging.com/archives/006082.html

200 http://www.worldchanging.com/archives/002198.html

201 http://www.uneptie.org/scp

202 http://www.uneptie.org/pc/sustain/reports/pss/pss-imp-7.pdf

The sustainable design site Worldchanging[203] explains how Product-Service Systems also flow from the current trend towards 'design-for-sustainability':

> *"Service designers create product service systems, which are a way to facilitate access to everyday conveniences through organized sharing, while maintaining (or even elevating) our quality of life. The classic example of this, which we reference frequently, is car-sharing. The concept has been around for decades, but recently, it was hugely inconvenient and inefficient.*
>
> *Technology has revolutionized the car-sharing experience by allowing a person to instantaneously locate a car, unlock it and drive away with nothing but a cell phone and a swipe card. We get the personal mobility without the annoyances of car ownership, and by participating in a car-sharing service, we help to remove up to twenty passenger cars from the road. In effect, you dematerialize the car, getting the ride without the hunk of metal and gallons of oil. This is important because while it might seem surprising, almost half of energy a car uses in its lifetime goes to manufacturing and disposal, meaning that no matter how hard we try to drive less, if we own a car, much of the energy it sucks up has already been spent. Product service systems are now being designed to address many other needs. In urban areas, they make dense living in compact spaces more pleasant by requiring less stuff to live a comfortable life. In addition, sharing systems encourage people to get acquainted with their neighbors and larger community, which increases safety and livability. Some service designers envision a world where people will lust after services the way they currently lust after consumer goods -- what London design crew Live/Work calls "service envy." If such a shift in attitudes can really happen, we'll be that much closer to transforming our material world."*[204]

Design For Sharing

A recent trend is that of designers designing sharing into their systems and products. These range from car and bicycle sharing to refrigerators and reflect the specific challenges of creating for sharing.

Drive Now by BMW has removed some of the obstacles to car sharing by the design of the system. Instead of having to go to a specific station to get a car, they are findable via smartphone apps and the Drive Now website and can be left anywhere. A sticker on the drivers license unlocks the car and information about the amount of fuel is also shown on the apps and website.

Similarly, **Sobi Social Bicycles** are working on a system for an affordable station-free bike sharing system which can be deployed anywhere. The GPS equipped bikes will use an incentive system to resolve the distribution problem:

> *"Redistribution of the bikes will mostly be handled by the users themselves through a dynamic incentive system. Operators can select the system zone and hub locations and set these boundaries in our database. When a user locks the bike outside of a hub location, they are charged a fee. This fee is posted to the map and the next person to take the bike and return it to a hub receives a credit. This ensures that bikes are consistently returned to hubs, but allows the flexibility to bike directly to any destination within the system area. However, if someone locks up outside the system zone, they would be charged a larger recovery fee for taking the bike too far from the system core."*

203 http://www.worldchanging.com/

204 http://www.worldchanging.com/archives/006737.html

A.4. The Necessity for Local Resilience in Times of Economic Difficulty

The fourth driver for the emergence of collaborative consumption is economic. Collaborative consumption entails savings in costs both for usage by individuals, communities and firms (the demand side), and for the infrastructure and service providers (the supply side), as similar levels of service can be obtained at much lower cost.

In chapter three of Botsman's book it is mentioned how, after the meltdown of 2008, and as a reaction to the food fears, the number of homes growing their own vegetables grew by 40% in just one year.

Alex Steffen points that fractional ownership[205], which has always been popular as the 'communism of the rich', has become a practice for the middle class[206], but especially its stagnating or even impoverishing segments[207] who are now following suit:

> *"Wealthy people already understand this principle well, creating corporations to share things like hunting lodges and golf courses -- what if a community of users did the same? I am pretty intrigued by the possibilities such mechanisms offer people looking to create innovative new systems of sharing."*[208]

Richard Heinberg, a 'post-carbon' or 'post-growth' economist argues that the decentralized and mutualized provision of necessities makes a lot of sense in a period marked by austerity politics and resource depletion, not out of ideological reasons but from the point of view of an iterative pragmatism:

> *"In either instance, it will increasingly be up to households and communities to provide the basics for themselves while reducing their dependence upon,*

Personal Savings Through Collaborative Consumption

Neal Gorenflo, publisher of Shareable magazine, shared his experience on 'saving money through sharing'. He estimates annual savings of $16,800 from his adventures in sharing. Please note that although the subjective perception of saving can diminish over time (as the new consumption behaviour is integrated as a normal and by default choice), the economic reality endures, as the amount of money saved being invested into more sustainable acquisitions.
Here is the calculation:

- **Transportation**: $4,000. Neal donated his car to charity and relies on his bike, public transportation, and (during the workweek) car sharing. (He added up what it cost to own his car, then deducted what his costs are now with car sharing and public transportation. AAA estimates that driving a big car costs 92.6 cents per mile, at 10,000 miles per year, everything included.)
- **Travel**: $1,250. Airbnb instead of hotels for two family trips.
- **Kids' clothes**: $450. Buying used, borrowing, getting and giving hand-me-downs.
- **Child care**: $10,800. Participating in a nanny share 36 hours per week (rather than a day-care center or hiring a private nanny). "Instead of the normal $16 rate for one kid, we pay $10 per hour and the other family pays $10. This saves us $6 per hour or $216 per week."
- **Technology**: $300. Canceling landline and using an Internet router shared with neighbors for long-distance calls via Skype."

Source: http://www.sunset.com/home/sharing-economy-00418000074416/page2.html

205 http://www.fractionallife.com

206 http://www.trendwatching.com/trends/transumers.htm

207 http://www.postcarbon.org/article/714558-the-fight-of-the-century

208 http://www.worldchanging.com/archives/006082.html

> *and vulnerability to, centralized systems of financial and governmental power. … Here we are describing not just the incremental growth of social movements or marginal industries, but what may become the signal economic and social trend for the remainder of the 21st century — a trend that is currently ignored and resisted by governmental, economic, and media elites who can't imagine an alternative beyond the dichotomies of free enterprise versus planned economy, or Keynesian stimulus versus austerity.*
>
> *The decentralized provision of basic necessities is not likely to flow from an utopian vision of a perfect or even improved society (as have some social movements of the past). It will emerge instead from iterative human responses to a daunting and worsening set of environmental and economic problems. … It is this contest between traditional power elites on one hand, and growing masses of disenfranchised poor and formerly middle-class people attempting to provide the necessities of life for themselves in the context of a shrinking economy, that is shaping up to be the fight of the century."*[209]

A.5. Business Interest and Investments

The fifth driver of collaborative consumption is the discovery of its business potential.

Craig Shapiro of the (venture-capital based) *Collaborative Fund*[210] writes that:

> *"Around mid-2011, investors began to take note. Ron Conway touted Collaborative Consumption as a new "mega-trend" of similar size and scope to social networking (Facebook) and real-time data (Twitter). In addition, Shasta, Menlo, Redpoint, and other prominent VCs have started applying focus to these themes as well."*[211]

An article in *Knowledge@Wharton* provides further details:

> *"The financial community is recognizing the power of collaborative consumption. Airbnb, after struggling to raise early seed capital, announced in June that it had raised $112 million from three venture capital firms, a deal which valued the company at more than $1 billion. … Those investors are eyeing a market that is expanding rapidly. P2P Carsharing revenues alone are projected to hit $3.3 billion by 2016, according to business research and consulting firm Frost & Sullivan. Rachel Botsman, author of the book, What's Mine Is Yours: The Rise of Collaborative Consumption, expects the consumer peer-to-peer rental market to become a $26 billion industry."*[212]

209 http://www.postcarbon.org/article/714558-the-fight-of-the-century

210 http://p2pfoundation.net/Collaborative_Fund

211 http://collaborativefund.tumblr.com/

212 http://knowledge.wharton.upenn.edu/arabic/article.cfm?articleid=2714

Traditional investors and companies are also starting to invest, for example, General Motors is investing in carsharing:

> *"General Motors is supporting the concept as well. In October it became an investor in RelayRides, which has so far raised $13 million; the company plans to use the money to offer services in more cities. As part of the deal, GM will adapt its OnStar communications service so RelayRide members can use it to open, and turn on, vehicles that owners want to share[213]."*

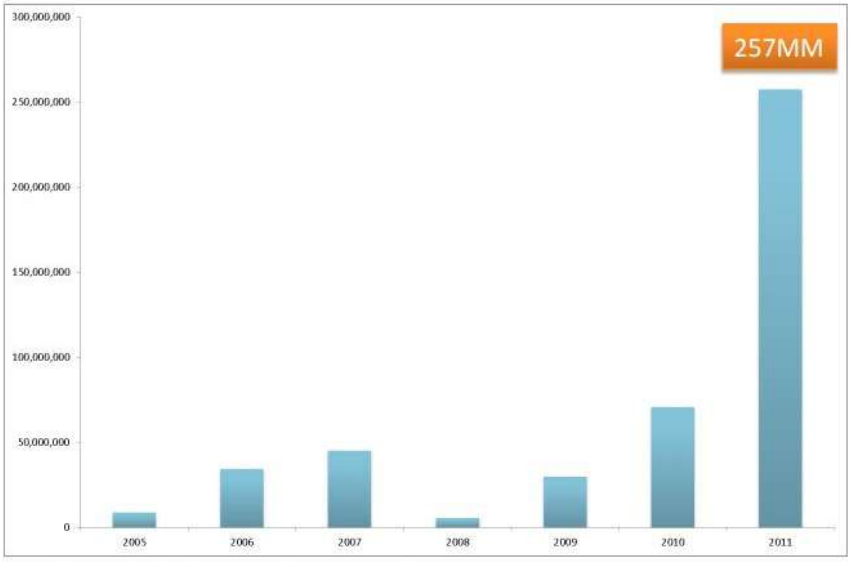

Illustration 9: Venture capitals investment in P2P marketplaces by year. By Jeremy Barton (http://www.shareable.net/sites/default/files/upload/inline/1593/images/VC-investments-P2P-marketplaces.JPG)

213 http://www.technologyreview.com/business/39451/page2/

U.S. Venture Capital Funding Of Collaborative Consumption

P2P Travel

In early March 2011, OneFineStay announced $3.7 million in Series A funding from venture capital firm Index Ventures. In June, Berlin-based Wimdu raised $90 million from European investors. And in July, apartment-sharing startup Airbnb received $112 million in Series B financing, bringing the company's total funding to $119.8 million. And in a surprising move, nonprofit Couchsurfing turned into a for-profit B-corporation and raised $7.6 million.

Online Swap & Rental

In May 2011, ThredUP, the popular kids' clothing exchange site, raised $7 million in Series B funding from Redpoint Ventures, Trinity Ventures and Brian Swette; and TurningArt, a startup that aims bring a Netflix-like model to the art world, secured $750,000 in seed funding led by NextView Ventures. In August, Rental eCommerce company, Rentcycle landed its first $1.4 million round of funding. And further demonstrating that sharing concepts have mass appeal, Toygaroo, a fledgling online toy rental service, received $200,000 in seed funding from the moguls on ABC's Shark Tank in March 2011.

Lending & Learning

P2P lending continued to flex its muscles as an industry with Lending Club announcing $25 million in Series D round of financing from Union Square Ventures and existing investors, in August 2011. The Lending Club announcement came fast on the heels of Prosper's announcement of a $17 million round by Eric Schmidt and DFJ, bringing its total investments to $75 million. And on the learning front, Skillshare announced $3.1 million in a Series A round of venture financing in August 2011

Car & Ride Sharing

Industry-leader Zipcar raised $174 million in April 2011 through it's initial public offering (IPO), surpassing its original target of $75 million. While not a venture funding, Zipcar's IPO along with that of HomeAway's in June 2011 likely helped heat up the space.

Despite Zipcar's market dominance, there is still plenty of room for other car and ride sharing ventures to carve out their own niches. In September 2011, Getaround announced a $3.4 million seed round, with participation from Netflix founder Marc Randolph and WordPress' Matt Mullenweg. Also in September, Zimride, a ridesharing service, raised a $6 million Series A funding round led by Mayfield Fund, bringing its total funding to around $7.2 million. By October 2011, RelayRides, a P2P car-sharing service that lets you rent (or rent out) cars by the hour raised $13 million in Series A funding.

Etc…

Gigwalk, a coworking-friendly app that allows companies to hire mobile workforce for location-based assignments, raised $1.7 million in September. Just before the close of the year, Taskrabbit raised $17.8 million from LightSpeed Ventures, Allen & Co., and Tornante Co. (former Disney CEO Michael Eisner's venture firm).

Although the bulk of the investment dollars are shared by relatively small number of companies and likely represent only a small percentage of overall venture investment, startups in this space are reinventing an industry worth billions (depending on how you define it) and growing:

> *"As Entrepreneur.com reported in late 2011, the product-rental market (Rentcycle, AnyHire) is now valued at $85 billion; the vacation-rental space (Airbnb, CouchSurfing) at $80 billion; the ride-sharing industry (Zimride, liftshare) at $117 billion. In addition, the North American car-sharing market (Zipcar, Getaround) is projected to grow to 1.4 million members in 2012, up from 600,000 in 2011; and research firm Gartner has estimated that in 2013, there will be $5 billion in outstanding peer-to-peer loans (Zopa, Prosper), not to mention the billions invested on crowdfunding sites like Kickstarter and IndieGoGo."*

Source: Shareble.net (http://www.shareable.net/blog/collaborative-funding-skyrocketed-in-2011-will-2012-top-it)

Check The APPENDIX:

The History of Product-Service Systems

Business innovation consultant Patricia Seybold notices the growth of customer ecosystems driven by large companies and how they are shifting to a 'social mode' from 'manage my stuff' to 'manage my stuff together':

> *"Customer ecosystems self-organize around things that customers care about and need to get done, like manage their money, manage their health, design a winning product, take a family vacation, embark on a new career, or complete successful projects at work or in their communities. They're customer-driven in that customers get to decide what activities and resources they need, who they'd like to have as suppliers, and what constitutes success. So, a customer ecosystem is a business network that's aligned to help customers get things done — both the things they want to accomplish and the things they want to manage.*
>
> *A number of visionary companies have been investing in and co-evolving these networks around their brands and with their partners. We've been following some of these customer ecosystems for a long time.*
>
> *They include:*
>
> *The customer ecosystem National Semiconductor built around its WEBENCH® design tools: "a set of sophisticated tools that enable customers to configure, test, and optimize their electronic designs, including real-time information about parts availability and pricing from hundreds of suppliers and distributors."*
>
> *The consumer and partner network that South Africa's Discovery Insurance has built around its Vitality Wellness program: " a set of scientifically-based health and wellness indicators that health insurance customers are incentivized to meet, along with a vibrant network of health and fitness partners."*[214]

She concludes that:

> *"What is new is the way in which customers now seem to presume that they should be able to access these peer communities and subject matter experts in and around "their stuff." They don't want to log on to a separate online community for support. They want that community to be available to them from within the product they are using and/or from the mobile app they are using to track status or from the customer portal they use to manage their assets and their activities. Social networks are not new. What is new are the ways in which consumers and business users expect to be able to reach out and connect to those networks specific to the tasks at hand. In just about*

214 http://outsideinnovation.blogs.com/pseybold/2012/01/what-comes-after-social-networks-and-cloud-customer-ecosystems.html

> *every phase of consumer and business life, customers want help organizing and managing all the things they buy, own, do, and coordinate around."*[215]

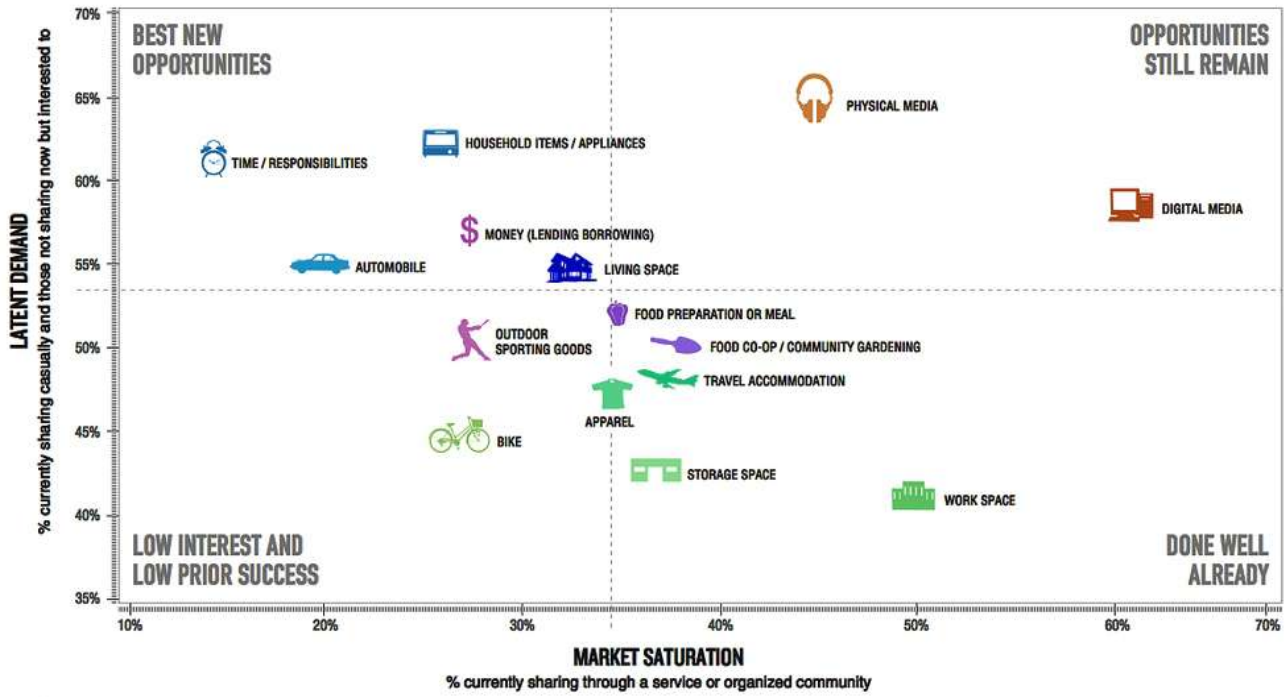

Illustration 10: Opportunity Space of the Emerging Sharing Economy (http://www.flickr.com/photos/shareable/5288965298/in/photostream/)

B. The Typology of Sharing Practices

In *What's Mine is Yours*, Botsman offers a summary typology of what is emerging in this space[216]:

1. Product Service Systems (PSS): like Bikesharing and Carsharing, based on a 'usage mindset' whereby you pay for the benefit of a product —what it does for you - without needing to own the product outright.

These are divided into ***usage-based PSS*** and ***'extended life' PSS***.

In a ***usage based PSS***, a product is owned by a company and the users share its benefits through a service. It is a good model for goods with the following characteristics:

- with high idling capacity (cars, household goods)
- limited use because of fashion (handbags)
- temporary need (baby and maternity products)

215 http://www.psgroup.com/Build-Community-Around-My-Stuff.aspx

216 A French observer of collaborative consumption, Nicholas Buttin offers another classification, http://www.scribd.com/doc/78400172

- value loss after usage (movies)
- high entry costs (solar)

In an ***'extended life' PSS***, after-sales rise and maintenance are paramount. This system works best for:

- products that are expensive to acquire or require expertise to repair (electronic goods)
- products that need frequent updating

2. Redistribution Markets: like Freecycle and eBay, where used or pre-owned goods are redistributed from where they are not needed to somewhere or someone where they are. Some examples are:

- Big marketplaces: craigslist, eBay, Flippid, Gumtree
- Free exchanges: Freecycle, Kashless, Around Again
- Swap sites for books: BookHopper, Thebookswap, Paperbackswap, Bookmooch
- Swap sites for baby goods and toys: Toyswap, thredUp, Swapitbaby, Swapkidsclothes
- Clothing swaps: Swapstyle, Clothing Exchange, 99 Dresses, Big Wardrobe
- Swap sites for media (Dvd's, books, games): Swap, SwapSimple, Dig N'Swap

3. Collaborative Lifestyles: like Couchsurfing, and the Lending Club. Sharing and exchange of resources and assets such as time, food, space, skills, and money.

Examples are:

- Coworking: Citizen Space, Hub Culture
- Social Lending: Zopa, Prosper
- Social currencies: Ven, Quid, TimeBanks, LETSystems, SPICE Timebank
- Peer-to-Peer Travel: CouchSurfing, Airbnb, Roomorama, Crashpadder

Lisa Gansky's Mesh Sharing Dictory

In her book *The Mesh*, Lisa Gansky's offers a Mesh Sharing Directory with 25 subcategories.

1. accessories & gifts
2. books & writing
3. business & innovation
4. careers, jobs & vocation
5. creativity, media & the arts
6. diy
7. education
8. energy
9. entertainment
10. farming & gardening
11. fashion & clothing
12. finance & economics
13. food & drink
14. government
15. health & fitness
16. home improvement
17. kids' stuff
18. marketing services
19. mobility
20. natural resources & environment
21. real estate
22. seasonal & holidays
23. technology & data
24. travel
25. upcycling & recycling

Check The APPENDIX:

Examples of the sharing economy in the UK

Check The APPENDIX:

The emergence of collaborative consumption

Examples Of Sharing Sites Per Category

Transportation

1. RelayRides : p2p carsharing
2. Weeels, to transform traditional taxis (and any private car) into nodes in networked "social transit" systems, starting with a free smartphone app.
3. Go Car Share a market place for empty car seats, a 'social' journey sharing website that is built around Facebook. We help people share car journeys.
4. Park At My House , aims to provide a convenient and cheaper parking alternative.
5. Bike shares, like car shares, are growing in popularity, with Denver B-cycle one of the programs leading the way. It has 52 stations around the city for pickup and drop-off. A day pass is $6. Similar city programs are coming soon to the Bay Area and possibly L.A. County http://denver.bcycle.com.

Neighbors Goods Commons

Hey, Neighbor! (heyneighbor.com). This social network is bringing back the old-fashioned spirit of lending for free the stuff gathering dust in your garage. You can also swap favors, like watering plants while on vacation.

1. NeighborGoods : what can I share with my neighbors
2. Rentoid: a market place where people can rent things to and from each other using the internet
3. Frents , a social network for things. Members display personal belongings on virtual shelves and define how they are can be shared, either with a circle of friends or the local community
4. SnapGoods , aims to… make borrowing, renting, and trying a standard consumer option and practice.
5. Rentcycle , platform/portal for renting, connecting consumers to rental businesses
6. Bid and Borrow , a website that promotes sustainable re-use through the sharing of existing resources.
7. Sharehood

Energy

1. One Block Off the Grid

Sharing Skills and Services

1. Task Rabbit, seeking paid help from neighbors.
2. Skillshare, a community marketplace to learn anything from anyone, using its own accreditation system.

Art and Culture

1. Studio Share aims to… dramatically lower the cost of a photo shoot or audio production by making community-owned photo and audio rentals as easy as possible.

Travel

1. Airbnb (airbnb.com). Founded in 2008 in San Francisco, Airbnb lets people with space connect to those who are looking for it. The company handles all transactions, and charges hosts 3 percent of each accepted reservation. Guests pay a 6 to 12 percent booking fee.
2. Crashpadder, an accommodation network that enables guests to save, hosts to earn and everyone to make new friends.
3. Vayable.com, experiences with strangers. If you love sailing and own a sailboat but are feeling pinched financially or miss sailing with others, you could offer an "experience" for sale via Vayable. You set the price. S.F. and L.A. only for now;
4. Crushpad (crushpadwine.com), the perfect solution for enophiles who crave the experience of making their own wine, but can't afford to spring for their own vineyard.

Food

1. Eggs. Eggzy connects people who want fresh eggs but don't have backyard chickens to locals who do. Punch in your zip code to find nearby eggs, then pick them up. Available in many cities; eggzy.net
2. A cider press. Millers' Equipment & Rent-All stocks equipment that people in the community can rent for a day or a week at a time. A cider press costs $60 per day or $180 per week in the Seattle area. millersrentall.com
3. Buy a share in a pig from a farmer who can house, feed, and send the animal to slaughter. You get part of the meat. Shares sell out quickly and are distant cousins of community-supported agriculture, where members share a yield from the farm for a fee. rootdownfarm.net

C. Collaborative Consumption = Mutualization

In chapter four, we will look a the deep trend towards the mutualization of knowledge through open source practices and the emergence of shared innovation commons where knowledge, code and design are shared. Collaborative Consumption is showing us that a parallel trend is occuring in the sector of material infrastructures, which are being reconceived as provisioning systems that combine product-service systems and 'use communities'. It entails a shift in vision from isolated market-based consumers competing for scarce and rival individual resources and commodities that they must own, to joint access infrastructures. In this new vision, individual scarcity is seen as collective abundance, at a much lower cost. It is as if the individual gains a new perspective of life which says: "Together we have everything, together we know everything". However, there are different types of mutualisation emerging, according to the ownership and governance mechanisms.

The car-sharing infrastructure is a good domain to see them at work.

Typology Of Carsharing

P2P Carsharing: Consumer to Consumer

A fleet of cars is owned by a community. The marketplace matches owners of cars that are available to other drivers to rent.

- RelayRides
- Whipcar
- Wheelz
- Getaround

Business to Consumer

- A company owns a fleet of cars and facilitates the sharing amongst members.
- Auto manufacturers: BMW, Peugeot, Daimler
- Rental brands: Hertz, WeCar
- Car sharing brands: Zipcar, StattAuto, GoGet

Nonprofit Cooperatives (or Public Initiatives)

A local organization or community that facilitates car sharing with the goal of changing driving habits over making a profit.

- City Car Share
- PhillyCarShare
- I-GO Chicago
- The publicly owned Autolib in France

ZipCar[217] exemplifies 'fleetsharing' or ownership by a (community-friendly) corporate owner. It has the advantage of combining professional service standards but the disadvantage of requiring investment in a centralized fleet.

In P2P car-sharing, a corporate platform acts as an intermediary between individual owners who already own their car, and others who are happy to use and rent such cars on the basis of need. It has the advantage of not requiring a prior investment by the intermediary firm.

217 http://www.zipcar.com

Comparison Between AirBnB And Couchsurfing

Airbnb and Couchsurfing have come to represent the two sides of what can be considered as p2p hospitality services, being for profit and free respectively.
The Couchsurfing network was created in 2004 and to date has had more than 3 million people sign up in 246 countries. Initially growth was slow but speeded up in in 2005 and is now the most popular free accommodation site. Although CouchSurfing International Inc. was a non-profit corporation, after failing to achieve charitable status, it became a for-profit corporation. This change led to a revolt by some core members and volunteers and the "We are against CS becoming a for-profit corporation" group was formed, with more than 3,000 members. They are greatly opposed to data and sourcecode that was created by the community being used for profit. Alternatives to Couchsurfing International such as BeWelcome are also growing, considered by some former CS people to be a site "… for open-source, democratic hospitality exchange". Indeed the story could be considered as a case study of a conflict between a company and a community.

Airbnb on the other hand was always intended to be for-profit. Founded in 2008, "after receiving funding as well as mentoring from incubator Y Combinator in 2009, the startup exploded. Airbnb —the name was originally Airbed and Breakfast in a reference to the use of airbeds for guests —has listings in 16,000 cities around the world and has booked more than two million nights."
The startup has had to deal with a number of security problems - the worst of which was a well documented case of a user having her place ransacked and trashed. The initial response from the company resulted in such criticism that they finally issued an unconditional apology and set up a Trust & Safety Center as well as establishing a $50,000 insurance guarantee.
Despite the problems that both Airbnb and Couchsurfing International have faced, it is clear that they, and similar projects, are responding to the same need - the availability of cheap lodging for travellers. By making available affordable, or even free, p2p accommodation, easily found through a user-friendly website and creating communities of users, they are disrupting the travel industry with both a civic solution (couchsurfing) and a private, for-profit one (airbnb).

Source: Mashable (http://mashable.com/2011/08/01/airbnb-ransackgate/)

As Tomasz Tunguz explains: :

> *"Of late, peer-to-peer (P2P) collaborative consumption models are blossoming. P2P models are much more capital efficient than their B2C counterparts because they do not require any capital investment to acquire assets. Instead, they rely on a community to supply them, typically in exchange for a revenue share of the transaction. P2P car sharing enables car owners to rent their own cars. GetAround, a San Francisco based company, operates a market place for P2P car sharing at a fraction of the cost of ZipCar. Car owners use the income from rentals to cover car payments and maintenance costs."*[218]

Municipal cooperatives (such as the community nonprofit *City Carshare*[219] in San Francisco, or public ownership *Autolib*[220] in Paris), is yet another possible alternative, and it is also possible to conceive of cooperative efforts driven by member-users themselves.

Aside from the ownership/governance distinction, there may also be a distinction in purpose. For example, *AirBnB* is a for-profit hospitality service that monetizes idle spaces in private households,

218 http://www.huffingtonpost.com/mit-entrepreneurship-review/peertopeer-startups-are-e_b_837144.html

219 http://www.citycarshare.org/

220 http://www.autolib.fr/

while Couchsurfing is a For-Benefit Corporation (B-Corporation) which enables money-free sharing of lodging opportunities.

It is clear that this emerging economy of 'peer to peer transactions' is much less visible than the traditional and highly regulated hospitality industry, and poses problems for the public authorities in terms of taxation, akin to the problems posed by the informal economy. However, the example of the earlier emergence of Local Exchange and Trading Systems, i.e. complementary currencies that were originally fought by the public authorities for reasons of taxation, but later found an accomodation and are now part of the tax systems.

D. Emergence of a Civic and/or Social Economy

D.1. A Civic 'Freeconomy' of Swapping and Sharing

The sharing economy is most often understood as 'monetized' collaborative consumption, but it co-exists with an equally important trend towards ethically-inspired economic practices, that combine material benefits with a more explicity value system.

The sharing economy therefore can also be understood as a civic economy, where citizens share resources without monetization, for reasons of conviviality or mutural support on a local level.

See for example, this example of 'community swap meets'":

> *"Share Tompkins, a volunteer-run group based in Ithaca, NY, was formed in May 2009 to help folks share and trade goods and services. We organize monthly "Community Swap Meets," where people give-away and barter everything from homemade apple butter and original art, to music lessons, and massage. The swaps are fun, social events and often include potluck food, music and crafting. Our first few gatherings were in people's homes and backyards. Our most recent Holiday Swap was hosted by a local Community Center and over seventy people came out to share and trade crafts and goodies for the gift-giving season. All kinds of creative arrangements have emerged from these events."*[221]

Another well-known example in the civic 'freeconomy' is *Freecycle*[222], described here by the New York Times:

> *"A few years ago, a self-described tree-hugger in Tucson named Deron Beal was working for a nonprofit that focused on recycling as a way to minimize what was going into local landfills. While plenty of people were willing, even eager, to get rid of things they no longer wanted but that weren't really trash, finding people who wanted those things was a challenge. Beal set up a*

221 http://shareable.net/blog/how-to-throw-your-own-community-swap-meet

222 http://www.freecycle.org/

> *Yahoo Groups mailing list, hoping to create a giveaway marketplace where people could list usable items and others could lay claim to them and then come pick them up. The mailing list became the basis for Freecycle, a Web-enabled network of about 3,900 such e-mail groups, each dedicated to a local community and managed by a volunteer moderator, and claiming 2.9 million participants in more than 70 countries. One of the largest Freecycle groups, with 25,000 members, is for New York City."*[223]

Mira Luna, an observer of the 'cooperative' economy in the Bay Area describes an emerging civic economy of 'co-production':

> *"The concept of consumers co-producing a service and being incorporated into decision-making processes is called co-production, a term I first heard in relation to nonprofits that use timebanking. Co-production models can draw enthusiastic participation from populations that are traditionally slated as passive clients of services, in a role reversal that fosters empowerment and confidence. In conventional nonprofits, the cult of professionalism can block flows of service where low income populations may not get their needs met at all if not by their peers. On the other hand, the peer-to-peer education process creates exponential grow in learning."*[224]

In *The Bike Kitchens*[225] we have a case of successful implementation of this concept (see box below).

'Sharing Law' expert Janelle Orsi offers a typology of sharing typology by 'intensity', which also allows to distinguish money-related motivations to forms of sharing that require deeper civic engagement.

#14. Appendix: Four Degrees Of Sharing | outline

Check The APPENDIX:

Four Degrees of Sharing

223 http://www.nytimes.com/2007/01/07/magazine/07wwln_consumed.t.html?

224 http://www.energybulletin.net/stories/2012-02-16/biketopia-exists

225 http://www.bikekitchen.org/

The Civic Economy Of The Bike Kitchens

"Most of these workshops charge small shop day use or periodic membership fees, around $5 per day to use. As ecologically minded organizations, they recycle bike parts and get donations from bike companies to sell at low cost or as "digging rights" for a bigger bike project. Some have flat "build a bike" fees to cover the cost of staff supervision, parts, frame, etc. to build an entire bike from scratch (from a minimal $30 to $60 or a six hours work trade). Patrons at SF Bike Kitchen have a third payment option —to volunteer for another nonprofit on the local Timebank and use their Timebank hours to pay. Shops offer bartering so that costs can be paid in labor instead of money by their lowest income customers, reducing barriers to participation from diverse groups. For this reason, some kitchens, like Colectivelo in Oakland, California, use no money at all.

Kitchens are different from regular bike shops in that they involve their patrons learning to fix their own bikes and becoming self-sufficient mechanics. Volunteer staff may guide them or teach them in classes, but the work is done by the patrons in a learn-by-doing methodology, which is critical in mastering bike maintenance and repair. To keep the shops sustainable, patrons are recruited to be volunteer staff, teaching others at whatever level they are at. SF Bike Kitchen staff seem to love their jobs, are obsessed with bikes, and reliably show up for weekly 5-hour shifts. The San Francisco Bike Kitchen has more patrons than it has space, so there is usually a line at the door even before the kitchen opens.

I was shocked to find out that despite charging minimal fees for shop use, Bike Kitchens are financially robust nonprofits. The San Francisco Bike Kitchen does so well it makes grants to other organizations, including non-bike organizations. SF Bike Kitchen's annual Tour de Cupcake fundraiser sold out last year in just 6 days.

Colectivelo charges its patrons nothing. If people want to take something physical from the shop, they are asked to propose a work-trade to help the shop. It can be pretty much anything, as long it seems sincerely offered. Colectivelo's rent is paid by the Catholic Worker organization and they receive parts and tool donations, which allows them to not pass on operating costs to their low income patrons, many of whom are undocumented immigrants.

Bike Kitchens are sometimes run with a collective-style governance structure. Because patrons pay for membership and day use, patrons often do most of the Bike Kitchens' governing. A blurry line may exist between patron, casual volunteer, and volunteer staff as everyone helps everyone else. SF Bike Kitchen Board member Lorae Fernandis believes that, "Paying minimal fees creates a dynamic where volunteer staff feel like they can ask the patrons to pitch in with work, rather than being passive customers and customers want to help because it's their bike kitchen. There can be some inefficiencies in decision-making and executing tasks without much hierarchy but we think this model is important to community work."

Source: Mira Luna (http://www.shareable.net/blog/biketopia-exists)

D2. The Social Economy and the Solidarity Economy

The sphere of the civic economy is often oriented to one's own community. Though it favors local conviviality, may not have explicitly social and political goals, just as having a cooperative enterprise may jus be another way to make and divide the profit. Bu there is indeed also a much more explicit alternative economy growing, going under different names such as the Social Economy or the Solidarity Economy. In France for example, the social economy refers to 4 categories of actors : foundations, mutuelles, cooperatives and associations, which share a nonprofit motive and mutualize various aspects of their activities. *Solidarity Economy* enterprises are part of a global movement to preconceive the economy around social justice and therefore usually add more explicit social and political goals to their rationale. The social and solidarity economy are by no means new, cooperatives for example emerged most strongly in the 19th century, but they are currently undergoing a revival, which is partly related to the 2008 meltdown and the crisis of the neoliberal model.

The following figures from the sub-sector of cooperative enterprise show that it cannot be ignored:

- The 300 largest cooperatives have sales totaling more than $1 trillion per year[226]
- Cooperative enterprises employ 100 million people worldwide, 20 percent more than multinational enterprises.[227]

Jay Walljasper, a reporter at *On The Commons*, summarizes:

> *"More than 800 million people around the world belong to one of these economic networks. Coops flourish in all sectors of modern society proving that sharing is a practical economic model. They represent a commons-based alternative to both the private market and state controlled enterprises. Four in ten Canadians are coop members (70 percent in the province of Quebec). In the U.S. 25 percent of the population belongs to at least one coop ranging from credit unions to food coops to major firms like REI and Land O' Lakes dairy, according to the International Co-Operative Alliance. In Belgium, coops account for 20 percent of pharmacies: in Brazil, 37 percent of all agricultural production is from coops; in Singapore, coops account for 55 percent of supermarket purchases; in Bolivia, one credit union handles 25 percent of all savings; in Korea and Japan, 90 percent of farmers belong to coops; in Kenya, coops account for 45 percent of the GDP; in Finland, 34 percent of forestry products, 74 percent of meat and 96 percent of dairy products come from coops. Around the world, coops provide 100 million jobs, 20 percent more than multinational companies."*[228]

The social economy by *SolidarityNYC*, which groups several hundreds enterprises in the NYC area (BALLE now has 60,000 members practicing 'local living economies' in the U.S.A.)

Cheyenna Weber writes in Shareable magazine about the difference between collaborative consumption and the social/solidarity economy:

> *"It's the difference between doing something that is good and doing something that is just. It's the difference between friends helping each other and social justice."*

and explains:

> *"We all recognize that sharing is good. Sharing, lending, and borrowing help connect neighbors, encouraging isolated individuals to create community by consuming less. But most of the latest sharing projects focus on wealthy neighbors. What if I've never had too much? How do we address social inequity? How do we redistribute power to the majority who live without it? To transform an economic system which fails to meet community needs, we*

226 http://www.csrwire.com/blog/posts/292-cooperative-capitalism-can-coops-rejuvenate-the-american-economy

227 http://www.ica.coop/coop/statistics.html#jobs

228 http://www.shareable.net/blog/2012-international-year-of-the-co-op

> *have to move from a sharing economy to a solidarity economy. What's the difference? The solidarity economy is based on democratic control and social justice, not just cooperation and ecological sustainability. It's about sharing power."*[229]

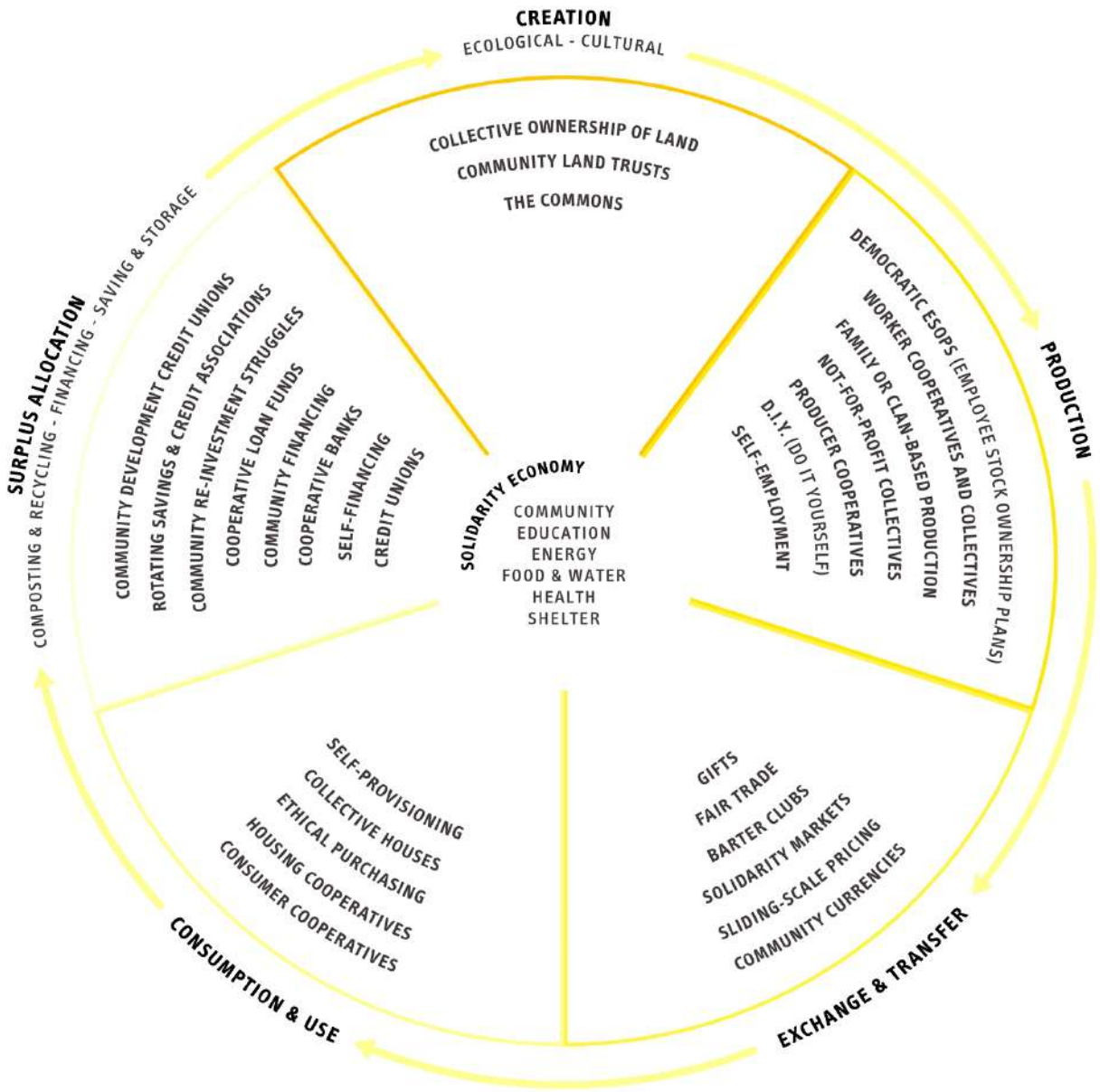

Illustration 11: Mapping the Solidarity Economy. By Solidarity NYC/Ethan Miller/JED collective. http://solidaritynyc.org/wp-content/uploads/2011/04/SolidarityNYC-SolidarityEconomy.jpg

229 http://shareable.net/blog/sharing-power-building-a-solidarity-economy

Chapter Four: Beyond Corporate Open Innovation: Commons-Oriented Peer Production

Introduction

'Capitalist' business activities come in many diverse forms but follow a basic template of : 1) producing commodities 2) through paid labor 3) in order to make profit. Conversely, new varied forms of collaborative production are influenced by the idealized model of peer production: 1) producing use value ; 2) by freely aggregating contributors 3) in order to produce benefit through a commons. To understand the varied modalities of hybrid practices that emerge around pure-play-peer-production, and its adaptation to the market economy, we need to undertand its logic and value system.

I. Defining P2P

Peer to peer is a form of relationality between human beings whereby people can connect to each other without permission, and aggregate around the creation of common value. In human anthropology, and in particular according to the relational grammar of Alan Page Fiske[230], it is considered one of the four basic human ways to relate to each other. In peer to peer, individuals 'exchange' with a totality, without direct reciprocation. Though peer to peer has been documented across all cultures and in each stage of human evolution, the available of a global peer to peer infrastructure of communication and cooperation has greatly extended its scope and scale, from the hyper-local to the global. Linked to this capacity of global cooperation around shared objects of creation is the concept and practice of a commons. A commons is a shared resource that is either inherited from nature (and Elinor Ostrom, Nobel Laureate in economics, has documented the rationale and governance of such natural resource commons), or created by human beings, either in the 'immaterial fields' of knowledge and culture (this includes for instance free and open source software and shared designs), or by holding productive human capital (machinery and the means of production) in common stock. The commons is not exclusively defined by non-ownership and access, but by some form of common governance. Ostrom's contributions were to show that it was the governance of the commons which protected them from the 'tragedy of the commons[231]' that can befall open access resources that lack that governance.

The increased ability to generate peer to peer relationships has led to the emergence of what prof. Yochai Benkler calls 'commons-based peer production', in which

> *"the creative energy of large numbers of people is coordinated (usually with the aid of the internet) into large, meaningful projects, largely without traditional hierarchical organization or financial compensation."*[232]

However, this definition needs to be amended for two main reasons. First, communities of contributors need not be large, there are many small-scale projects. Second, the lack of financial compensation is not vital, there are now many commons with strong corporate participation in the majority of commons-contributors are employees of firms.

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230 Fiske, Alan Page. Structures of Social Life: The Four Elementary Forms of Human Relations : Communal Sharing, Authority Ranking, Equality Matching, Market Pricing. Free Press, 1991.

231 Garreth Harding, in a classic and often quoted essay, had argued that the Commons inevitably leads to the abuse of common resources. The essay is located at http://dieoff.org/page95.htm . The author himself "has criticized misinterpretations of his work with the lament that "The title of my 1968 paper should have been The Tragedy of the Unmanaged Commons" (cited here at http://geolib.pair.com/essays/sullivan.dan/royallib.html).

232 http://en.wikipedia.org/wiki/Peer_production

It is useful to break down the process of peer production in three phases:

1. An input phase, where contributors can freely contribute to a common resource by either creating or using freely available raw material

2. A process phase, which to the degree that the contributions are done by volunteers, need to be participatory, and whereby even corporate contributors need to adopt to a substantial degree to the rules and norms of the peer producing communities

3. An output phase, whereby the product of the common activity, i.e. the commons of knowledge, software or design, is protected not from private use but from exclusive private appropriation.

Hence, peer production is a process of production whereby contributors can freely contribute to a common resource that will be available to all. Axel Bruns, using the similar concept of *Produsage*, i.e. a mode of value creation where production and use no longer can be separated, stresses four principles:

- **Open Participation, Communal Evaluation**: the community as a whole, if sufficiently large and varied, can contribute more than a closed team of producers, however qualified;

- **Fluid Heterarchy, Ad Hoc Meritocracy**: produsers participate as is appropriate to their personal skills, interests, and knowledges, and their level of involvement changes as the produsage project proceeds;

- **Unfinished Artefacts, Continuing Process**: content artifacts in produsage projects are continually under development, and therefore always unfinished - their development follows evolutionary, iterative … paths;

- **Common Property, Individual Rewards**: contributors permit (non-commercial) community use and adaptation of their intellectual property, and are rewarded by the status capital gained through this process.[233]

Christian Siefkes[234], the author of a book on peer production[235], describes that four building blocks are needed for 'pure play' peer production to occur (summarised):

- **Voluntary cooperation among peers**: Peer production is goal-driven people cooperate in order to reach a shared goal. Participants decide for themselves whether and how to get involved; nobody can order others around. Cooperation is stigmergic: people leave hints about what there is to do and others decide voluntarily which hints (if any) to follow.

- **Common knowledge**: Digital peer production is based on treating knowledge as a commons that can be used, shared, and improved by all. Projects developing and sharing free design

233 http://henryjenkins.org/2008/05/interview_with_axel_bruns.html

234 http://webcache.googleusercontent.com/search?q=cache:wS0ACbtdjeQJ:fscons.org/2010/extensions/self-organized-plenty-emergence-physical-peer-production+&cd=1&hl=en&ct=clnk

235 Siefkes, Christian. From Exchange to Contributions: Generalizing Peer Production into the Physical World. Ed. C. Siefkes, 2007

information on how to produce, use, repair and recycle physical goods (often called open-source hardware) provide a basis for physical peer production.

- **Common resources**: Free design information is not enough, there needs to be a physical infrastructure of cooperation.
- **Distributed, openly accessible means of production, essentially direct access to networked computers**: In peer production, the means of production tend to be distributed among many people, there is no single person or entity controlling their usage.

According to Charles Leadbeater in *We Think*[236], social forms or production (i.e. open and collaborative forms of organisation such as the peer production communities) emerge because they tend to outperform traditional corporations in their three critical functions:

How to motivate

Corporations can usually count on extrinsic positive motivation, i.e. work in exchange for money, and other motivations are an uncertain premium, rarely achieved; peer production communities can rely on intrinsic positive self-motivation. According to Yochai Benkler, in peer production, any motivation becomes productive.

How to coordinate

Corporations require heavy, often also costly top-down managerial structures; peer production communities self-distribute tasks, make the overall work compatible through modular/granular task infrastructure, and use peer review and communal validation to guarantee excellence.

How to innovate

Corporations privatize and thus exclude innovations from common knowledge and the decision-makers are managers, not the innovators themselves. In peer production, innovation can come from any member of the community and is instantly available for further improvement.

Though we will use 'peer production' as an important concept in this report, it is important to be aware of an important challenge to this concept formulated by Axel Bruns in his book on produsage.

In essence, Bruns argues that production and use no longer can be separated:

> *"It builds on a simple, yet fundamental proposition: the proposition that to describe the creative, collaborative, and ad hoc engagement with content for which user-led spaces such as the Wikipedia act as examples, the term production is no longer accurate. This is true even where we re-imagine the concept of production as user-led production, commons-based peer production, or more prosaicly as the production of customer-made products: not the adjectives and qualifiers which we may attach to the term production are the problem, but the very noun itself. To overcome the*

236 Leadbeater, Charles. We-Think: Mass Innovation, Not Mass Production. Profile Books, 2010.

> *terminological dilemma which faces us as we attempt to examine processes of user-led content creation, we must introduce new terms into the debate. The concept of produsage is such a term: it highlights that within the communities which engage in the collaborative creation and extension of information and knowledge that we examine on this site, the role of consumer and even that of end user have long disappeared, and the distinctions between producers and users of content have faded into comparative insignificance. In many of the spaces we encounter here, users are always already necessarily also producers of the shared knowledge base, regardless of whether they are aware of this role - they have become a new, hybrid, produser."*[237]

The 'peer' aspect in peer production needs to be properly understood. It means that all qualified people can contribute, not that every peer co-decides on the process of production. This is stressed in the following quote by open source advocate Rob Myers, who put it quite starkly:

> *"There are no peers in a Free Software project. If contributions are deemed to be of acceptable quality, they are added to the project by its appointed gatekeepers. If not, they are rejected and advice given. This methodology is a structured and exclusive one, but it is meritocratic. Any contribution of sufficient quality can be accepted, and if someone makes enough such contributions they themselves may gain the trust required to become a gatekeeper."*[238]

237 http://produsage.org/

238 http://www.anat.org.au/stillopen/blog/2007/08/19/open-source-ideologies/

II. Pure Play Vs. Hybrid Peer Production

Within pure play peer production, resources are not allocated either through a market (supply and demand dynamics regulated through pricing), nor through the centralized decisions of a firm, but through the dynamic of social relationships themselves. Their development process is based on the self-selection of tasks by their developers, while (important) decisions are being made collectively on the basis of consensus (the 'peer' aspect).

However, in reality, peer production exists in adaptation to the existing market and institutional structures, and firms and markets do have a role, which we will explicit later on. As discussed in Part One, the horizontalisation of human productive relationships in peer production, when confronted with the more 'vertical' (centralized, hierarchical) players of the market economy, will lead to a wide variety of 'diagonal' adaptations. This means that in a market economy, the P2P economy is essentially a 'hybrid economy'.

For example, in Part One we have described a 'ladder of participation' which highlights possible combinations between peer production communities and corporations, framed around a polarity of influence between both. The ladder of participation typology is discussed in our section on the institutional framework for peer production (Chapter 1, Section VIII). We discuss the dynamics between communities and corporations below, under the heading *The dual logic of peer production in a market economy*.

Potentially, this creates a polarity between projects where non-market dynamics dominate, projects where non-market and market dynamics are in balance, and projects were market dynamics dominate. We could call these typologies, *Peer-directed Collaborative Production*, *Mixed Collaborative Production*, and *For-Profit Collaborative Production*.

Following this typology, FreeBSD, Apache and Perl are generally considered to be peer-directed collaborative production, not directed by the marketplace, nor governed by corporate hierarchies.

George Dafermos, an open source researcher from TU Delft, believes that *For-Profit Collaborative Production* should not be seen as peer production, as the two aspects of pure play peer production are not present, but it can describe the other modalities of the Collabortive Economy, such as crowdsourding, sharing platforms etc..

He writes:

> *"Lego (Mindstorms) is perhaps the best-known example of this model: the company provides end-users with 'tool-kits' and encourages them to develop their own designs, which however only the company can exploit commercially. In this case, the design phase is open-sourced, but the subsequent phase of product development is not."*[239]

Dafermos writes about hybrid peer production, giving examples as well:

> *"Hybrid peer production models can be understood as those that, to some extent, detract from the common property regime and the collective decision making model characteristic of pure peer production. More specifically, they produce something that is free to use and modify, but not to redistribute, as the 'parent company' decides and controls what goes into the official distribution. Such 'hybrid' undertakings are typically part of a company's business model (e.g. 'give away the razor, sell the blades') —that is to say, it's a mode of production directed to market exchange. In parallel, though this model encourages outside contributions and opens up participation in the product development process to a wider number of participants than traditional business models, the governance of these projects is always subject to some degree of centralised, top-down control. Examples I'd include in this category are openoffice, Mozilla (especially in the years before 2005) and a plethora of small companies making and selling a FOSS product like MySQL and Canonical (Ubuntu)."*[240]

The example of Mindstorm brings to mind that corporations can have an environment in which the different models of the typology interact 'at the same time'. Next to Mindstorm, the Lego Factory allows crowdsourced designers to sell their own Lego kits via a corporate controlled marketplace, but there is also a thriving community of lego 'peer producers', i.e. Lugnet, that operates outside the control of the company.

In conclusion, how could we answer the question: when is For Profit Collaborative Production NOT peer production? Here are important indications:

- If the production is directed to the market, not the use value
- If the resources are allocated by the corporation, not the community's social logic
- If participation is constrained by the controlling corporation
- If the corporations controls the common product (i.e. controls what goes into the official user version that will be distributed)

239 Email conversation wit the author, February 2012

240 Ibid.

Varieties Of Co-creation And Peer Production At Lego

The recent story of Lego is one of a stagnant company turning its fortunes around through the embracement of the user community. Lugnet http://www.lugnet.com/, the Lego Users Group Network, is one example of online Adult Fan of Lego (AFOL) communities and has been around since at least 2001, existing entirely independently from the company and driven by passionate users.

It is from these types of networks that Lego has been able to reinvent itself through such projects as Lego Mindstorms and Lego Factory. Mindstorms is crowdsourced development (co-design, co-creation), where the company provides a platform to be improved by the users; Factory is a marketplace for individual designers selling their legokits through the company.

The impact of Lego Mindstorms was described by Patricia Seybold: "The story behind Lego Mindstorms is a classic example of outside innovation in action. Lego leveraged work that had been done by Seymour Papert and his leading grad students at MIT to design a "do it yourself" programmable robot for the retail market. Lego commercialized inventions that had been pioneered by these "lead users" (and tested in the classroom with kids and teachers). When Lego didn't have enough funding to develop a Mac version of the product for the K-12 market, another lead user came to the rescue. Professor Chris Rogers from Tufts University designed the software for the educational market by building his ROBOLAB application on top of National Instruments' LabVIEW virtual instrumentation software platform. Within two weeks after the retail product hit the market in 1998, adult hackers reverse-engineered the firmware and developed a number of additional software programs that could be used to program these robots. And, a small industry emerged of sensors and peripherals that could be added to these robots. Lego encouraged the customer-extensions to the product line, giving hackers a license to extend its software and firmware and encouraging a healthy ecosystem. After selling 1 million of these robotics kits, and sponsoring robotics competitions all over the world, when Lego was finally ready to product a next generation product, MINDSTORMS NXT, the company turned to its lead customers again. Lego recruited a small group of lead customers from the hacker community to consult with them on the design of the next generation product, and they followed the advice of Chris Rogers and switched to National Instruments' LabVIEW software platform for the next generation product."
http://outsideinnovation.blogs.com/pseybold/2006/03/the_story_of_le.html

In 2008 Open Business reported on Lego Factory: "Just over two years ago LEGO announced LEGO Factory, a service that lets users build their own virtual LEGO models with the free LEGO Digital Designer software. These models can then be ordered from LEGO and are shipped in custom packaging (for a custom price). In addition, users can upload their models to a gallery to share with the community of users, if the LEGO Factory Team deems the model appropriate. From the gallery users can purchase other users' creations as a real set or download the model to view or modify. In his post on LEGO Factory, Frank Piller describes the combination of mass customization and a user community to share customized products as real open innovation at LEGO. While LEGO has facilitated the process of realizing your own designs, haven't users been realizing their own designs all along? When playing with sets designed by LEGO in the pre-customization days, one would generally build the model according to LEGO's instructions, play with it a while, and take it apart to start building whatever one wanted. The fun was in building whatever one wanted with whichever bricks were around. LEGO users always built custom models (at least I did). Decades later LEGO finally caught on and cashed in. Using users' designs to make money may be a form of open innovation, but using LEGO bricks to create custom models is really nothing new."
(http://www.openbusiness.cc/2007/10/08/lego-mass-customization-and-open-innovation/)

It's interesting to see here how a company can adapt to different models at the same time and incorporate them in its overall strategy, making a huge impact on its business and at the same time increasing its influence, not only in its own field but across many others.

III. The Dual Logic Of Peer Production In A Market Economy

Peer production projects will essentially exhibit at least dual logics. The core of the project, where value is created and exchanged, is driven by the community logic of joint contribution to the common project, i.e. **it is based on, and further creates, 'social capital'**. The value is deposited in a commons, which cannot be privatized without destroying the commons logic. But around and on top of the commons, market value can be created, and value can be captured and monetized by the private firms.

It is important to distinguish the commons logic of genuine peer production, from the sharing logic of social media, and the logic of crowdsourcing commodity value.

Three different social models are:

- In commons-based peer production, there is the co-creation of a common social object. The community dynamics are strong enough to create a commons with its own rules and norms and governance; and a relatively autonomous infrastructure, such as technological infrastructures of cooperation and a 'managing entity'.
- In the sharing platforms, individuals are exchanging their individual creative expressions, and are not creating a common object. The platforms are usually corporate-owned and the governance is in the hand of the owners of the platform.
- In crowdsourcing platforms, contributors attempt to create monetary value for a marketplace, and not use value for a commons. Crowdsourcing platforms are also managed by third party mediating companies, who are owners of the platform.

Nevertheless, all different manifestations of the collaborative economy will exhibit the dual logic in some form, whether in the form of sharing, as in social media platforms, or collaborating, as in crowdsourcing platforms. In each case, a logic of social capital is in tension with a logic of market capital. Each domains needs to be carefully delineated so as to respect the autonomy of each sphere. An overemphasis of the sphere of the commons, may lead to underfunding and precarity in the community of contributors, while an overemphasis of the market dynamics may lead to the 'crowding out' of the social contributions. Each human group associated with one of the polarities has of course also radically different choices to break the nexus. Communities could distantiate themselves from classic for-profit enterprise and choose a alternative social economy approach, crowd-based donations or funding, or public funding; while market players could choose for the enclosure and

privatization of the commons dynamic and go back to traditional commodity production through waged labor. However, there are many benefits associated with associating social and market capital combinatory approaches.

Many authors see an important but 'relative' place in our economy for peer production, and insist on the essential hybridity of forms, as mutual adaptation occurs between open and collaborative communities, entrepreneurs, and the corporate world. See for example, the general take by Charles Leadbeater in his book We Think.[241]

It is important to understand that though there is complementarity, there are fundamentally different logics at work. On the one hand, the logic of the community gravitates around the perpetuation of the social system that produces use value for its users. On the other, the market players, remain oriented towards profit. But, unlike in traditional commodity production they can have no 'return on ownership'. Profits must always come from derivative activities that occur 'on top of the commons'.

Let's look into more detail in how both logics intersect. From the point of view of the community:

- Peer production projects may be collectively sustainable in finding private, public-institutional, or 'crowdfunded' support for their projects. However, individual contributors need to make a living; therefore, many contributors either rely on public benefits, a non-related commercial job; or they are freelancers, small entrepreneurs, or employees of large companies.

- Employee-contributors therefore contribute to the commons and this poses the question of the logic of their contributions and the governance and direction of their work; to what degree are contributions determined by the social logic of the project, and to what degree are they determined by the command hierarchy of participating enterprises[242].

- Many commons-oriented knowledge projects (Wikimedia Foundation) and free software projects (the different 'FLOSS Foundations' such as the Apache Software Foundation) are supported by nonprofits (also called for-benefit institutions in a P2P context). These Foundations can rely on corporate support or even have corporate membership (Linux Foundation). This also poses the question of the relative input and influence of participant corporations on the organisation's and hence the code commons', governance.

From the point of view of the participating corporations[243]:

- The commons is a source of knowledge and innovation and a pool of value to which it contributes, but receives the totality of the commons in return ("give a brick, get a house")

- Contributors represent talent and can be potential employees

241 http://wethink.wikia.com/wiki/Chapter_5_part_3

242 the pioneering institution for this form of co-governance may have been the Internet Engineering Task Force, http://www.ietf.org

243 "the bulk of the code by programmers who are employed by corporations who pay them to contribute to the project. This describes the Linux project. According to an analysis by Linux kernel contributor Jonathan Corbet, 75% of code is written by paid developers working for IBM, Red Hat, Novell, etc. —companies who compete with each other in the marketplace, but cooperate by funding development of the Linux kernel. … Another example is WebKit, the main technology behind Google's Chrome browser, which is run by programmers from Apple, Google, Nokia, Palm, Research in Motion, Samsung and others." www.mrteacup.org/post/peer-production-illusion-part-1.html

- The company's employees contribute directly to the code commons.
- The company contributes in the governance and funding of the nonprofit institutions that are managing the infrastructure of cooperation that maintains the commons.
- The company sells added value products and services that are derivative from the commons, and does so in a way that affects the integrity of the commons (dual licensing strategies, etc.). To what degree is this inevitable? Are there counter-measures a community can undertake?

Looking at the intersection the following issues emerge:

- What is the relative influence of contributor communities, participating companies, and the nonprofit foundations on the community dynamic?
- What is the relative influence of contributor communities and participating companies on the nonprofit foundations?
- To what degree do the market strategies affect the integrity of the common pool?
- What can communities do, and what have they done, to maintain and defend the integrity of the common pool?

The following box shows the type of conflict that can ensue when both logics intersect in non-optimal ways, i.e. when the for-profit motivations of a commercial partner leads to the appropriation of freely contributed data. However, there are many examples of thriving commons where community, foundation and enterpreneurs cohabit in productive cooperation, as for example with the Linux Kernel community.

GraceNote Vs. MusicBrainz, A Conflict Around The Appropriation Of Fan Data

The music identification technology of Gracenote was almost entirely produced by music fans but because it has turned private, MusicBrainz has been created as a true open source alternative.

Gracenote is based on CDDB, short for Compact Disc Database, which is a database to look up audio CD information over the Internet by software applications. The software behind CDDB was released under a GNU General Public License, and users submitted CD information thinking they were contributing to a free project.

Later on, having been bought by Escient, the license was changed.

"In March 2001, only licensed applications were provided access to the Gracenote database. New licenses for CDDB1 (the original version of CDDB) were no longer available, so programmers using Gracenote services were required to switch to CDDB2 (a new version incompatible with CDDB1).

To some, the decision was controversial because the CDDB database was started with the voluntary submission of CD track data by thousands of individual users. Initially, most of these were users of the xmcd CD player program. The xmcd program itself was an open-source, GPL project. Many listing contributors believed that the database was open-source as well, because in 1997, cddb.com's download and support pages had said it was released under the GPL. CDDB claims that license grant was an error."

These controversies led to the setting up of open source alternatives such as MusicBrainz. MusicBrainz is a community music metadatabase that attempts to create a comprehensive music information site. MusicBrainz data can be used either by browsing the web site, or by accessing the data from a client program — for example, a CD player program can use MusicBrainz to identify CDs and provide information about the CD, about the artist or about related information.

MusicBrainz also show their origins through their "Social Contract":

This social contract defines the spirit behind MusicBrainz and its community. This contract is not a legally binding contract; for legal information regarding products (including the MusicBrainz Database), please consult the license page.

1. **MusicBrainz will remain 100% free**: The development process will be open to the public by using public mailing lists, meetings open to interested parties, and open IRC channels. The client and server software will remain free and accessible under generally accepted open licenses. The factual database content will be in the public domain and the non-factual database content will be released under a Creative Commons license.
2. **We will give back to the web and free software community**: When we add extensions to MusicBrainz we will license them as free software or content. We will feed back bug-fixes, improvements, user requests, etc. using public mailing lists and/or open meetings.
3. **We won't hide problems and policies**: We will keep all MusicBrainz related discussions open for public view at all times, regardless of their content. All problems and policies related to MusicBrainz will be visible to all.
4. **Our priorities are our users, free content, and free software**: We will be guided by the needs of our users, free content and software community. We will place their interests first in our priorities. We won't object to commercial use of our content, companies can use the work of our volunteers without any charge, but charging for the content itself is forbidden.
5. **MusicBrainz is interested in all types of music**: MusicBrainz aims to collect information about all types of music. Published/unpublished, popular/fringe, western/non-western and human/non-human music should all be entered into MusicBrainz. MusicBrainz does not prefer one type of music over another, which also means that MusicBrainz does not condemn or condone any of the music catalogued in the database. Editors and voters are expected to tolerate viewpoints that may differ from their own.
6. **No warranty or liability for errors**: There is no warranty for the content of the MusicBrainz database or the software. It is provided "as is" without warranty of any kind for correctness or completeness.

Source: *"Why freedb.org?" Freedb.*

IV. The Characteristics Of Peer Production

A. The Social Logics of Peer Production

It is important to see the value inversion that occurs in peer production. Though it is integrated in the dominant economic model and embedded in the strategies of business firms, there are numerous inversions in the logic of value and production[244]:

- **Beyond Exchange**: commons-based peer production is not about exchange. Giving and taking are not coupled with each other.
- **Beyond Scarcity**: peer production is marked by anti-rivalry (sharing does not produce a loss, but a gain), i.e. because the knowledge, code or designs are shareable they can be used, copied and modified by everyone.
- **Beyond Commodity**: because the result of the production is shareable and anti-rival, and there is no tension between supply and demand, there are not produced for exchange value directly, but for use value.
- **Beyond Money**: money is only one of the possible drivers for the contributions, many other motivations become productive factors.
- **Beyond Property**: peer production uses licenses that make the contributions available to all possible users, creating a new form of universal common property; this means that there are no direct returns for property.
- **Beyond Labor**: because of the multiplicity of motivation, and production for need and use, peer production is not marked by labor for gain.
- **Beyond Classes**: contributions become agnostic to whether waged labour is involved; traditional division of labour and the command and control exerciced by the firm is secondary; new meritocratic and ad hoc hierarchies replace them (cfr. supra returns on property are inoperable).
- **Beyond Exclusion**: peer production systems are designed to enable the maximum number of contributions with the lowest possible treshold of participation.

244 The list of characteristics is inspired by the series of Stefan Meretz, Peer Production and Societal Transformation, http://keimform.de/2011/peer-production-and-societal-transformation/

However, none of these social logics operate in isolation from the larger economy. The participating companies operate in a commodity (I exchange) economy and seek to create strategies based on market scarcity within the field of abundance created by their commons. These companies pay salaries to their developers or freelancers, sell their labor and generate monetary income. These corporations are still generally owned by shareholders hence operating within the classic class dynamics. Meritocratic selection has its own exclusion biases, and many open source companies use dual licensing and other strategies to protect their property. Hence, every non-market social logic operates in relation to market dynamics.

B. Innovative Aspects of Peer Production Practice

Peer production carries with it many different fundamental innovations, that are starkly different from traditional business practice. Here are a number of these practices, contrasted with the practices of the market and the business firm:

- Anti-Credentialism: refers to the inclusiveness of peer production. What matters is the ability to carry out a particular task, not any formal a priori credential (≠ credentialism).
- Anti-Rivalry: sharing the created goods does not diminish the value of the good, but actually enhances it (≠ rivalry).
- Communal Validation: the quality control is not a 'a priori' condition of participation, but a post-hoc control process, usually community-driven (≠ hierarchical control).
- Distribution of Tasks: there are no roles and jobs to be performed, only specific tasks to be carried out (≠ division of labor).
- Equipotentiality: people are judged on the particular aspects of their being that is involved in the execution of a particular task (≠ people ranking).
- For Benefit: (Benefit Sharing; Benefit-Driven Production). The production aims to create use value or 'benefits' for its user community, not profits for shareholders (≠ for-profit).
- Forking: the freedom to copy and modify includes the possibility to take the project into a different direction (≠ one authorized version).
- Granularity: refers to the effort to create the smallest possible modules (see Modularity infra), so that the treshold of participation for carrying out tasks is lowered to the lowest possible extent.
- Holoptism; transparency is the default state of information about the project; all additions can be seen and verified and are sourced (≠ panoptism).
- Modularity: tasks, products and services are organized as modules, that fit with other modules in a puzzle that is continuously re-assembled; anybody can contribute to any module.

- Negotiated Coordination: conflicts are resolved through an ongoing and mediated dialogue, not by fiat and top-down decisions (≠ centralized and hierarchical decision-making).
- Permissionlessness: one does not need permission to contribute to the commons (≠ permission culture).
- Produsage: there is no strict separation between production and consumption, and users can produce solutions (≠ production for consumption).
- Stigmergy: there is a signalling language that permits system needs to be broadcast and matched to contributions.

C. Conditions for the Emergence of Peer Production

According to Yochai Benkler, in his classic exposition, *The Wealth of Networks*[245], peer production's emergence is directly related to technologically driven lowering of transaction, communication and coordination costs. That lowering the capital requirements of information production

1. Reduces the value of proprietary strategies and makes public, shared information more important,
2. Encourages a wider range of motivations to produce, thus demoting supply-and-demand from prime motivator to one-of-many, and
3. Allows large-scale, cooperative information production efforts that were not possible before, from open-source software, to search engines and encyclopedias, to massively multi-player online games.

Clay Shirky explains the importance of transaction cost thresholds (as summarized by Felix Stalder) in the context of the Coasian 'ceiling' and 'floor', i.e. activities below and beyond the appropriate scale for a traditional firm:

> *"There are limits to the scale particular forms of organisation can handle efficiently. Ever since the publication of Roland Coase's seminal article 'The Nature of the Firm' in 1937, economists and organisational theorists have been analysing the 'Coasian ceiling'. It indicates the maximum size an organisation can grow to before the costs of managing its internal complexity rise beyond the gains the increased size can offer. At that point, it becomes more efficient to acquire a resource externally (e.g. to buy it) than to produce it internally. This has to do with the relative transaction costs generated by each way of securing that resource. If these costs decline in general (e.g. due to new communication technologies and management techniques) two things can take place. On the one hand, the ceiling rises, meaning large firms can grow even larger without becoming inefficient. On the other hand, small firms are becoming more competitive because they can*

245 Benkler, Yochai. The Wealth of Networks: How Social Production Transforms Markets and Freedom. Yale University Press, 2006.

> *handle the complexities of larger markets. This decline in transaction costs is a key element in the organisational transformations of the last three decades, creating today's environment where very large global players and relatively small companies can compete in global markets. Yet, a moderate decline does not affect the basic structure of production as being organised through firms and markets.*
>
> *In 2002, Yochai Benkler was the first to argue that production was no longer bound to the old dichotomy between firms and markets. Rather, a third mode of production had emerged which he called 'commons-based peer production'. Here, the central mode of coordination was neither command (as it is inside the firm) nor price (as it is in the market) but self-assigned volunteer contributions to a common pool of resources. This new mode of production, Benkler points out, relies on the dramatic decline in transaction costs made possible by the internet. Shirky develops this idea into a different direction, by introducing the concept of the 'Coasian floor'.*[246]

Organised efforts underneath this floor are, as Shirky writes,

'valuable to someone but too expensive to be taken on in any institutional way, because the basic and unsheddable costs of being an institution in the first place make those activities not worth pursuing'. Until recently, life underneath that floor was necessarily small scale because scaling up required building up an organisation and this was prohibitively expensive. Now, and this is Shirky's central claim, even large group efforts are no longer dependent on the existence of a formal organisation with its overheads."[247]

This lowering of transaction costs has dramatic consequences on the empowerment of individual contributions, which is the distinguishing characteristic of all forms of 'socially-driven' production.

In conclusion, peer production can intervene with particular effect on two different scales:

1. Projects that are to small to be undertaken by firms, and that peer production efforts can initiate with minimal or no access to capital

2. Projects that are on very large scale and do not encounter the Coasian ceiling because peer production is not organized as an integrated command and control hierarchy but as a global coordination and alignment of many individual and small-group efforts that only have to manage their own modules.

Below, Franz Naharada focuses on the small group dynamics from the point of view of the empowered individual, while Tom Abate details the modularity aspect.

246 http://www.metamute.org/editorial/articles/analysis-without-analysis

247 ibid.

Franz Nahrada (elaborating on the arguments of Yochai Benkler in *The Wealth of Networks*) writes:

> *"The networked information economy improves individual autonomy in three ways:*
>
> - *First, it improves individuals' capacities to do more for and by themselves. Take baking for example. The internet offers thousands of different recipes for apple pie. A first time baker no longer needs to buy a Betty Crocker cookbook, call his grandmother for a recipe, or enroll in a cooking class to learn how to bake a pie. All he needs to do is perform a Google search for the phrase "apple pie recipe". Likewise, someone skilled in the art of pie-making and with a wish to share his knowledge does not need technical expertise to share it: he could easily start a blog devoted to pie recipes.*
> - *Second, it improves individuals' capacity to do more in loose affiliation with others in a non-market setting. Again, the results of the Google "apple pie recipe" search are an example of the success of this loose uncoordinated affiliation. Another one would be "peer to peer networks" with people exchanging their music collections or the SETI@home example. In this approach the critical issue is an architecture of participation - 'inclusive defaults for aggregating user data and building value as a side-effect of ordinary use of the application'. Users do not have to positively act to contribute, their ordinary use of the application is structured so as to benefit others.*
> - *Three, the networked information society improves individuals' capacity to cooperate with others through formal or organized groups that operate outside the market sphere based on voluntary commitment and rules that keep individual contributions in line and workeable. Sometimes hierachies are involved. Wikipedia, the open source software movement, are all examples.*
>
> *The fluidity and low level (both in terms of money and time) of commitment required for participation in these wide range of projects is just one of the ways in which the networked information economy has enhanced individuals' autonomy. Even where there are formal structures, cooperation can easily be broken by "taking the repository" and forking, which leads to much different leadership styles than in any other historical organisation."*[248]

There are also a number of organizational requirements for peer production to work.

In *Commons-based Peer Production and Virtue*, Benkler and Nissenbaum analyse the three needed characteristics. Summarised:

> *"1. [The tasks] must be modular. That is, they must be divisible into components, or modules, each of which can be produced independently of the production of the others. This enables*

248 http://www.globalvillages.info/wiki/wiki.cgi?GlobalVillages/FranzNahrada/Workspace/RomeSpeech

> *production to be incremental and asynchronous, pooling the efforts of different people, with different capabilities, who are available at different times.*
>
> *2. For a peer production process to pool successfully a relatively large number of contributors, the modules should be predominately fine–grained, or small size. This allows the project to capture contributions from large numbers of contributors whose motivation levels will not sustain anything more than small efforts toward the project ...*
>
> *3. …a successful peer production enterprise must have low–cost integration, which includes both quality control over the modules and a mechanism for integrating the contributions into the finished product, while defending "itself against incompetent or malicious contributors".*[249]

D. The Scope and the Limitations of Peer Production

During the emergence phase of free software, there have been different debates on the limitations of FLOSS, for example:

Bruce Perens has argued that open source makes most sense for non-differentiating technology that is used to support the general functions of a business (estimated at 90% of existing software), that do not bring competitive advantage, rather than its core competitive competence (shoppers may choose Amazon for its efficient recommendation software, not for its general web servers).

However, there is an increasing consensus that this distinction is less and less applicable, and that open source software is incorporated into every business activity. Felix Stalder has an overview of the specific conditions which make peer production in software more likely than in other sectors, but as we try to show in our table, the limitations are relative not absolute, several trends are converging to expand the possibilities in wider sectors. Stalder's discussion of *Six Limitations to the Current Open Source Development Methodology*[250] is summarised here, his statements in italics followed by our reaction and examples:

> *"1. Producers are not sellers. The majority are professional, i.e. highly-skilled programmers who do not draw their economic livelihood from directly selling the code they write."*

Even software is often embedded in a wider economy where sales are important, but more crucial the early success of open design commons show that a commons-centered development makes sense outside of software.

> *2. Limited capital investment allows a "very important group of people, who work outside the institutional framework on projects based on their own*

249 Yochai Benkler, and Helen Nissenbaum. Commons-based Peer Production and Virtue. Journal of Political Philosophy 14, no. 4 (2006): 394–419.

250 http://amsterdam.nettime.org/Lists-Archives/nettime-l-0308/msg00043.html

> *idiosyncratic interests, can only exist due to the fact that the means of production are extraordinarily inexpensive and accessible."*[251]

This is true, but there is a general trend towards the distribution of machinery and financial capital that expands the possiblities for such a model outside of software.

> *"3. High number of potential contributors. Programming knowledge is becoming relatively common knowledge, no longer restricted to an engineering elite, but widely distributed throughout society."*

There are now many other sectors with a similar cognitive surplus. For example, the high number of automotive engineering graduates without fixed employment creates the basis for the successfull crowdsoured design experiments of Local Motors, as well as at least two dozen open source car projects, some of them in advanced stages of development.

> *"4. Modularized Production. A large software program consists of many smaller code segments (libraries, plug-ins etc.)"*

The chinese motorcycle, as well as more generally the Shanzai economy in China, owes its success to modular conceptions of design; and open hardware and open design projects are now conceiving of project development in such modular terms.

> *"5. Producers Are Users. According to Eric S. Raymond, a good open source projects starts with a programmer scratching his own itch and finding out in the process that there are many others with the same problem."*

User innovation through leadusers, crowdsourcing, and co-creation and co-design are emerging across industries.

> *"6. No Liability. Software has no product liability. (…) Not always are the means of production inexpensive and readily available or the production process modular. Sometimes, the number of potential producers is small, more often than not are the producers not the users of their own products, and, in many cases, product liability is desirable."*

This can be solved by creating separate processes for the collaborative development of open design and the manufacturing/servicing process. Service and use guarantees are already at the basis of the success of open source software service companies like Red Hat.

The increasing general sentiment that peer production has an ever widening applicability is echoed by other researchers.

251 One-size-doesn't-fit-all. Felix Stalder. http://felix.openflows.com/html/one-size.html

For example, this same point is also argued by TU Delft researcher George Dafermos wro wrote to us in an email conversation:

> *"I'm pretty sure there is *no* sector/industry where FOSS is not important. Let me give some examples. 'LAMP' (linux-apache-mysql-php) is what most web developers/designers typically rely on to make a living. It is undeniable that they also use proprietary technologies too (e.g. adobe dreamweaver or photoshop) but most of their tools are FOSS: from filezilla (a FTP program) to CMS (content-management systems) like Joomla, Drupal and Magento. In fact, Magento is widely considered to be the most versatile and powerful CMS for e-commerce sites, and many companies use it for B2B applications. There's hardly a field of business activity where FOSS is not important. Even studios that make animated movies - and more generally, the entertainment industry -, once the stronghold of proprietary hardware/software, now rely on linux. Same goes for telecommunications: Asterisk-based systems (free software voice-over-ip) have revolutionised the market for PBX systems (i.e. telephone centres). The video games industry (whose total annual revenue exceeds that of hollywood) is another good example: Quake and Doom are but two of the best-known FOSS games.*
>
> *I wouldn't say that FOSS is not recommended for software that is the core competence of a firm. Quite the contrary. A common strategy employed by such companies, even by those that sell a software product rather than a service atop it, is to open-source the base functionality of the software (whether that is called 'engine' or something else) and bundle it with a proprietary (graphical or not) user-interface: doing so enhances the potential diffusion of the software and allows these companies to benefit from community development (by being able to incorporate outside contributions), while revenue flows in from customers who pay for the added-value of the (closed) user interface. That is the business model used by companies selling statistics software, for example."*

On the other hand Glyn Moody believes that the benefits of open source derives from the existence of community that can collaborate. He explains that

> *"if there is no community, or it is too small, open source probably won't work. For example, software for very narrow vertical applications - eg small, non-technical industries- aren't really suitable. But anything general, that is likely to attract a large user/developer base will probably flourish."*

There is a general consensus that the community and personally driven motivations of working for solutions, does not work well to create end-user directed products, because peer production is not driven by sales. This would indicate a necessary roles for companies for the last-mile-to-the-customer.

However, the emergence of open design communities may see a different more end-user friendly approach developing amongst future hacker cultures.

There is also an ongoing debate on the nature of innovation in open source vs. proprietary software, based on arguments that free software is not truly innovative[252], but only iterative improves existing software. However, the previously mentioned studies from authors like Eric von Hippel (*Democratizing Innovation*)[253] and Henry Chesbrough (*Open Innovation*)[254] [255]have shown how many innovations have been produced generally through user innovation dynamics.

George Dafermos recalls that the Web itself, which democratized the access to the internet for the general population, was itself a FOSS-driven innovation:

> *"The world wide web - that is, the first actually functional hypertext system (rather than just the notion of how such a system would work) - is perhaps the greatest FOSS innovation, considering the impact of the web on our lives. Its core components were open-source right from the beginning and its development thrived on the contributions of a loosely coupled community of fellow enthusiasts spread all over the world. It is not hard to find more examples, even well-known ones: it was microsoft which emulated (and still emulates) the functionality offered by the apache web server or the mozilla browser (e.g. mozilla had tabbed browsing years before Internet explorer). Gnutella and Freenet, as the first fully decentralised peer-to-peer networks, are yet another. BIND, the most widely used DNS software, and Sendmail, which routes the majority of email, not only created but still dominate their respective fields. And when you look at software with a more narrow appeal, meaning software that is not used by the average computer user, then you come to realise how rich and diverse - and above all, innovative - FOSS really is. Many FOSS tools used by IT professionals in their daily work in computer/network security still have no proprietary counterpart: that's the case with Ettercap for example. Similar examples abound. And so far we haven't even looked at process-innovations, which is probably where the greatest innovation of FOSS lies, catalysing new organisational structures and revolutionizing the scope of decentralised product development. And let's not forget Bittorrent!"*

Based on the general idea that anything that needs to be made, also needs to be designed, there are no real absolute limitations for the emergence of shared IP innovation commons in any sector of the economy. However, it is most likely that it will penetrate quite unevenly in the general economy, as we explain in the next two sections.

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252 Bruce Perens' argument is discussed by Mr. Teacup, http://www.mrteacup.org/post/peer-production-illusion-part-1.html; and also by Nicolas Carr, who writes: "if peer production is a good way to mine the raw material for innovation, it doesn't seem well suited to shaping that material into a final product. That's a task that is still best done in the closed quarters of a cathedral, where a relatively small and formally organized group of talented professionals can collaborate closely in perfecting the fit and finish of a product. Involving a crowd in this work won't speed it up; it will just bring delays and confusion." (http://www.strategy-business.com/press/article/07204?pg=3)

253 von Hippel, Eric. Democratizing Innovation. The MIT Press, 2005.

254 Chesbrough, Henry, Wim Vanhaverbeke, and Joel West. Open Innovation: Researching a New Paradigm. Oxford University Press, 2008.

255 Chesbrough, Henry William. Open Innovation: The New Imperative for Creating and Profiting from Technology. Harvard Business Press, 2006.

V. Cultural And Social Penetration Of Peer Production In Society

Here are different ways to look at the emergence and growth of peer production.

Michel Bauwens produced a Open Everything circular mindmap[256] and pyramid[257] to demonstrate the feedback loop through which open practices continue their spread and adoption in society. These configure a process of 'circulation of the common[258]', akin to the accumulation of capital, previously theorized by Nick Dyer-Whitheford[259]. It posits a process whereby the ongoing creation of open and free input, is processed by contributors in the shared innovation commons through open 'licenses'. Thereby, it becomes a free usable commons, which can then be iterated by subsequent generations of users and contributors, leading to the creation of new open and free input. Through this ongoing process, the common depositories continue to grow.

This visualization contains 8 aspects of processes representing the cycle of reproduction and growth of openness in our societies.

Section I, *Aspects of Openness*, stresses the cultural/social change in value systems, which has occured around values like openness, sharing, participation, transparency, autonomy and permissionless, leading to new behaviours that integrate such values. All these represent new social expectations, and are key ingredients of commons-based peer production as well.

Section II, *Enablers of Openness*, points out that these aspects or fundamental characteristics of openness are then embedded in enablers or 'guarantors', i.e. social charters, which define and create the communities. First of all are the Open Definitions, the social charters that determine the boundary conditions of the open communities and which define the minimal conditions for openness to be recognized; these are further embedded in open code, open licenses, and open standards; as well as the basic conditions which are open access and open data.

Section III, on *Infrastructures of Openness*, stresses that we are developing infrastructures in which these enabling elements are embedded, i.e. we need open platforms, both virtual and physical, which allow us to produce in a open way: open collaborative technical platforms, open places where we can

256 http://www.mindmeister.com/28717702/everything-open-and-free

257 http://blog.p2pfoundation.net/wp-content/uploads/openeverything2.jpg

258 Essay: Dyer-Witheford, Nick. The Circulation of the Common. Paper presented at Immaterial Labour, Multitudes And New Social Subjects: Class Composition In Cognitive Capitalism, Saturday 29th and Sunday 30th April 2006, King's College. Retrieved from http://blog2.jinbo.net/attach/5577/1223742698.pdf

259 http://www.fims.uwo.ca/people/faculty/dyerwitheford/

gather, open media and communication infrastructures we can use, open and free software, knowledge and scientific data; and the ability to live in open and free villages and urban spaces, which connect local production with global open design communities. The new infrastructures embed the values in their material reality, facilitating or even forcing certain behaviours, changing the users including those that do not initially share the same value premises.

Section IV, on *Open Practices* shows that the new platforms and infrastructures enable new types of general practice, including new conceptions about life, work, society, and the self.

Section V, shows that these practices emerge in particular field, and become *Open Domains of Practice*, which gives us open science, open education, and specific application of the open ethos.

Finally, in section VI, these practices become materialize in concrete *Open Products* which find many users, changing them in the process. These are the actual 'social artefacts' created by the processes from I to V, i.e. the Apache server, the Linux operating system, etc..

All of the above gives us a circular process, leading to new iterations of open characteristics. Use of the new artefacts in turn creates new layers of users, which feedbacks into the cultural and value change that we described in the beginning. This includes the emergence of real cultural, social and polital social movements which we describe in Section VII, on *Open Movements*. These new social movements, specifically dedicated to increasing 'openness' are also specifically tackling the social awareness concerning this shift, strengthening and increasing the numbers of people who see this as a new mode of life and ethical ideal, and as their default social practice. They consciously work on creating open distributed infrastructures in all areas of life, interconnecting initiatives in global networks of experience sharing. As examples, think about the open access movement for scholarly material, the Oekonux think thank, the Pirate Party in Sweden and Germany, the Free Culture Forum and many similar movements.

As we conclude in section VIII, al these changes also beget further iterations of *Open Consciousness*. Indeed, all the efforts from II to VII change our subjectivities and how we relate to each other, re-inforcing new iterations of the Open Cycle.

VI. Business Penetration

Since peer production is first and foremost based on the sharing of immaterial knowledge, code and design, it is more like to emerge in sectors where the end product itself is immaterial, i.e. in the world of cultural production. Services would have a more difficult penetration, but less so than material production marked by large companies and centralized capital, especially if physical labour predominates.

Within each sector and practice, the immaterial aspect would be more easily impacted than the material aspect. This also implies that countries and regions which have a higher penetration of such sectors, would more rapidly be marked by the adoption of such practices. Charles Leadbeater in *We Think* distinguishes between the high impact sector, mainly culture, responsible for 15-20% of GDP in the West, middle impact service sectors (education, government, banking), estimated at 50%, and low impact manufacturing sectors responsible for 30% in GDP. However, the further development of distributed finance (crowdfunding) and distributed manufacturing (3D Printing, rapid prototyping) calls into question such a priori limitations.

Social, cultural-psychological factors may be just as important, with certain more egalitarian-oriented cultures, for example of the Scandinavian cultures, more accepting of such collaborative practices and 'trust in strangers', than perhaps strong status-driven and hierarchical cultures (East Asia). These are of course hypotheses that should be confirmed by studies. Open communities will struggle to become sustainable by creating an economy around their activities, while corporations will struggle to adapt to open and collaborative practices, and there will be failures in both attempts.

So far, peer production has emerged in three major fields.

The first field is knowledge, but not just the generally useful "User-Generated Content", such as the Wikipedia, but actionable knowledge whose production as not divorced from 'economic' value and material production. Indeed, while a successful universal encyclopedia may be seen as a general enabler for a productive society, many open knowledge projects have a direct link with productive capacity.

A paradigmatic example is the *Nutrient Dense Project*[260], a global cooperation between farmers, citizen scientists and formally accredited scientists around uncovering knowledge based on the premise that good nutrients in the soil, leads to qualitative better food. By going against the grain of industrial production (which generally depletes the soils on which it is applied), and thereby foregoing the massive subsidisation of which the agribusiness sector is a recipent, a project like NDP provides a

260 http://nutrientdenseproject.com/

global and shared innovation commons which can directly impact the productivity of its farming members.

The second field of emergence has been free and open source software, which has the advantage of being directly 'executable knowledge' that does not require heavy a priori investments in machinery for physical production, with the GNU Linux kernel as the most famous example, leading to the construction of a universal non-proprietary operating system and a full software ecology.

The third field is open design, associated with 'open and distributed manufacturing', i.e. design that directly leads to manufactured products, that are based on non-proprietary designs. As can be expected, the shift from immaterial production to directly 'material' production, poses many special challenges. Open hardware is a special case, whereby the design of the product is shared through open licenses.

VII. The Institutional Ecology Of Commons-Based Peer Production

If the traditional manufacturing and corporate value creation models is based on firms, hiring labour to produce commodities that are sold in the market, the emerging peer production model is quite different and is accompanied by the emergence of a new institutional ecology of cooperation between various players, which we describe here.

It generally consists of 3 major players: the community and its commons; the governance of the infrastructure of cooperation consisting of nonprofit associations; and an enterpreneurial coalition.

A. The Commons

At its core, a community of contributors, an innovation commons, an infrastructure of collaboration.

A Community of contributors: the basic constituent of peer production is the community of contributors, who are co-constructing a common object of value. These consists both of unpaid volunteers, and when successfull, an increasing number of paid contributors, who can be freelancers or employees of participating corporations.

A commons of knowledge, software code or product design, that is deposited by the contributors to a depository that can be used by all, not just the participants, but all potential users. Such a commons is created by the use of particular licenses such as the General Public License.

A enabling collaborative socio-technological platform, that allow knowledge workers, software developers and open design communities to collaborate on joint projects, outside of the direct control of corporate entities.

B. The For-Benefit Institution

The infrastructure of cooperation is protected and maintained by a new type of nonprofit organisation, which does not command and control the production but protects, stimulates and enables the common work. In free and open source software production, these are also called the FLOSS Foundation, such as the Apache Foundation; the Wikipedia knowledge commons is associated

with the Wikimedia Foundation. Similar organisations also exist in the open hardware and shared design field. Such function can also exist without formalisation or legalization, for example, the working groups and provisioning systems which were sustaining the political commons of Occupy Wall Street.

Interesting questions here are:

- How is the for-benefit institution related to the community of contributors ?
- What is the role of participating companies in the institutions ?

C. The Enterpreneurial Coalition

Around the commons are the entrepreneurial coalitions that benefit and sustain the design commons, create added value on top of it, and sell 'added-value' products or services to the market.

Important questions raised here are: how is the coalition itself organized? Do all parties have equal say, as in the Linux Foundation, or does one big party dominate, like with the Eclipse Foundation and IBM? How does the business ecology relate to the community? How dominant is the corporation vis a vis the code commons, the community and the for-benefit institutions?

D. The Ecology of Support

Peer production does not exist in a vacuum and uses and needs various support and provisioning systems. For example, there could be crowdfunding structures available to generate financial input. Also various public authorities could play a role in supporting and financing certain aspects of peer production, or the system could have its own funding mechanisms, such as the *Open Hardware Central Bank*[261] experiment within the *Arduino*[262]community. We will see in chapter five how such support infrastructures are indeed emerging.

261 http://www.oshwbank.org/

262 http://www.arduino.cc/

VIII. Peer Production In Free And Open Source Software

A. Defining Free Software and Open Source

There are endless debates amongst developers about the distinctions between free software and open source. Technically, they are using the same licenses, but they use contrasting ideological languages. Free software stresses the creation of a commons, open source stresses the higher commercial efficiency of the method as a superior model of software development.

As Eben Moglen, legal counsel for the Free Software Foundation, stresses:

> *"Free software is an invocation for particular social purposes of the ability to develop resources in commons. Free software presents an attempt to construct a commons in cyberspace with respect to executable computer code."*[263]

Richard Stallman writes that:

> *"Nearly all open source software is free software; the two terms describe almost the same category of software. But they stand for views based on fundamentally different values. Open source is a development methodology; free software is a social movement. For the free software movement, free software is an ethical imperative, because only free software respects the users' freedom. By contrast, the philosophy of open source considers issues in terms of how to make software "better" — in a practical sense only. It says that non-free software is a suboptimal solution. For the free software movement, however, non-free software is a social problem, and moving to free software is the solution."*[264]

Since they share so much common ground 'in practice', many commentators have used concepts such as FOSS or FLOSS to consider them together (the 'L' stands for Libre, which is an attempt to avoid the confusion between free as in free speech and free as in gratis). It is perhaps most useful to consider

263 http://www.freeebay.net/site/index.php?option=com_content&task=view&id=552

264 http://www.gnu.org/philosophy/open-source-misses-the-point.html

them under three different aspects. First, as software code that is put in common through the use of 'open' licenses, guaranteeing their shareability. Second, as a particular 'open development' process that involves a social logic of allocation of effort through community dynamics. Third, as a business model, in which software companies generate income without relying on proprietary code.

The simplest definition on open source software comes from Dave Winer:

> *"A program is said to be open source if the full source code for the program is available publicly, with no constraints on how it can be used."*[265]

Joel West expands:

> *"In the narrowest sense, open source software is defined by a particular form of software license approved by the non–profit Open Source Initiative. In practical terms, the concept of open source has three dimensions: an IP license, a virtual development process and a system of shared governance."*[266]
>
> *"Free software, as defined by the Free Software Foundation, is software which can be used, copied, studied, modified and redistributed without restriction. Freedom from such restrictions is central to the concept, with the opposite of free software being proprietary software (a distinction unrelated to whether a fee is charged). The usual way for software to be distributed as free software is for the software to be licensed to the recipient with a free software license (or be in the public domain), and the source code of the software to be made available (for a compiled language)."*[267]

B. Important Distinctions Amongst the Licenses

Eben Moglen explains the differences between the GPL and BSD families of licenses used by the FLOSS communities:

> *"When we come to the technicalities of licensing, we will observe that there are two philosophies in the construction of the commons, one of which is characterized, oddly enough, by a license with the three-letter name BSD, the Berkeley Systems Division license, which originally covered the distribution of a Unix-like operating system, written on free-sharing principles, primarily at the University of California. The BSD license says: 'Here is a commons. It is not defended by copyright against appropriation. Everything in the commons may be taken and put into proprietary, non-commons production as easily as it may be incorporated into commons production. We encourage people to put material into commons, and we are*

265 http://davenet.userland.com/2000/09/15/whatIsOpenSource

266 http://www.firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1913/1795

267 http://en.wikipedia.org/wiki/Free_software

> *indifferent as to whether the appropriative use made of commons resources is proprietary, or commons-reinforcing'.*
>
> *The second philosophy for the production of software in commons is embodied in the GNU General Public License of the Free Software Foundation, known universally throughout the world by another three-letter abbreviation, GPL. The GPL says: We construct a protected commons, in which by a trick, an irony, the phenomena of commons are adduced through the phenomena of copyright, restricted ownership is employed to create non-restricted, self-protected commons. The GPL, whose language you've been referred to, is not quite as elegant a license as I would like but it is pretty short; yet I can put it more simply for you. It says: 'Take this software; do what you want with it—copy, modify, redistribute. But if you distribute, modified or unmodified, do not attempt to give anybody to whom you distribute fewer rights than you had in the material with which you began. Have a nice day'. That's all. It requires no acceptance, it requires no contractual obligation. It says, you are permitted to do, just don't try to reduce anybody else's rights. The result is a commons that protects itself".*[268]

Open and free licenses have since proliferated to domains outside of software, for example to the world of 'free' (i.e. IP-free!) culture, especially in the form of the popular Creative Commons licenses. It is important to understand that these licenses do not create a commons, but give creators option to share their content under certain conditions. As Benjamin Mako Hill explains:

> *"Free culture is described as the freedom for authors to choose how their works are licensed. While essential to the possibility of licensing in general, this type of freedom departs strongly from the type of freedom at the core of the free software movement. Creative Commons (CC), perhaps the most important organization in the free culture world, argues for 'some rights reserved'—a striking contrast from the free software movement's 'essential rights are unreservable'".*[269]

He stresses that "today, more than three-quarters of CC works are under the two most restrictive licenses", i.e. especially those that limit the free use to non-commercial usage.

268 Ibid. note 27

269 http://mako.cc/writing/free_culture-fsf_bulletin_200707.html

C. FLOSS as a Development Model

It is important to understand that open source does not only refer to a common code base, but to the process of producing that codebase. Nelson Ko for example, insists that:

> *"key support options for open source software include non-commercial channels provided by an extended community. Therefore, important criteria that should be considered when evaluating open source software include the size and vibrancy of the community, the availability of online documentation, and access to support via mailing lists, forums, and IRC (Internet Relay Chat)."*[270]

Peter Hoddinott and Tony Bailetti offer a quadrant model that distinguishes four distinct possibilities:

1. **Open process and open computer code**
2. **Closed process and open computer code** (For example, the Open Office project has been criticized for encouraging a development culture that differs radically from the open-source norm. The majority of the contributors to the Open Office project work for Sun Microsystems.)
3. **Open process and closed computer code**
4. **Closed process and closed computer code** (= proprietary software).

> *"These are important distinctions because in many cases, especially if one firm is domimant, the theoretical openness can be compromised in different ways."*[271]

For example:

> *"we found instances where open meant that releases of the code were made available to the general public (i.e. non-members of a consortium); however, releases to the general public were delayed 12 months from the time it was available to the members of the consortium. We also found instances where what open meant depended upon the level of membership. The more expensive memberships provided these members more privileges to participate in and influence the processes, for example with veto power. In these examples, open is not equated with full access; instead, open is a matter of degree and that degree is metered out in a distinctly defined hierarchy of privilege."*[272]

270 http://osbr.ca/ojs/index.php/osbr/article/view/381/342

271 http://p2pfoundation.net/Open_Source

272 Ibid.

Dirk Riehle distinguishes two main types, and adds a third:

> *"There are two types of open source software.*
>
> *Community open source is software that a community develops. Rather than a single corporate entity owning the software, a sometimes broad community of volunteers determines which contributions are accepted into the source code base and where the software is headed. Individual developers, the committers, and not a specific company, make decisions about the software, as in the case of the Apache Web server (http://httpd.apache.org).*
>
> *Commercial open source is software that a for-profit entity owns and develops. The company maintains the copyright and determines what is accepted into the software code base and what to implement next, as in the case of MySQL and its MySQL database (http://www.mysql.com)."*[273]

The third one,

> *"Professional open source is software provided as open source where a dominant firm provides services around the software without actually owning it."*[274]

Gianugo breaks down 'open development' under five characteristics:

> *"I would rather see the OSI, or an entirely new entity, patronise this concept, which should be fairly easy (though not trivial) to protect as there might be some objective criteria to tell open development from plain Open Source. A first stab at what these criteria could be:*
>
> *1. an Open Source license, of course;*
>
> *2. a non-discriminatory access to the developer's community;*
>
> *3. a well-defined and stated process for people to get involved;*
>
> *4. a neutral and self-elected governing body;*
>
> *5. (more difficult, could mean having a preferential lane) a neutral party such as a foundation owning the code."*[275]

273 http://www.riehle.org/computer-science/research/2007/computer-2007-article.html

274 http://www.riehle.org/2008/04/06/commercial-professional-and-community-open-source-resolving-the-naming-confusion/

275 http://p2pfoundation.net/Open_Development

Peter Hoddinott and Tony Bailetti describe four aspects of open development in more detail:

> *"1. **Network**: Large, distributed and diverse: We distinguish between an asset produced by a well developed network from an asset produced by a small number of collocated producers who have similar characteristics. A general reference model for an open source asset would be one that is produced by a well developed network that is able to integrate, test, and quality assure contributions from a large number of diverse individuals and organizations dispersed throughout the world*
>
> *2. **Process**: Includes meritocracy where one is recognized for the quality of their contributions; transparency in communications and guidelines; recruitment and promotion methods; and mechanisms for dealing with difficult people*
>
> *3. **Governance**: Includes participation; relationship between contribution and the influence that can be asserted; membership's influence over a project, influence over the overall system governance, and ability to alter the governance structure*
>
> *4.**Value creation and appropriation**: Usefulness of the asset; how free-riders are addressed–~~if~~ it is too easy to appropriate value no one would pay for a membership or undergo an apprenticeship to move from being a developer/contributor who writes code or documentation to a committer with write access to the codebase; access to the asset by virtue of the license."*[276]

This is far from being the case in all 'commercial open source' projects. Here is a contrast between open development, as defined by SAP (the business management software and services company), followed by a counter-example.

First, from a SAP White Paper:

> *"Three key characteristics of open source projects:*
>
> *Open source is said to be based on the principle of meritocracy. We have found that the principle of meritocracy is used as an umbrella term for the following three more specific principles of open source:*
>
> ***1. Egalitarian**. Everyone can contribute, because open source projects are accessible on the Internet and the project community is typically inclusive to anyone who wants to help.*
>
> *Project members need to be inclusive of whoever comes along to help rather than viewing them as a foreign element. Documenting the project with future readers in mind is a core aspect of this.*

276 Ibid. note 34

> ***2. Meritocratic**. Contributions are judged transparently and based on their merits. All decisions are discussed publicly on mailing lists and can be looked up for reference.*
>
> *Project members need to realize that important input and contributions can come from all across the organization based on perspectives that may be unfamiliar to the original developers.*
>
> ***3. Self-organizing**. There is typically no defined process imposed from the outside so the project community itself determines how to go about its work.*
>
> *Projects need to be accommodating of their volunteers and respectful of their time."*[277]

By contrast, Peter Hoddinott and Tony Bailetti describe the following case of non-open development:

> *"the production of the code lacked key open source characteristics such as:*
>
> *• No external contributors: all code was developed in-house prior to being published on the Internet*
>
> *• No visibility of who developed the code and when they developed it*
>
> *• No mechanisms were available to the general public for*
>
> *(i) contributing to the production of the code prior to its release in Sourceforge.net or*
>
> *(ii) participating in the governance structure of the organization that produced it."*[278]

Open development is not just a nice thing to have, it is also an important aspect that allows firms to capture the long term advantages of relying on a code commons and community:

> *"The license under which the code is released is merely just the outward trappings of an open source project. What's really critical is the extent to which the development costs are shared across a vast global community of developers who have many different means of support. … if a project decides to release its code under an open source license, but nearly all the developers remain employed by a single company, it doesn't really change the dynamic compared to when the project was previously under a closed-source license."*[279]

Open governance is not a luxury. The compilers of the Open Governance Index, which measures the degree of openness of the development process, conclude that:

> *"A successful open source project demonstrates long-term involvement of users and developers, along with a substantial number of derivatives, and the project continually develops, matures, and evolves over time. Our research suggests that platforms that are most open will be most successful in the long-term."*

277 http://www.flashapi.org/spas-dev/spas-open-source-initiative.php

278 Ibid. note 34

279 http://p2pfoundation.net/Open_Development_Communities

The Open Governance Index

Source: Liz Laffran (http://timreview.ca/article/512)

The purpose of our research is to define and measure the governance of open source projects, in other words, the extent to which decision-making in an open source project is "open" or "closed".

We also identify best practices that are common across these open source projects with regard to source code access, development of source code, management of derivatives, and community structure. These best practices increase the likelihood of developer use of and involvement in open source projects."

"The OGI comprises 13 metrics (Box 1) across the four areas of governance:

- **Access**: availability of latest source code, developer support mechanisms, public roadmap, and transparency of decision making
- **Development**: the ability of developers to influence the content and direction of the project
- **Derivatives**: the ability for developers to create and distribute derivatives of the source code
- **Community**: a community structure that does not discriminate between developers

The OGI quantifies how open a project is in terms of transparency, decision making, reuse, and community structure. We ranked projects across each governance parameter and on a scale of one to four on each question from Box 1. The higher the score, the more open the project.

Access

- 1. Is source code freely available to all developers, at the same time?
- 2. Is source code available under a permissive OSI-approved license?
- 3. Developer support mechanisms —are project mailing lists, forums, bug-tracking databases, source code repositories, developer documentation, and developer tools available to all developers?
- 4. Is the project roadmap available publicly?
- 5. Transparency of decision mechanisms —are project meeting minutes/discussions publicly available such that it is possible to understand why and how decisions are made relating to the project?

Development

- 6. Transparency of contributions and acceptance process —is the code contribution and acceptance process clear, with progress updates of the contribution provided (via Bugzilla or similar)?
- 7. Transparency of contributions to the project —can you identify from whom source code contributions originated?
- 8. Accessibility to become a committer —are the requirements and process to become a committer documented, and is this an equitable process (i.e., can all developers potentially become committers?). Note that a "committer" is a developer who can commit code to the open source project. The terms "maintainer" and "reviewer" are also used as alternatives by some projects.
- 9. Transparency of committers —can you identify the committers to the project?
- 10. Does the contribution license require a copyright assignment, a copyright license, or patent grant?

Derivatives

- 11. Are trademarks used to control how and where the platform is used via enforcing a compliance process prior to distribution?
- 12. Are go-to-market channels for applications derivatives constrained by the project in terms of approval, distribution, or discovery?

Community Structure

- 13. Is the community structure flat or hierarchical (i.e., are there tiered rights depending on membership status?)

D. FLOSS as Business Model

We will discuss open software business models in more detail in a later section, but some important generalities about the business aspects of FLOSS will be presented here.

Open source can be both an external business model, used to generate revenue, mostly through derivative services and more rarely by selling the software itself. It is also very important as an internal

strategy to minimize the cost of developing non-core general purpose software. *Black Duck*, a code auditing firm, calculated that 80% of new development cost are avoided by the re-use of an existing open source code base[280]. This means that FLOSS software often takes the form of 'corporate commons', i.e. joint economic ventures.

In January 2010, Global Graphics completed a survey[281] with 400 Chief Information Officers from organisations with over 1000 employees across the US and the UK that showed three quarters (76 per cent) of large organisations use free software across the enterprise with over half (51 per cent) planning to deploy more free software in 2010.

According to the editor of the Linux Journal, Doc Searls,

> *"Linux has become an economic joint venture of a set of companies, in the same way that Visa is an economic joint venture of a set of financial institutions. As the Linux Foundation report makes clear, the companies are participating for a diverse set of commercial reasons."*[282]

A Linux Foundation report on the work on the Linux kernel makes this very clear:

> *"over 70% of all kernel development is demonstrably done by developers who are being paid for their work. Over 14% is contributed by developers who are known to be unpaid and independent, and 13% by people who may or may not be paid (unknown), so the amount done by paid workers may be as high as 85%.*
>
> *The Linux kernel, then, is largely the product of professionals, not volunteers."*[283]

But Timothy Lee explains that the corporatization of Linux has not changed its underlying organisational model:

> *"...what matters is the way open source projects are organized internally. In a traditional software project, there's a project manager who decides what features the product will have and allocates employees to work on various features. In contrast, there's nobody directing the overall development of the Linux kernel. Yes, Linus Torvalds and his lieutenants decide which patches will ultimately make it into the kernel, but the Red Hat, IBM, and Novell employees who work on the Linux kernel don't take their orders from them. They work on whatever they (and their respective clients) think is most important, and Torvalds's only authority is deciding whether the patches they submit are good enough to make it into the kernel."*[284]

280 http://timreview.ca/article/514

281 http://www.computerworlduk.com/news/open-source/18518/demand-for-freeware-strong-in-large-businesses/

282 http://www.linuxjournal.com/content/linux-now-slave-corporate-masters

283 Ibid.

284 http://www.techdirt.com/articles/20080423/082724929.shtml

Clay Shirky, author of *Here Comes Everybody: The Power of Organizing Without Organisations*[285], stresses that companies that work with Linux, such as IBM

> *"have given up the right to manage the projects they are paying for, and their competitors have immediate access to everything they do. It's not IBM's product."*[286]

Since businesses generally profit from the use of FLOSS software and are dependent on the good health of the code commons and the general community of contributors, they also tend to sustain the community in various ways.

EnterpriseDB[287], a disruptive cloud services company based on open source principles and development, provides a good example of what that can mean in practice:

> *"Our efforts at being excellent citizens of the PostgreSQL community are wide-ranging, but tend to fall into the following broad categories:*
>
> > - *Identify important and difficult development community projects, and get these projects done with EnterpriseDB staff*
> > - *Employ community leaders, including both titled members (i.e., core team) and thought leaders*
> > - *Sponsor non-employee community developers*
> > - *Be a major sponsor of community gatherings and other activities*
>
> *This balanced approach of selling commercial software on one-hand and aggressively supporting the community on the other is our answer to the conundrum of creating a commercial company on a BSD code base."*[288]

Open source advocate Glyn Moody distinguishes at least three main phases in the adoption of free software by the business community, in terms of infrastructure:

> *"If the first era of free software was about the creation of the fully-rounded GNU/Linux operating system, the second saw a generation of key enterprise applications being written to run on that foundation. Things got moving with the emergence and rapid adoption of the LAMP stack —a term coined in 1998 - a key part of which was (obviously) MySQL (the "M")."*[289]

285 Shirky, Clay. Here Comes Everybody: The Power of Organizing Without Organizations. 1st ed. Penguin Press HC, The, 2008.

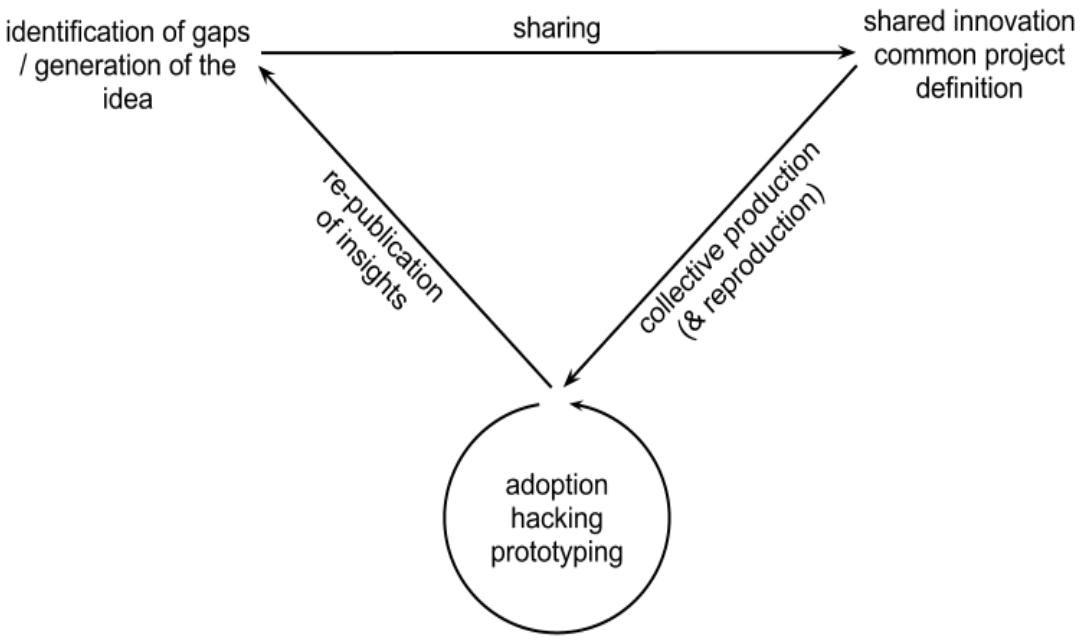
286 http://blogs.cioinsight.com/knowitall/content001/decoding_the_professionalization_of_linux.html

287 http://www.enterprisedb.com/

288 http://robertogaloppini.net/2007/06/02/open-source-firms-enterprisedb-business-model/

289 http://www.h-online.com/open/features/Free-software-s-second-era-The-rise-and-fall-of-MySQL-959718.html

IX. Peer Production In Design, Hardware, And Manufacturing



Ilustration 12: The Open design and open manufacturing producti cycle, by Simone Cicero (http://meedabyte.files.wordpress.com/2012/03/productcycle.png?w=710&h=374)

There are substantial differences between the situation of executable code and the actual making and manufacturing of physical goods. However, there is also an emergence and developments of peer production in the fields of *hardware* (open hardware, open source hardware), and *design* (open and shared design communities). These developments extend to the field of *open and distributed manufacturing*. Here we will focus on the two areas that are most directly related to the free software and open source practices.

A. Some Introductory Citations

> *"The open-source phenomenon, which has its roots in the world of computer software, has now embraced the whole spectrum of human production, from music to movies, scientific papers, robots, cars and the building and occupation of real and virtual worlds at all scales, from architecture and the design objects to visualization and nanodesign."*

Paola Antonelli[290]

> *"It is infinitely easier and more energy-saving to change such patterns, to move them around, shape them, knead them, assemble them and send them round the world instead of their material original."*

Georg Franck[291]

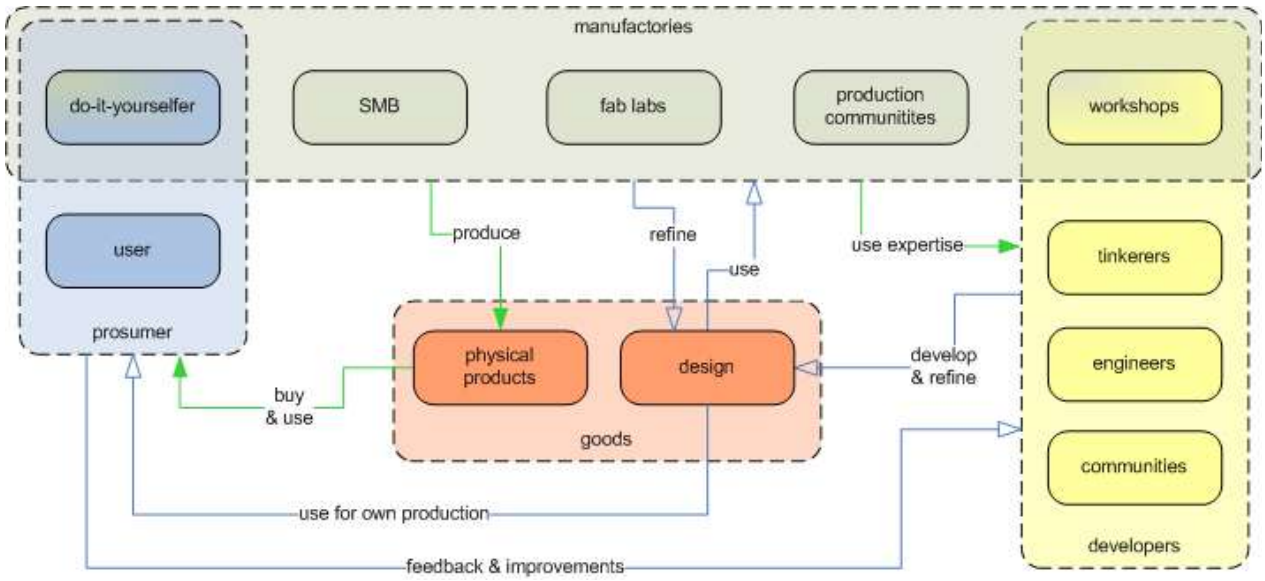


Illustration 13: Future Production Graph by Reto Stauss (http://manufakturingruendung.ch/userfiles/image/seiten/OSH_production_future.png)

290 http://www.domusweb.it/en/design/states-of-design-03-thinkering

291 http://www.heise.de/tp/artikel/5/5567/1.html

B. What is Open Hardware

Wikipedia's reflection on the suitability of collaboration for more material endeavours:

> *"In some respects design and engineering are even more suited to open collaborative development than the increasingly common open-source software projects, because with 3D models and photographs the concept can often be understood visually. It is not even necessary that the project members speak the same languages to usefully collaborate."*[292]

This principle finds its expression in the concurrent development of open hardware and open design, which respectively stress the physical aspect of the machine vs. the 'immaterial' design activity.

The *TAPR Open Hardware License* gives the following definition:

> *"Open Hardware is a thing - a physical artifact, either electrical or mechanical - whose design information is available to, and usable by, the public in a way that allows anyone to make, modify, distribute, and use that thing."*[293]

Janet Hope, an expert in open source biology, adds a number of important specifications:

> *"For hardware to be open hardware:*
>
> *1. Its design must be publicly accessible in a form that enables implementation and full understanding.*
>
> *2. The software tools used to create the design should be free so that others can develop and improve the design.*
>
> *3. The software interface to the hardware must be publicly accessible and free to use."*[294]

Strictly speaking, Open Hardware is a trademark available to manufacturers who apply for the *Open Hardware Certification* program sponsored by Free Software organizations.[295] Patrick McNamara of the Open Hardware Foundation offers some further specifications and a typology. Given that "Closed Hardware is any hardware for which the creator of the hardware will not release information on how to make normal use of the hardware"[296]:

- In the case of **Open Interface** hardware, all the documentation on how to make a piece of hardware perform the function for which it is designed is available. In the case of computer

292 http://en.wikipedia.org/wiki/Open_design

293 http://www.tapr.org/ohl.html

294 http://p2pfoundation.net/Open_Hardware

295 http://opencollector.org/Whyfree/open_hardware.html

296 http://p2pfoundation.net/Closed_Hardware

hardware, this means that all the information necessary to produce fully functional drivers is available.

- **Open Design** hardware is hardware in which enough detailed documentation is provided that a functionally compatible device could be created by a third party.
- Hardware for which the complete bill of materials necessary to construct the device is available fall into the category of **Open Implementation**.

Eric von Hippel stresses the long history of the practice by observing that open-source hardware actually predates open-source software by centuries: people have always shared blueprints and sketches for such things as furniture and machinery… the visibility of the open-source-software community"[297] has created a new awareness of what has long been the historical practice in hardware.

Several commentators date the rebirth of modern open hardware to 2005, as The Economist explains,

> *"Some enthusiasts point to 2005 as a crucial year: that was when work began on devices such as the RepRap (a rapid-prototyping machine that will, its makers hope, be able to replicate itself) and the TuxPhone, an open, Linux-powered mobile-phone. It was also when Sun Microsystems, a computer-maker, decided to publish the specifications of one of its microprocessors, the UltraSPARC T1."*[298]

2005 is also the year that

> *"O'Reilly Media began publishing Make magazine, a quarterly how-to guide for all sorts of engineering and science projects." Technology Review explains that "Make now has more than 100,000 subscribers and has spawned events known as Maker Faires, which are a cross between souped-up science fairs and high-tech craft shows. Last spring, 65,000 professionals and amateurs flocked to the San Francisco Bay Area Maker Faire."*[299]

Also in 2005,

> *"Eric Wilhelm launched the Instructables website, which provides a template for step-by-step instructions that lets people document their engineering projects online. Since its users are allowed to comment on other people's projects, Instructables has created a vibrant community of technology enthusiasts who share information on building just about anything."*[300]

297 http://www.technologyreview.com/article/21495/page2/

298 http://www.economist.com/node/11482589?story_id=11482589

299 http://www.technologyreview.com/article/21495/page3/

300 Ibid.

Open hardware is also a social movement and a dream for an integrated open and distributed manufacturing infrastructure, which is expressed here by Graham Seaman:

> *"at some point in the next decade or two, I will be able to send you a "copy" of my phone simply by sending a set of instructions telling your computer how to organize bits of carbon in a desktop nanofactory to create another instantiation of a phone. Very soon, a more software-like open source physical world paradigm will become possible. But what will really make a big difference will be the emergence of tools allowing you to take that set of instructions for the phone and modify it to meet your particular needs prior to it being printed out."*[301]

Dam Mellis explains the connection more succinctly:

> *"The natural model for open-source hardware (particularly kits) would seem to be distributed manufacturing. This would involve a number of smaller groups independently producing the same design for local distribution. It would make the product available in many places, but avoid the cost increases associated with a separate manufacture and distributor. PCB (Printed Circuit Board) production and component purchase seem to yield much of their economies of scale at quantities of around one hundred, so this model would not require a large volume from each producer. The documentation and instructions could be created collaboratively and housed centrally, as all the products would be the same. I'm surprised that I haven't seen many open-source hardware projects following this model. It seems to offer a means for the collaborative production of products, a system that matches the philosophy of open-source hardware."*[302]

As we will see in our section on distributed manufacturing, there are many convergent trends that are nevertheless working in that direction.

C. Difficulties Confronting the Spread of Open Hardware

The question of how to translate open source licenses into the context of patent protection is an important one for open hardware. Janet Hope explains:

> *'"The first point is that no generally accepted open hardware licences yet exist. As noted in an earlier section, copyleft licenses (and other forms of open source software license) rely on copyright: the copyright owner uses his or her exclusive rights to guarantee certain freedoms for users of the software*

301 http://www.worldchanging.com/archives/004155.html

302 http://dam.mellis.org/2009/07/the_open-source_hardware_distribution_model/

> *program covered by the license. However, as with biotechnology research tools, computer hardware is mostly protected by patent. In contrast to copyright protection, which is quick, cheap and simple, obtaining a patent is a costly, time-consuming process; moreover, maintaining a patent requires the payment of substantial renewal fees."*[303]

A second problem is the availability of open modular designs, and the unexpected effects that changing one module can have on physical and biological systems. Janet Hope writes:

> *"The second point made by open hardware sceptics that may also apply to open source biotechnology is that hardware is not as modular and compartmentalised as software. … The general point may be particularly relevant to biotechnology research tools, as many are living organisms or components of living organisms: unpredictable, delayed side-effects in response to apparently small changes are established characteristics of living organisms as a class of complex systems."*[304]

The third point relates to the need for capital investment:

> *"The third point is that capital costs associated with hardware manufacture are higher than for software, so that human creativity costs are a smaller proportion of the total costs in the hardware context. … Open hardware sceptics have suggested that there are therefore minimal start-up costs for software programmers but not for hardware developers, and further, that resulting reliance on institutional funding for hardware manufacture makes the process more vulnerable to conservative institutional attitudes and employment-related legal constraints."*[305]

Use Of Creative Commons Licenses For Open Design Projects

Makerbot

The Makerbot project offers another outlook on future trends. The company of the same name produces an opensource rapid prototyping 3D printer.

Open Draw

OpenDrawCommunity wants to create a shared pool for the creation of etch templates for model railways which can be made available for private use under a Creative Commons license.

OpenWear

Openwear is a platform experimenting with new collaborative and open approaches to both the production and distribution of fashion.

For this Openwear worded their own license, which is similar to the CC licenses, but in addition aims at establishing an open and collaborative Openwear brand.

Thingiverse

The designs on the Thingiverse platform are published under CC licenses. People experiment with new possibilities of 3D printing and the creation of modified and technically improved works is more often than not clearly welcome.

Source: Markus Beckedahl/ Andrea Goetzke (http://issuu.com/openp2pdesign/docs/cis.doc_open-design))

303 http://p2pfoundation.net/Open_Hardware

304 Ibid.

305 Ibid.

D. The role of Open Design Practices

If the *Open Hardware* concept and movement stresses the 'shared makeability' of a physical product, the *Open Design* concept and movement has an even much wider applicability of 'designing' together. It is also more specifically linked to the professional identity of designers, in contrast with the more restrictive use of open hardware by developers of electronic machinery. Often, it is culturally and politically connected with social (development) and environmental goals (sustainability) as well.

> *"Open design is the development of physical products, machines and systems through use of publicly shared design information. The process is generally facilitated by the Internet and often performed without monetary compensation. The goals and philosophy are identical to that of the open source movement, but are implemented for the development of physical products rather than software."*

Wikipedia provides some historical background:

> *"In late 1998, Dr. Sepehr Kiani (a PhD in mechanical engineering from MIT) realized that designers could benefit from Open Source policies, and in early 1999 he convinced Dr. Ryan Vallance and Dr. Samir Nayfeh of the potential benefits of open design in machine design applications. Together they established the Open Design Foundation (ODF) as a non-profit corporation, and set out to develop an Open Design Definition.*
>
> *The idea of open design was taken up, either simultaneously or subsequently, by several other groups and individuals. The principles of open design are closely similar to those of Open source hardware design, which emerged in March 1998 when Reinoud Lamberts of the Delft University of Technology proposed on his "Open Design Circuits" website the creation of a hardware design community in the spirit of free software."*[306]

In the intervening period, open design has developed in different communities. One domain are the technological and hacker communities, with for example the circuit board design communities around *Arduino*[307]; there is a strong link between open design and 'common good' motivations such as sustainability (*Appropedia*[308]) and renewable energy.

A first wave of emergence occured as more gadget-oriented experiments for the specialized 'geek-oriented' communities, using downloadable design sites such as *Shapeways*[309], connected with 'on demand making' infrastructures, such as *Ponoko*[310] (the first worldwide laser cutting service), open

306 http://en.wikipedia.org/wiki/Open_design

307 http://www.arduino.cc/

308 http://www.appropedia.org/Welcome_to_Appropedia

309 http://www.shapeways.com/

310 http://www.ponoko.com/

design moved more mainstream when regular design firms started engaging with participatory design processes.

> *"Open Design is now getting out of the underground, since many important design companies, institutions and other actors are now actively working on it."*[311]

According to open design expert Massimo Manichinelli, open design started going mainstream in 2011, with crowdsourced design initiatives by design companies such *Open Ideo*[312] (Ideo), *frogMob*[313] (Frog Design), but most importantly the integrated open design facilities offered by *Droog Design*[314] in its 'downloadable design' project in the Netherlands. It brings together user-designers, design companies and manufacturers[315]. However, most projects discussed below do not necessary have clear 'open licenses' and may therefore more safely be considered 'crowdsourced design' efforts. Massimo explains:

> *"We can certainly say that Open Design is now mainstream if the most famous conceptual design company starts a business around it. This is the case of Droog Design, that with Mediagilde started the Design for Download initiative (previously called downloadable-design). This initiative will be presented during the Salone del Mobile in Milan in 2011, but the launch of the platform, featuring various brands and institutions alongside Droog, will occur later this year. The platform will not only include products, but also architecture, home accessories, fashion, food, wearables, and more. For the moment Droog will present furniture and accessories designed for download by EventArchitectuur and Minale-Maeda, including CNC cut tables, cupboards, desks, side tables, shelves, couches and 3D printed electrical outlets, flowers and charms. Droog will also present digital design tools that allow ordinary computer users to easily make functional design decisions, automatically generating blueprints for local execution in various materials. The tools also enable communication between designer and customer, streamlining and lowering the cost of a custom design process."*[316]

This *Design for Download* project is actually a very ambitious project to create a global infrastructure bringing together users, designers and manufacturers.

311 http://www.openp2pdesign.org/2011/open-design/open-design-is-going-mainstream-now-third-part/

312 http://www.openideo.com/

313 http://frogmob.frogdesign.com/

314 http://www.droog.com/

315 http://www.youtube.com/watch?v=Nuzcl_QdTOM&feature=player_embedded#!

316 http://www.openp2pdesign.org/2011/open-design/open-design-is-going-mainstream-now-second-part/

Droog's Agata Jaworska explains a shift towards meta-design of the process of design combining the different stakeholders and participants:

> *"Designers have shifted from designing the end result, something with no options for the consumer to interact with, to designing of the tools. But in design for download the design of the tools is just as controlled as the design of the final product."*[317]

Designer Paul Atkinson explains how designers will

> *"change their role from the design of finished products to the creation of systems that will give people the freedom to create high quality designs of their own; systems which free the user from requiring specialist skills in design, yet which produce results retaining the designer's original intention. The better a particular designer's system works, the more successful that designer will be. Designers unwilling to change risk becoming ghosts of the profession."*

Check The APPENDIX:

Interview: Agata Jaworska on the Design for Download Project

E. The State of Open Hardware

Open hardware started mostly as embedded and server hardware. The *LEON 'SPARC'* processor was the first open hardware platform. But the open hardware movement really took off in 2005 with the advent of the popular *Arduino* microcontroller, which generated an estimated $100m in sales in 2010 alone. Today hundreds of open hardware projects exist, for example those catalogued in the *P2P Foundation's Product Hacking directory*[318]. Just the mobility/transport section contains nearly 50 projects, and this probably only scratches the surface. *Local Motors*[319], which practices 'crowdsourced design', and the *WikiSpeed* project, mentioned in chapter 1, are examples of projects that are already active in the marketplace. *BugLabs*[320] and the *Chumby*[321] are well-known are open-hardware consumer electronics, with the latter having signed a strategic accord with Ford, for the devleopment of in-car entertainment. An article in Linux.com reviews some of the projects active in September 2010[322].

317 http://www.vogue.com.au/vogue+magazine/vogue+living/

318 http://p2pfoundation.net/Product_Hacking

319 http://p2pfoundation.net/Chumby

320 http://p2pfoundation.net/Bug_Labs

321 http://www.chumby.com/

322 https://www.linux.com/learn/tutorials/364055-open-hardware-whats-it-all-about

Industry participants and observers Phillippe Torrone and Limor Fried claim open source hardware products will be a billion dollar business by 2015[323]. They list as businesses making over one million dollars in 2010 *Adafruit, Arduin, Bug Labs Chumby, Dangerous Prototypes, DIY Drones, Evil Mad Scientist Labs, Liquidware, Makerbot, Maker Shed, Parallex, Solarbotics* and *Sparkfun Electrontics*. Make magazine has a case study of the functioning of the *Adafruit* open hardware store, including its technological infrastructure[324].

Business Week's Alexandra Dean gives a number of examples:

> *"Sparkfun Electronics, in Boulder, Colo., says its annual sales are well over $20 million. Chris Anderson, founder of 3D Robotics in San Diego, which sells kits to make tiny aircraft mounted with cameras, says his 16-employee company is approaching sales of $3 million annually. MakerBot Industries in Brooklyn employs 82 people and in the past three years has sold about $10 million worth of kits for building 3D printing machines, which makers use to forge their creations.*

And they cite *MakerBot* co-founder Bre Pettis on why the 'open' aspect is an integral part of their business success:

> *"Our users, our customers … are our collaborators," he says. The community acts almost like a free research and development arm, Pettis argues, and that is more valuable than owning the intellectual property rights to his products. "Because they have all the data, all the information, all the source code for MakerBot, they can make changes, make improvements," he says, "and everybody benefits."*[325]

Open hardware is associated with the social movement around hackerspaces, which we will discuss in the next chapter, and in general with the *Maker Movement*. This movement is loosely associated around the popular *Make* magazine, which organizes the well-attented *Maker Faire*[326]. In our next chapter we will introduce the ecology of institutions and entrepreneurs that is emerging around distributed manufacturing, and in particular, around personal fabrication, which has an important connection with open hardware.

F. Sustainability Potential of Open Hardware

Open hardware has interesting effects related to the design of 'sustainable' products and services, which may be vital in a more resource-constricted economy:

323 http://www.theinquirer.net/inquirer/news/1635849/open-source-hardware-bucks

324 http://blog.makezine.com/2010/03/11/maker-business-adafruit-industries/

325 http://www.businessweek.com/articles/2012-02-17/the-diy-maker-movement-meets-the-vcs

326 http://makerfaire.com/

The first factor that makes open hardware a sustainable practice is that innovation cannot be privatized and shelved.

Secondly, participants in open design communities do not have an incentive for including planned obsolesence in their design practices. This means that any business partner in such an open ecology, who used shared designs for producing services or make and sell products, has to use designs that are inherently more sustainable than proprietary designs. Any commercial improvements that need to be made, will be based on this level playing field of an optimally sustainable design.

The third factor that makes shared design hardware a contributor to sustainability lies in the design philosophy of production itself. Open design communities do not only think differently about the product or service they are working on, but they also think differently about the production process that is needed to produce those designs in the physical world. This is because designers are inherently interested in 'designing-for-making', and therefore they are interested in lowering the threshold of participation, minimising the capital requirements and level of centralisation that is required. The *WikiSpeed* project is a good example of that new logic of design and production.

X. Open Hardware As A Social Movement

The distributed manufacturing movement is also connected with fast-growing social movements such as the *Maker Movement* and its "*Maker Faires*", and the *DIYBio* movement, each of which is also creating its own infrastructures, including physical meetup spaces both permanent and temporary.[327] A *NPR* public radio program describes the scope and philosophy of the movement:

> *"Although the movement started with just a few techno geeks, artists and hobbyists, it has attracted thousands over the decades. A record 65,000 people waited in traffic for two hours to get to the Maker Faire in the San Francisco area this spring. Make Magazine now has a circulation of 110,000. On a basic level, the movement is about reusing and repairing objects, rather than discarding them to buy more. On a deeper level, it's also a philosophical idea about what ownership really is. "If you're not able to open and replace the batteries in your iPod or replace the fuel-sender switch on your Chevy truck, you don't really own it."*[328]

What makers are to machines, biohackers are to lifeforms i.e. their aim is to produce and tinker with DNA and biological materials in home-based environments, and collective spaces like DIYBio hackerspaces. The DYIbio site explains that:

"DIYbio is an organization for the ever expanding community of citizen scientists and DIY biological engineers that value openness & responsibility. DIYbio aims to be an "Institution for the Amateur" -- an umbrella organization that provides some of the same resources afforded by more traditional institutions like academia and industry, such as access to a community of experts, to technical literature and other resources, to responsible oversight for health and safety, and an interface between the community and the public at large."[329]

Rob Carlson, an observer of the field of synthetic biology, where biohacking is expected to have a large role, explains why DIYbio is bound to grow:

> *"The biohacker community will emerge as DNA manipulation technology decreases in cost and when the overall technological infrastructure enables instruments to be assembled in the garage. The Molecular Sciences Institute*

327 http://makerfaire.com/

328 http://www.npr.org/templates/story/story.php?storyId=92508461&ft=1&f=17

329 http://www.diybio.org/

has a parallel DNA synthesizer that can synthesize sufficient DNA to build a human pathogenic virus from scratch in about a week. Assembled, this machine cost ~$100,000 about 18 months ago. We estimate the parts could be purchased for ~$10,000 today. A working DNA synthesizer could be built with relative ease. Synthesizers of this sort produce ~50 mers, and it is likely that methods to assemble these short oligos into chromosomes will be perfected relatively soon. Hobbyists often spent similar sums on cars, motocycles, computers, and aquariums. The academic biology community often moves very, very slowly somewhat by design in that the review process for grants can take the better part of a year and recent history shows that the corporate biology community often moves so quickly that no review is possible until word finds its way into the press. The third community, those working in the garage, will neither be restricted in action by a review process nor will their efforts easily be found in the press."[330]

330 http://www.intentionalbiology.org/osb.html

XI. Maps

Mapping The Field: Series of Mind-maps created by P2P Foundation

1. From New Values to New Economic Practices

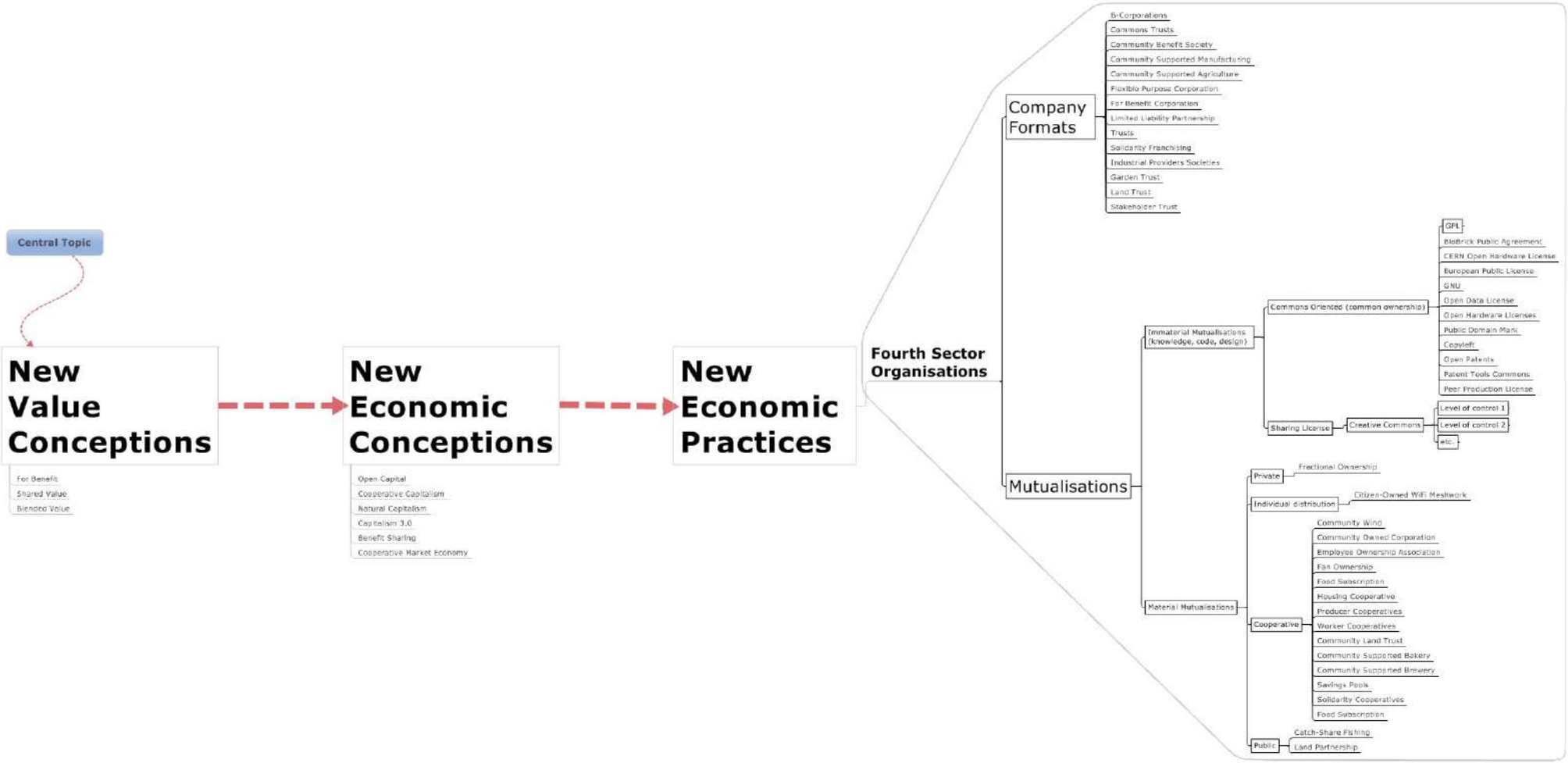
2. New Economic Practices

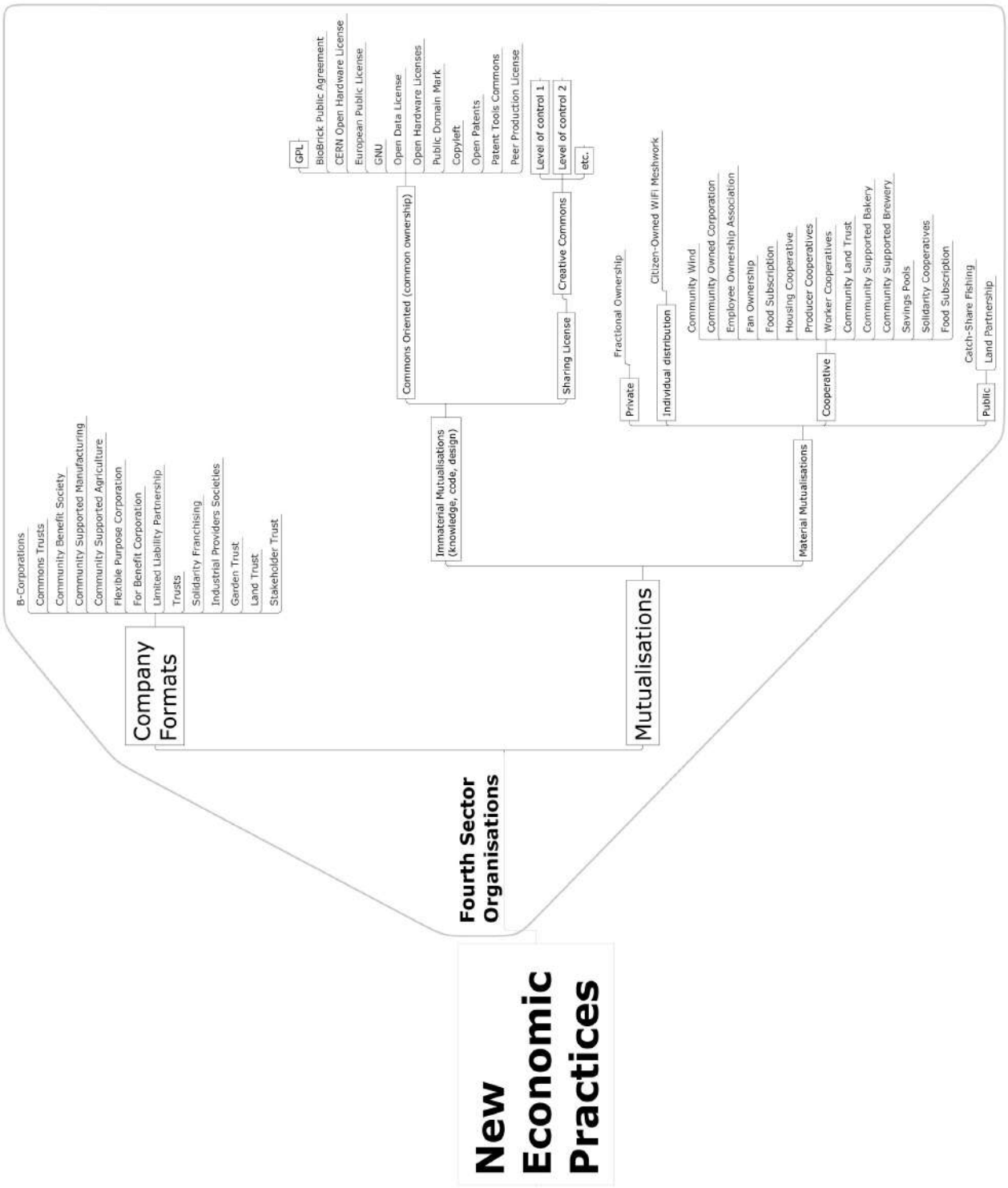
3. Open and Distributed Manufacturing

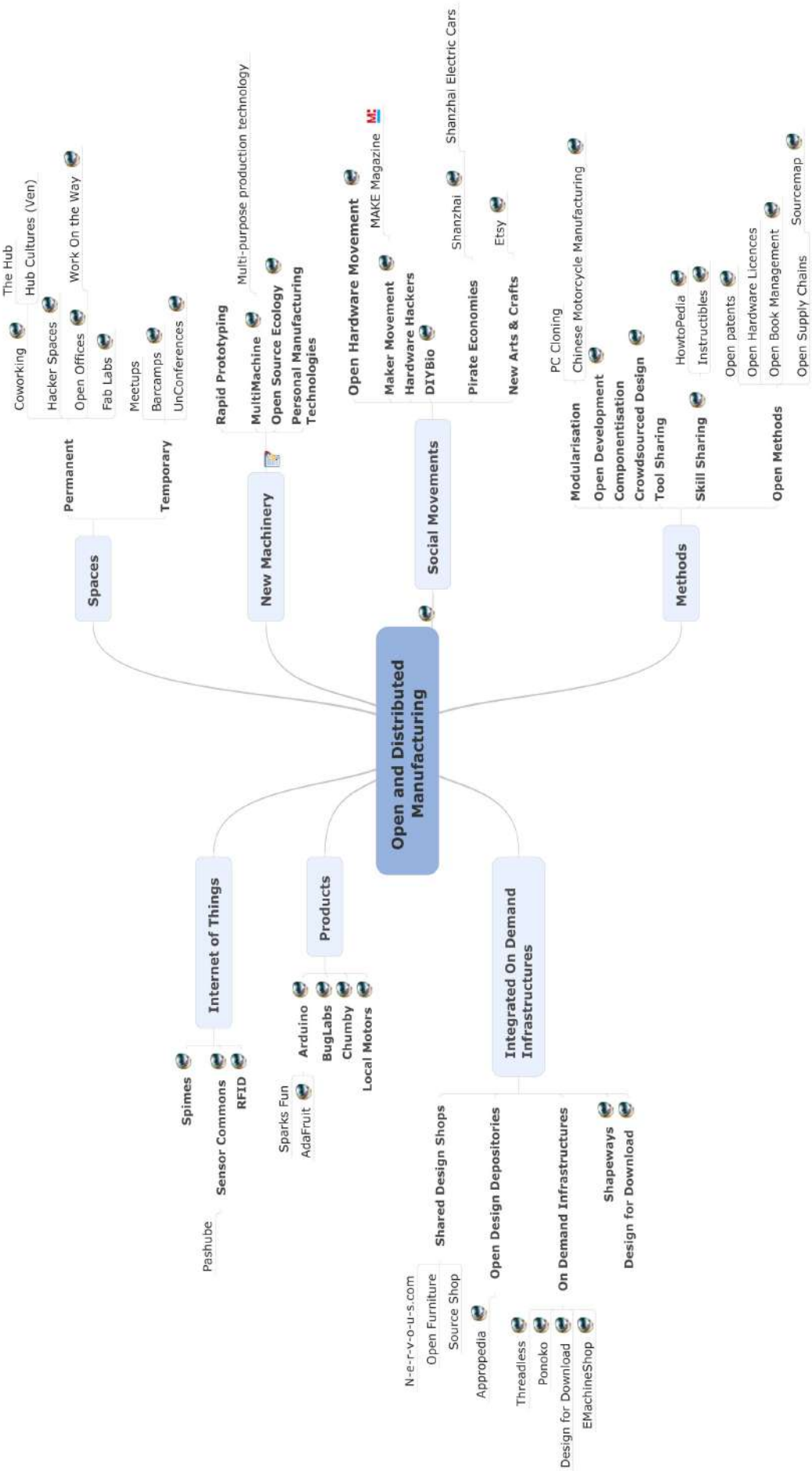
4. Personal Fabrication

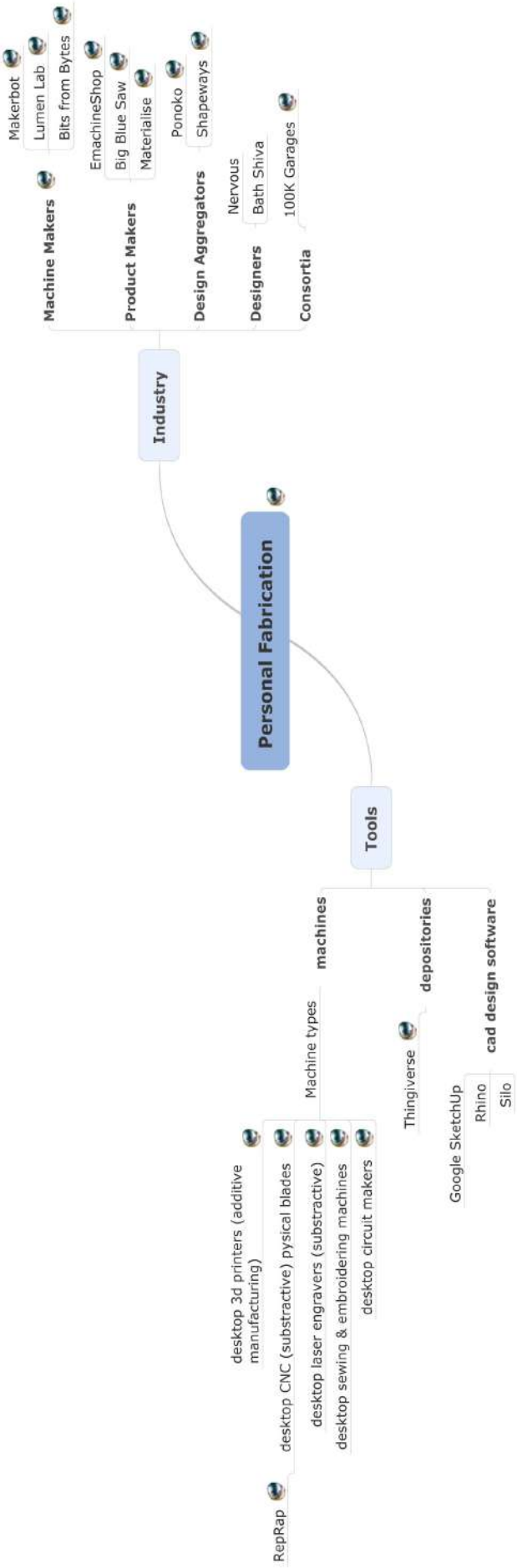
5. Distributed Learning

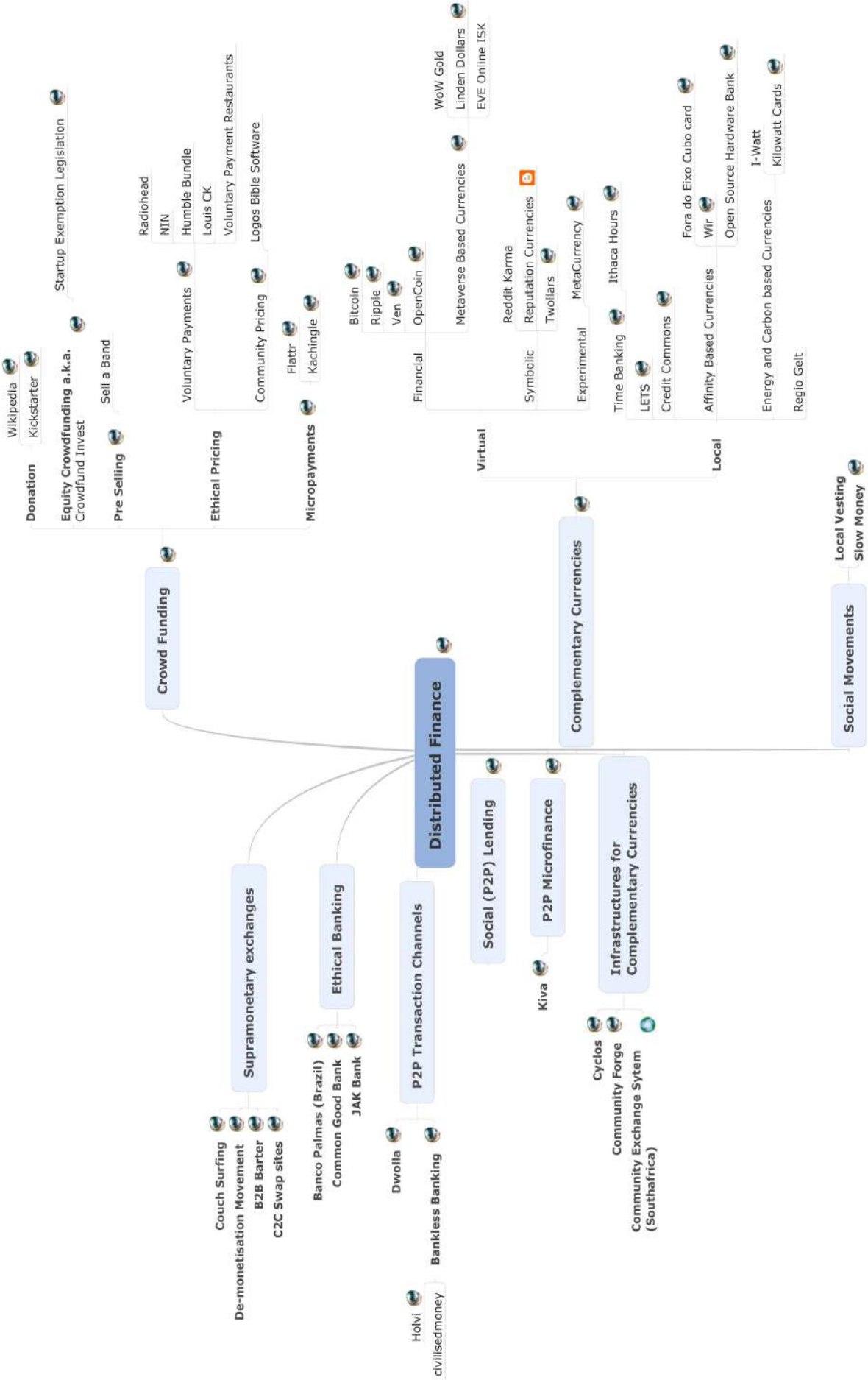
6. Distributed Finance

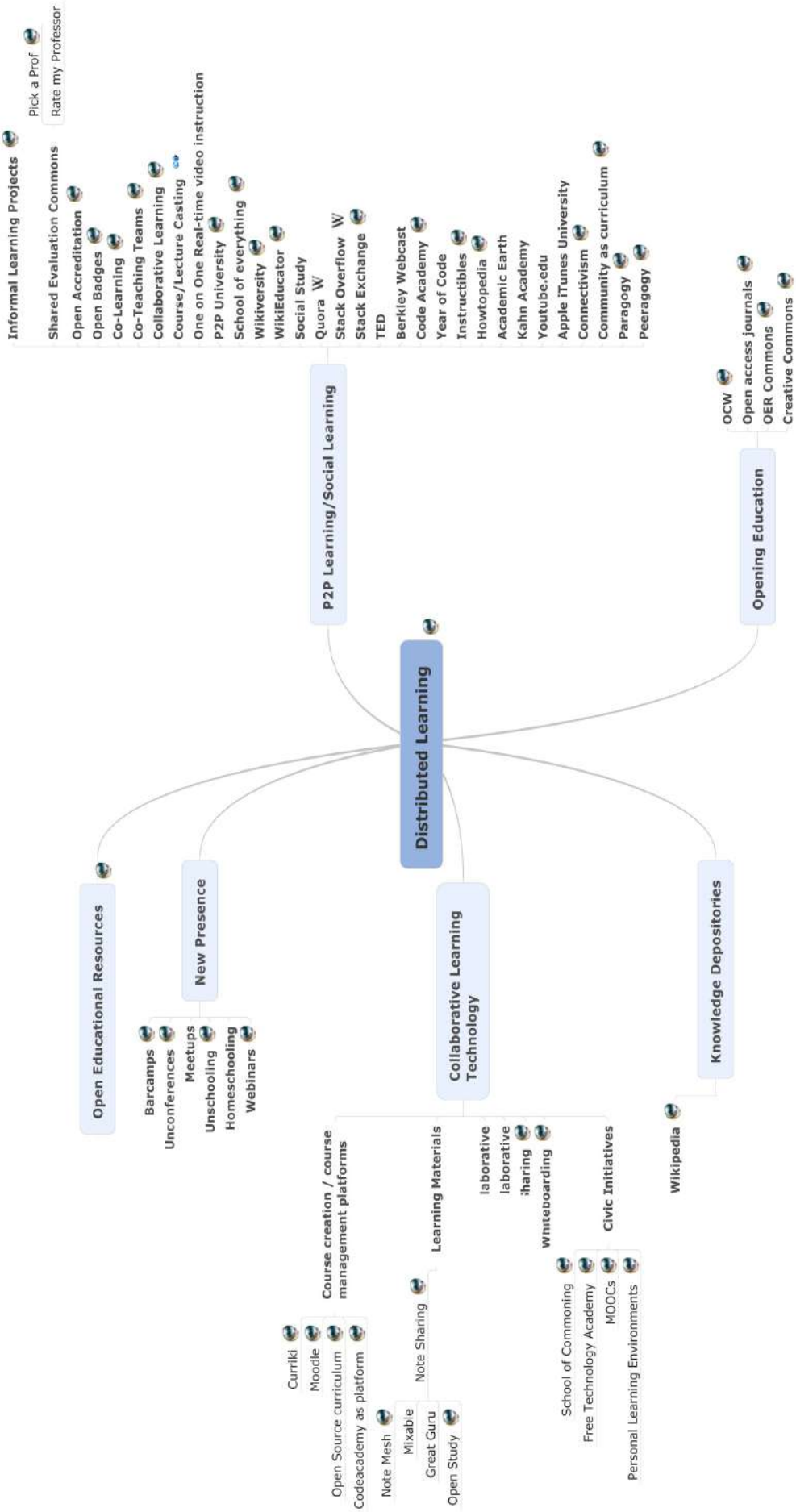

Central Topic
New Value Conceptions
For Benefit
Shared Value
Blended Value
New Economic Conceptions
Open Capital
Cooperative Capitalism
Natural Capitalism
Capitalism 3.0
Benefit Sharing
Cooperative Market Economy
New Economic Practices
Fourth Sector Organisations
Company Formats
B-Corporations
Commons Trusts
Community Benefit Society
Community Supported Manufacturing
Community Supported Agriculture
Flexible Purpose Corporation
For Benefit Corporation
Limited Liability Partnership
Trusts
Solidarity Franchising
Industrial Providers Societies
Garden Trust
Land Trust
Stakeholder Trust
Mutualisations
Immaterial Mutualisations (knowledge, code, design)
Commons Oriented (common ownership)
GPL
Bletbrick Public Agreement
CERN Open Hardware License
European Public License
GNU
Open Data License
Open Hardware Licenses
Public Domain Mark
Copyleft
Open Patents
Patent Tools Commons
Peer Production License
Sharing License
Creative Commons
Level of control 1
Level of control 2
etc.
Material Mutualisations
Private
Fractional Ownership
Individual distribution
Citizen-Owned WiFi Meshwork
Cooperative
Community Wind
Community Owned Corporation
Employee Ownership Association
Fan Ownership
Food Subscription
Housing Cooperative
Producer Cooperatives
Worker Cooperatives
Community Land Trust
Community Supported Bakery
Community Supported Brewery
Savings Pools
Solidarity Cooperatives
Food Subscription
Public
Catch-Share Fishing
Land Partnership


New Economic Practices
Fourth Sector Organisations
Company Formats
B-Corporations
Commons Trusts
Community Benefit Society
Community Supported Manufacturing
Community Supported Agriculture
Flexible Purpose Corporation
For Benefit Corporation
Limited Liability Partnership
Trusts
Solidarity Franchising
Industrial Providers Societies
Garden Trust
Land Trust
Stakeholder Trust
Mutualisations
Immaterial Mutualisations (knowledge, code, design)
Commons Oriented (common ownership)
GPL
BioBrick Public Agreement
CERN Open Hardware License
European Public License
GNU
Open Data License
Open Hardware Licenses
Public Domain Mark
Copyleft
Open Patents
Patent Tools Commons
Peer Production License
Sharing License
Creative Commons
Level of control 1
Level of control 2
etc.
Material Mutualisations
Private
Fractional Ownership
Individual distribution
Citizen-Owned WiFi Meshwork
Cooperative
Community Wind
Community Owned Corporation
Employee Ownership Association
Fan Ownership
Food Subscription
Housing Cooperative
Producer Cooperatives
Worker Cooperatives
Community Land Trust
Community Supported Bakery
Community Supported Brewery
Savings Pools
Solidarity Cooperatives
Food Subscription
Public
Catch-Share Fishing
Land Partnership


Open and Distributed Manufacturing
Spaces
Permanent
Coworking
Hacker Spaces
The Hub
Hub Cultures (Ven)
Open Offices
Work On the Way
Fab Labs
Temporary
Meetups
Barcamps
UnConferences
New Machinery
Rapid Prototyping
MultiMachine
Multi-purpose production technology
Open Source Ecology
Personal Manufacturing Technologies
Social Movements
Open Hardware Movement
MAKE Magazine
Maker Movement
Hardware Hackers
DIYBio
Pirate Economies
Shanzhai
Shanzhai Electric Cars
Etsy
New Arts & Crafts
Methods
Modularisation
PC Cloning
Chinese Motorcycle Manufacturing
Open Development
Componentisation
Crowdsourced Design
Tool Sharing
Skill Sharing
HowtoPedia
Instructibles
Open Methods
Open patents
Open Hardware Licences
Open Book Management
Open Supply Chains
Sourcemap
Internet of Things
Spimes
Sensor Commons
RFID
Pashube
Products
Arduino
BugLabs
Chumby
Local Motors
Sparks Fun
AdaFruit
Integrated On Demand Infrastructures
Shared Design Shops
N-e-r-v-o-u-s.com
Open Furniture
Source Shop
Open Design Depositories
Appropedia
On Demand Infrastructures
Threadless
Ponoko
Design for Download
EMachineShop
Shapeways
Design for Download


Personal Fabrication
Industry
Machine Makers
Makerbot
Lumen Lab
Bits from Bytes
Product Makers
EmachineShop
Big Blue Saw
Materialise
Design Aggregators
Ponoko
Shapeways
Designers
Nervous
Bath Shiva
Consortia
100K Garages
Tools
machines
Machine types
desktop 3d printers (additive manufacturing)
RepRap
desktop CNC (substractive) pysical blades
desktop laser engravers (substractive)
desktop sewing & embroidering machines
desktop circuit makers
depositories
Thingiverse
cad design software
Google SketchUp
Rhino
Silo


Distributed Finance
Crowd Funding
Donation
Wikipedia
Kickstarter
Equity Crowdfunding a.k.a.
Crowdfund Invest
Startup Exemption Legislation
Pre Selling
Sell a Band
Ethical Pricing
Voluntary Payments
Radiohead
NIN
Humble Bundle
Louis CK
Voluntary Payment Restaurants
Community Pricing
Logos Bible Software
Micropayments
Flattr
Kachingle
Complementary Currencies
Virtual
Financial
Bitcoin
Ripple
Ven
OpenCoin
Metaverse Based Currencies
WoW Gold
Linden Dollars
EVE Online ISK
Symbolic
Reddit Karma
Reputation Currencies
Twollars
Experimental
MetaCurrency
Local
Time Banking
Ithaca Hours
LETS
Credit Commons
Affinity Based Currencies
Fora do Eixo Cubo card
Wir
Open Source Hardware Bank
Energy and Carbon based Currencies
I-Watt
Kilowatt Cards
Regio Gelt
Social Movements
Local Vesting
Slow Money
Social (P2P) Lending
P2P Microfinance
Kiva
Infrastructures for Complementary Currencies
Cyclos
Community Forge
Community Exchange Sytem (Southafrica)
P2P Transaction Channels
Dwolla
Bankless Banking
Holvi
civilisedmoney
Ethical Banking
Banco Palmas (Brazil)
Common Good Bank
JAK Bank
Supramonetary exchanges
Couch Surfing
De-monetisation Movement
B2B Barter
C2C Swap sites


Distributed Learning
P2P Learning/Social Learning
Informal Learning Projects
Pick a Prof
Rate my Professor
Shared Evaluation Commons
Open Accreditation
Open Badges
Co-Learning
Co-Teaching Teams
Collaborative Learning
Course/Lecture Casting
One on One Real-time video instruction
P2P University
School of everything
Wikiversity
WikiEducator
Social Study
Quora
Stack Overflow
Stack Exchange
TED
Berkley Webcast
Code Academy
Year of Code
Instructibles
Howtopedia
Academic Earth
Kahn Academy
Youtube.edu
Apple iTunes University
Connectivism
Community as curriculum
Paragogy
Peeragogy
Opening Education
OCW
Open access journals
OER Commons
Creative Commons
Open Educational Resources
New Presence
Barcamps
Unconferences
Meetups
Unschooling
Homeschooling
Webinars
Collaborative Learning Technology
Course creation / course management platforms
Curriki
Moodle
Open Source curriculum
Codeacademy as platform
Learning Materials
Note Sharing
Note Mesh
Mixable
Great Guru
Open Study
laborative
laborative
:haring
Whiteboarding
Civic Initiatives
School of Commoning
Free Technology Academy
MOOCs
Personal Learning Environments
Knowledge Depositories
Wikipedia

Chapter Five:

Distributed Access To The Factors Of Production

Introduction

"Immaterial" peer production through open source software and design, which we discussed in the previous chapter, was made possible through the distributed infrastructure for communication and collaboration that is the internet. In turn, the web is linked to the miniaturization of the computer as a potentially universally accessible machine for immaterial production.

What if a similar evolution were to take place in the field of physical production? For this to occur, one would need a 'distribution' of access to the physical factors of production.

The idealized requirements for a distributed mode of manufacturing and making would be:

1. Distributed access to machinery
2. Distributed access to financial capital
3. Distributed access to physical places for collaboration
4. The generalized possibility for peer learning
5. The availability of appropriate legal forms to allow for entrepreneurship in this new modality
6. The availability of the appropriate metrics and accounting system to regulate the contributions, reciprocity and exchange in this new field
7. Access to distributed forms of energy and raw materials

In all these areas there is already substantial development towards more distributed forms of operating. As explained in Part One, while we may still be a long way from a dominance of fully 'horizontal' modes of peer production in the field of physical production, enough progress has been made to imagine the beginnings of a 'diagonal' adaptation between contributor communities responsible for cooperative design in shared innovation commons, and makers-entrepreneurs which can rely on new distributed infrastructures for physical production.

A complete review of all the aspects is beyond the scope of this report, so this chapter reviews those aspects of the distributed infrastructure that are relatively more mature: distributed machinery, distributed workplaces, and distributed finance and funding.

I. The Emergence Of An Infrastructure For 'Personal' Manufacturing

> *"Transformational change happens when industries democratize, when they're ripped from the sole domain of companies, governments, and other institutions and handed over to regular folks. The Internet democratized publishing, broadcasting, and communications, and the consequence was a massive increase in the range of both participation and participants in everything digital — the long tail of bits. Now the same is happening to manufacturing — the long tail of things."*

- Chris Anderson, The Long Tail[331]

> *"Scale up from one: Regular people and small manufacturing companies that lack investment capital will be able to set up low investment, "start small and scale up as it goes" businesses. Thanks to the low-cost Internet virtual storefronts, and the low cost of small-scale manufacturing for prototypes and custom goods, new companies can get started on a shoestring budget, yet sell their wares or services to niche, global marketplaces."*

- Hod Lipson & Melba Kurman[332]

With distributed manufacturing we mean a broadening of the possibility to manufacture physical goods, on a local basis, without the centralization that is required in the present system based on high capital outlays. If the price of machinery drops, and the organizational tools to coordinate cooperation develop in tandem, it is easy to imagine the development of a much more localized organization of production, conducted by players who have relatively limited access to financial and productive capital. Such possibilities have been increasingly emerging in the last few years, through a

331 http://p2pfoundation.net/Long_Tail

332 Lipson, Hod, and Melba Kurman. *Factory @ Home : The Emerging Economy of Personal Fabrication One of a Series of Occasional Papers in Science and Technology Policy* Hod Lipson and Melba Kurman. Science And Technology (2010). http://web.mae.cornell.edu/lipson/FactoryAtHome.pdf

combination of rapid prototyping machinery in classic industry, and the development of an infrastructure for what is called *digital fabrication* or *personal manufacturing*.

In the strongest possible hypothesis, distributed manufacturing can be linked to the open hardware method of manufacturing on the based of shared design commons, giving rise to a specific new way of producing physical goods, as explained by Dam Mellis, who specifies a "open source hardware distribution model":

> *"The natural model for open-source hardware (particularly kits) would seem to be distributed manufacturing. This would involve a number of smaller groups independently producing the same design for local distribution. It would make the product available in many places, but avoid the cost increases associated with a separate manufacture and distributor."*[333]

The Open Hardware Model As Third Mode Of Production

"Most open-source hardware projects (including Arduino) seem not to have taken advantage of the distributed manufacturing models enabled by the open nature of their designs. Instead, we mostly see two conventional distribution models: centralized manufacturing and artisanal production.

The centralized manufacturing model

The centralized manufacturing model is a simplified form of the process followed by most corporations. Here a manufacturer (the small red dot) produces the product and sells it to multiple distributor. Each distributor marks-up the product (represented by the red rings) and resells it to consumers. This makes the product available in many places, but increases the cost to the consumer, as the manufacturer and distributor both take a cut. It works well for assembled products, where economics of scale continue to improve at relatively large volumes. This is the model followed by Arduino.

The artisanal production model

Many other makers of open-source hardware produce and distribute products themselves, a model similar to that of an artisan. This keeps the costs low because there's only one party profiting from a product, and they may not focus on making money. It can, however, limit the product's availability to those places easily reached by the producer. This model works well for kits, which limit the production effort to a level that can be handled by an individual or a small group.

The open-source hardware distribution model?

PCB production and component purchase seem to yield much of their economies of scale at quantities of around one hundred, so this model would not require a large volume from each producer. The documentation and instructions could be created collaboratively and housed centrally, as all the products would be the same. I'm surprised that I haven't seen many open-source hardware projects following this model. It seems to offer a means for the collaborative production of products, a system that matches the philosophy of open-source hardware."

Source: Dam Mellis (http://dam.mellis.org/2009/07/the_open-source_hardware_distribution_model/)

Jason F. McLennan provides historical context by distinguishing four essential time-space combinations in human history, and concludes with an emerging new configuration of time and space:

> *"We are about to take a dramatic leap into the next era: the modern age of Heavy-Near, Ideas-Far. In a world where energy is increasingly scarce and expensive we simply won't be able to transport goods and people over far*

333 http://dam.mellis.org/2009/07/the_open-source_hardware_distribution_model/

> *distances. Yet we'll prioritize energy use for technologies that bring us together virtually —that allow us to connect and share regardless of the distances between communities. The world is about to get simultaneously bigger and smaller depending on the field of human activity concerned. Imagine an America where people stick much closer to home. Where we aren't defined by the open road, but by the quality and depth of our neighborhoods and communities. Where the majority of the things in our lives —our clothes, furniture, food and building materials come from close at hand rather than being globally sourced. We eat according to seasonal variations and see the reemergence of incredible regional diversity in architectural and cultural expressions."*[334]

While the dream is one of personal manufacturing, this is at present an exaggeration, but nevertheless, in many different ways, distributed digital fabrication is becoming a reality. Here are two descriptions from within classic industry:

> *"The speedy fabrication of sample parts for demonstration, evaluation, or testing. It typically utilizes advanced layer manufacturing technologies that can quickly generate complex three-dimensional objects directly from computer-based models devised by Computer Aided Design (CAD). This computer representation is sliced into two-dimensional layers, whose descriptions are sent to the fabrication equipment to build the part layer by layer. Rapid prototyping includes many different fabrication technologies. Stereolithography (SL), selective laser sintering (SLS), laminated object manufacturing (LOM), and fused deposition modeling (FDM) are a few examples."*[335]
>
> *"Rapid Prototyping Machines are like three dimensional printers that turn virtual designs on a computer into solid objects, by building up extremely thin cross-sectional layers, usually some kind of polymer, one on top of the other. Currently they are used mostly in industry to create accurate parts for developmental designs and prototypes. But they are increasingly being used in short manufacturing runs and is known in this circumstance as Rapid Manufacturing. These techniques are sometimes known as Solid Freeform Fabrication."*[336]

Let's now look at the technologies and players which are making this type of distributed manufacturing, and more specifically, "personal manufacturing", a reality.

334 http://www.stwr.org/imf-world-bank-trade/local-economies-for-a-global-future.html

335 http://www.csa.com/discoveryguides/rapidman/gloss.php

336 http://www.adciv.org/Rapid_prototyping_machines

A. The Tools: An Overview

According to Hod Lipson and Melba Kurman in the report Cornell University *Factory@Home*, the commercial/industrial space is currently dominating, but a discernible shift to personal scale machines is discernible:

> *"The commercial 3D printer space offers the most solid market research data thanks to the meticulous research conducted by Terry Wohlers and compiled in the annual Wohlers Report, the leading market research publication for the 3D print industry. The Wohlers Report tracks sales, applications and other news of 3D printing service providers and machine makers.*
>
> *The industries that most commonly request 3D manufacturing services are consumer products/electronics, cars, the medical profession and companies that make industrial and business machines. The 3D printed objects most commonly requested by these industries are functional models, machine parts, visual aids and patterns for prototype tooling.*
>
> *The Wohlers Report data suggests that consumer companies, the auto industry, and specialized parts companies could someday provide a foundation for a new manufacturing ecosystem made up of 3D printing services providers that specialize in rapid prototyping and on-the-fly machine part production services.*
>
> ***In 2009, the biggest companies that made and sold 3D printers together earned a total of about $312 million in machine sales.***
>
> *Market demand, however, may be shifting towards low-end 3D commercial printers. Last year, revenue across all reporting 3D printer companies indicated that 3D printer sales experienced their first-ever decline, dropping 13% from the year before. In the same timeframe, however, the total *number* of 3D printers sold increased by almost 20%, suggesting that while total sales revenue earned by 3D printer-makers declined, the number of units sold of low-cost 3D printers increased significantly. Wohlers' data could suggest that 3D printers are on their way to becoming a commodity item, like laptops and other computing hardware."*[337]

Hod Lipson & Melba Kurman also explain why IP issues are holding the development of personal manufacturing:

> *"Alternative IP models for personal fabrication technologies are in their infancy, and much more development of alternative IP models is needed in order to find the right balance between openness and commercial profitability.*

337 Ibid. note 325

> ***Products and objects fabricated from electronic blueprints will raise an additional challenge to intellectual property issues since there are two components that could be considered intellectual property: the electronic blueprints and the resulting physical object.***
>
> *As software designs proliferate and anybody with a machine can make anything, IP concerns threaten to block the free flow of new design ideas. Our patent system will be challenged by the deluge of legal questions generated when regular people get a hold of powerful design and manufacturing tools."*[338]

For this type of production technology to spread and enable an ecology of smaller local producers, tools are needed, as well as an accompanying institutional infrastructure.

From the *Factory@Home* report, here is how the various tools interact in an integrated enabling technological infrastructure:

> *"The long tail effect forever changes an industry when the following conditions are met: there's a large selection of products or items to choose from, sufficient availability of these products, a large number of potential consumers, and low inventory and distribution costs.*
>
> *All of these forces are already in play in the emerging world of personal manufacturing technologies.*
>
> - *First, thanks to ever-improving design software and creative designers, the number of available electronic blueprints is increasing daily.*
> - *Second, electronic blueprints can be endlessly replicated quickly and easily.*
> - *Third, there's a quickly growing population of people who own their own personal fabrication machines and those who prefer to shop for designs and let someone else handle the manufacturing.*
> - *Finally, since objects are made in small batches as demand dictates, no inventory is necessary for a retailer who sells custom-manufactured, custom-designed products."*[339]

Since personal manufacturing entails the making of objects on the basis of CAD designs, the two basic technologies are the machines for fabrication, and the tools for design. Both are available and evolving at a rapid rate.

338 Ibid. note 325

339 Ibid. note 325

The Personal Manufacturing Tools are:

- Desktop 3D Printers
- Desktop CNC Routing and Milling Machines
- Desktop Laser Cutters and Engravers
- Desktop Sewing and Embroidering Machines
- Desktop Circuit Makers

Amongst the CAD Tools for Computer-Aided Design Software, which are not necessarily 'open source', are for example *Google SketchUp, Rhino,* and *Silo*.

Desktop D printers allow for 'additive manufacturing', i.e. they use an additive process, meaning they make objects by systematically depositing a chosen raw material in layers.

> *The most common household 3D printing process involves a "print head" that works with any material that can be extruded, or squirted through a nozzle. Another common type of 3D printer uses a laser beam or glue to selectively fuse powdered plastic, metal, or ceramic raw material in layers."*[340]

The two leading consumer-level 3D printer platforms originated from university research labs at Bath University in England, and Cornell University in the United States. The University of Bath's 3D printer is called *RepRap* and Cornell's is called *Fab@Home*. Perhaps because of their university origins, the machine blueprints for both *RepRap* and *Fab@Home* are freely available to anyone who wants to build their own machine, or to improve upon the existing designs. Not only do Cornell and the University of Bath openly publish their machine design blueprints, they permit commercial companies to develop and sell their own versions based off of the designs of the original university machines.

More established than 3D printers are **desktop-sized numerically controlled (CNC) routing and milling machines**. These machines use a physical blade to cut and carve precise designs into a broad range of materials.

Laser cutters and engravers use intense, focused beams of light to cut out shapes and engrave images onto a wide variety of materials. Laser machines can produce images, text or designs in an amazing level of detail and precision. Laser cutters are versatile and can cut a range of materials from wood to plastics to leather, and can etch or engrave metals, glass and ceramics.

Desktop Sewing and Embroidering Machines are already available in mainstream stores such as JoAnn Fabrics.

Finally, at-home manufacture of circuit boards is a rapidly emerging application for hobbyists and electronic designers.

340 http://web.mae.cornell.edu/lipson/FactoryAtHome.pdf

Regarding the software side of the equation, the cost of CAD software is dropping and software companies are working hard to make it more user-friendly. In 2008, Google entered the CAD game with a no-cost version of 3D modeling software called *SketchUp*.

However, *Factory@Home* authors Hod Lipson and Melba Kurman, caution that:

> *"Realistically, though CAD software continues to drop in price and complexity, it's still nowhere near as user-friendly as today's mainstream office applications.*
>
> *Another barrier is that even the low-end CAD software described above was not created with personal fabrication applications in mind. Instead, today's CAD software reflects its industrial legacy and is intended primarily for modeling and visualization applications rather than designing consumer goods and machine parts.*
>
> *Ideally, to accelerate the adoption of CAD software aimed at the personal manufacturing market, design software would need to be easier to use and optimized for the unique constraints and capabilities of the physical manufacturing process."* [341]

Finally, what is also needed are depositories where designs can be shared and found. An example here is *Thingiverse*, an "object sharing" site that enables anyone to upload the schematics, designs, and images for their projects. *Appropedia* is another example, specializing in 'appropriate technology[342].

B. An Institutional and Entrepreneurial Ecology for Making

Here are the main players in this emerging ecosystem of cooperation:

- Personal Manufacturing Machine Makers: MakerBot, LumenLab, Bits From Bytes
- Personal Manufacturing Companies: eMachineShop ; Big Blue Saw; Materialise
- Electronic Design Blueprint Aggregators: Ponoko ; Shapeways
- Personal Manufacturing Electronic Blueprint Designers: Unfold design studios, n-e-r-v-o-u-s, Bathsheba
- Personal Manufacturing Consortia: 100K Garages

Personal Manufacturing Machine Makers focus exclusively on the sale of personal-scale manufacturing machines.

341 Ibid. note 325

342 In this context, 'appropriate ' means using machinery at the right scale, so that local communities can effectively use and maintain them.

- *MakerBot*[343] makes and sells affordable 3D printers that print plastics. Their leading 3D printer is called *CupCake CNC* which has its technological roots in an open source hardware design for a model of 3D printer called *RepRap* that was invented at the University of Bath. Machine blueprints for *CupCake* can be freely downloaded.
- *LumenLab*[344] sells *Multipurpose Machines*, meaning their personal-scale machines have the ability to use a number of different toolings, including 3D printing, 3D milling, and precision-engraving.
- *Bits From Bytes*[345] sells kits for 3D printers for home, classroom and small business use. *Bits From Bytes* was recently acquired by a larger 3D manufacturing machine company called 3D Systems.

Personal Manufacturing Companies sell custom parts using desktop machinery themselves: they form an emerging 'on demand manufacturing' sector.

- *eMachineShop*[346] provides easy, convenient and low-cost fabrication of custom parts via the web.
- *Big Blue Saw*[347] offers users its own CAD tools so they can design wood, fabric, metal or plastic parts for prototypes and small project.
- *Materialise* is a Belgium-based company that designs and manufactures high end art, housewares, jewelry and other luxury items in-house. *Materialise* hires professional designers to create blueprints of stunning usable objects that users purchase from their web site (*i.materialise*[348] is an experimental spin-off from *Materialise*).

Electronic Design Blueprint Aggregators are companies that host online catalogs of electronic design blueprints for available products, machine parts and other objects. Like *amazon.com* or *eBay*, aggregators offer storefronts for third party merchants such as designers. Two of the pioneering companies are *Shapeways* and *Ponoko*.

Personal Manufacturing Electronic Blueprint Designers are design companies like *Unfold Design Studios, n-e-r-v-o-u-s,* or *Bathsheba.* They sell designs that can eventually be adaptated and customised by clients wanting to make custom parts and objects.

Personal Manufacturing Consortia like *100K Garages* offer a distributed infrastructure of workshops through the U.S., where people can have their 3D objects fabricated locally, after indicating their choice of design.

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343 http://p2pfoundation.net/MakerBot

344 http://p2pfoundation.net/Personal_Manufacturing?title=LumenLab

345 http://p2pfoundation.net/Bits_From_Bytes

346 http://p2pfoundation.net/EMachineShop

347 http://p2pfoundation.net/Big_Blue_Saw

348 http://www.i-materialise.com

II. Distributed Workspaces And Meeting Venues

Making things together also requires physical places to meet and work, and such a mutualized infrastructure is emerging, either as business-driven professional services (*TechShops, 100KGarages*), or through a commons approach (hackerspaces) or a combination of both (coworking franchises, *FabLabs*). Below we make a further distinction between permanent coworking spaces (section A) , and temporary meetup facilitation (section B).

A. Places for Making: Coworking and Hackerspaces

Co-Working Infrastructures for Makers: Fablabs and Hackerspaces

Jarkko Moilanen[349] explains Fabbing as a term which refers to "*Commons-Based Peer Production of Physical Goods*". The term was coined by Peter Troxler[350]. Troxler uses the term as an umbrella for all forms of hacking such as hackerspaces, fablabs, techshops, 100k garages, sharing platforms, and open source hardware.

Generically, Fab Labs are **fabrication laboratories, i.e. small scale workshops with modern computer controlled equipment that aim to develop Personal Fabricators**.

As a specfic 'brand', Fab Labs are the initiative of Neil Gershenfeld, Director of MIT's Center for Bits and Atoms, and author of *FAB: The Coming Revolution on Your Desktop — From Personal Computers to Personal Fabrication*.[351]

349 http://blog.ossoil.com/2012/02/01/fabbing-industry-laying-the-foundation/

350 http://p2pfoundation.net/Peter_Troxler

351 Gershenfeld, Neil. Fab: The Coming Revolution on Your Desktop--from Personal Computers to Personal Fabrication. Basic Books, 2007.

Massimo Menichelli writes that

> *"So far Fab Labs have been opened in rural India, northern Norway, various European countries, Afghanistan, Ghana, Boston and Costa Rica."*[352]*. To date, there are nearly fifty of them*[353].

The Factory@Home report summarizes:

> *"Fab Labs share core capabilities, so that people and projects can be shared across them. This currently includes:*
>
> *- A computer-controlled lasercutter, for press-fit assembly of 3D structures from 2D parts*
>
> *- A larger (4'x8') numerically-controlled milling machine, for making furniture- (and house-) sized parts*
>
> *- A signcutter, to produce printing masks, flexible circuits, and antennas*
>
> *- A precision (micron resolution) milling machine to make three-dimensional molds and surfacemount circuit boards*
>
> *- Programming tools for low-cost high-speed embedded processors"* [354]

According to Wikipedia, a hackerspace is

> *"a real (as opposed to virtual) place where people with common interests, usually in science, technology, or digital or electronic art can meet, socialise and collaborate. A hackerspace can be viewed as an open community lab, workbench, machine shop, workshop and/or studio where people of diverse backgrounds can come together to share resources and knowledge to build/make things."*[355]

Jarkko Moilanen adds that:

> *"Even though a compact definition of hackerspaces is missing, some features can be assosiated with it. Firstly, a hackerspace is owned and run by it's members in a spirit of equality. Secondly, it is a nonprofit organization, and open to the outside world on a (semi)regular basis. Thirdly, members of hackerspace share tools, equipment and ideas without discrimination even to outsiders. Fourthly, is has a strong emphasis on technology and invention. Fifthly, it has a shared space (or is working on a space) as a center of the*

352 http://www.openp2pdesign.org/2011/fabbing/business-models-for-fab-labs/

353 these two sources provide slightly different lists: http://www.fabfoundation.org/index.php?option=com_content&view=article&id=47&Itemid=62; http://fr.wikipedia.org/wiki/Fab_lab#Les_Fab_Labs_dans_le_monde

354 Ibid. note 325

355 http://en.wikipedia.org/wiki/Hackerspace

> *community. Finally, it has a strong spirit of invention and science, based on trial, error, and freely sharing information. Hackerspaces are specialized third places for technically oriented people. Hackerspaces function to serve hackers' "need to construct the infrastructures of human relationships."*[356]

The number of hackerspaces is characterized by a steady growth and has reached over 660 locales in early 2012, according to one hackerspace directory[357]. A recent newspaper account by a Shanghai morning paper revealed a city government plan to fund 100 community hackerspaces[358].

Both Fablabs and Hackerspaces are an expression of a much larger movement: *coworking*. Coworking involves the creation of mutualized workspaces for young entrepreneurs and freelancers. At some counts, over 2,000 are already in existing, with different franchises such as *The Hub*, and *Hub-Culture*.

The Wikipedia describes coworking as 'a style of work':

> *"Coworking is a style of work which involves a shared working environment, sometimes an office yet independent activity. Unlike in a typical office environment, those coworking are usually not employed by the same organization. Typically it is attractive to work-at-home professionals, independent contractors, or people who travel frequently who end up working in relative isolation. Coworking is the social gathering of a group of people, who are still working independently, but who share values, and who are interested in the synergy that can happen from working with talented people in the same space."*[359]

Stowe Boyd highlights the economic performance of the model:

> *"According to Carsten Foetrsch of deskmag, 72 percent of all coworking spaces become profitable after 2 years of operation, and for privately-run spaces, the number is even higher: 87 percent. So the economics for those interested in setting up and running coworking spaces is compelling."*[360]

B. Temporary Working Spaces and Meetups

Coworking possibilities are augmented by an emergence of an infrastructure for temporary meetings.

The open space business methodology has evolved to a spinoff that is particularly popular amongst the hacker communities and technology-oriented youth, the 'unconference':

356 http://blog.ossoil.com/2010/11/20/extrovert-hacker-generations-hacktivism-and-hackerspaces/

357 http://hackerspaces.org/wiki/List_of_Hacker_Spaces

358 http://hardware.slashdot.org/story/11/11/10/1353240/shanghai-government-proposes-100-community-hackerspaces

359 http://en.wikipedia.org/wiki/Coworking

360 http://gigaom.com/collaboration/coworking-the-pivot-in-todays-transformation-of-work/

> *"An unconference is a conference where the content of the sessions is driven and created by the participants, generally day-by-day during the course of the event, rather than by a single organizer, or small group of organizers, in advance."*[361]

The Wikipedia further explains the background and mechanics of unconferences:

> *"The term unconference first appeared amongst techies in an announcement for the annual XML developers conference in 1998. More recently the term was used by Lenn Pryor when discussing BloggerCon and was popularized by Dave Winer, the organizer of BloggerCon, in an April 2004 writeup. Winer's unconference is a discussion leader with a topic moving a microphone amongst a large audience of 50 to 200 people.*
>
> *Open Space Technology is an energizing and emergent way to organize an agenda for a conference. Those coming to the event can post on a wiki ahead of time topics they want to present about or hope others will present about. The wiki can also be used to share who is coming because it is the attendees who have a passion to share that contribute to the event and will make it great. The event begins with face to face schedule making which allows for emerging developments in the rapidly moving technology field to be covered. The opening includes time for attendees to introduce themselves and orient to the whole group. Participants are invited to write their name and session topic on an 8.5×11 piece of paper. They announce the title of their session to the whole room and then post it on a schedule on the wall. Once all the sessions have been posted, the community can stand in front of the schedule wall and decide which sessions they would like to attend. Sessions are about an hour long with 15 min breaks. Lunch lasts for about an hour. The day closes with all the participants gathering in a circle in one room and sharing for 20–30 min the highlights of the day."*[362]

BarCamp is a international network of unconferences that is particularly popular in the technological communities and its open meeting structure is complemented by very specific purpose-driven work meetups such as hackaton's and booksprints. Meeting-organising platforms like *MeetUp* are usually used to organise these events. *MeetUp* has

> *"more than eight million members in 100 countries, where 50,000 Meetups are scheduled each week"*[363],

and is used to organise all sorts of events: singles parties, reading groups, activism, meditation sessions, and, of course, unconferences and coworking sessions.

361 http://www.unconference.info/wiki/index.php?title=Book

362 http://en.wikipedia.org/wiki/Unconference

363 http://online.wsj.com/article/SB10001424052748704170404575624733792905708.html

Christophe Aguiton and Dominique Cardon give some details of the history of *BarCamps*:

> *"BarCamp is a tremendous illustration of the effect of horizontal and weak cooperation in the process of innovation. The first BarCamp was held in Palo Alto (near San Francisco) in August 2005 as a spin-off and response to FooCamp, an annual invitation-only conference hosted by Tim O'Reilly, the well known open source publisher who gave the first definition of Web 2.0. August 2005 was the beginning of the Web 2.0 wave and a lot of people wanted to attend the FooCamp. Because their entry was denied, a small group of friends in their thirties active in the IT sector decided to organise their own conference, open to everyone. In less than a week's time, 200 people attended the meeting - a spectator-free "unconference" dedicated to presentations of Web 2.0 applications and ideas for new services. Practically, the participants presented their name, their company or group and three tags giving an idea of their current preoccupations. Then, each person who wanted to present an idea or exchange about something entered their topic in a matrix table drawn on a big sheet of paper showing the rooms or meeting places and the time slots. After the end of the BarCamp people could move to a mashpit, which is a collaborative web application building process: the participants choose some ideas for applications and, working in groups, finalized a first version of those applications. During the BarCamp people shot photos and videos which would later be posted on Flickr, Youtube or Dailymotion. After the BarCamp, participants wrote reports or posted their presentations in blogs or wikis, thus expanding the visibility of the meeting: on February 20th 2007, the term BarCamp had 3,460,000 references in Google, 20,000 photos on Flickr, 110 videos on YouTube and 17,500 blogs or blog posts in Technorati. By 2006, the BarCamp had spread to many countries, particularly the rest of the USA, Canada, France, Germany, Australia and India."*[364]

364 Source: The strength of Weak Cooperation. Christophe Aguiton and Dominique Cardon. Communication & Strategies, No. 65, 1st Quarter 2007.

III. The Emergence Of Distributed Funding

Distributed finance generally refers to the ability to find funding directly from other individuals, without the intermediation of banks. These funds can be in the form of borrowing (social lending), donations (crowdfunding) or equity-based investments (sometimes called 'crowdfund investing').

Below, we discuss each one in turn.

A. Social Lending

Social lending, social finance, P2P lending, and P2P Finance are often used interchangeably to describe the capacity to obtain loans from other individuals, through internet-based intermediary platforms that are not banking services. The main forms in existence today are for-profit personal loans, and non-profit p2p microfinance loans. P2P Lending to firms also has emerged, such as with the Funding Circle in the UK.

The three main platforms in the U.S. have grown rapidly and, as of March 2011, *Prosper* and *LendingClub* had made about 63,000 loans totaling approximately $475 million, and the p2p microfinance Kiva about 273,000 loans totaling about $200 million. In the UK, *Zopa* has facilitated more than $200m from its launch in 2005 to March 2011[365].

The P2P Weblog explains the connection with technology and stresses why they are not banks:

> *"P2P lending is a new application for P2P services and technology. It directly connects and provides benefits to individual lenders and borrowers. P2P lending bypasses banks and other formal financial institution. It's often called Social Lending, since part of its appeal is the person to person nature of the service. P2P lending services are not financial institutions. They do not guarantee loans or rates. They are an exchange or intermediary that facilitates the matching of lenders and borrowers and the transfer of funds and payments."*[366]

365 U.S. Government Accountability Office (GAO) - Person-To-Person Lending: New Regulatory Challenges Could Emerge as the Industry Grows, n.d. .URL: http://www.gao.gov/new.items/d11613.pdf

366 http://www.p2p-weblog.com/50226711/p2p_lending_overview.php

They also explain the advantages both from the lenders and borrowers point of view as well as the details of their functioning:

> *"P2P lending borrowers pay lower interest rates since there is no bank overhead. Loan payments are automatically withdrawn from the borrower's regular bank account.*
>
> *P2P lending is similar in many ways to eBay. Borrowers create a listing where they specify the amount, loan duration, and loan interest rate they seek. Additional information can include the reason for the loan and other personal comments. Listings may be able to be watched, emailed, linked to, bookmarked, promoted, or even reported if improper. There is a financial valuation that can include a personal budget, income and asset verification, and credit check, to determine the credit worthiness of a borrower. The lower a person's credit risk, the lower their interest rate and loan payment will be. Lenders bid on borrower offers. Upon a successful bid lender funds are automatically deposited into the borrower's account.*
>
> *Lenders on the P2P lender sites receive excellent returns compared to bonds plus the satisfaction of knowing they are directly helping other individuals just like them.*
>
> *Lenders can search for borrowers by a variety of factors, such as keywords, type of loan, credit criteria, and amount of loan funded. Lenders can easily spread their loans among multiple borrowers. Such diversification ensures a relatively low risk and reliable return. Loan payments are automatically deposited in the lender's bank account. P2P lender services employ collection agencies to maximize payout. Delinquent and defaulted accounts are reported to the main credit reporting agencies."*[367]

The excellent Wikipedia article[368] on 'person to person lending' explains models in use in more detail:

- Direct vs. indirect lending
- Secured vs. unsecured lending

Of special interest is the ability for pooled lending, which strongly reduces the risk for lenders and which is one of the specific advantages of the new distributed model:

> *"In this model (also known as 'pooled lending'), the lender lends the money to several borrowers with similar credit ratings; the risk of capital and interest for the lender is defaulters in the pool. The risk of capital and interest of the lender is reduced considerably because the impact of any one*

367 http://www.p2p-weblog.com/50226711/p2p_lenders.php

368 http://en.wikipedia.org/wiki/Person-to-person_lending

> *default is made trivial in light of the timely payment of the vast majority of the notes outstanding; both many-to-one or one-to-many credit structures may be involved. This model is very similar to the traditional bank model and does not allow the lenders to select individual borrowers."*[369]

Hans Schuhmacher stresses that on-site credit assessment is an important requirement. Since that is still more difficult in the global South, peer to peer finance is mostly emerging in industrialized countries[370].

According to Vasilis Kostakis et al.[371], there is a privileged connection between 'ethical finance' and p2p lending:

> *"P2P lending is encouraging a coalition among values and finance, in which finance moves beyond the transactional towards relationship and authentic emotional value, based on transparency and authenticity. "Modern day Social Lending has various ideological antecedents in friendly societies by focusing on a study of aspects of community and individualism" (Hulme, 2006). In addition, Hulme (2006) has argued in his paper that the concepts of the individual within community, transparency and ethicality are fundamental to social lending schemes, providing the ideological foundations of the financial exchange. More concretely he asserts that "our research has suggested that Social Lending attracts a particular type of person who demonstrates a need for financial services founded on 'good faith', ethicality and a varying desire to participate in communities or networks of individuals where financial exchanges are based on principles of personal social responsibility, philanthropy, altruism and transparency".*

The in-depth report by Michael Hulme et al,[372] cited just above, is particularly recommened for its detailed study of this relationship between the specific form of finance that social lending represents, and new ethical values.

Here is what they write about *Zopa*, the pioneering UK social lending initiative:

> *"The Zopa model is to a large extent based on ethicality. Zopa aims to attract lenders who have a desire to lend money directly to people for altruistic purposes. Furthermore, the Zopa model is premised on the idea that by removing the need for intermediaries it offers a fairer financial deal for borrowers and a better rate of return for lenders. In this sense, it actually makes it financially advantageous since financial gain is dependant on*

369 Ibid.

370 For a directory, see http://www.smartermoney.nl/?p=315#platforms

371 "Abstracts from the paper "Open Business featuring the Finance and Insurance field" conducted by E. Ezeani, S. Kizil, V. Kostakis, H. Kroezen and T. van der Schoot for the Msc course: ICT and Organisation, instructor: Anna Snel, University of Amsterdam, 2007.

372 Hulme, M.K., and C. Wright. Internet Based Social Lending: Past, Present and Future. Social Futures Observatory 11 (2006). Hulme, M.K., and C. Wright. "Internet Based Social Lending: Past, Present and Future." Social Futures Observatory 11 (2006). In http://www.socialfuturesobservatory.co.uk/pdf_download/internetbasedsociallending.pdf [accessed 03.05.2012]

> *Zopa's ethical principles. This model is advantageous because it increases the belief in Zopa's ethicality through members' greater involvement and participation in altruistic lending. The ability to discern exactly who and what members are supporting is very compelling. It means that Zopa appears to offer a more authentic and transparent form of lending, where members feel more personally responsible because they believe that it is 'my money' that is helping particular known individuals in specified ways."* [373]

Further, Hulme and Collette Wright sketch a profile of the current type of user of social lending:

> *"Currently, Social Lending schemes tend to attract a particular type of person who is very competent using the Internet and who is financially savvy and stimulated by risk-taking. The Social Lending typology is best characterised as a 'minipreneur'; the 'switched on' and 'better informed' consumer who, through a desire for control, uniqueness, autonomy and choice is driven by the need for empowerment and authoring of the self."*[374]

For this reason, they expect social lending to grow into a 'niche mass market'. Like in peer production generally, social lending is not founded on altruism, but on a 'social design' that attempts to marry individual and collective interest:

> *"Peer to peer' lending schemes are imbued with power relations and differentiated gain. It appears that Social Lending is successful when self-interest serves the ends of the community:*
>
> *'While we need to create social networks to allow individuals to realise capital, those networks must ensure that the groups of people involved retain some control over the capital. Only in doing this can individual gains and interests be assumed to be synonymous with group gains and interests' (DeFilippis, 2001).*
>
> *Overall, by making individual gains dependant on the community, Social Lending schemes utilise the contemporary desire for community, whilst serving the needs of the autonomous individual. Trends towards the responsibilisation of citizens means that the individual must be inspired to believe that their participation in the Social Lending community is socially beneficial yet also serves their own interests. However, the concept of social capital is an academic ideology, which is to a large extent divorced from the everyday reality of ordinary people. The problems to overcome, then, appear to be the extent to which people can connect financial matters with community formation."*[375]

373 Ibid.

374 Ibid. note 365

375 ibid.

But different projects have different emphasis. The two social lending flagship projecs, *Prosper* in the U.S. and *Zopa*[376] in the UK, have different rhetorics, with the former stressing individual interests above collective interests:

> *"The Prosper community is overwhelmingly referred to as a series of 'groups' (Prosper, 2006). This is significant because a 'group' is defined as an 'aggregation' of individuals who may have 'common characteristics'. In contrast, 'community' refers to 'collectivism' where a 'shared identity' and a 'unity of will' define 'belonging' (Wikipedia, 2006). Thus, whilst a 'group' defines a sum of people constituting a unit, a 'community' defines a sense of collectivism based on reciprocity, mutual benefit and intimacy. A community is thus dependant on close inter-personal ties whereas a group is not. Furthermore, Prosper has a much sharper focus on the personal rather than community benefits of the exchange. The loan listings are almost entirely for private uses."*[377]

Hulme and Wright then emphasize how social lending is generally related to the trend of p2p horizontalisation:

> *"It appears that the most important factor characterising Social Lending and differentiating it from mainstream banking is its horizontal rather than hierarchical structure. Mainstream financial services rely on a structure of hierarchy where the customer is in a relation of subjugation to the organisation, which enables the organisation to imbue itself with a position of authority based on dictating its rules and a presumed superior knowledge. In this regard, it is important that Social Lending schemes are also known as 'peer to peer' lending schemes. Here the structure is horizontal, relying on interactions between equals. It is this horizontal structure that legitimates and enables a series of social phenomena that differentiates Social Lending from mainstream banking. The horizontal structure makes community possible because it legitimates connections between members. It also creates a utility for social interaction and in a more general sense, the horizontal structure is empowering because unlike authoritarian structures, it warrants and provides the tools for a higher degree of control, autonomy, individualism, self-education and self-authoring technologies. Social Lending, then, has a much more social and interactional foundation making financial transactions richer and deeper. This suggests that Social Lending is helping to redefine relationships with financial services based on much greater valuing of the person."*

376 "Zopa has announced that it reached the milestone of 150 million GBP in loans facilitated. Zopa says the new loan volume per month accounts for between 1% and 2% of new personal loan volume made in the UK." http://www.wiseclerk.com/group-news/services/prosper-growth-and-other-recent-news-in-p2p-lending/

377 Ibid. note 365

For the moment, social lending is not an alternative to banks and delivers much fewer services. However, new entrants, such as *CivilisedMoney*[378] in the UK, aim to change this:

> *"Civilisedmoney will offer all the people-to-people financial services products in one integrated service. It has launched with crowdfunding. People-to-people loans are coming next. It is developing new products too. Civilisedmoney is becoming a one-stop-shop for all your people-to-people financial products that create a viable alternative to banks".*[379]

Sander Van Damme has written an interesting paper[380], too complex to summarize here, to explain why social lending drives down interest rates (because of the transparency of the lender's information), but microfinance does not, the latter's main advantage being group pressure for repayment. This would explain the high and controversial cost of microlending, which averages 30-40% but sometimes reaches 70% with fees included.

P2P Microfinance, the direct lending of small loans from individual to individual (including enterpreneurs), without intermediaries is also a subset of social lending. The often-cited and successful and fast-growing *Kiva* may not be a 'true' example of P2P Microfinance, as it uses Microfinance Institutions as intermediaries (which charge 30-40% for their loans), but it did recently launch an experiment in direct p2p loans with *Kiva Zip*. An authentic example however is *Zidisha*. So far they've distributed about $130,000 in the 2 years since its inception. Authentic microfinance social lending is therefore still very marginal.

State of Selected P2P Lending Companies

Source: P2P-Banking.com (http://www.wiseclerk.com/group-news/countries/germany-updated-state-of-selected-p2p-lending-companies/) - Updated: March 15th, 2012

Company	Country	New loans/month	Brand/ Press	Growth/ Marketing	Sustainability	User satisfaction
Auxmoney	Germany	1,96	—	+	-	-
Communitae	Spain	0,03		-		
FundingCircle	England	4,66	+	++	+	
Isepankur	Russia	0,05	+	o	++	+
LendingClub	USA	29,47	++	++	++	++
MYC4	Denmark	0,29	o	-	-	o
Prosper	USA	10,0	+	+	+	o

378 Http://CivilizedMoney.co.uk

379 http://www.wiseclerk.com/group-news/countries/uk-civilised-money-raises-100k-through-p2p-equity/

380 https://www.zidisha.org/editables/news_docs/Louvain.pdf (see pp. 27-29 for that specific discussion)

Ratesetter	England	2,59	+	++	+	+
Smava	Germany	1,73	++	o	o	+
ThinCats	England	N/a	o			
Yes-Secure	England	0,01		-	-	-
Zopa	England	11,0	++	++	++	++

B. Crowdfunding

Crowdfunding is often considered to be a form of Crowdsourcing[381], applied to finance. Instead of seeking finance from institutional sources, the supporting community is asked to support a project in a distributed fashion. The Wikipedia defines crowdfunding as

> *"the collective cooperation, attention and trust by people who network and pool their money together, usually via the Internet, in order to support efforts initiated by other people or organizations."*[382]

Ross Dawson explains the two different approaches towards stockholding (equity shares) in crowdfunding:

> *"There are two types of crowdfunding that are fundamentally different: crowdfunding for equity and crowdfunding in which funders receive no equity. Equity crowdfunding is becoming increasingly viable as models are developed that conform with the current strict securities regulations in developed countries, and legislation appears in some cases to be relaxing. However in most cases references to crowdfunding are to the 'traditional' model in which no equity is granted to those who fund projects."*[383]

Equity-based crowdfunding is discussed in the next section.

There are two main types of crowdfunding for private or civic players. Some crowdfunding sites seek support for start-ups, while others fund only projects, such as the very successful and trendsetting Kickstarter platform. It should be noted that crowdfunding is also intensively used by the non-profit community and philanthropy in particular[384].

381 http://p2pfoundation.net/Crowdsourcing

382 http://en.wikipedia.org/wiki/Crowdfunding

383 Getting Results From Crowds. By Ross Dawson and Steve Bynghall. Advanced Human Technologies, 2011. http://www.resultsfromcrowds.com/

384 examples are http://www.startsomegood.com/ and http://33needs.com/: some documentation via http://p2pfoundation.net/Philanthropic_Crowdfunding

Non-equity crowdfunding is sometimes accompanied by incentives, such as a pre-release DVD or CD, which is a kind of pre-sale of products that have not yet been created[385]. One of the early specialized examples practicing this was *Sellaband*[386], a site where fans can support their bands.

Most platforms work with tresholds, i.e. a pre-specified minimum funding level to be reached before the contributions are made. This is done through 'pledges', i.e. promises to pay if the treshold is reached.

There are a multitude of crowdfunding platforms, in several dozen countries, and for different specialized areas. *GiveForward* for example is primarily focused on campaigns for people who need medical aid, and cofounder Ethan Austin says he's seen people raise US$50 000 in a day[387]. Since its launch in 2008, *GiveForward* campaigns have raised over US$8.8 million, and about 7600 campaigns have been completed. Another example is *Loudsauce.com*

> *"designed specifically to transform the medium of advertising from one that primarily drives consumption to one of civic participation."*[388]

But the flagship crowdfunding site exemplifying the sucess of the model and its coming of age as a serious method of funding is of course *Kickstarter.com*, where nearly $100 million in seed money was pledged in 2011[389] (up considerably from the $27.6 million pledged in 2010). If the site reaches its projected goal of raising $150m in 2012, this would surrpass the entire annual funding of the U.S. public funding agency, the *National Endowment of the Arts*[390] (which has a budget of $146m).

An interesting initiative is the *Open Source Hardware Central Bank*[391], as explained by Massimo Menichinelli:

> *"Justin Huynh and Matt Stack, who calculated that for every small hardware project, there's a potential to have to pay upwards of 40-50% of the initial cost of the project in just infrastructure fees. As a consequence, they have started the Open Source Hardware Reserve Bank in order to solve two main financial problems specific to Open Hardware: throwaway costs that result from repeated revisions to physical hardware during the design process, and the inability to take advantage of volume discounts for raw materials. The Open Source Hardware Reserve Bank … allows only hackers (no VC or other companies) to make investments in specific projects, buying*

385 "the pedestal for the Statue of Liberty was essentially crowdfunded. A nationwide fundraising effort led by Joseph Pulitzer rewarded $1 donations with a 6" Lady Liberty statuette and $5 donations with a 12" statuette-- exactly the sort of multi-tier "perks" setup that you see today on Kickstarter, IndieGoGo, RocketHub, and other popular crowdfunding sites". From: http://crowdfundinglaw.posterous.com/international-cf-petition-cf-book

386 http://p2pfoundation.net/Sellaband

387 http://www.crowdsourcing.org/document/crowdfunding-for-medical-expenses/10032

388 http://www.shareable.net/blog/loudsauce-crowdfunds-advertising-that-matters

389 "That was generated by just over 27,000 projects, 11,836 of which reached their funding goals (a success rate of 46%, up from 43% in 2010). What's more, while tech-related projects may generate the most attention 'round these parts, film and music projects were actually the two biggest cash draws on the site (netting $32 million and $19 million, respectively)." From: http://www.engadget.com/2012/01/11/kickstarter-details-the-year-that-was-27k-projects-almost-100

390 http://idealab.talkingpointsmemo.com/2012/02/kickstarter-expects-to-provide-more-funding-to-the-arts-than-nea.php

391 http://www.oshwbank.org/

> *and funding at the same time, doubling then the number of pieces created and reducing per-unit costs by around 10 percent to 30 percent. Moreover, they designed an infovis that visualizes the state of the funding and manufacturing of each copy of a Open Hardware project. … When somebody funds the manufacturing of one more physical copy, he/she won't pay the 15% markup; when the copies funded will be two, he/she will save the 15% markup and the shipping fees. Funding 5 copies makes you an investor in the specific Open Hardware project, getting a 15% return on investment."*[392]

C. Equity-based Crowdfunding

2011 was the year of the launch for p2p equity services in several national markets, such as the quite successful *CrowdCube.com*[393] in the UK.

Equity-based crowdfunding has been hampered by legal and regulatory issues, as explained by Janelle Orsi, an expert on 'sharing and cooperation law':

> *"In the name of protecting investors, securities laws now make it very difficult to raise money with crowdfunding. The basics of these laws is that before any investment opportunity can be offered, the person making the offering must file extensive disclosure documents with the federal government, as well as any state in which the offering will be made. There are some exemptions to this general rule, but even the exemptions take securities law expertise to comply with. The result is that anyone offering an investment opportunity may have to spend thousands in legal fees and filing fees before even being able to mention it to any potential funders. Generally, if you bring on a large, wealthy investor, the legal compliance required is minimal because the law assumes that these people and companies need much less protection (they are defined as "accredited" investors under the securities law). The moment you want to offer an investment opportunity to the public and to non-wealthy investors, the legal requirements become far more onerous."* [394]

392 http://www.openp2pdesign.org/2011/open-design/business-models-for-open-hardware/

393 How to become a shareholder through CrowdCube, http://www.wiseclerk.com/group-news/countries/uk-how-to-become-a-shareholder-of-crowdcube

394 http://www.shareable.net/blog/crowdfunding-and-the-law

There are campaings to change this in the U.S. such as the *Change Crowdfunding Law* campaign, which aims for a 'start-up exemption[395], i.e. it is

> *"a campaign for an SEC regulatory exemption covering public securities offerings with individual investment capped at $100".*[396]

Recent reports indicate that a proposed law to enable and regulate crowdfunded equity investements has a good chance to be carried by the U.S. Congress.[397]

In the UK, where small-scale equity investment is possible, the company *CrowdCube* has been the pioneer. As The Economist explains:

> *"The Crowdcube model … depends on the ability of thousands of members to ferret out the best ideas. The general public cannot match the expertise and commitment of dedicated "angel" investors if a firm gets funded, admits Darren Westlake, Crowdcube's founder. But it helps to have lots of investors acting as advocates for a start-up firm"*[398].

Despite regulatory hurdles, there are different ways that equity crowdfunding can be practiced today, even in the U.S.:

> *"The two ways in which U.S. companies can sell debt or equity without having to be a public company and register with the SEC are raising less than $1 million over a 12 month period from people with whom the business has a "substantial, pre-existing relationship", and raising only from "sophisticated" investors. The European Union's Prospectus Directive means that any offer of shares or bonds to the public in Europe must be made in a prospectus. Start-ups looking to crowdfund need to draft an expensive prospectus, unless they ask for less than €2.5 million within 12 months in amounts over €50,000. Any request without a prospectus must be directed at less than 100 people in each country in Europe or only made to qualified investors."*[399]

As Ross Dawson explains:

> *"There are currently three ways in which crowdfunding platforms enable the public sale of debt or equity in privately held companies."*

Check The APPENDIX:

CrowdCube infographic

395 http://www.startupexemption.com/

396 http://crowdfundinglaw.com/ ; petition document via http://www.sec.gov/rules/petitions/2010/petn4-605.pdf

397 "the Entrepreneur Access to Capital Act (HR 2930) aims to achieve. The bill, which Forbes contributor Scott Edward Walker explained in detail here last month, has the support of President Obama and was passed by an overwhelming majority in the House in November, but has been hung up in the Senate ever since. Portfolio.com and Reuters reported on Tuesday that Senate majority leader Harry Reid announced plans to push the legislation forward." From: http://www.forbes.com/sites/techonomy/2012/02/29/crowdfunding-set-to-explode-with-passage-of-entrepreneur-access-to-capital-act/

398 http://www.economist.com/node/21547994?fsrc=scn/tw/te/ar/onthesideoftheangels

399 Dawson, Ross. Getting Results from Crowds.

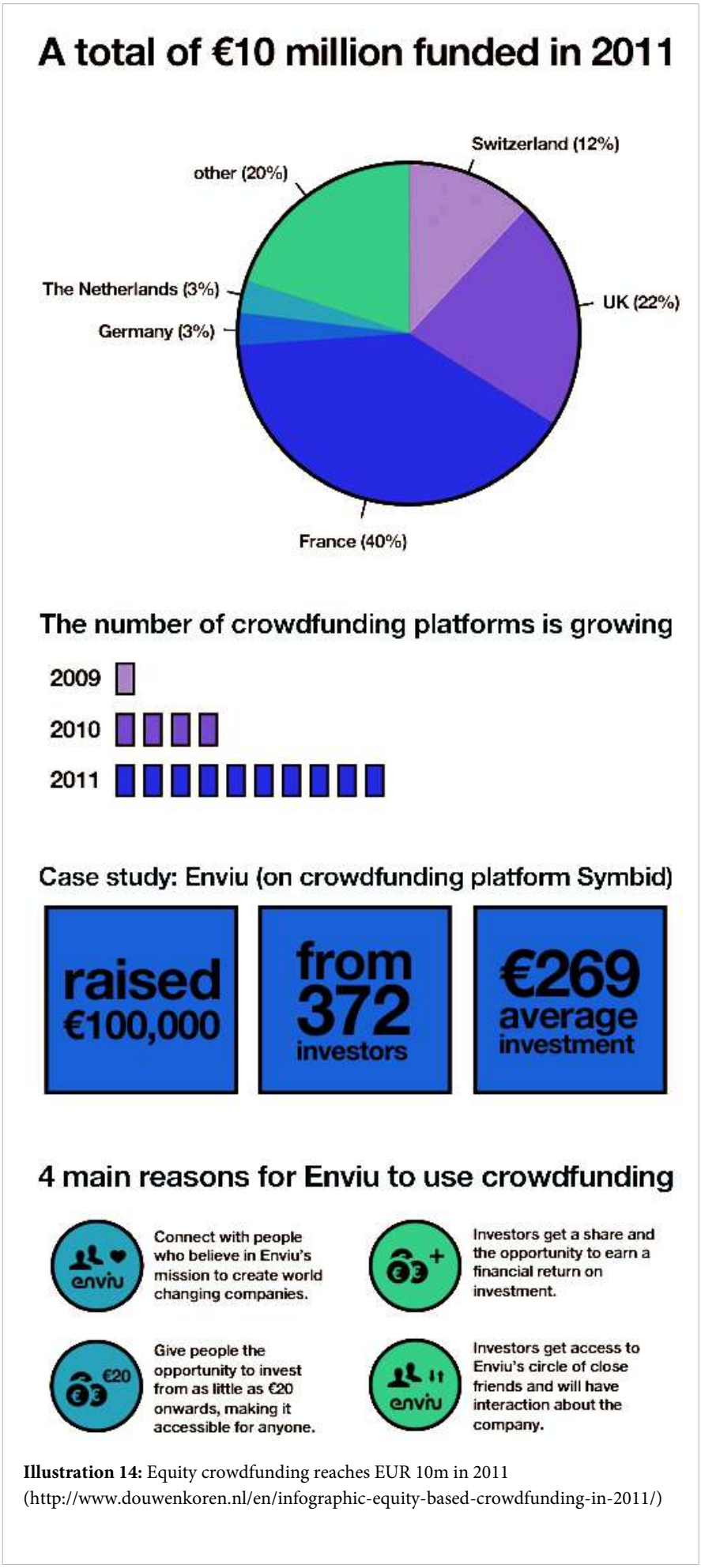

Illustration 14: Equity crowdfunding reaches EUR 10m in 2011 (http://www.douwenkoren.nl/en/infographic-equity-based-crowdfunding-in-2011/)

The typology and explanation here below is from *Getting Results from Crowds*:

Selling debt or equity to a private network

> *"In many countries, business owners and entrepreneurs can approach an unlimited number of people within their personal network for funding. They can do this as long as the person being offered shares has a pre-existing relationship with the business owner. Some crowdfunding platforms have been launched to manage the process of making investment offers to the business owner's personal network."*

Example: *40Billion*[400]. To date, 40Billion.com has helped U.S. businesses request $45m in funding from their private networks.

Selling debt or equity to highly qualified investors

> *"Selling debt or equity to qualified investors is also possible in many countries. In the U.S., qualified investors are those with either $1 million in assets or personal annual income of $200,000. Business angel networks already match entrepreneurs with potential investors. In many ways a crowd of highly qualified investors is effectively a virtual business angel network."*

Example: *SeedUps*[401]. To date, over 800 companies have raised over £21 million from over 340 investors through SeedUps.

Indirect investment in the business

> *"This model of funding involves creating a separate vehicle (an investment company) that invests in the underlying business. The investment vehicle could be a pre-existing fund or a specially created company for the investment opportunity that achieves the highest level of interest from the crowd. In this model the funding will often come from the crowd, in a similar way to a managed fund, however the wisdom of the crowd determines which investments to make."*

Example: *WiSEED*[402]. To date, 16 startups have achieved a total of €5.1m in investment through WiSEED.

D. Distributed Currencies

400 http://www.40billion.com

401 http://www.SeedUps.com

402 http://www.wiseed.fr/wicket/web/accueil

One of the more significant social movements of the last decade or two has been a movement for monetary reform or transformation, based on the realisation that, just as any other social system, the monetary system has a design, and therefore, can be redesigned. Creators of new monetary systems also insist on the right by civil society groups to create currencies, next to the public and private creation.

One of the better known expressions of this drive are the *LETS*, or *Local Exchange Trading Systems*[403], and Timebanking communities. Though they don't seem to scale well, they are active in many locales worldwide (more than 1,500 in at least 39 countries), with the most successful such as the *Ithaca Hours* in New York state sometimes responsible for 10% of the turnover of the local economy[404]. Some of the currently active complementary currencies, mutual credit or mulitlateral barter systems are active in B2B contexts.

> *"In 2010, 400.000 companies were engaged in barter on the global arena with a volume of annual trade of approximately $10 billion (Stodder, 2009). QOIN (2011) reports that all 500 firms featuring in Fortune's rating perform barter exchanges; approximately 750 firms are engaged in international barter trade. In 2008, the turnover of all barter contracts was estimated at $10 billion, and expected growth for 2009 was 15% (International Reciprocal Trade Association, 2011)."*[405]

Well-known is the WIR mutual credit system in Switzerland, with 85,000 members and which has a documented counter-cyclical effect on Swiss economy[406] (members augment the share of the WIR currency in economic downturns). Ivan Tsikota, a researcher on local economies, describes the WIR in the following terms:

> *"In 1993 it had approximately 17% of companies registered in Switzerland (i.e. around 77.000) and an annual turnover of €1.5 billion (Greco, 2001). By the end of 2000, its membership increased to 85.000, covering 20% of all Swiss companies (QOIN, 2011). It operates with the use of electronic money, which is formally pegged to Swiss Franc at 1:1 rate."*[407]

The Internet has given these communities tools to build several open source online platforms that lower the treshold for organizing such projects[408]. These projects are often related to local expressions of the civic, social, and solidarity economy that we discussed before. Specific social movements, like

403 "Local Exchange Trading Systems (LETS) and Schemes are local, non-profit exchange networks in which all kinds of goods and services can be traded without the need for money. A LETS network uses an interest-free local credit or currency so direct swaps do not need to be made." http://en.wikipedia.org/wiki/LETS

404 "The worldwide average size of LETS is around 80 members (Aldridge & Patterson, 2002; Schroeder, 2006). Turnover: According to Peacock (2006), the largest single existing LETS in 2006 was an Australian initiative based in Sydney, having over 1,000 participants, generating 400,000 Aus. Dollars in turnover. Gross turnover of LETS network in Germany in 2005 has been estimated at €15 million (Roesl, 2006)." Source: Master's Thesis: Complements to Economic Systems: Increasing Local Economic Sustainability. Ivan Tsikota. 2011-05-14. EC9901 Master's Thesis, 30 hp . Department of Economics , Stockholm University. URL: http://p2pfoundation.net/Increasing_Local_Economic_Sustainability

405 Cited by Ivan Tsikota, http://p2pfoundation.net/Increasing_Local_Economic_Sustainability

406 Studer, Tobias. (1998). WIR in unsere Volkswirtschaft. (English translation: WIR and the Swiss National Economy). Available at http:/www.lulu.com/content/268895

407 Ivan Tsikota, http://p2pfoundation.net/Increasing_Local_Economic_Sustainability

the fast-growing *Transition Town*[409] movement, nearly systematically plan the creation of complementary currencies where they are active. The meltdown and the financial crisis of 2008 have led to a spike in the creation of local and regional currency initiatives.

But more significant perhaps are the emergence of true digital currencies which have a much higher scaling potential, already borne out by the facts. An early digital currency was the VEN, produced by the co-working franchise *Hub-Culture*[410], which is a carbon-linked currency that is now carried on the Reuters exchanges.

More significant still is the emergence of the *Bitcoin* ecology. Bitcoin is important because it is the first global, digital, peer to peer and 'socially sovereign' currency. It has emerged with the backing and accepting of the global hacker community, where it is already used for real economic transactions. For example, the P2P Foundation cooperative pays its members in Bitcoin currency. While the importance of Bitcoin may at present escape outsiders, it's potential role as a global reserve currency, underwritten by a specific 'virtual hacker nation', should not be dismissed. Not since the advent of the Westphalian system has it been possible to create a working non-state currency. Part of its attraction is political and social, i.e.the sympathy it generates in libertarian communities, including its wealthy financial backers, some of whom activily investing in its accompangnying financial infrastructure.

The Wikipedia describes Bitcoin in the following terms:

> *"Bitcoin is an open source peer-to-peer electronic cash system developed by Satoshi Nakamoto. The system is decentralized with no central server or trusted parties. Bitcoin relies on cryptographic principles to create unique, unreproducible, and divisible tokens of value. Users hold the cryptographic keys to their own money and transact directly with each other, with the help of the network to check for double-spending"*[411]*. Springwise explains how it works from the user point of view: Users begin with Bitcoin by downloading its client program for Linux, Mac or Windows, thereby creating a digital wallet and associated Bitcoin address for themselves. Next, very small quantities of Bitcoins are available for free from the Bitcoin faucet, but to get larger ones, users can visit various currency exchanges and sites. They can also accept Bitcoins as payments for goods and services. Either way, once they have Bitcoins — abbreviated "BTC" — users can spend them at various participating online merchants for a wide variety of goods and services. It's free for merchants to accept Bitcoins, and there are no chargebacks or fees."*[412]

408 Updated state of the art review of Complementary Currency Open Source Software in 2010. By Matthew Slater in the IJCCR Special Issue, State of the Art of Complementary Currencies: D 82-87 : "This report briefly covers the field of non-commercial mutual credit software, discussing the issues and challenges the projects collectively face in meeting the needs of the movement." URL : http://www.ijccr.net/IJCCR/2011_(15)_files/16%20Slater.pdf

409 http://en.wikipedia.org/wiki/Transition_Towns

410 http://en.wikipedia.org/wiki/Hub_Culture

411 http://en.wikipedia.org/wiki/Bitcoin

412 http://www.springwise.com/financial_services/bitcoin/

Though there are a number of ongoing controversies and critiques[413] of the conceptual design behind Bitcoin, its acceptance as a payment mechanism is already established, and it has a vibrant ecology of financial services, with significant if discrete investment by its political, social and financial backers. Part of the criticism is channeled through 'forks' of the Bitcoin protocol, which is open source. Since Bitcoins can now be used to buy physical products and human services and can be exchanged against major national currencies, it is in effect already part of the global financial system.

The following list of links can help the reader grasp the already impressive depth of services available in the Bitcoin system, providing several examplesof the interfaces between the mainstream financial system and Bitcoin:

- WeUseCoins.org - Best place for beginners to start.
- QuickCo.in - Best way to buy Bitcoins for beginners (ready by end of April 2012)
- BitInstant.com - Allows quick purchases of Bitcoin via anonymous cash deposits at major banks across the US. This is currently the easiest and fastest way to buy Bitcoin in the US.
- Bitcoin.org - Official site of the Bitcoin project, download the wallet software here.
- MtGox.com - The leading Bitcoin exchange. Buy and sell Bitcoins here.
- CryptoXChange.com - Another popular Bitcoin exchange. Buy and sell Bitcoins here.
- Paytunia.com - Very nice online ewallet service with Android app. Store your coins here.
- BitcoinTalk.org - The official discussion forum, and large enthusiast community
- Wiki.Bitcoin.it - Encyclopedia of most aggregated Bitcoin knowledge, very extensive.
- Bitcoin.it/wiki/trade - Partial list of companies that accept Bitcoin as payment
- BitcoinMagazine.net - Professional publication and news portal
- Blockchain.info - Tool for viewing accounts, payments, and numerous economic statistics.
- BitcoinCharts.com - Shows current market prices and economic statistics.
- Preev.com - Super easy Bitcoin<->fiat calculator, multiple currencies supported
- BitcoinMonitor.com - Live view of transactions as they happen on the Bitcoin network.
- Paysius.com - Enables businesses to automatically accept Bitcoin payments on their website.
- Coinabul.com - Leading gold and silver bullion seller for Bitcoin
- SpendBitcoins.com - Enables you to buy credit with major brands like Amazon and Southwest Airlines for Bitcoin.
- WorkForBitcoin.com - Bitcoin job board - freelance projects which pay in Bitcoin.
- StuffExists.com - Extensive repository of hundreds of other resources.

413 http://www.quora.com/Bitcoin/If-one-were-to-make-a-competitor-to-Bitcoin-what-features-would-be-desirable/answer/Sebastiano-Scr%C3%B2fina ;

E. Distributed Online Payments

Distributed funding and online currencies are accompanied by the ongoing creation of a infrastructure for payment and other financial services that seek to emulate, and sometimes replace, traditional banking and financial services, aiming to disintermediate their control.

Describing the full picture is beyond this study, so we conclude with some examples:

Flattr[414] is a system for social micro-donations to support online creative work ('ongoing crowdfunding', if you like). Participanting users choose a monthly budget which they can spread to their favourite content creator by clicking on the Flattr buttons available on their sites. As founder Peter Sunde explains:

> *"The innovative part is that users of Flattr set a monthly budget they are willing to donate each month to the content they like. This can be as low as $2, or whatever the user is willing to share. At the end of the month the money is shared between the creators of the content they liked, who are all Flattr users as well. In other words, Flattr allows consumers to flatter content producers for a flat-rate fee, and offers a revenue stream to those who create and share content."*[415]

- *Kachingle*[416] uses a different mechanism, but has similar aims.
- *BankSimple*[417] hides the difficulty of personal banking behind one universal and very user-friendly interface. "The premise of BankSimple is this: Each consumer should only need one card and one account — and there should be no annoying transaction fees for ATM machines or penalties for bank overdrafts. BankSimple refers to its service as "banking online" not as "online banking" — the company is not a bank as much as it is a personal banking alternative."[418]
- *Scred*[419] is a (Finnish-born) service which extends this user-friendlyness to groups. It's an *Open Book Accounting*[420] project that allows participants to create "mini corporations" and monitor funding and expenses for a group of people.
- *Holvi*[421], from the same team, is even more radical as it abolishes the need to open a bank account.

414 http://flattr.com/

415 http://torrentfreak.com/pirate-bays-peter-sunde-starts-money-sharing-site-100212/

416 http://www.kachingle.com/

417 http://www.banksimple.com/

418 http://www.washingtonpost.com/blogs/innovations/post/the-real-wall-street-occupation-is-online/2010/12/20/gIQAFKANfM_blog.html

419 http://blog.p2pfoundation.net/scred-open-accounting-and-meaningful-banking-for-communities/2009/04/17

420 http://p2pfoundation.net/Open_Book_Accounting

421 https://holvi.com/

As its founder explains:

> *"It is a complete replacement for a traditional bank, and targeted specifically at people doing group activities together. Ie. people running conferences, art projects, indie film projects, sports clubs etc. As it does replace traditional banks you can use it for normal credit transfer, both in and out. But the really sweet thing is that it's a group account, so multiple people can view what is going on. You can attach any kind of metadata to payments, meaning that accounting is completely automatic and in realtime, plus it offers great opportunities for linking to social networks. You can also share your budget, and the realtime status, with the world if you want to be totally open. Finally it offers easy ways to raise and collect funds, with a built-in shop (registrations, donations, merchandise) and invoicing system. Again, all tied to the core account, so everything updated in realtime. When someone pays a sponsorship fee, you immediately see it reflected in your budget."*[422]

As the innovation blog *Springwise.com* explains, all of the above aim to create the possibility of having *"banking without banks"*:

> *"The concept of Banking without Banks is to provide as many of the financial services provided by banks, but through more direct, lightweight and transparent structures that eliminate most of the traditional costs of personal finance. Through Banking without Banks, individuals assume the role of lenders for attractive returns and borrowing costs are significantly reduced. Additionally the social impact of interest being paid to individuals, rather than to large banks, can't be overstated. Banking without Banks "allows people to lend money directly to others, cutting out banks and other middlemen. Which means better interest rates for borrowers and higher returns for lenders."*[423]

422 Personal communication

423 http://www.springwise.com/financial_services/bankless_banking_update/

An Alternative Financial Architecture Online

Personal finance

- Simple.com —Worry-free alternative to traditional banking
- Fidor.de —Banking with friends
- Movenbank.com —Spend, save and live smarter
- Zopa.com —A marketplace for money
- Wonga.com —Payday loans alternative
- Billguard.com —People-powered antivirus for bills
- Holvi.com —Smart Banking for Group Activities
- ArchiveMe.com —Invoices and expenses in a minute
- Payoff.com —Money made simple, social and fun

Markets and trading

- eToro.com —Your investment network
- StockTwits.com —The financial communications network
- AlphaClone.com —Follow the smart money
- Trefis.com —What's driving the stock
- Estimize.com —Uncover the real consensus

Risk management / insurance

- Climate.com —Total weather insurance
- OpenGamma.com —Unified financial analytics

Wealth management

- Betterment.com —A better investment
- Blueleaf.com —Simple, personal financial tracking
- Covestor.com —Find and follow investing leaders
- Nutmeg.co.uk —Smarter saving and investing

Business banking

- FeeFighters.com —Comparison shopping for SMB finance
- Kabbage.com —Green to help you grow
- FundingCircle.com —Online lending marketplace
- AxialMarket.com —Online network for M&A professionals
- Bilbus.com —Locate your liquidity

Payments

- Square.com —Mobile payments system
- Stripe.com —Payments for developers
- Thecurrencycloud.com —FX payments automation service
- Dwolla.com —The cash inspired payment network
- Ixaris.com —Open payments solutions
- Leetchi.com —Group payment application

Source: Sean Park (http://videos.liftconference.com/m/4604460)

IV. The Emergence Of Infrastructures For "All Things Distributed"

Distributed manufacturing and distributed finance are only two aspects of the trends towards such infrastructures and the new practices that they enable.

For example, in the mindmap on distributed 'peer to peer' learning we outline a vast new development of tools and practices which go beyond physical and centralized/decentralized learning. In the wiki of the P2P Foundation, we have observed and monitor the emergence of such new practices in food/agriculture, health care, and many other domains.

Another important area of distributed development is energy provision. For example,

> *"51% of all renewable energy in Germany is owned by individual citizens or farms, totaling $100 billion worth of private investment in clean energy."* [424]

Many of this was realized through 'community power' initiatives, i.e. collective local purchasing.

One particular aspect deserves attention, i.e. the development of a new legal infrastructure.We believe that the trends described in this report are also related to the search for new 'corporate forms and structures'. In general, we can conclude that there is the definite development of legal formats that are in between the for-profit and non-profit sectors. These new forms allow to combine the pursuit of social goals by 'purpose-driven', 'mission-oriented', 'community-supportive' organisations, so-called 'Fourth Sector' organisations[425] which aim at creating 'blended value' or as is sometimes said, 'doing well by doing good'. There is a new generation of entrepreneurs that is no longer happy with the shareholder model and are looking for 'ethical' and 'open' company formats, that allow for the mutualization of both immaterial and material stock, for new forms of collective property, but that also allow income-generating, and hence financially sustainable, activities. Amongst the examples that come to mind are B-Corporations, social enterpreneurs, fair trade, community-supported agriculture, and many others.

All these activities also require a new type of metrics and accounting practices, which can account for the impact of 'social good' activities, but also measure environmental impacts, and the type of metrics

424 http://www.treehugger.com/renewable-energy/over-half-germany-renewable-energy-owned-citizens-not-utility-companies.html

425 The first three being public, private, and non-profit

that are needed to measure social media and open knowledge/code/design contributions, as well as metrics for trust, reputation, authority and influence. We are at the beginning of a vast reorganization of business enterprise, in its quest to accommodate the new horizontal dynamics of value creation, that we have tried to describe, summarize and map in this report.

In the 'Maps' section presents in part XIV of Chapter 4 in this report, you will find the following mindmaps that illustrate the above developments.

- Mindmap 1: From New Values to New Economic Practices
- Mindmap 2: New Economic Practices
- Mindmap 3: Distributed Manufacturing
- MIndmap 4: Personal Fabrication
- Mindmap 5: Distributed Finance
- Mindmap 6: Distributed Learning

V. Some Conclusions And Speculations

What would happen if the open and distributed manufacturing trends that we have described in the last two chapters, would become more generalized in our economic and social landscape?

As our chapter four on peer production suggests, the new model would be based on shared innovation commons through collaborative communities, organized on a global scale, from which entrepreneurs and manufacturers would draw in order to produce their goods and services.

And as the previously cited Jason F. McLennan says, this would entail a change in spatio-temporal arrangements in our political economy:

> *"In the near future anything heavy will become intensely local while at the same time the limits to things that are 'light', ideas, philosophies, information will travel even further than today — literally and figuratively. This is a new paradigm for humanity and it has huge implications for the complete reordering of society."*[426]

In a world where resource scarcity and the consequences of 'Peak Oil' will become increasing determinants of price and allocation, and therefore seriously impact the viability of the current globalized model of free trade, an alternative model which combines global scientific and intellectual collaboration with local production may become increasingly attractive. The ability of the new model to project power and influence may be strengthened not just by the ability to draw on distributed machinery, finance and energy, but also by global material organizations, such as the 'Phyles' theorized by David de Ugarte.

Phyles are

> *"business-empowered communities: they are not companies linked to a community, but transnational communities that have acquired enterprises in order to gain continuity in time and robustness".*[427]

Such phyles, in the form of the enterprises that grew out of the guild system in the Italian city-states such as Florence and Venice, responsible for a first commercial and industiral renaisssance, could

426 http://www.stwr.org/imf-world-bank-trade/local-economies-for-a-global-future.html

427 http://deugarte.com/phyles

emerge anew, to give global clout to the coalitions emerging from open and distributed manufacturing communities.

How would such coalitions 'compete' with existing global MNO's? In one sense, they would not, they operate with a different , 'asymmetric' logic and may occupy niches that are not well served by traditional players. But just as already happened with free software, economy, some traditional players may adapt and use such methodologies and find strong and winning 'diagonal' adaptations. In case the darker scenarios of resource depletion prevail, the alternative ecology may be just what is needed to cope with future challenges and be seen as a real total alternative, as happened with previous phase transitions in human history, such as the transition to capitalism.
The advantages of scale, difficult to maintain in conditions of increased resource scarcity, may be ideal for a system that is based on the economics of scope:

> *"An economy of scope exists between the production of two goods when two goods which share a Common Cost are produced together such that the Common Cost is reduced."*[428]

Indeed in the new model, all innovations are instantly available to the participants of the whole network, avoiding many development redundancies, and material production can 'scale up from one' as in the printing on demand models of the new digitalized publishing players (Lulu.com) or as in the microfactories being build for the Rallye Car of Local Motors.

Where such new dynamics to prevail, Wim Nusseldorf, a Dutch observer of the emergent economy, believes that a new social and economic logic would prevail, that would be substantially different from (Schumpeterian) entrepreneurial capitalism and its particular form of competition.

He describes the emerging Quarternary Economics as follows (and they're worth quoting at length):

> *"The fourth type of economy is organized by ideological leaders. It is organized with relations of membership and contribution. Common goals and common interests provide additional meaning. To convince (others that your way of reaching goals or serving interests is the best way) or to follow others, that is the question. Contributing to the best of one's ability to common goals and interests is normative. The defining characteristic of this fourth form of economy compared to the earlier forms is the voluntary choice to 'belong' or 'not to belong'. Ideological leaders make their followers identify with their group by convincing them. 'Belonging' or 'not belonging' to groups depends on the strength of identification with their common goals and shared interests. 'Quaternary societies' contain even more overlapping and complementary groups. 'Belonging' to different groups at the same time is enabled by complex, multi-layered identities. Boundaries are even less clear-cut. They can be determined by asking whether someone contributes or not to the common goals and shared interests, however little. 'Quaternary economies' can pool even more resources, enable more division of labour, specialization, economies of scale etc. than tertiary ones, because people can participate in several different roles at the same time. One can be a specialist*

428 http://appropriatesoftware.net/wiki?EconomyOfScope

> *in one field and in other fields a layman, who can only follow what others propose to contribute to reaching common goals and serve shared interests. Our present economy is of course a mix of all these forms."*[429]

Whether these dynamics will remain niche dynamics, or be encapsulated in the 'diagonal' adaptations by and with mainstream business players, or become the next dominant paradigm, remains conjecture. Yet, it is important to keep an open mind on the more radical implications of the emerging distributed models. The age of the networked economy may already have announced itself. The seed forms appearing and integrating today foreshadow the nature of its future adult form.

429 http://www.waterlandstichting.nl/bestanden/nusselder.pdf

Chapter Six: Open Business Models

I. Generalities On Open Business Models

In our interpretation, *open business models* are defined by their at least partial reliance on shared innovation commons characterized by non-exclusive forms of intellectual property.

How can a business develop if the basic raw material in the value chain is free to copy and share?

In open business models, the basic use value is created in a commons of contributors, even as this form may be an actual 'enterpreneurial commons', i.e. a cooperation between firms, as is the case of the Linux Kernel for example.

An important corollary of this will be that the commons itself operates outside of the marketplace, it is an 'abundant' resource that can be potentially accessed by outsiders without payment, and therefore it is not a 'scarce' or 'rival' resource that is subject to the supply and demand dynamics that are required for the operation of a market economy. We could summarize this by saying that, 'the commons creates the value, the market captures the value". Another way to express the same logic is that "opening creates value, enclosing captures value". Enclosure in this context means the strategies used by business forms to create marketable scarcities in a commons environment. This issue is also a crucial one in the 'sharing platforms' such as Facebook and Flickr. See the box below for an interesting discussion on the benefits of 'open vs. closed platforms'.

Creating exchange value around the commons is therefore not a straightforward proposition, although commercial firms have successfully built open business models around open commons.

There are essentially three different ways to conceive of commercial strategies:

1. The first and most obvious strategy is to create a market around secondary, derivative services. In this strategy, developers may be paid for their work in producing the common knowledge/code/design, which is immediately useful for a client, even as the result will be shared with others; or, the firm will produce added value in the form of services, training, integration, guaranteed installation and ongoing assistance, etc.
2. The second strategy is to use shared innovation commons for non-core and non-strategic activities of the firm; in this scenario for example, open source software is not used commercially, i.e. not used to generate revenues directly, but is a means to cut infrastructural investments in areas that are not the core proposition of the firm.
3. A third strategy is to use legal 'hacks' that present a work-around the sharing aspects of the shared innovation licenses, through which hybrid proprietary strategy may be developed. For example, "open core" and "dual license" strategies are used in this context for open source software.

Despite these difficulties, there is evidence that open business models are able to create viable business strategies and sectors, and even, that these new hybrid players are often displacing their 'pure play' proprietaty competitors.

One piece of evidence is the size of the economy that is based on 'open content', what a U.S. report calls the "Fair Use Economy", which is calculated to have a size equal to one-sixth of U.S. GDP[430].

We will review how these dynamics play out in different sectors of the emerging collaborative economy.

Check The APPENDIX:

Open vs. Closed Platforms

430 See 'Sizing up the Fair Use Economy'

Sizing Up The Fair Use Economy

The 2010 "Fair Use in the U.S. Economy" presents the most up-to-date data on the economic contribution of industries relying on fair use and related exceptions to copyright law. This report incorporates full year data for 2007 and demonstrates that the fair use economy grew significantly in 2007:

- Revenue increased by more than five percent from 2006 to 2007.
- Fair use companies employed an additional 100,000 workers.
- U.S. exports by fair use industries expanded by nearly 12 percent to $281 billion.

This report updates a 2007 report prepared by Capital Trade, Inc. that was the first comprehensive study quantifying the U.S. economic contribution of industries relying on fair use. The original report showed that fair use industries grew rapidly from 2002 to 2006 and played a large role in overall national economic welfare, generating an estimated $4.4 trillion in revenue, accounting for one sixth of total U.S. gross domestic product, and employing more than 17 million workers.

Examples of industries that depend on or benefit from fair use include:

- manufacturers of consumer devices that allow individual copying of copyrighted programming;
- educational institutions;
- software developers; and
- Internet search and web hosting providers.

These industries and others that depend upon fair use and related limitations and exceptions are referred to here as "fair use industries." As summarized in the following report, the courts have held in favor of fair use in situations that are integral to many industries. The courts have established, for example, that fair use permits the main service provided by search engines, that software development depends on making temporary copies to facilitate the programming of interoperability, and that consumers can make copies of television and radio programming for personal use.

Industries benefiting from fair use have grown dramatically within the past 20 years, and their growth has had a profound impact on the U.S. economy. The report contains detailed data by industry and summarizes activity and growth in five areas:

Revenue — In 2007, fair use industries generated revenue of $4.7 trillion, a 36 percent increase over 2002 revenue of $3.4 trillion. In percentage terms, the most significant growth over this five year period occurred in Internet publishing and broadcasting and web search portals, electronic shopping and electronic auctions, and other financial investment activity.

Value Added — Fair use-related industry value added in 2007 was $2.2 trillion, 16.2 percent of total U.S. current dollar GDP. Value added equals a firm's total output minus its purchases of intermediate inputs and is the best measurement of an industry's economic contribution to national GDP.

Fair use industries also grew at a faster pace than the overall economy. From 2002 to 2007, the fair use industries accounted for 23 percent of U.S. real economic growth.

Employment — Employment in industries benefiting from fair use increased from 16.9 million in 2002 to 17.5 million in 2007. About one out of every eight workers in the United States is employed in an industry that benefits from the protection afforded by fair use.

Further illustrating the rapid growth of fair use industries, total payrolls expanded rapidly, rising from $895 billion in 2002 to $1.2 trillion in 2007.

Productivity — Productivity, the amount of goods and services that can be produced with a given number of inputs, is the foundation for rising living standards. From 2002 to 2007, the productivity of U.S. fair use industries increased to nearly $128,000 per employee, far exceeding economy-wide average productivity of $100,000 per employee. Numerous researchers have determined that companies dependent on fair use, such as information technology companies, have stimulated U.S. productivity growth.

Exports — Exports of goods and services related to fair use industries increased by 41 percent from $179 billion in 2002 to an estimated $252 billion in 2006 and then increased by an additional $29 billion to $281 billion in 2007. Within this overall increase, exports of trade-related services, including Internet or online services, were the fastest growing segment, increasing nearly ten-fold from $578 million in 2002 to $5.2 billion in 2007.

By any measure, the growth rate of fair use industries has outpaced overall economic growth in recent years, fueled productivity gains, and helped the overall economy sustain continued strong growth rates

II. Open Source Software Business Models

An open source or "free software business" can be defined as

> *"a software business in which all software is exchanged under a free software license such as the GPL. In contrast, a "proprietary software business" is one which supplies software to customers only under terms which do not permit the customer (or supplier) to freely examine and modify the source, make copies, use the software without restriction, and redistribute the software (modified or not)."*[431]

Michael Bernstein argues that though open source tends to displace proprietary competitors, they are doing so with lower profit margins:

> *"Margins on Proprietary software are higher than Free Software. The successful Free Software vendors are in many cases deliberately disrupting the market they target, shrinking its size (in terms of $$$) and taking a larger share of a market with thinner margins, which the more bloated incumbents are ill-suited for. Overall, less money is made."*[432]

It has been estimated[433] that open-source annually destroys $60bn in revenues for the proprietary sector. The same study also states

> *"that if open-source products and services were calculated at commercial prices, open source as a whole would be equivalent to the largest software company in the world, with revenues exceeding the combined income of Microsoft, Oracle and Computer Associates."*

What is the reality of open source business models today?

Matthew Aslett, summarizes the findings of The 451 Group's lCAOS report of 2008, "Open Source is Not a Business Model."[434]

431 http://dasht-brk.livejournal.com/28013.html

432 From a discussion in the Autonomo.us mailing list, May 2009

433 http://www.zdnet.co.uk/news/application-development/2008/04/22/proprietary-vendors-lose-30bn-to-open-source-39397439/

434 http://blogs.the451group.com/opensource/2008/10/13/open-source-is-not-a-business-model/

The study analyzed the business strategies of 114 open source-related vendors (see below for critiques, as this report has generated controversies). Some of the more interesting findings are as follows:

> - *"The majority of open source vendors utilize some form of commercial licensing to distribute, or generate revenue from, open source software.*
> - *Half the vendors assessed are using hybrid development models — combining code developed via open source projects with software developed out-of-sight of open source project members.*
> - *Vendors using hybrid development and licensing models are balancing higher development and marketing costs with the ability to increase revenue-generation opportunities from commercially licensed software.*
> - *The license used for an open source project (reciprocal or permissive) has a strong influence on development, vendor licensing and revenue-generation strategies."*[435]

They also found that:

> - *"Ad hoc support services are used by nearly 70% of the vendors assessed, but represent the primary revenue stream for fewer than 8% of open-source-related vendors.*
> - *Most vendors generating revenue from open source software are reliant on direct sales staff to bring in the largest proportion of revenue."*

Matthew Aslett comes to the following strong conclusions:

> - *"Open source is a business tactic, not a business model. Open source is not a market in and of itself, nor is it a vertical segment of the market. Open source is a software development and/or distribution model that is enabled by a licensing tactic."*
> - *"The cat is already out of the bag when it comes to open source related business models and there is no way it is going back in."*
> - *"There is very little money being made out of open source software that doesn't involve proprietary software and services.*
> - *The line between proprietary software and open source software is becoming increasingly blurred as open source software is embedded in broader proprietary hardware and software products and proprietary extensions are used to attract more customers."*[436]

Charles Babcock has challenged some of the more pessimistic conclusions around the 'open source is broken' discussion, as follows:

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435 http://blogs.the451group.com/opensource/2008/10/13/open-source-is-not-a-business-model/

436 http://blogs.the451group.com/opensource/2008/10/13/open-source-is-not-a-business-model/

> *"Open source leads to a failed business model? Don't tell that to Terracotta, JasperSoft, MuleSource, or SpringSource. They each have a shot at becoming a dominate vendor in a field they have defined in their own way. Granted, each engaged in some kind of core programmer collaboration, but Cohen is too preoccupied with the lessons of collaboration -- what his firm is specializing in. There's great value in open source innovation and additional value in the community-building distribution mechanism. Wise businesses know how to put both to work to sustain an ongoing company. … What about XenSource, which spent much less time on the development path than MySQL and sold for $500 million? Or Zimbra, likewise, which sold for $350 million? InformationWeek cited these examples in its story on what happens to open source once its acquired by a large company. These and others represent returns on investment that many for-profit companies, built around traditional business models, would die for. XenSource and Zimbra succeeded, not in spite of being open source producers, but because of it."*[437]

Typology of Open Source Software Business Models

Derivative Value Creation

The basic 'support' model comes in three flavors:

- **Basic Support**: Customers can report bugs or other problems with the software products. The software business responds with fixes or work-arounds.
- **Critical Maintenance:** Customers have already installed and are using the software product. The software business proactively supplies the customer with essential patches, especially regarding security issues.
- **Insuring Future Upgrades**: Software is not static. Hence the support model requires a guarantee that the evolution of the software is being monitored by the software service firm.

Dana Blankenhorn and Paula Rooney give an interesting typology of such derivative services as well[438].

A 2009 FLOSSmetrics reports provides evidence of a specialisation in these support functions.

437 http://www.informationweek.com/news/software/229208462

438 http://blogs.zdnet.com/open-source/

The following is from a summary by Carlo Daffara[439]:

> *"**Product specialists**: companies that created, or maintain a specific software project, and use a Free Software license to distribute it. The main revenues are provided from services like training and consulting.*
>
> ***Platform providers**: companies that provide selection, support, integration and services on a set of projects, collectively forming a tested and verified platform. … The main value proposition comes in the form of guaranteed quality, stability and reliability, and the certainty of support for business critical applications.*
>
> ***Aggregate support providers**: companies that provide a one-stop support on several separate Free Software products, usually by directly employing developers or forwarding support requests to second-stage product specialists.*
>
> ***Legal certification and consulting**: these companies do not provide any specific code activity, but provide support in checking license compliance, sometimes also providing coverage and insurance for legal attacks."*

Non-Core Strategies

The FLOSS report provides evidence of this as well[440]:

> *"**R&D cost sharing**: A company or organization may need a new or improved version of a software package, and fund some consultant or software manufacturer to do the work. Later on, the resulting software is redistributed as open source to take advantage of the large pool of skilled developers who can debug and improve it." (an example is Eclipse by IBM)*
>
> ***Indirect revenues:** A company may decide to fund Free Software projects if those projects can create a significant revenue source for related products, not directly connected with source code or software. One of the most common cases is the writing of software needed to run hardware, for instance, operating system drivers for specific hardware."*

439 http://carlodaffara.conecta.it/?p=216

440 http://carlodaffara.conecta.it/?p=216

Andrew Morton has a good explanation of why companies contribute to such corporate commons:

> *"Companies contribute engineering resources to open source projects for two strategic reasons:*
>
> > - *Firstly: resource pooling. Maintaining an entire OS is expensive, but with open source you get to pool development resources with the other users of the product while retaining many of the benefits of an in-house development project.*
> > - *And the second main reason why companies contribute to open source is to avoid vendor lockin. One way to obtain your low-level software is to simply license it from another IT vendor, and the cost of this could well be similar to the cost of using and contributing to an open source equivalent. But with open source you get full access to all the technology, you get access to the products key developers and you get full rights to modify the product if you need to do so and you get good visibility into the product's roadmap."*[441]

Dirk Riehle explains while large system integrators benefit the most:

> ***"Large system integrators**, or solution providers, stand to gain the most from open source software because they increase profits through direct cost savings and the ability to reach more customers through improved pricing flexibility. Every dollar a system integrator saves on license costs paid to a software firm is a dollar gained that the customer might spend on services. If it were up to the system integrators, all software would be free (unless they had a major stake in a particular component). Then, all software license revenue would become services revenue."*[442]

Legal Hacks

The same FLOSS study also shows[443] that legal hacks are at the basis of the most common strategies by open source software firms:

> *"Dual Licensing: the same software code distributed under the GPL and a proprietary license. This model is mainly used by producers of developer-oriented tools and software, and works thanks to the strong coupling clause of the GPL, that requires derivative works or software directly linked to be covered under the same license. Companies not willing to release their own software under the GPL can obtain a proprietary license that provides an exemption from the distribution conditions of the GPL, which seems desirable to some parties."*[444] *(example: MySQL)*

441 http://www.groklaw.net/article.php?story=20041122035814276

442 http://www.riehle.org/computer-science/research/2007/computer-2007-article.html

443 http://carlodaffara.conecta.it/?p=216

444 http://carlodaffara.conecta.it/?p=216

Thomas Prowse writes that this approach is in decline:

> *"According to a study by the 451 Group (reported on by GlobalThoughtz Research), the proportional use of a dual-licensing approach among open source software vendors has declined from 20% of vendors two years ago down to just 5% of vendors using this approach today. I believe that the decline in dual licensing is being driven by both the inherent challenges of creating and maintaining a code base that is capable of being dual licensed as well as the increasing education and sophistication of end users with respect to OSS licensing."* [445]
>
> *Open Core: "this model distinguishes between a basic Free Software and a proprietary version, based on the Free Software one but with the addition of proprietary plug-ins. Most companies following such a model adopt the Mozilla Public License, as it allows explicitly this form of intermixing, and allows for much greater participation from external contributions without the same requirements for copyright consolidation as in dual licensing."*[446] *(Examples Include SugarCRM and Word Press.)*

Thomas Prowse explains:

> *"At a high level, this business model is designed to use the OSS license (and OSS economics) to drive the large scale adoption of the licensed product and then follow on or supplement that offering with proprietary add-ons. In the case of SugarCRM, this may take the form of new CRM modules or increased scalability. In the case of Word Press, which hosts my personal blog, this may take the form of premium services that it makes available as part of its hosted-service offering."*[447]

445 http://www.osbr.ca/ojs/index.php/osbr/article/view/1157/1107

446 http://carlodaffara.conecta.it/?p=216

447 http://www.osbr.ca/ojs/index.php/osbr/article/view/1157/1107

III. Open Source Hardware Business Models

Massimo Menichinelli has some general figures about the size of the market:

> *"In May 2010 Philip Torrone and Limor Fried collected 13 examples of companies that are selling open source hardware: according to them, these companies, generate a turnover of about $ 50 million and there are currently about 200 open source hardware projects of this kind. They project the open source hardware community to reach $ 1 billion by 2015. Adafruit[448], Arduino[449], Chumby[450] and Liquidware[451] have each one $ 1 million in revenue, and Torrone and Fried estimated them to reach a $ 5 million revenue soon (while many other companies will reach a $ 1 million revenue). Sparkfun [452]alone has even a $ 10 million revenue. In January 2010, Joseph Flaherty calculated that the Makerbot [453](an open hardware 3D printer produced by a 3-person firm) has a revenue of $ 1,350,000-1,710,000 ...The industry leader Stratasys[454] (which uses a FDM technology similar to MakerBot) had a total revenue of $ 124,500,000 in 2008, but with a considerably bigger firm and more R&D investments. And MarkeBot has just opened a retail store in New York called the Botcave."[455]*

448 www.Adafruit.com

449 www.arduino.org

450 www.chumby.com

451 http://www.liquidware.com

452 http://www.sparkfun.com

453 http://www.makerbot.com

454 http://www.stratasys.com

455 http://www.openp2pdesign.org/2011/open-design/business-models-for-open-hardware/

A. Typology of OSH Business Models

It is not difficult to understand that at first sight, creating an income from 'shared design' efforts may pose special problems.

There are explained by Edy Ferreira & Stoyan Tanev:

> *"In OSS, "free" may be confused with "gratis" because it often costs nothing to make your own copy. In OSH the situation is different. People can download free hardware designs, but they either have to pay someone to manufacture the hardware or buy the components and tools and manufacture the hardware themselves. In most cases, it is very costly to manufacture the hardware. The costs are related to the replication of the physical hardware, not with the replication of the design itself."*[456]

They add two extra difficulties:

> - *"The costs related to designing, verifying and understanding OSH are also high. This requires appropriate EDA*[457] *tools which are very expensive. In addition, hardware testing and verification requires expensive external hardware equipment."*
> - *"It is difficult for OSH developers to design products without infringing existing patents."*[458]

Business models around open hardware tend to fall in three categories: design, services, and the manufactured product itself.

An interesting remark comes from the initiators of the Open Source Hardware Central Bank:

> *"Many of the successful open source hardware projects have in common that they rigorously protect one aspect of their business: Arduino gives away the board but keeps the brand and trademark, Beagleboard gives away the design but keeps the chip gate array design, Bug Labs gives away the schematics but restricts the inter-module snap-connect interface, Liquidware gives away the hardware at cost, but keeps the analytical algorithms."* [459]

In a sample study of 59 OSH projects, researcher Edy Ferreira, counted the following:

> *"Forty four of the market offers were for manufactured products, such as printed circuit boards. Six of the market offers were for intellectual property,*

456 http://www.osbr.ca/ojs/index.php/osbr/article/view/827/800

457 EDA = "Electronic Design Automation"

458 ibid.

459 http://antipastohw.blogspot.com/2010/10/open-source-hardware-summit-debrief.html

> *such as electronic circuit designs and software. The remaining six offers were for services, such as consulting, custom designs and training."*[460]
>
> *He adds that "twenty eight market offers are completely based on open source components, and were classified as "pure-open offers". Those 15 that "include additional proprietary components… were classified as "open-driven offers."*

Here are the details on the 3 main approaches:

I) Centered Around the Design Itself

Here is a classification of design-based business models:

> - *"Design distribution — Companies can pack sets of designs and sell the distribution just like Linux distributions. The OpenTech CD-ROM is an example of this method.*
> - *Design technical support — Experts can give support for Open designs. Asics.ws is a company that follows this model by releasing IP cores and charging customers for technical support.*
> - *Design implementation — Companies can implement the designs, sell them and pay royalties to original designers, according to their release license.*
> - *Releasing — The release of open designs under the control of GPL-compatible licenses can occur whenever a silicon implementation is considered commercially."*[461]

The Ferreira OSH study, cited above, amongst its list of 8 business models mentions:

> *"A. Proprietary hardware designs based on OSH (one market offer): this category includes companies that sell modified versions of OSH projects that they own. … Gaisler Research sells the netlist information for Leon-3FT, a fault-tolerant processor code based on Leon-3.*
>
> *B. Dual-Licensing: The idea is to offer the same pure-open hardware design that is owned by the company with two different licenses."*

460 http://www.osbr.ca/ojs/index.php/osbr/article/view/570/523

461 http://www.eetimes.com/news/design/features/showArticle.jhtml?articleID=22103383

II) Centered Around Consulting and Services

Clive Thompson explains the logic of this strategy, in the case of the Arduino motherboard community:

> *"Right now, open design pioneers tend to follow one of two economic models. The first is not to worry about selling much hardware but instead to sell your expertise as the inventor. If anyone can manufacture a device, then the most efficient manufacturer will do so at the best price. Fine, let them. It'll ensure your contraption is widely distributed. Because you're the inventor, though, the community of users will inevitably congregate around you, much as Torvalds was the hub for Linux. You will always be the first to hear about cool improvements or innovative uses for your device. That knowledge becomes your most valuable asset, which you can sell to anyone. This is precisely how the Arduino team works. It makes little off the sale of each board — only a few dollars of the $35 price, which gets rolled into the next production cycle. But the serious income comes from clients who want to build devices based on the board and who hire the founders as consultants. "Basically, what we have is the brand," says Tom Igoe, an associate professor at the Interactive Telecommunications Program at New York University, who joined Arduino in 2005. "And brand matters."*[462]

The Ferreira OSH study, cited above, amongst its list of 8 business models mentions:

> *"A. Services (customization, consulting) over owned or third party Open Hardware.*
>
> *B. Consulting and custom designs over third-party OSH (three market offers): this category is similar to the previous one, but the services sold are for OSH designs owned by other companies. As an example, Polarismicro sells consulting and custom designs based on OpenSparc, an OSH project owned by Sun Microsystems.*
>
> *C. Software tools for OSH (four market offers): includes companies that sell pure-closed software tools for testing and working with OSH assets that they own. Gaisler Research sells simulation and debug monitor software for Leon-3."*

462 http://www.wired.com/techbiz/startups/magazine/16-11/ff_openmanufacturing

III) Centered Around the Manufacturing of the Physical Product

Clive Thompson gives a nice example of this strategy again for Arduino:

> *"Sell your device but try to keep ahead of the competition. This isn't as hard as it seems. Last year, Arduino noticed that copycat versions of its board made in China and Taiwan were being sold online. Yet sales through the main Arduino store were still increasing dramatically. Why?*
>
> *Partly because many Asian knockoffs were poor quality, rife with soldering errors and flimsy pin connections. The competition created a larger market but also ensured that the original makers stayed a generation ahead of the cheap imitations. Merely having the specs for a product doesn't mean a copycat will make a quality item. That takes skill, and the Arduino team understood its device better than just about anyone else. So the copycats can actually turn out to be good for our business," Igoe says."*[463]

The Ferreira OSH study, cited above, amongst its list of 8 business models mentions:

> *"A. Proprietary hardware based on OSH. … emQbit sells a physical board that is an improved version of an open source single board computer called ECB-AT91 v1.*
>
> *B. Manufactured OSH (twenty seven market offers): this category includes companies that sell a physical manufactured hardware based on pure-open hardware designs that they own. This category includes more companies and seems to be the first step most organizations take to start making money with OSH.*
>
> *C. Hardware tools for OSH (nine market offers): this category is similar to the previous one, but these pure-close market offers are not software but hardware tools for an owned OSH asset. For example, Gaisler Research also sells development boards for Leon-3."*

463 http://www.wired.com/techbiz/startups/magazine/16-11/ff_openmanufacturing

The Business Model Of DIY Drones

Excerpt from Chris Anderson:

> *"What's the right markup that leads to the lowest cost for consumers and still makes money for us? That's what we set out to find out. With the help of some open source hardware experts (Lenore Edman, Limor Fried and Phillip Torrone, plus this good overview), here's the business model we settled on:*
>
> *This model is based on a simple rule: transparency about costs and a choice between paying us to make the product or doing it yourself.*
>
> *The basic process is that we list all the components and other costs of our product (an autonomous blimp in this case) and links to where you can buy them yourself, along with instructions on how to put them together. If you want to do it yourself, or perhaps already have some of the parts and don't need ours, go for it!*
>
> *But if you want us to make it for you (guaranteed to work), because it's easier, safer, quicker, etc, we would charge you a 66% markup, which give us 40% profit."*

Source: http://www.longtail.com/the_long_tail/2009/01/a-business-mode.html

IV. The Economics Of Shared Spaces

In this section we look at the business models of shared working spaces, such as Fab Labs, Co-working, and Hackerspaces[464].

A. The Business Models of Fab Labs

Massimo Menichinelli has done an overview study[465] of the business experience of Fab Labs.

The Fab Lab Charter stresses that an open business model is a necessary condition to be accepted as a member of the Fab Lab network:

> *"commercial activities can be incubated in Fab Labs but they must not conflict with open access, they should grow beyond rather than within the lab, and they are expected to benefit the inventors, labs, and networks that contribute to their success."*[466]

A Fab Lab Iceland study distinguishes four models:

> *"1. The Enabler business model: launch new Labs or provide maintenance, supply chain or similar services for existing Labs.*
>
> *2. The Education business model: a global distributed model of education through Fab Labs (with the Fab Academy) where global experts in particular topics can deliver training from local Fab Labs or even from universities/businesses via the Fab Lab video conferencing network. P2P learning among users is also a part of this business model.*
>
> *3. The Incubator business model: provide infrastructure for entrepreneurs to turn their Fab Lab creations into sustainable businesses. The incubator*

464 In the cited study below, Massimo Menichinelli adds details on the business models of "commercial distributed manufacturing ventures" and "diy crafts", some of whose companies may also partially work with open hardware.# In the next section, we only review the parts of the document related to the business models of operating shared spaces. http://www.openp2pdesign.org/2011/fabbing/business-models-for-fab-labs

465 ibid.

466 http://fab.cba.mit.edu/about/charter/

> *provides back-office infrastructure, promotion & marketing, seed capital, the leverage of the Fab Lab network and other venture infrastructure to enable the entrepreneur to focus on her areas of expertise.*
>
> *4. The Replicated / Network business model: provide a product, service or curriculum that operates by utilizing the infrastructure, staff and expertise of a local Fab Lab. Such opportunities can be replicated, sold by and executed at many (or all) local Labs, with sustainable revenue at each location. The leverage of all Labs in the network simultaneously promoting and delivering the business creates strength and reach for the brand."*[467]

Menichinelli also summarizes a study by Peter Troxler, based on a study of 10 FabLabs[468]:

> *"[Troxler] discovered that the labs were primarily offering infrastructures to students, and they were relatively passive in reaching out to other potential users (general public, companies, researchers). Usually Fab Labs are hosted at schools, research or innovation centres or are independent entities: funding comes from outside, from public sources or from their hosting institution while revenue from sponsoring or from users so far remained the exception; however, Fab Labs are requested to become self-sustaining within 2 to 4 years, but none of the labs studied had yet reached this stage. Most of the Fab Labs had their own employees, and a few were run by a faculty of their host university or were supported by volunteers. … All labs indicated their main business model was providing access to infrastructure that users would have no access to otherwise, but most of then indicated that giving access to knowledge of the Fab Lab network and giving access to experts were equally part of their value proposition. Troxler pointed out then that there are two main business models (or value propositions) possible, namely Fab Labs providing facilities and Fab Labs providing innovation support."*[469]

Realistically speaking, it seems to be the case that most funding is therefore public and university-related research funding. However, founder Gershenfeld's brother Alan and venture capitalist Michael Angst founded a for-profit project called Fab Fund in 2007. It invests in for-profit businesses that prototype or manufacture their products in Fab Labs around the world, in order to make distributed manufacturing a viable business model.

467 http://wiki.fablab.is/wiki/Fab_Lab_Portal#Overall_Goals_within_the_Fab_ecosystem

468 http://wikis.fu-berlin.de/download/attachments/59080767/Troxler-Paper.pdf

469 http://wiki.fablab.is/wiki/Fab_Lab_Portal#Overall_Goals_within_the_Fab_ecosystem

B. Business Models for Co-Working Spaces

Desktop magazine's 2nd Global Coworking Survey[470] is the best source for data on business models for co-working spaces. There are now more than 1,100 coworking spaces worldwide, more than double the number in 2006. The Loosecubes [471]directory counts over 1,400 locations in over 500 cities, globally. The survey introduces the topic with optimism:

> *"Can we realistically describe coworking as "succesful" when only 40% of spaces are currently profitable? The answer is yes —when you take into account some simple factors. Especially time: 72% of coworking spaces become profitable after two years in operation. If they are privately run, the rate is even higher."*[472]

It then details the various strategies:

> *"The survey results show that coworking space members benefit more rapidly by joining, than the operators do by opening. Setting up is costly (an average of US$58,000 or €46,500), and space founders carry the biggest risk. For this reason, coworking space members should be particularly grateful to the operator.*
>
> *Coworking spaces earn the majority of their revenue, unsurprisingly, by renting out desks (61%). One in ten spaces earn all of their money from desk rental. The average space earns ten percent of their revenue from renting out meeting rooms and event spaces (10% each). Food and beverages bring in 5%, and the sale of tickets to workshops and events earns another 5%. Unlike business centers, coworking spaces live on a very small portion from virtual office services (3%). At least a third of coworking spaces offer all these services as an inclusive package, with no additional costs. Infastructure such as meeting rooms are often built into desk rental prices. Other revenue sources identified by the survey include one-time membership fees, merchandise, public support services, fixed phonelines, commissions, rental of private offices, and even the sale of art from the in-house gallery. Within revenue streams there are differences between big and small coworking spaces. The more members they serve, the higher the income from renting particular meeting rooms. Big spaces are also more likely to sell virtual office services."*[473]

470 http://www.deskmag.com/en/how-profitable-are-coworking-spaces-177

471 http://www.loosecubes.com

472 ibid.

473 ibid.

C. The Business Models of Hackerspaces

Several hackerspace participants intervened in a *Quora.com* thread that focused on business models used by hackerspaces[474]. David Molnar explains the problem needing to be solved:

> *"Hacker spaces typically have monthly recurring costs, such as rent and utilities. You need to cover these costs every month or there is no space. This means either bringing in cash each month, or periodically bringing in amounts of money that can stretch across multiple months.*
>
> *Memberships help meet these cash requirements. Plus they have the additional benefit of keeping the members engaged with the space. That's how the energy rises and the space becomes a creative, vibrant place to be."*[475]

David Huerta writes:

> *"The core source of most of their revenue seems to be in membership dues ... Different Hackerspaces have had various amounts of success with different combinations of revenue; Metrix: Create Space in Seattle brings in revenue from equipment rental/time sharing. NYC Resistor hosts regular workshops, which is a large source of their revenue. QueLab leases out office space to local startups."*[476]

These sources are in addition to public funding, which can be an important funding source.

The annual *Peer Production Communities Survey*[477] (2011) by Jarkko Moilanen, has a specific question on the funding sources for hackerspaces.

> *"Participants were given following with likert scale options*[478]*: company donations (money), company donations (devices, equipment, etc.), Membership fees, Governmental sources (aid from different programs which help building and maintaining volunteer activities) and Donations from individuals (money or other resources)."*

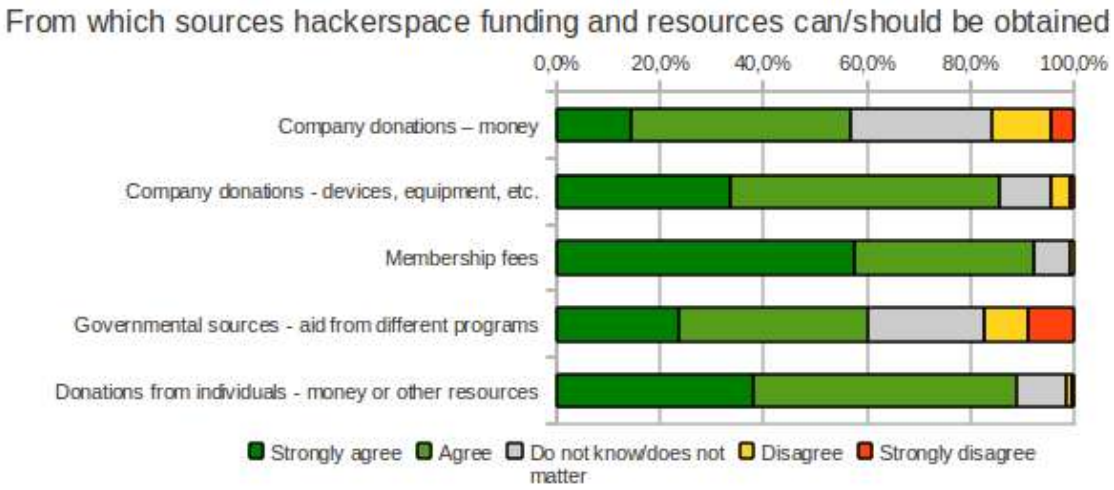
474 http://www.quora.com/Whats-the-best-business-model-for-a-hackerspace

475 ibid.

476 ibid.

477 http://blog.ossoil.com/2011/07/10/peer-production-communities-survey-2011/

478 The term is often used interchangeably with rating scale, see http://en.wikipedia.org/wiki/Likert_scale



	Strongly agree	Agree	Do not know/does not matter	Disagree	Strongly disagree
Company donations – money	14,4%	42,4%	27,2%	11,6%	4,4%
Company donations - devices, equipment, etc.	33,6%	52,0%	10,0%	3,6%	0,8%
Membership fees	57,6%	34,8%	6,8%	0,8%	0,0%
Governmental sources - aid from different programs	23,6%	36,4%	22,8%	8,4%	8,8%
Donations from individuals - money or other resources	38,0%	50,8%	9,6%	1,2%	0,4%

Illustration 15: Peer production communities survey's results (Source: SoPP http://surveys.peerproduction.net)

D. Open Content Business Models

Open content is of course a vast territory that encompasses many different fields, from cultural production using Creative Commons licensing, including open music[479] and open film[480], to scholarly open access publishing, and other Open Educational Resources.

Speaking of culture 'in general', Felix Stalder has identified two major models:

> *"Platform-centred models create new platforms that aggregate users in ways that can generate revenue for the cultural producers who use them, either through advertisements or by collecting small donations. The paradigmatic model of the former is YouTube, the most advanced of the latter is Flattr.*

479 Open music business models are well documented and would provide enough material for a seperate report. The french research group FING has produced In-depth report on the innovative business models of online music, Musique et Numérique : Créer de la valeur par l'innovation, at http://www.fing.org/jsp/fiche_pagelibre.jsp?STNAV=&RUBNAV=&CODE=96194502&LANGUE=0&RH=PRODUCTIONS

480 Scott Kirsner has an extensive review of Revenue Sharing schemes in the video-sharing field, at http://www.scottkirsner.com/webvid/gettingpaid.htm . See also the presentation by Eli Chapman on Models for Sustainable Cinema, at http://www.chapmanlogic.com/blog/pdfs/Models_For_Sustainable_Cinema_eli_chapman_IIFF.pdf

> *Similar to the old copyright-based business model, income is generated only after the content is produced, but contrary to the traditional model, access to the material is free and unrestricted."*[481]

YouTube has an active Partner Program to reward successful video producers through revenue sharing, and it has formal agreements with established cultural producers. Flattr allows people to devote a fixed subscription to support their favorite cultural producer, and distributes that amount of money to all the items that have been 'flattered' over a month (by clicking on a dedicated button available at participating content producing sites).

Stalder concludes that:

> *"this is not a model for everyone or all types of content. Even for those who use it well, it does not generate large amounts of money (though remember, neither would copyright-based models in these cases). Still, it is a model for a growing number of cultural producers and one that works only in an environment of free access to cultural works."* [482]

The second big model is project-based and concerns a strategy to obtain funding to produce the 'first copy' of a work, which is when capital is most needed.

Felix Stalder writes:

> *"the basic idea is the following: a creative producer promises to a create/release a work if, and only if, she receives a specified amount in donations in advance. People interested in the work donate money into a trusted account and if the necessary sum is reached, the money is transferred and the work produced/released. The original proposal was fairly radical insofar as it assumed that in the absence of copyright, releasing a work would mean, in effect, putting it into the public domain."*[483]

He also provides an example:

> *"In early 2011, Martin Fuchs and Peter Bichsel, two designers from Basel, Switzerland, posted a book project on Kickstarter called "Written Images". They described it thus: "Created in collaboration with more than 70 media artists and developers from across the world, Written Images is the first of its kind. A 'programmed book', continuously regenerated for the digital printing process, offering each reader a unique experience. "The funding goal was $10 000. For a donation of $15 or more, you would receive a "one-in-kind" post card set of the images. Twenty-four people donated in this category. For $200 or more, you would receive a unique copy of the Written Images book. This offer was limited to 200 copies: 111 people took it up. For $350 or more, you would receive to book and have your name printed in the*

481 http://www.eurozine.com/articles/2011-07-01-stalder-en.html

482 ibid.

483 ibid.

> *credits: 17 donations fell into this category. For $1500 or more, you would receive all of the above, plus a special cover version of the book. That seemed a good proposition to one person. Donations totalled $33 221, far exceeding the funding goal."*[484]

He concludes with a similar caution as with the first model:

> *"This one is not a general purpose model, but functions only for specific works and specific people. Not all works can easily be pitched in this way, or have an audience that can be reached by such pitches. And, of course, a good pitch doesn't make a good project. But it works well for some and can help bring projects to life that otherwise would never be realized. And it does not do so by relying on strong copyright."*[485]

Already in 2007, the OECD Working Group on the Information Economy produced a lengthy report on the Participative Web[486], focusing on business models for user-generated content.

It synthesized five major revenue-generating strategies, given ample detail. Here we just list them:

> *"There are five basic models:*
>
> 1. voluntary contributions,
> 2. charging viewers for services - pay-per-item or subscription models, including bundling with existing subscriptions,
> 3. advertising-based models,
> 4. licensing of content and technology to third parties, and
> 5. selling goods and services to the community (monetising the audience via online sales).
> 6. These models can also remunerate creators, either by sharing revenues or by direct payments from other users."[487]

The open access movement has made substantial inroads in the world of scholarly publications, creating open publishing models. The library support group SPARC has produced a report[488] outlining two type of income-generating strategies, demand side vs. supply side.

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484 ibid.

485 ibid.

486 Organisation for Economic Co-operation and Development; DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY. Working Party on the Information Economy. PARTICIPATIVE WEB: USER-CREATED CONTENT. OECD, April 2007. http://www.oecd.org/dataoecd/57/14/38393115.pdf

487 http://www.oecd.org/dataoecd/57/14/38393115.pdf

488 SPARC'. Income Models for Supporting Open Access Guide. http://www.arl.org/sparc/publisher/incomemodels/

Supply-side income models are funded primarily by producers of the content or by proxies that pay on their behalf.

- Article Processing Fees
- Advertising
- Sponsorships
- Internal Subsidies
- External Subsidies
- Donations & Fundraising
- Endowments
- In-Kind Support
- Partnerships

Demand-side models are funded primarily by consumers of the content or by proxies that pay on their behalf.

- Use-Triggered Fees
- Convenience-Format License
- Value Added Fee-Based Services
- Contextual E-Commerce

Wouter Tebbens, one of the co-founders of the Free Technology Academy (FTA) which produces open educational material for accredited only courses, gives details[489] on producing IP-free online courses.

> *"In education, the analogue to fully free software would be 'fully free knowledge' - where knowledge is understood as explicit expressions of culture, technology, research. If we think of services in the educational domain, the most typical ones would be: tuition and guidance of learners in a course, assessment of learner's participation and assignments, certification of the acquired knowledge. The main ways of generating direct revenue with course books are as commissioned production of materials, and through a service to distribute printed copies, i.e. Print on Demand. Other forms of revenue can be generated by organising special events for specific target groups, like master classes for people in management positions. In addition to the above, forms of "open core" exist in education. In MIT's OpenCourseWare, some parts of the courses are published under free licenses, while enrolment is required to access the full course contents. The model of "platform providers" can also be observed in some form in the open educational community. A university or network of universities offering a coherent educational programme could be seen as a platform provider, where the organisation invests in bringing a coherent programme with assured quality and certification and formal recognition of obtained results.*

489 Free Technology Academy: Towards Sustainable Production of Free Educational Materials. By Wouter Tebbens, David Jacovkis, et al. http://wikis.fu-berlin.de/download/attachments/59080767/Tebbens-etal-Paper1.pdf

> *This is very different from informal education, be itself learning or an informally organised course with no direct recognition and no guarantee to fit into a larger educational programme."*[490]

He also outlines the choices they made at the FTA:

> *"The FTA generates revenues by offering a set of services around the produced OER. These services are mainly (though not exclusively) educational, since courses are delivered on-line using the FTA campus with expert tutor guidance, and diplomas are issued when students accomplish the learning objectives of each course. These diplomas are recognised by the official educational programmes offered by the Higher Education institutions integrated in the FTA network. In addition, the FTA also offers a Print on Demand service which allows to obtain physical copies of the books at a reduced price. Obviously, both the production of materials and the services provided involve a set of costs. The FTA has worked on several scenarios including fixed and variable costs and how these can be covered by the generated revenues, which show that the economic sustainability of the process is possible under some realistic conditions, which include a target number of students and courses."*[491]

Open education expert Stephen Downes has produced an overview of OER business models[492] as well, see 'Overview of OER business models' box below.

490 http://wikis.fu-berlin.de/download/attachments/59080767/Tebbens-etal-Paper1.pdf

491 ibid.

492 Models for Sustainable Open Educational Resources (Stephen Downes, 16 pages). http://ijklo.org/Volume3/IJKLOv3p029-044Downes.pdf

OER Business Models

"No single model has emerged as predominate. This section reviews a variety of the models currently in use."

- OER Endowment-Based Funding Model

"On this model, the project obtains base funding. A fund administrator manages this base funding and the project is sustained from interest earned on that fund. At the Stanford Encyclopedia of Philosophy, for example, where organizers reasoned that a subscription-based model would cost more than it would earn (because volunteers would have to be paid), funds ($US 3 to 4 million) were raised from a variety of charitable foundations, generating in interest the service's $US 190,000 operating budget." (Zalta, 2005)

- OER Membership-Based Funding Model

"On this model, a coalition of interested organizations is invited to contribute a certain sum, either as seed only or as an annual contribution or subscription; this fund generates operating revenues for the OEM service."

- OER Donations-Based Funding Model

"On this model, a project deemed worthy of support by the wider community requests, and receives, donations. Donations are in turn managed by a non-profit foundation, which may apply them to operating expenses or, if amounts are sufficient, seek to establish an endowment. Numerous open source and open content projects are funded in this manner, including Wikipedia (Foote, 2005) and the Apache Foundation. (Apache, 2005) It is worth noting that such donations are often supplemented with purchases of branded products; the Spread Firefox initiative is a good example of this. (Mozilla Foundation, 2005) Variations of this model exist. For example, contributions to the Apache project are owned by the contributor and licensed to the project. However, in another model (sometimes called the conservancy model), property is assigned to the organization, which then acts as a steward."

- OER Conversion-Based Funding Model

"As summarized by Sterne and Herring (2005) "In the Conversion model, you give something away for free and then convert the consumer of the freebie to a paying customer." This approach, they argue, is needed because "there is a natural limit to the amount of resources the Donation model can bring to an open source project, probably about $5 million per year."

- OER Contributor-Pay Based Funding Model

"Adopted by the Public Library of Science, the `PLoS Open Access Model: One Time Author-Side Payments' (Doyle, 2005) consists of a mechanism whereby contributors pay for the cost of maintaining the contribution, and where the provider thereafter makes the contribution available for free. Interestingly, this is a model that has earned some support from publishers, particularly in view of foundations, such as the Wellcome Trust, that have begun to require that materials funded be freely available. "

- OER Sponsorship-Based Funding Model

"This model underlies a form of open access that is available in most homes: free radio and television. The sponsorship model can range from intrusive commercial messages, such as are found on commercial television networks, to more subtle `sponsorship' message, as are found in public broadcasting. In online educational initiatives, various companies have supported OER projects on a more or less explicit sponsorship basis, often in partnership with educational institutions.

- OER Institutional-Support Based Funding Model

"A variation, perhaps, on the sponsorship model is the case in which an institution will assume the responsibility itself for an OER initiative. Probably the most well known of these is MIT's OpenCourseWare project, where funding for the project represents a part of the universities regular program, justified as constituting a part of its organizational mission. "It is an ideal that flows from the MIT Faculty's passionate belief in the MIT mission, based on the conviction that the open dissemination of knowledge and information can open new doors to the powerful benefits of education for humanity around the world."

- OER Governmental-Support Based Funding Model

"Similar to the institutional model, the governmental model represents direct funding for OER projects by government agencies, including the United Nations. Numerous projects sustained in this manner exist, for example, Canada's SchoolNet project."

- OER Funding Models Based on Partnerships and Exchanges

"Though perhaps not thought of as a funding or financing model, partnerships and exchanges nonetheless play an important role, or potential role, in the development of OER networks. Partnerships depend not so much on exchanges of funding as on exchanges of resources, where the output of the exchange is an OER.

E. Crowdsourcing Business Models

This and the topic of the following section, have something in common that is different with the 'open business models'. They are not based on IP-free development. However, both crowdsourcing and collaborative consumption squarely belong in a discussion of the collaborative economy, because they are focused on relating to the value creation by distributed publics and 'communities'.

There are basically two ways to make money in crowdsourcing, i.e. making money through the crowd and their interactions themselves; or through a service/consulting orientation, i.e. helping other businesses.

In *Getting Results from Crowds*, Ross Dawson proposes a characterization of the sources of income across the different marketplaces and crowdsourding platforms that he has studied. Their success, he adds, are a function of both the numbers of contributors and buyers, and their quality.

The monetization initiatives are based on:

- Transaction/membership/test fees
- Licensing or Pay per task
- Product, content sales, subscriptions, and Advertising
- Packaged and custom services

.. and are applied across seven distinct 'business models':

- **Media and Data:** Creation of media, content, and data by crowds.
- **Marketplace:** Matching buyers and sellers of services and financing through mechanisms including bidding and competitions.
- **Platform:** Software and processes to run crowd works and crowd projects, for use with internal or external crowds.
- **Crowd Services:** Services that are delivered fully or partially by crowds.
- **Crowd Ventures:** Ventures that are predominantly driven by crowds, including idea selection, development, and commercialization.
- **Crowd Processes:** Services that provide value-added processes or aggregation to existing crowds or market places.
- **Content and Product Market:** Sale of content or products that are created, developed, or selected by crowds.
- **Non Profit**

F. Collaborative Consumption Business Models

The monetization strategies in collaborative consumption are very similar to those in crowdsourcing, since they also imply a community.

Rachel Botsman offers a characterization of them in her book, *What's Mine is Yours*[493]:

> *"**Service Fee:** Company takes a service fee for successfully matchmaking buyers and sellers, hosts and guests, and borrowers and lenders. The fee taken varies across marketplaces from 5% to 40% depending on the value of the transaction and the support services provided. Examples: Airbnb, TaskRabbit, WhipCar*
>
> ***Freemium:** Company offers basic services or use of the platform/app for free. Users then 'trade-up' for additional benefits and exclusive features. Example: Netcycler*
>
> ***Tiered Subscription Plans:** Company offers a range of subscription plans at different price points based on frequency of use or number of goods desired. Examples: Hub, DimDom, Netflix*
>
> ***On-Sale:** Company purchases unwanted goods direct from customers and then recycles and re-sells the products (or its parts) for a higher value. Examples: Gazelle, Ebay*
>
> ***White Label:** Sells a back-end platform or piece of software that companies can customize and use. Examples: Zimride, Getable*
>
> ***Flat Membership:** Company charges a flat monthly or annual membership fee regardless of usage. Example: TechShop*
>
> ***Membership Plus Usage:** Company charges a one-off or annual membership fee (sometimes with different plans offered based on frequency of use). Additional fees are charged based on usage. Examples: Drive Now, Bark."*

493 What's Mine is Yours: The Rise of Collaborative Consumption, by Rachel Botsman and Roo Rogers (Fall, HarperCollins), 2010 http://www.collaborativeconsumption.com. The business models are discussed pp. 220-221, chapter 10

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1. Appendix: Third Party Open Innovations

Compiled by Michel Bauwens

From an article in Wired magazine:

> *"Pharmaceutical maker Eli Lilly funded InnoCentive's launch in 2001 as a way to connect with brainpower outside the company —people who could help develop drugs and speed them to market. From the outset, InnoCentive threw open the doors to other firms eager to access the network's trove of ad hoc experts. Companies like Boeing, DuPont, and Procter & Gamble now post their most ornery scientific problems on InnoCentive's Web site; anyone on InnoCentive's network can take a shot at cracking them.*
>
> *The companies —or seekers, in InnoCentive parlance —pay solvers anywhere from $10,000 to $100,000 per solution. (They also pay InnoCentive a fee to participate.) Jill Panetta, InnoCentive's chief scientific officer, says more than 30 percent of the problems posted on the site have been cracked, "which is 30 percent more than would have been solved using a traditional, in-house approach."*

The solvers are not who you might expect. Many are hobbyists working from their proverbial garage, like the University of Dallas undergrad who came up with a chemical to use inart restoration, or the Cary, North Carolina, patent lawyer who devised a novel way to mix large batches of chemical compounds.

This shouldn't be surprising, notes Karim Lakhani, a lecturer in technology and innovation at MIT, who has studied InnoCentive. "The strength of a network like InnoCentive's is exactly the diversity of intellectual background," he says. Lakhani and his three coauthors surveyed 166 problems posted to InnoCentive from 26 different firms. "We actually found the odds of a solver's success increased in fields in which they had no formal expertise," Lakhani says. He has put his finger on a central tenet of network theory, what pioneering sociologist Mark Granovetter describes as "the strength of weak ties." The most efficient networks are those that link to the broadest range of information, knowledge, and experience" [494]

How it Works, by Peter Turner:

> *"Companies (like Proctor & Gamble an early entrant) contract as "seekers" to post R&D challenges gaining access to a growing global community of currently 80,000 scientist "solvers." Many of these professionals were attained through agreements with universities and research institutions throughout the world.*
>
> *The process provides IP protection for the "seekers." They review together with InnoCentive solutions returned by "solvers" and selects the best solution. Innocentive issues the award to the winning "solver" which has reached payments as high as $100,000US.*
>
> *Once a solver executes a services agreement a private online room is created to interact with InnoCentive staff and permit the review by the approved solvers of the seeker's confidential material*

494 http://www.wired.com/wired/archive/14.06/crowds.html

> *The solver's proposed solutions are posted and then reviewed by InnoCentive who work with the solver to refine as needed. Innocentive selects the best submission and awards are paid to the solver. Identities of both parties are kept confidential until a verified submission has been accepted and award paid; InnoCentive bills the seeker for that amount plus its fee. An indemnity agreement is obtained from the solver to protect both the seeker and InnoCentive."* [495]

Example of a project:

> *"Take Colgate-Palmolive (CL). The company needed a more efficient method for getting its toothpaste into the tube — a seemingly straightforward problem. When its internal R&D team came up empty-handed, the company posted the specs on InnoCentive, one of many new marketplaces that link problems with problem-solvers. A Canadian engineer named Ed Melcarek proposed putting a positive charge on fluoride powder, then grounding the tube. It was an effective application of elementary physics, but not one that Colgate-Palmolive's team of chemists had ever contemplated. Melcarek was duly rewarded with $25,000 for a few hours work."* [496]

Discussion and Debates

1. Innocentive isolates the problem solvers from each other

Commentary by Sami Viitamaki:

> *"Innocentive fits the category of crowdsourcing that does not fully utilize the community's 'wisdom of crowds'. The solvers pursue the solution in isolation from each other, and the possibility of using the community to gather comments on the alternatives, build on others' ideas, find a winning solution by community rating, etc. is absent.*
>
> *In my thesis I call these kind of companies 'Crowdsourcing Brokers', for they really simply gather up alternative solutions from a large member base for their own clients' needs and leave deciding on the winning solution to the clients. Given the nature of the competition in these kind of efforts and the considerable monetary rewards involved, the approach is naturally understandable. Other 'broker' approach companies are e.g. iStockphoto and Holotof advertising."*

2. Summary of a study by Karim Lakhani:

> *"Karim Lakhani and his team at Harvard Business School have been studying this phenomenon in the context of scientific problem solving (working paper here) based on data from Innocentive's winning entries (30% of all problems on Innocentive have been solved). Below are some of their findings of the study followed by my commentary on its applicability to analytics:*
>
> *In short, diversity of problem solvers area of expertise was key. Analytics lends well to diversity as it is a very multi-disciplinary field with potential applications from a various branches of science i.e. economics, mathematics, engineering, psychology, operations research etc.*

495 http://freethinkr.wordpress.com/2007/03/23/innocentive-fortune-500-meets-80k-biochemists/

496 http://www.businessweek.com/innovate/content/feb2007/id20070215_251519.htm

72.5% of winning solvers stated that their submissions were partially or fully based on previously developed solutions.

There is some significant research work in analytics that goes on in the universities and even some companies, and there are a lot of models and techniques out there looking or applications.

In addition the study also analyzes the winning solvers and found that:

Probability of being a winning solver is significantly and positively correlated with both a desire to win the award money and intrinsic motivations like enjoying problem solving and cracking a tough problem

Having free time to actually participate in the problem solving effort significantly and positively correlates with being a winning solver.

The thing to note in the study is that companies only post those problems to Innocentive, where the internal R&D team has not been able to come up with a solution. So these are really tough problems. And that is an interesting point, because crowdsourcing a simple problem is not efficient. There is much less control over time frames and the overhead associated with managing the process will not make it worthwhile.

In conclusion:

1. An open-source strategy for solving tough analytical problems is certainly worth exploring for companies and initial research suggests that analytical problems can be good candidates for this model.

2. There is an opportunity for an intermediary (like Innocentive) to develop an open-source community for analytics." [497]

497 http://diamondinfoanalytics.com/blog1/2007/02/23/crowdsourcing-analytics/

2. Appendix: Organisational And Psychological/Social Barriers To Co-Creation

Source: Fronteer Strategy White-Paper Iii - February 2011: 9 Ways To Get Your Team Ready For Co-Creation.

Organisational Barriers

Organisational barriers can be encountered with all activities that have to do with implementing co-creation throughout the organisation. We will mention the most important ones and give examples of how to deal with them when you want to implement co-creation successfully.

Intellectual Property

Can you share all information and who will gain reward? Sharing your knowledge with the outside world can be scary. It is also new, and many don't know how to deal with the IP issue. It's hard to create an open and constructive framework for sharing and creating knowledge. You want to open up as much as possible, hoping to get the same in return from external stakeholders, but you have to know your limits.

Complex Governance

Can you manage the process of open innovation with internal and external stakeholders?

You need the right person or people in place to consistently guide co-creation within the company. Co-creation means working together with different teams and/or departments. This more complex way of working should be managed the right way for it to be of value. Next to that, you have to find a way to get higher management behind the idea of co-creation. Otherwise, employees will not easily spend time on a new approach when their priorities lay elsewhere.

Short-term Focus

Can you appreciate that co-creation is a process and see its long-term value?

Especially when starting co-creation, it can take a while before the value of a project or the whole new approach becomes apparent or can be measured. It can be a challenge to both take the time to let co-creation become of value for your company, but in order to keep the motivation alive, to also make sure there are some 'quick wins' to show for your efforts.

Rewarding Decision Structure

Can you make sure people will spend time on this and how will they be rewarded?

When you want people to dedicate themselves to co-creation, it has to be clear to them what their incentive is or what the rewarding structure will be. Not everyone who is involved in a cocreation project will be rewarded for the same goal.

Operations

Do we have infrastructure and processes in order to guide open innovation? To facilitate knowledge and creative sharing?

There are a lot of operational factors to think about in co-creation processes. For example to facilitate knowledge and creative sharing and to attract and motivate external participants.

Psychological & Social Barriers

Below are the four most important psychological & social barriers, meaning the ones on which you have the highest chance to encounter within your team when starting a co-creation approach or project. These are also the issues that are the hardest to solve, as it involves people and their personal feelings.

Inertia & Fear of Unknown

Are you brave enough to take the 'risk', without knowing what the rewards can be? Can you steer or follow into the unknown and be open to new ways of working?

Inertia - the resistance to change from a current state of motion - is often driven by fear. Fear of changing your course into the unknown. When not handling it, fear can can even build up inertia against change.

When changing towards a co-creation approach, people don't know what to expect. It raises many understandable questions:

"Can I do this?", How should I do this? How can I combine it with my regular work? What if the others are better at it then me? What if we don't succeed? Can I still make my targets if I have to do it a different way or have to spend time on this? Why should we do it differently anyway? etc.

Originating from the neuropsychology, fear often results in three instinctive reactions: Fight (active resistance), flight (escape) or freeze (cramp up). Chances are you will encounter these reactions in your team. If this is the case, remember that whatever you do, never increase the pressure, or put even more emphasis on the fact that people need to change, this will only diminish their motivation and increase fear, which again will stimulate inertia.

Lack of Motivation

Can you create a sense of urgency? Motivate your team to change towards an open innovation approach?

We know by now that motivation is one of the pillars of change. Without it, no change. So let's look at how to motivate people. There are two ways of motivating people: extrinsic (by rewards or 'carrot-and-stick' methods) and intrinsic motivation, the latter coming from within.

As you might have guessed, the best way to motivate people is by intrinsic motivation. People have to feel it. Extrinsic motivation will not lead to true motivation nor change and could even increase fear of change ("If I don't do this right, I won't get my promised bonus!"). Intrinsic motivation will last and outperform extrinsic.

In his book 'Drive', Daniel Pink offers a tripod for intrinsic motivation: Autonomy, Mastery and Purpose. All three should be stimulated in order to motivate people.

Autonomy: Doing things your way, taking your own responsibility and feeling trusted in doing it. Autonomy increases creativity and leads to engagement, which in turn will lead to mastery.

Mastery: The desire to get better and better. Mastery is about being in 'flow': challenged in the right amount, your goals are clear, 'has to do' becomes 'could do'.

Purpose: A greater objective that makes people feel good about participating. Purpose is bigger than you, your team or your specific challenge.

Trust & Interdependence

Can you embrace cooperation with external teams, be open and share ideas? Can you depend on each other and do you trust each other's abilities?

Trust is the tricky one, as you can't order people to trust someone. Trust is personal and trust takes time. What you can do is give direction and create an environment for building trust. Trust is a complicated, yet important factor to address. Without it, it can become difficult to embrace cooperation with people from other departments and people from outside your company.

We often depend on other people to help us obtain the outcomes we value (and they on us). Trust is about fulfilling (other's) expectations of certain behaviour. It is associated with interdependence, opening up, cooperation, information sharing, and problem solving. These all happen to be factors needed in cocreation.

Lewicki & Tomlinson say trusting another person is grounded in the evaluation of three characteristics: ability, integrity, and benevolence. The more we observe these qualities in another person, the more likely our level of trust in that person is to grow. Ability and integrity are the most influential early in a relationship (like when working with a new team), understanding one's benevolence takes more time.

Ability refers to an assessment of another person's knowledge, skill, or competency. Trust requires some sense that the other is able to perform in a manner that meets your expectations. Integrity leads to trust based on consistency of past actions, credibility of communication, commitment to standards of fairness, and the agreement with the other's principles, word and deed.

In the beginning of a relationship, trust is mostly cognitively driven. This means you have to find a way to build trust by managing your reputation and making sure that there is stability in your behaviour, e.g. by being consistent, doing what you say you will do and keep your promises.

The "Not Invented Here" Syndrome

Are you able and willing to accept and integrate ideas and innovations from 'outside'? Are you open to and can you adopt new ways of working?

The trust-issue is very closely related to the 'Not Invented Here- Syndrome'. Often, when ideas and innovations are created outside the company walls, it is hard to get people who weren't part of the process excited about the new ideas: the 'Not Invented Here' syndrome. It's often difficult to except and execute a new solution when it didn't originate from you, your team or your company. The NIH syndrome finds its origin in the software development world, but can be encountered in other areas as well.

Most psychological & social barriers have to do with change and changing into a new mindset. As said earlier, most people that successfully changed had three things in common: clear direction, strong motivation and a supportive environment." [498]

498 http://www.fronteerstrategy.com/uploads/files/FS_Whitepaper-9_Ways_to_get_your_team_ready_for_co-creation-February_2011.pdf

3. Appendix: Corporate Use Of Co-Creation

Source: The Spirit of Co-Creation: Risk Managed Creativity For Business. Sense Worldwide. 2007

The current co-creation landscape is broad and varied. The diagrams below outline several different models of collaborative creation that have been employed to help develop products and services. Below each diagram you will find a link to an organisation that represents an example of co-creation.

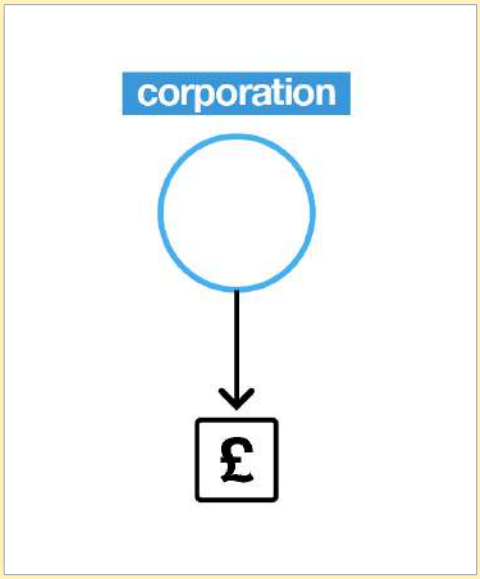

DIAGRAM 1

Large corporations who call for ideas by offering a one-off contest with prize money or a manufacturing run. Muji Design Award

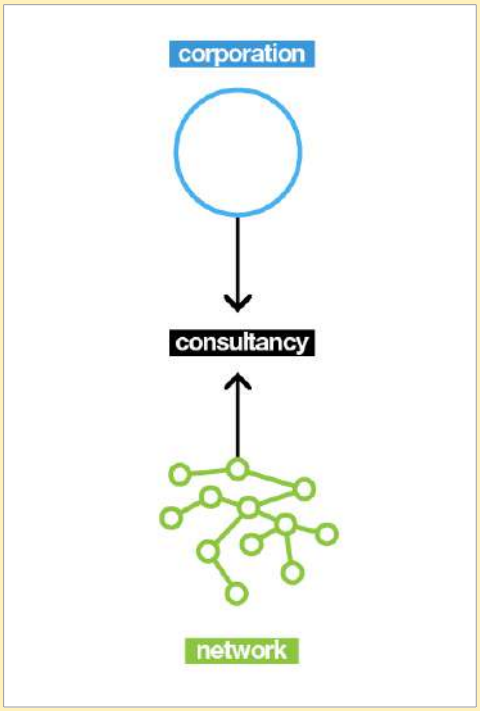

DIAGRAM 2

Consultancies or agencies who set up and facilitate the whole co-creation project to act as a bridge between a network of collaborators and a corporation. Companies such as us Sense Worldwide

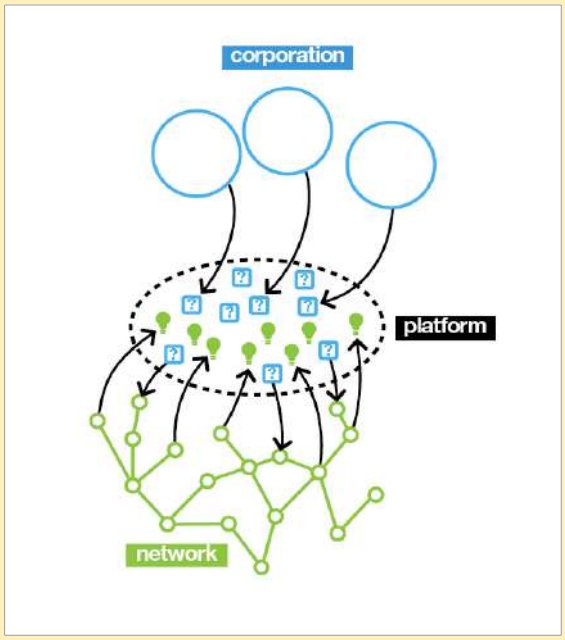

DIAGRAM 4

Large corporations who outsource briefs to communities that are fostered online. Innocentive, Kluster, Crowdspirit

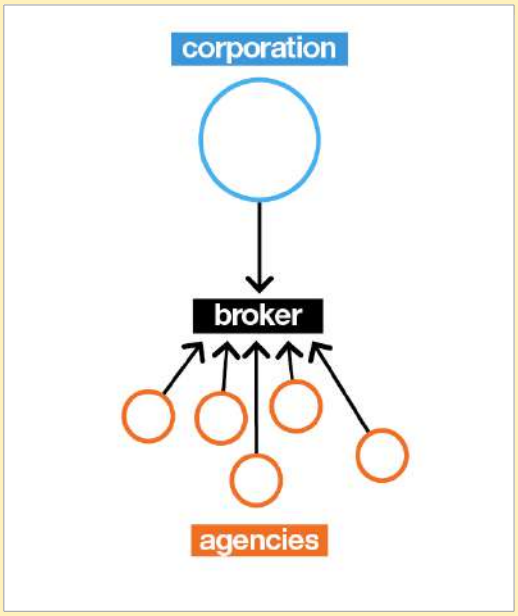

DIAGRAM 3

Large corporations who call for agencies to submit ideas to then partner with or broker a deal. P&G with NESTA

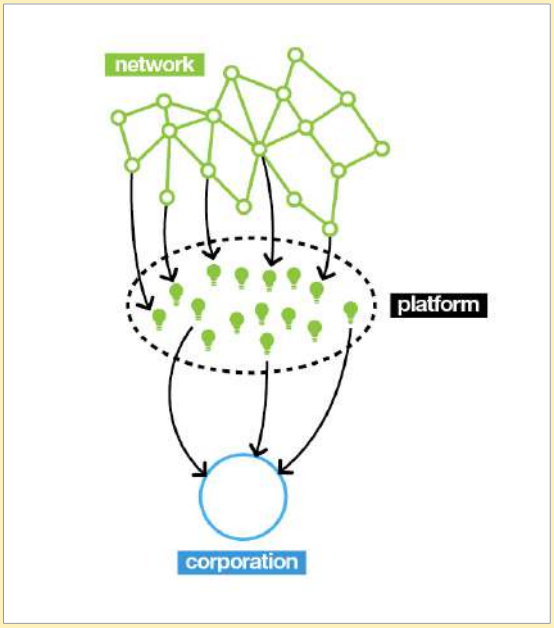

DIAGRAM 5

Large corporations that host an online platform where individuals submit ideas or requests based on the brand, which that business can then select for development. Cuusoo with Muji.

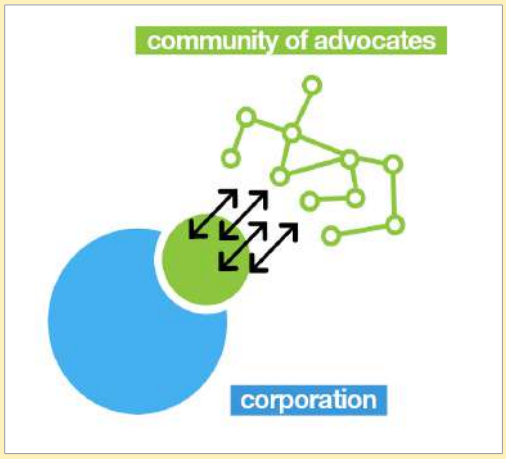

DIAGRAM 6

Large corporations who engage with a community of advocates to co-create on an ongoing basis. Lego Mindstorms

4. Appendix: A Typology Of Crowdsourcing

Source: "Enabled Innovation: Instruments and Methods of Internet-based Collaborative Innovation". Katarina Stanoevska-Slabeva. 2011.

Classification based on task

Katarina Stanoevska-Slabeva[499]:

> *"The classification of Howe will be taken as starting point to relate also classification of other authors. By applying the criteria, type of task outsourced to the crowd, Howe (2008) classifies crowdsourcing in three main categories:*

Crowdsourcing Idea Game

> *"The first category is the idea game which is essentially just a massive call for ideas.*
>
> *Example: A broadly published example of an idea market is the IBM Jam (for a detailed description see (Bjelland & Wood 2008). In 2006 IBM initiated a global idea jam related to the question how to best use and efficiently commercialize existing technological developments in the company. The global 'Innovation Jam' took place in two three-day phases in 2006. It involved 150,000 IBM employees, family members, business partners, clients (from 67 companies) and university researchers. Participants from 104 countries jammed and conversations continued 24 hours a day. In its press releases IBM described the Innovation Jam as "the largest online brainstorming session ever". The discussion and sourcing for ideas was pre-structured in six major categories of emerging technologies and each of the categories comprised several subtopics. The task of the crowd was to brainstorm about potential new ways how technology developed at IBM might be applied by IBM to enhance existing or develop new products. More than 46,000 ideas were posted. Phase Two of the Innovation Jam was devoted to 'refining' ideas from the first phase. The Innovation Jam uncovered and mobilized support for substantial new ways of using IBM technology.*
>
> *This kind of crowdsourcing is considered as 'Selective Crowdsourcing' by (Schenk & Guittard 2011). The company initiating the process of crowdsourcing has to choose one solution from all solutions provided by the crowd. Selective crowdsourcing in general implies a winner takes it all mechanism where only the creator of the winning solution is rewarded."*

499 http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf

Crowdsourced Problem Solving

> *"The second form is the problem solving or Crowd Casting Network in which someone with the problem broadcasts it to a large undefined network of potential solvers.*
>
> *For example, the shoe company 'Fluevog' is crowdsourcing designs for new shoes.*
>
> *Another example is the online platform InnoCentive on which companies can source for solutions for scientific problems.*
>
> *These two crowdsourcing examples are also Selective Crowdsourcing. However, according to (Schenk & Guittard 2011), this type of crowdsourcing can also be 'integrative' or consolidating crowdsourcing.*
>
> *The goal of Integrative Crowdsourcing is to create a complete solution by integrating complementary contributions from the crowd. An important aspect of integrative crowdsourcing is the definition of clear interfaces among single complementary contributions."*

Prediction Markets

> *"The third category is the prediction market or information market in which investors from the crowd buy and sell futures related to some expected outcome such as the presidential election or the Oscar for the best picture (Howe, 2006). The prediction market is applied for questions related to assessment of future scenarios (for an extensive literature review on prediction markets see also Tziralis and Tatsiopoulos, 2007).*
>
> *One example of a prediction market is the Hollywood Stock Exchange (HSX). HSX is an online simulation, where registered users can trade in movie stocks. "Participants start with a total of 2 million so-called Hollywood dollars, and can manage their portfolio by strategically buying and selling stocks" (Elberse & Jehoshua Eliashberg 2003). HSX participants trade in movie stocks based on their information about the star power, trailers or other advertising products (e.g. press releases) in the prerelease period. Single movie stocks and ranking lists of price changes on the HSX are an explicit aggregation of the opinions of the involved HSX participants and opinion leaders. The HSX ranking lists are an important predictor of the first weekend and overall box-office sales of a movie."*

Crowdsourcing typology by initiator

The second representative classification of crowdsourcing approaches is provided by (Gassmann et. al. 2010) and is based on potential initiators as classification criteria of the crowdsourcing activities. According to these criteria, the authors identify five different crowdsourcing approaches:

1. Crowdsourcing initiated and supported by intermediary platforms.

(Gassmann et. al. 2010) further divide this category of crowdsourcing in the following subcategories: intermediary platforms for research and development, for marketing and design, for freelancers and for idea-generation.

2. User initiated crowdsourcing

Which is further subdivided in user websites and open source software communities.

3. Company initiated platforms

Which are platforms that are created and maintained by companies. Such platforms are typically integrated within the companies' online activities. They are further divided in the following subcategories: product ideas and problem solutions as well as branding and design.

4. Idea market places

An example for this type of crowdsourcing is the company Spreadshirt which allows users to design their own spreadshirt designs and produces only those spreadshirts that are mostly liked by the participating customers. Other such similar examples are Threadless or CafePress.

5. Public crowdsourcing initiatives

that means initiatives that are similar to the previously mentioned ones but which are initiated by public authorities. One example mentioned by the authors (Gassmann et. al. 2010) is the ideageneration campaign, which was initiated by the Irish government in order to collect ideas from the population regarding the question how to achieve higher economic growth." [500]

500 http://berlinsymposium.org/sites/berlinsymposium.org/files/crowdsourcingenabledinnovation.pdf

5. Appendix: Typology By Type Of Crowd

Source: "A typology of crowds". Nicholas Carr. 2010.

Nicholas Carr proposes a fourfold typology based on the nature of the Crowd's activity:

Social production crowd

Consists of a large group of individuals who lend their distinct talents to the creation of some product like Wikipedia or Linux.

Averaging crowd

Acts essentially as a survey group, providing an average judgment about some complex matter that, in some cases, is more accurate than the judgment of any one individual (the crowd behind prediction markets like the Iowa Electronic Markets, not to mention the stock market and other financial exchanges).

Data mine crowd

A large group that, through its actions but usually without the explicit knowledge of its members, produces a set of behavioral data that can be collected and analyzed in order to gain insight into behavioral or market patterns (the crowd that, for instance, feeds Google's search algorithm and Amazon's recommendation system).

Networking crowd

A group that trades information through a shared communication system such as the phone network or Facebook or Twitter." [501]

501 http://www.roughtype.com/archives/2010/03/a_typology_of_c.php

6. Appendix: Classification By Complexity Of Task

Source: "Enabled Innovation: Instruments and Methods of Internet-based Collaborative Innovation". Katarina Stanoevska-Slabeva. 2011.

Katarina Stanoevska-Slabeva:

> *"A detailed exploration of the suitable tasks for crowdsourcing is provided by (Schenk & Guittard 2011). According to them, crowdsourcable tasks can be classified based on the required competences of the individuals in the crowd into three types: simple, complex and creative tasks."*

Simple Crowdsourcing Tasks

> *"According to (Schenk & Guittard 2011), simple tasks are easy to describe and do not require a high cognitive effort and expertise to be understood by a broad, anonymous mass of individuals. Moreover, their completion requires a relatively low involvement from individuals. When simple tasks are concerned, the added value of crowdsourcing does not stem from individual abilities but from the low cost realization of tasks on a large scale. Therefore, financial incentives in crowdsourcing of simple tasks do not go beyond micro payments.*
>
> *An example of a simple task crowdsourcing is the Open Street Map project, where geographic data is collected and pooled together in order to establish a world map under the creative common license. In this project, contributions are voluntarily and incentives may include self-benefits from the system or the satisfaction of contributing to a public good (Schenk & Guittard 2011)."*

Complex Crowdsourcing Tasks

Katarina Stanoevska-Slabeva:

> *"According to Cambell (1988), complex tasks are characterized by the following features: multiple potential outcomes, multiple potential solution path and presence of uncertainty. Their understanding and performance requires special expertise, problem solving abilities and involves knowledge intensive activities. According to (Schenk & Guittard 2011), the notion of scale does not enter into account (as opposed to simple tasks crowdsourcing), but the firm facing an unsolved complex problem hopes to benefit from expertise and problem solving skills of individuals within the crowd.*
>
> *Crowdsourcing of complex tasks only makes sense when the required expertise and skills are distributed among the anonymous individuals of the participating crowd. Thus, the*

required expertise and the relevant incentive schemes are typically problem-specific. This kind of crowdsourcing typically involves a higher remuneration. Complex tasks are related to new product development in innovation projects where the problem solving can be regarded as a complex process.

A specialized intermediary for crowdsourcing of complex tasks is the platform InnoCentive (Lohse 2010). The InnoCentivee platforms is an intermediary which on the one hand, supports companies to publish their complex tasks within research and development activities and, on the other hand, was able to create a Solver-Community consisting of more than 200,000 experts and scientists."

Creative Crowdsourcing Tasks

"Creative tasks are where creativity and uniqueness have the highest priority. Typical examples of creative tasks are the design of logos or similar marketing material. The main goal of a company crowdsourcing creative tasks is not to have a problem solved but to rather benefit from the creative power of the interdisciplinary crowd. (Schenk & Guittard 2011) suggest that regarding creative tasks incentives or participants can be very heterogeneous, ranging from monetary driven to passion-driven involvement. As a matter of fact, observation of crowdsourcing platforms for creative tasks indicate that remuneration associated with crowdsourcing of creative tasks is of an intermediate amount, usually of a few hundred dollars (Brabham 2008, 2009). At least one of the above described types of tasks or even all three types can be identified in many industries."

7. Appendix: Examples Of Idea Management Platforms

Compiled by Michel Bauwens

Directory

IdeaNet

Innovation Factory's IdeaNet idea management software is a social media based software suite to support collaborative ideation and knowledge management. The software is delivered in a software as a service model and is used by large multinationals having tens of thousands of users.

IdeaScale

IdeaScale is a cloud-based solution used by companies to interact with customer communities who are commenting on product developments. It has also been used as a forum for U.S. government initiatives. Features include leaderboards for the most active contributors and a Facebook app. IdeaScale claim they are fully scalable across differing organizational sizes and also offer a freemium model.

Imaginatik

Imaginatik markets itself as “Innovation as a Service”, with its platform designed around the typical life cycle of an innovation program. Mainly intended for internal use in larger enterprises, the company also provides a range of consulting services. Imaginatik has been providing idea management platforms for over 15 years.

Spigit

Founded in 2007, Spigit’s platform is aimed at larger enterprises. It has a series of branded products that can be applied to a range of scenarios, both internally and externally-focused. Features include an algorithm called RepUrank which assesses employee’s contributions and allocates them a score. Participants can also use a variety of voting techniques to show support for ideas, for example by using a virtual currency to trade ideas and allocate budgets to projects.

Qmarkets

Qmarkets bills itself as providing “collective wisdom solutions”. In addition to standard idea management functionality it also includes a prediction market platform. It offers incentive programs and the ability to view individuals’ forecasting success.

Examples

> *"Some corporations, such as Cisco with its I-Prize, have attracted significant attention by running ad-hoc contests with attractive financial rewards. Other companies have established platforms for ongoing public idea submission. Two of the best known examples are My Starbucks Idea and Dell's IdeaStorm."*

Best Buy Idea X

> *"Best Buy Idea X is consumer products retailer Best Buy's internally built idea management forum for Best Buy customers to post, debate, and vote on ideas about how to improve the consumer experience. Idea submissions are solicited in areas including ways to lower Best Buy's impact on the environment, new products, and suggestions for locations of new stores. Best Buy then offer their feedback.*
>
> *Within three months of the platform's launch in June 2009, 1,000 ideas had already been submitted. In the first year this had reached over 7,000 with over 2,000 active users. Successful ideas which the platform has helped bring to fruition are a pilot to establish free WiFi in stores, trialling electronic receipts, and a packaging improvement that stemmed from an idea originally submitted as "get rid of those stupid plastic boxes."*[502]

Swedish Avanza Bank

Source: https://labs.avanzabank.se/home

> *"Swedish Avanza Bank, which has developed a system that lets consumers suggest and vote on each other's ideas for potential implementation.*
>
> *Avanza Bank's Labs is a dedicated part of its site where customers can suggest ideas large and small for improving the bank. Each idea gets listed on the Labs page, where it is available for voting by others who visit. Those discussed most frequently and/or receiving the most votes are then taken into serious consideration by the bank for possible translation into a real solution. The bank also uses its Labs site to solicit customer suggestions on new products and ideas of its own, such as on a forthcoming Android application."*

Starbucks-sponsored Betacup

http://www.springwise.com/non-profit_social_cause/betacup/

> *"That something needs to be done about the ubiquitous but wasteful paper coffee cup seems to be a matter of fairly widespread agreement. We've seen the development of myriad reusable replacements and — more recently — reusable lids, but now a new effort is tapping the crowds for further ideas.*
>
> *With sponsorship from none other than Starbucks itself, the mission driving the Betacup project is to find the best ideas to eliminate paper cup consumption and then help bring these ideas to life. It's not just another reusable cup design that's being sought, however — rather, "think beyond just the vessel for carrying coffee, and develop a way to cause*

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behavior change at a massive scale," the effort's creators urge. Toward that end, Betacup launched an international contest on April 1 by which creative thinkers all over the world can submit and rate new ideas for a sustainable and convenient alternative. Submissions can be made in the form of image, audio or video files, as long as they're posted on the Jovoto-based collaborative platform by June 1. Participants can also collect karma for ratings and comments during the rating period, which extends through June 15. Entries will be judged on a variety of qualities, including how they reduce waste, what resources they require, new or existing capabilities required for implementation, and the overall user experience. A total of USD 20,000 in prizes will be awarded to the developers of the winning ideas, including USD 10,000 for the top choice of Betacup's board of advisors; the remainder will be split evenly among the top 5 community favourites." [503]

Volkswagen App My Ride

http://www.app-my-ride.com/

'Volkswagen just launched a new contest — dubbed App My Ride — to invite designers, programmers, developers and interested users to help develop applications for its future in-car infotainment systems.

Volkswagen has already begun developing a prototype for its new system — involving, specifically, a touch-screen integrated in a vehicle's center console — and it hopes to research as many potential apps as possible. Toward that end, it has launched an innovation community through which consumers can contribute their own apps and ideas. To develop an app, participants must have not just an idea but also a graphic design of the user interface and the ability to program in Adobe Flash or Flex. They can then submit their compiled app as a SWF file; in fact, the contest's software development kit even includes an AppPlayer for testing those applications. Those without full-fledged apps, meanwhile, are welcome to submit their ideas for consideration as well. Participants can submit as many apps and ideas as they want by the contest's June 30 deadline. In August, the most innovative application will be chosen by the App My Ride community and a jury consisting of Volkswagen managers and external experts. The first-place winner will receive EUR 3,000 as well as a trip to take part in an international vehicle presentation, including flight and hotel. Second- and third-prize winners will receive EUR 2,000 and EUR 1,000, respectively. Other prizes for apps, ideas and participation will include non-cash awards such as a Volkswagen car for a weekend; a special prize for students, meanwhile, involves a 6-month internship within Volkswagen Group Research.

By launching this contest, Volkswagen is the first car manufacturer to crowdsource product development" [504]

503 http://www.springwise.com/non-profit_social_cause/betacup/

504 http://www.springwise.com/automotive/appmyride/

Examples of Corporate Crowdsourcing

Procter & Gamble

> *"During a 2002 Proctor & Gamble brainstorming session, a company manager had a flash of inspiration: Why not print text or images on Pringles potato chips? Great idea, but there was a catch: no one at P&G knew how to do it. To find the expertise it needed, P&G tapped into RTC North, a network of European scientists, and found a small bakery in Bologna, Italy, run by a professor who had invented a technology that uses ink-jet techniques to print pictures on pastries. By licensing the technology, P&G was able to launch the new Pringles Prints chips in less than a year — and at a fraction of the cost of doing it in-house. Indeed, after decades of rarely looking outside its own walls for ways to improve brands like Pringles and Crest, P&G now taps the brainpower of scientists around the world by using crowdsource research networks like Innocentive.com and YourEncore.com. The result: 40 percent of the company's new innovations now come from outside P&G, up from 10 percent in 2000."*

O'Reilly Media

How do you know if your products receive adequate placement on store shelves? Executives at O'Reilly Media, a privately held company best known for publishing technical manuals, heard anecdotal stories that its books were difficult to find in big chain bookstores. Sending teams of market researchers from store to store would have been prohibitively expensive, so the company instead turned to an online user group devoted to its books. O'Reilly sent email to members of the group, soliciting volunteers to visit local booksellers and submit monthly reports of what titles were on the shelves. Some 500 people volunteered, and 75 of those happened to live near bookstores that were of particular interest to O'Reilly execs. For three months, the volunteers submitted spreadsheets to the company, along with anecdotal impressions of their experiences inside the stores. In return, O'Reilly gave the volunteers free books. "It answered our question: Are bookstore chains doing a decent job getting our books on the shelves?" says Sara Winge, O'Reilly spokeswoman.

> *"Turns out, the stores were doing a pretty good job, but that was a very hard question to answer without having volunteers who were willing to actually go see for themselves."* [505]

Graham Hill on the gailure of Dell IdeaStorm

> *"The first of these is Dell with its Ideastorm programme. Anyone can come up with a computer-related idea, post it on the Ideastorm website, vote for the best ideas, comment about them and hopefully, see them implemented. Sounds great. Why not harness ideas from customers? And why not get customers to vote for them to cut programme staff costs. Unfortunately, crowdsourcing has a number of serious problems. The first problem is that customers, even large numbers of them, typically produce average, unremarkable, incremental innovations, rather than the step-change innovations that companies hope for. Although 12,483 ideas have been posted on the website since Ideastorm started in February 2007, only 366 have been implemented to-date, a miserly 2.9% of the total. And most of the implemented ideas provide only incremental improvements to Dell's business. To its credit, Dell says that Ideastorm is intended as an extension of its relationship with its customers, rather than just as a source of product ideas. Just as well, as Ideastorm is a failure as a source of winning new innovations.*

505 http://www.bnet.com/2403-13068_23-52962.html

> *The second example is Starbucks with its My Starbucks Idea. Similar to Ideastorm, My Starbucks Idea allows any registered customer to post an idea, vote for the best ideas, comment on them and see them implemented. Or not as the case may be. My Starbucks Idea, despite receiving over 75,653 ideas, has only implemented 315 ideas to-date, an even more miserly 0.4% of the total. You wouldn't think that having ideas to improve a coffee-house chain would be all that difficult to implement. But the low rate of implementation illustrates the second problem with crowdsourcing; that customers have no idea of how the business works, what business capabilities it has and thus, no idea whether even the simplest of ideas can realistically be implemented, (let alone whether they will turn a profit).”* [506]

506 http://www.customerthink.com/article/how_understanding_customer_jobs_turns_crowdsourcing_into_smartsourcing/

8. Appendix: Crowdsourced Advertizing

Compiled by Michel Bauwens

Victors and Spoils: an advertising agency based on Crowdsourcing

Ross Dawson:

> *"When it was launched in October 2009, Victors & Spoils was described as "the world's first creative ad agency built on crowdsourcing principles". Founded by three partners including CEO John Winsor, it has built considerable success, including creating campaigns for clients such as Harley-Davidson, Virgin America, GAP, and Levi's.*
>
> *The company has close to 500 people from 126 countries in its contributor pool, all attracted through the firm's significant media and online visibility. Within this pool, it regularly interacts or works with around 200-300 of them, though none work predominantly for the firm at this stage.*
>
> *The firm has built a reputation system to make it more efficient to find the best people for projects. Contributors are given points based on factors including how far their submissions go in the filtering process and client opinions, while creative directors can also allocate points based on their views of creative talent or collaboration capabilities.*
>
> *One model they use is running an open brief, prepared by Victors & Spoils on the basis of the brief from the client. This is open to contributions from anyone. None of the submissions are visible to other contributors. In the initial round, contributions are ranked as A, B, or C. The client can then go through the submissions and choose the ones they want to pay for and use. However the majority of the client work done uses what Winsor calls the 'pick and pay' model. Here, Victors & Spoils picks 10-25 people to contribute to the project, each of whom signs an NDA and is paid a small amount upfront for their submission. From this pool around 4-5 are selected to go into a further round, attracting additional payments. The company collaborates with these winners to further develop their ideas to meet the client's brief. There are 12 people at the core of Victors & Spoils, including traditional agency roles of Creative Director and Strategy Director, as well as a Technical Director responsible for the platforms.*
>
> *At the outset, fee levels for Victors & Spoils were around a quarter of traditional agency fees, but have risen to half to three-quarters of market rates. The partners started out with a 'better, faster, cheaper' philosophy, but now believe that the crowdsourced model often provides superior results to traditional agency models and so merits commensurate fees. In charging clients more, they can pay the crowd more and in turn attract better talent."*[507]

507 Ross Dawson in Getting Results from Crowds

The Mervis Diamond Importers campaign

Emma Johnson:

> *"Mervis Diamond Importers, a third-generation chain of four jewelry stores in the Washington, D.C., area, employed crowdsourcing to generate a series of successful newspaper advertisements with the help of crowdsourcing facilitator Genius Rocket. For a $500 fee, Jonathan Mervis sent out a query looking for one-line ad copy to accompany the front page of the local edition of satirical newspaper The Onion, which is popular with young adults. Genius Rocket publicized the contest, and Mervis spread the word through his company's blog and his own contacts.*
>
> *The query promised to select between five and 15 responses and award $100 to each.*
>
> *The query netted more than 500 responses, many of which were outstanding, Mervis says. He personally read all of them and wrote checks to 10 entrants, which were "brilliant" and many of which are often quoted by customers in his store and strangers on the street. Standouts include, "She likes the Beatles, but she loves the Stones," and "Conflict-free diamonds for a conflict-free bedroom."*
>
> *"This doesn't even compare with working with my usual ad agency," Mervis says. "If I just sit down with my agency to discuss an ad in The Onion, it costs me $1,000 and it doesn't get me 500 options, it only gets me two or three. Often I don't really love those two or three, but I don't want to pay for more so I just go for it."*
>
> *He says the return on investment is tough to calculate, but he plans to launch more crowdsourcing queries. The time and monetary investment were minimal, quality of responses phenomenal, and the ability to control the creative process rewarding and productive, he says. "It's almost like a free shot."*
>
> *Tips include giving potential responders lots of information about your company, the type of responses that you're looking for, and your target audience. Also be careful to attach an appropriate fee. Mervis sponsored a second crowdsourcing competition for an online video advertisement he hoped would go viral. The eight responses were so-so, and Mervis wonders if the $1,000 reward was too small to attract top talent.*
>
> *"What if I doubled the reward money? Would I get double the number of good videos?" he asks. "That's the thing: There are no statistics to support any of this."*
>
> *Low budget? No budget? Doesn't matter. With the right choice of crowdsourcing venue and the proper incentive, even a small company can achieve ad agency-like results. Open innovation may just level the playing field."* [508]

508 http://www.msnbc.msn.com/id/29549600/

9. Appendix: Specialty Crowd Process Providers

Specialty Providers

List culled from Ross Dawson's *"Getting Results from Crowds"*:

Crowdsourced User Testing

- uTest, the market leader for crowdsourced software testing is uTest, which claims to have over 40,000 registered testers on their books.
- 99tests, an Indian start-up that uses the mechanics of competition platforms and has the tagline "Meet the Bugs".
- Mob4hire, a platform specifically for mobile application testing, specializing in usability.
- UserTesting.com, providing on-demand usability testing on websites, sometimes as a one-off service.

Crowdsourced Data Analysis

- Kaggle: "The most prominent data analysis platform is Australian-based Kaggle, which recently raised $11 million in funding. Kaggle uses the mechanics of a competition platform and sets up predictive modelling challenges for its crowd of data scientists, many of them academics.
- In October 2006 Netflix offered a $1 million prize to whoever could improve their video recommendation algorithm by 10%. The final prize was awarded in October 2009 to a team which combined two of the previous top-performing teams."

Crowdsourced Patent Research

- The dominant platform in crowdsourced patent research is Article One Partners. Article One claims to have over 1 million registered researchers and to have distributed over $1 million in rewards.

Crowdsourced Translation

> *"One of the best known examples of crowdsourced translation is Facebook. In 2008 it launched a "Translations" app which delivered lines of text to be translated into different languages by Facebook users. To ensure quality, other users then voted on which was the best phrase. This approach was so successful that a Spanish version of Facebook took just weeks to implement, and by the end of 2008 Facebook sought to patent the app."*

Crowdsourced Product Design

Crowdsourcing product design through an entire life cycle from concept to finished product can draw on crowds in a variety of ways. There are a number of platforms that allow you to submit ideas, vote on the best ones, comment on and shape the design, and then finally buy the finished product, with a profit share going to the original designers and those who contributed.

- Example: Quirky

> *"Quirky provides a platform for what they term "Social Product Development." Registered users submit an idea for ten dollars and feedback is given by the rest of the Quirky community. Each week one idea is voted to be taken forward in the process. The idea gets evaluated, shaped, moulded and tweaked by the crowd, with those making the best suggestions earning "Influencer" points. Finally the product is pre-sold on the website shop. If there are sufficient orders it gets manufactured. The inventor, the influencers who helped develop the product, and Quirky share the profits."*

- Japanese retailer MUJI has been an early adopter of crowdsourcing. It sources suggestions for new products from customers which are then voted upon, and given to professional designers to make into products.
- Threadless invite T-shirt designs from the crowd, get them to vote on their favourite ones, and then produce them for sale.
- Made.com is a British online furniture retailer where only Evolution of Collaborative Consumption the products that receive sufficient votes from customers are manufactured."

Crowdsourced Consumer Research

"The web has given a voice to consumer opinion and a crowdsourced approach provides an opportunity for brands to receive rich and valuable data to identify customer preferences …

- Clickadvisor styles itself as an "online consumer research agency". It provides a platform to receive advice, innovate, and co-create with the crowd.
- Crowdtap offers a more self-service approach. Its consumers are usually recruited through social networks, and its platform offers a variety of tools such as polls and discussion boards to test consumer reactions.

Crowdsourced Search Engine Marketing

- Trada created the SEM crowdsourced space with its launch in 2010. Its competition is still almost exclusively from traditional agencies. Trada has received funding of close to $6 million, notably from Google Ventures.

10. Appendix: Surveying The New Sharing Attitudes (USA)

Survey: The New Sharing Economy

Latitude Research and Shareable Magazine. 2010. Access to the survey document:

- URL: http://latdsurvey.net/pdf/Sharing.pdf
- Scribd version: http://www.scribd.com/doc/38786066/The-New-Sharing-Economy

Short description

> *"Latitude and Shareable's The New Sharing Economy is an early if not the first survey of changing attitudes and behaviors driving this trend. There are a number of helpful findings for sharing entrepreneurs including:*
>
> - *Sharing online content is a good predictor that someone is likely to share offline too. 78% of participants felt that experiences they've had interacting with people online have made them more open to the idea of sharing with strangers. In fact, every study participant who shared content online also shared various things offline. Sharing entrepreneurs are already taking advantage of this by seeding their services in contextually relevant online communities. For instance, online kids clothing exchange thredUP build relationships with prominent mommy bloggers to speed their launch.*
>
> - *75% of participants predicted that their offline sharing will increase in the next 5 years. While fast growing, this new sector has lots of unmet demand. More than half of all participants either shared vehicles casually or expressed interest in doing so. Similarly, 62% of participants either share household items casually or expressed interest in doing so. There's also high interest in sharing of physical spaces for travel, storage, and work - even with complete strangers.*
>
> - *The most popular perceived benefits of sharing (67% each) were "saving money" and being "good for society," echoing the "me+we" mentality popular amongst Millennials and offering insight on how to brand sharing services. People increasingly expect that saving money needn't come at the expense of doing good, so gravitate to solutions like sharing that enable them to do both. In addition, two thirds of participants said they were more likely to share their belongings if they could make money from it. Brands should align with this "doing well by doing good" world view.*
>
> - *Car sharers share across significantly more categories than non-car sharers —11 versus 8 categories. Ironically, the very thing that catalyzed consumer culture may*

be the vehicle into the sharing economy. Carsharing preceded the recent surge in sharing startups, and apparently car sharers are leading the behavior shift into a sharing economy. The finding suggests that once someone tries a sharing service they're more likely to begin sharing in other areas of their life. With this in mind, sharing enterprises would do well to seek partnerships with carsharing and like services, seek out users of other sharing services as new customers, and begin offering other items to share once established in a category." [509]

509 http://shareable.net/blog/is-social-media-catalyzing-new-sharing-economy

11. Appendix: The History Of Product-Service Systems

Source: Why own anything?. Rebecca Tuhus-Dubrow. 2010.

"Though we tend to use the word "consumption" to refer to all purchases, Braungart and McDonough drew a distinction between "consumables" and "products of service." Items in the former category —tomatoes, Chapstick —are used up by their owners; they are indeed consumed. The second category, though, consists of products that endure —cars, refrigerators, vacuum cleaners —and we buy them for the results they provide (transportation, preserved food, floors free of dust bunnies).

These products of service, they argued, should be leased by the manufacturers, who would ultimately recover them and then either reuse or recycle them. This model would give companies more incentive to make high-quality goods and to minimize undesirable elements such as chemicals. Other ecological thinkers, such as Paul Hawken and Amory Lovins, latched onto this notion and developed it.

Around the same time, a business case for services was also emerging. In the early 1990s, management literature began to urge companies to incorporate services into their business plans. In part, since goods have become so easy to produce, services constitute a means of distinguishing a firm from its competitors. What's more, services offer a more stable cash flow, because they are less susceptible to swings in the economy, and they often have higher profit margins. They also allow companies to cultivate stronger ties with customers.

"The whole idea is that providing a service, I will develop a relationship with you," says Rogelio Oliva, a business professor at Texas A&M University. "If I have an ongoing relationship with you, I have a better understanding of your needs."

In the past few years, several factors have converged to advance the idea of product service systems. Concern about the planet has risen, as the business world has continued to gravitate toward services. More recently, in the economic downturn, renting and borrowing have gained new currency.

The U.N. Environment Program has begun to promote product service systems. It advocates government support, for example by using tax policy to favor services. Green blogs such as Treehugger and Worldchanging have enthusiastically embraced the concept, championing various examples of it. And some academics and designers are starting to think about ramifications for product design. A Swedish university, the Blekinge Institute of Technology, will launch a master's program in Sustainable Product-Service System Innovation this fall.

So far, businesses have been especially receptive to leasing from other businesses, in so-called B-to-B transactions. GE leases medical equipment, Xerox leases machines and Rolls Royce leases turbines, all to other companies. Businesses may be less attached to ownership than

individuals are; indeed, lower capital investments are preferable, because they lead to higher return on assets, a metric of profitability.

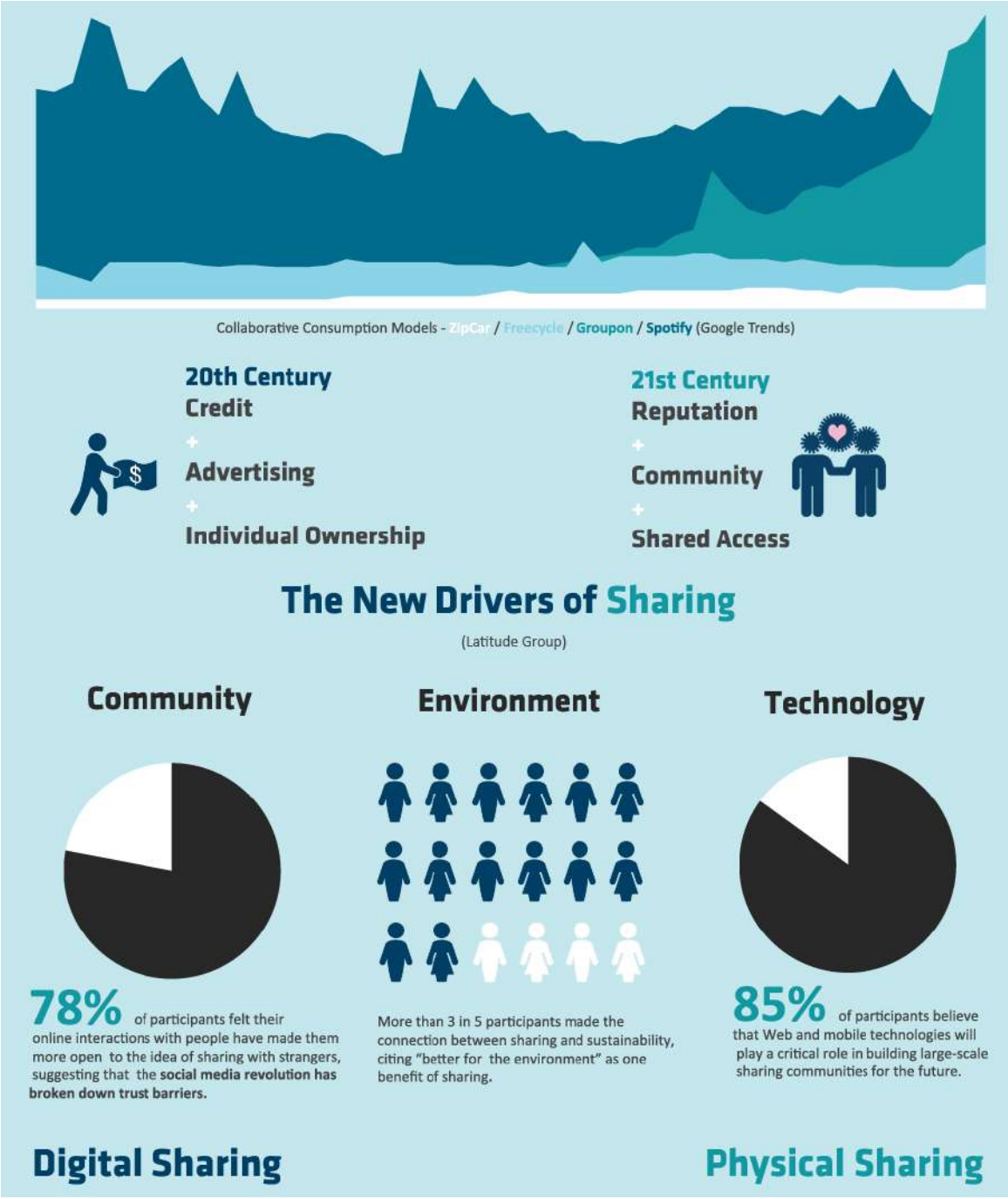
Another variation of this idea does not renounce selling products, but redefines business goals so that selling more is not necessarily better. In a 2007 article in the MIT Sloan Management Review, "Sustainability through Servicizing," Sandra Rothenberg, a business professor at the Rochester Institute of Technology, described several companies that helped their customers reduce consumption. For example, Gage, a chemical supplier, was working with Chrysler Corp. Gage assumed a role in making sure its materials were used correctly and efficiently, leading to a lower quantity of cleaning solvents sold. There are various ways to work out such arrangements. The two parties might decide on a flat fee for a given service, which gives the supplier incentive to maximize efficiency. Or they can resolve to cut consumption as much as possible and split the savings between them.

"In my research on sustainability, I realized that there's no way we can get there without dealing with consumption," says Rothenberg. "Most theories don't really adequately address this issue of consumption. They make technologies greener, but they don't say, OK, let's help you not buy this in the future."[510]

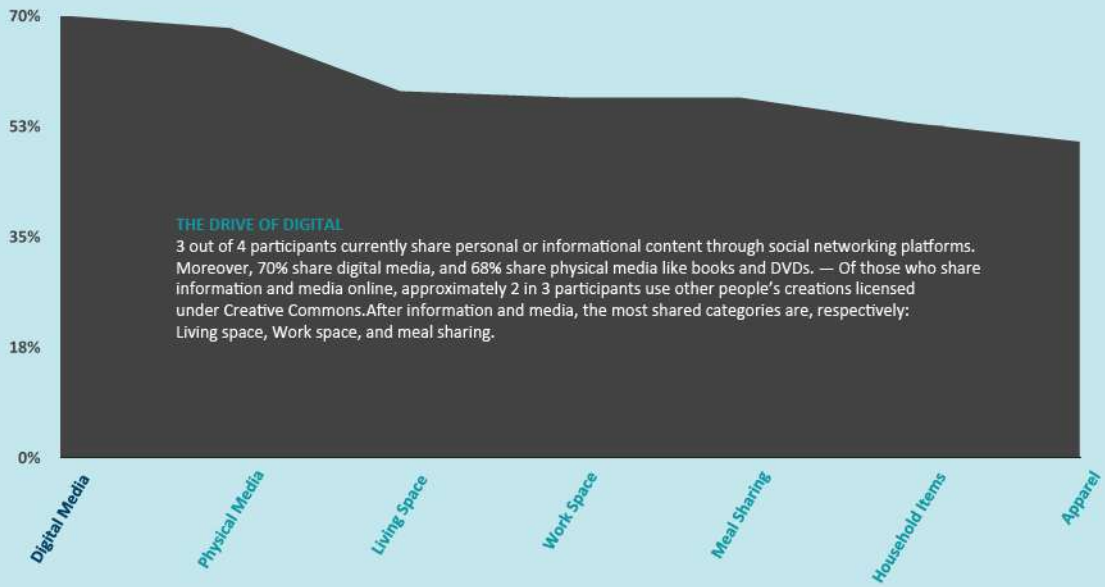
510 http://www.dallasnews.com/sharedcontent/dws/dn/opinion/viewpoints/stories/DN-tuhusdubrow_07edi.State.Edition1.217df7a.html

12. Appendix: The Emergence Of Collaborative Consumption[511]

Source: "The Rise of Social Media and Sharing Economy". Sean McColga. 2010



511 Source: http://www.promotionalcodes.org.uk/21058/the-rise-of-social-media-collaborative-consumption/

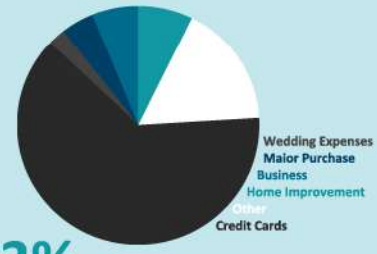


The New Opportunities of Sharing

P2P Lending

(LendingClub.com)

Reported Loan Purpose



63% of Lending Club borrowers report using their loans to consolidate debt or pay off their credit cards.

Comparison with Other Investments

P2P Property

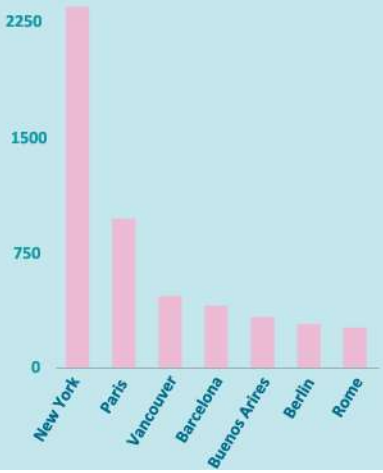
(AirBnB)

Worldwide Presence

Cities:	8,000+
Countries:	166
Currencies Transacted	8
Languages Translated	7

700,000 Nights Booked

Top Cities & Markets



P2P Transport

(ZipCar)

Car Ownership

Car payment:	$288
Finance charges:	$67
Insurance:	$84
Gas:	$100
License & taxes:	$49
Maintenance:	$44
Parking:	$175

Total: **$802/mo**

Vs

Shared Ownership

If you drive a lot: $279/mo
Several trips each week and a weekend trek out to the country (10 two-hour, 2 three-hour and 2 24-hour reservations)

If you drive a bit: $126/mo
A couple trips each week (6 two-hour and 2 four-hour reservations)

If you drive a little: $28/mo
About one trip a week (4 one-hour reservations)

Saving: **$500+/mo**

13. Appendix: Examples Of The Sharing Economy In The UK

Compiled by Michel Bauwens

Ecomodo, Whip Car, Your Job Done and Zopa are just four of the many "sharing companies" in the UK who are building businesses around peer-to-peer platforms.

Ecomodo

Ecomodo, "the marketplace of good returns" enables users to: "Lend and borrow each other's everyday objects, skills and spaces with confidence". The startup began in March 2010 and is a local service online that enables members of a community to lend and borrow everyday objects, skills and spaces from each other. This can be done for free, for a fee or for charity and Ecomodo facilitate the transaction to make good returns for all.

In building the platform, some issues have had to be addressed with regards to trust and problem avoidance and resolution. Ecomodo have put in place a system of "Circles" which the user gets when signing up - they have a friends circle so when they invite friends, they automatically join their friends circle. Users can join or create other circles based on neighbourhood, school, workplace or any kind of community group. They can choose to borrow from or lend to anybody on the site, only people in their circles or just a specific circle.

To avoid and resolve problems, there are a number of mechanisms involivng deposits, insurance and feedback from both parties involved in the process. When a lender adds an item, he or she can opt to have a deposit taken, which is held by Ecomodo until both parties have left feedback to say they are happy. The lender can opt for insurance, paid for by the borrower, which covers theft and damage for objects worth £50 to £1,500. There's also a pro forma contract between the lender and the borrower, which helps negate liability from the lender in the event of personal injury. [512]

WhipCar

WhipCar is a peer-to-peer marketplace for cars, where ordinary owners lease their cars on an hourly, daily, weekly or monthly basis to other people in their neighbourhood. Owners set their price, and can accept or reject each booking request as it comes in by email and text. The platform launched in April 2010 and now has 3,000 registered cars in the UK.

Trust is very important for people leasing a personal object such as a car which is worth thousands of pounds. There is a cancellation and fines policy plus a code of conduct, and fully comprehensive insurance and breakdown cover provided by WhipCar if there's a serious incident. There is also a feedback system to increase security and trust in the market. The service is also limited to 21-70-year-olds with no more than six penalty points on their license, no car-related convictions and no more than two accidents in the last three years.

Those renting can also leave feedback, with ratings for car suitability, punctuality and cleanliness, which is visible to other potential renters. Background checks are made for all cars to make sure they're not on any police database and that they meet WhipCar's insurance criteria. The service is limited to cars no older than eight years to minimise the risk of mechanical problems. Vinay Gupta, WhipCar co-founder, points out, "For people who use the service, a WhipCar is not necessarily the same as a normal rental car because there's a person associated with the transaction. We have many more

512 http://www.expertreviews.co.uk/general/1290001/peer-to-peer-living-save-money-by-cutting-out-the-middle-man/

positive than negative stories, where people return a car and get it cleaned for the other person, or put more petrol in the car than they received it with." [513]

Your Job Done

Your Job Done is a platform for connecting people who want small jobs done with those willing to do them. Typical jobs might be gardening, moving some furniture, washing a car or walking a dog, but anything is potentially possible. Anyone can register to do jobs, you specify what types of work you're interested in by ticking categories and subcategories from a list that ranges from plumbing to shopping. When a job comes in, YourJobDone automatically selects anything from five to 30 suitable candidates and texts them the basic details of the job. They reply to say how much they'd be willing to do it for, and after an allotted time window, the lowest bidder receives the full details, including the poster's phone number.

YourJobDone launched a beta service in February 2011, and officially launched in July. Co-founder David Caldwell explains, "At the moment the amount of hassle you have to go through to find someone to do some kinds of work is greater than the value of the job itself." A key element to any peer-to-peer service is developing and maintaining trust between users and the reputation of YourJobDone depends on the honesty and goodwill of its users.

However eBay has shown that, with the right systems in place, online peer-to-peer communities are able to police themselves. eBay traders will go out of their way to provide each other with positive buying and selling experiences. Their motivation is often altruistic, but it must also have a lot to do with eBay's reputation system, where users are keen to receive positive feedback that will let them continue to trade on the site. The same principles apply at YourJobDone, but the motivation for workers to receive positive feedback is even more explicit and direct. When jobs are put out to tender, the people they're offered to are filtered by skill and location but also by reputation. As such, it's in their interests to do jobs well in order to receive further offers of work. Caldwell points out that, with traditional trade directories, "There's no reputation information, or if there is, it could have been put there by anyone. When a new user joins YourJobDone, their email address and mobile number is confirmed as part of the registration process. While it is possible for people [who have built up a bad reputation] to get a new phone number and email address and re-join, the chances are they'll see that as too much effort.

513 http://www.expertreviews.co.uk/general/1290001/peer-to-peer-living-save-money-by-cutting-out-the-middle-man/7

14. Appendix: Four Degrees Of Sharing

Compiled by Michel Bauwens

Janelle Orsi[514]:

> *"I've discovered that as we progress into higher and higher degrees of sharing, the time and resources needed are greater. At the same time, we get much more use and value out of each shared object, and we meet the needs of a much larger group of people. As a result, the benefits of the whole are increasingly greater than the sum of its parts. Here is a closer look at other kinds of sharing that can happen at each level."*

Sharing to the First Degree: Requires Cooperation + Minimal Planning

At the most basic level, sharing arrangements require little planning, time, or money. They can start or stop almost any time, sometimes quite spontaneously. Take carpooling to work, for example—that's something you can start doing tomorrow with one other person. Many of us already do share at this level. And as sharing increasingly becomes the societal norm, we will all probably share more in these ways:

- Potlucks or meal exchanges with neighbors or co-workers
- Borrowing and lending goods
- Babysitting exchange
- Dog walking exchange
- Harvesting and sharing fruit from neighborhood trees
- Sharing computer code or content

Sharing to the Second Degree: Requires Cooperation + More Extensive Planning

Compared to sharing at the first degree, these sharing arrangements generally involve a larger number of people and/or sharing things with more value. They entail a higher degree of cooperation, more planning, a greater investment of time or money, a certain amount of administrative detail-work, and likely a written agreement among sharers. Sharing ownership of a car with a neighbor, for example, takes shared transportation to this second level. Other examples:

- Sharing an in-home care provider for children, elders, or people with disabilities
- Sharing rental housing or ownership of a single family home
- Sharing yard space for food cultivation

514 http://www.shareable.net/blog/four-degrees-of-sharing

- Babysitting co-op with multiple families
- Neighborhood tool lending "library" (which could be a shared shed where neighbors store their tools, or a list of tools each neighbor owns and is willing to lend)
- Food-buying club
- Neighborhood home repair group

Sharing to the Third Degree: Requires Cooperation + Extensive Planning + Infrastructure

What's next after carpooling and co-owning a car? How about a carsharing club? At the third degree of sharing, you might have ten neighbors sharing three cars. These neighbors will probably adopt systems for communicating, making decisions, managing money, keeping records, and so on. They will likely create a small non-profit or limited liability company (LLC) that will hold title and insurance to the cars. They'd probably adopt some technologies, like an online calendar for scheduling and numerical keypads that open and start the cars.

As a result of creating such infrastructure, third degree sharing arrangements often have an identity independent of their individual members. In other words, even as members come and go, and even when there is complete turnover, the sharing arrangement remains and becomes a lasting community institution. Here are some examples:

- Cohousing communities and housing cooperatives
- Community-supported agriculture (CSA) programs
- Cooperative groceries
- Parent-run cooperative preschools
- Offices, studios, commercial kitchens, and other workspaces shared among multiple entrepreneurs
- Community-wide tool lending libraries
- Cooperatives that facilitate sharing of resources and collective bargaining by businesses (such as an alpaca fiber cooperative that processes and sells fur from hundreds of small alpaca farms)

Sharing to the Fourth Degree: Requires Cooperation + Extensive Planning + Infrastructure + Community-Wide Restructuring and Mobilization

Now we're getting really ambitious: Picture a community where there are shared cars parked on every block. You reserve a car using your cell phone, punch in a code on the car door, get in, and go! Whether this is publicly or privately managed, launching such a program involves significant investment of time and resources and a rather complex system of administration. Taking sharing to the fourth degree can require getting government buy-in, mobilizing multiple players (legislators, investors, banks, developers, planners, etc.), or even restructuring our communities. While a shared car on every block is a dream yet to be realized, organizations like Zipcar (a business) and City Car Share (a nonprofit) are taking steps in the right direction. Other examples of fourth degree sharing include:

- Dedication of public land to community gardening plots
- Expansion of public library systems to include lending of tools, equipment, and other goods
- City-wide bikesharing programs
- Official designation of casual carpooling parking lots and pick-up spots

- Planning of neighborhoods and design of housing to facilitate extensive common areas and community interaction
- City-wide wifi programs

bridity of forms, as mutual adaptation occurs between open and collaborative communities, entrepreneurs, and the corporate world. See for example, the general take by Charles Leadbeater in his book We Think.[515]

It is important to understand that though there is complementarity, there are fundamentally different logics at work. On the one hand, the logic of the community gravitates around the perpetuation of the social system that produces use value for its users. On the other, the market players, remain oriented towards profit. But, unlike in traditional commodity production they can have no 'return on ownership'. Profits must always come from derivative activities that occur 'on top of the commons'.

Let's look into more detail in how both logics intersect. From the point of view of the community:

- Peer production projects may be collectively sustainable in finding private, public-institutional, or 'crowdfunded' support for their projects. However, individual contributors need to make a living; therefore, many contributors either rely on public benefits, a non-related commercial job; or they are freelancers, small entrepreneurs, or employees of large companies.
- Employee-contributors therefore contribute to the commons and this poses the question of the logic of their contributions and the governance and direction of their work; to what degree are contributions determined by the social logic of the project, and to what degree are they determined by the command hierarchy of participating enterprises[516].
- Many commons-oriented knowledge projects (Wikimedia Foundation) and free software projects (the different 'FLOSS Foundations' such as the Apache Software Foundation) are supported by nonprofits (also called for-benefit institutions in a P2P context). These Foundations can rely on corporate support or even have corporate membership (Linux Foundation). This also poses the question of the relative input and influence of participant corporations on the organisation's and hence the code commons', governance.

From the point of view of the participating corporations[517]:

- The commons is a source of knowledge and innovation and a pool of value to which it contributes, but receives the totality of the commons in return ("give a brick, get a house")
- Contributors represent talent and can be potential employees
- The company's employees contribute directly to the code commons.
- The company contributes in the governance and funding of the nonprofit institutions that are managing the infrastructure of cooperation that maintains the commons.
- The company sells added value products and services that are derivative from the commons, and does so in a way that affects the integrity of the commons (dual licensing strategies, etc.). To what degree is this inevitable? Are there counter-measures a community can undertake?

Looking at the intersection the following issues emerge:

515 http://wethink.wikia.com/wiki/Chapter_5_part_3

516 the pioneering institution for this form of co-governance may have been the Internet Engineering Task Force, http://www.ietf.org

517 "the bulk of the code by programmers who are employed by corporations who pay them to contribute to the project. This describes the Linux project. According to an analysis by Linux kernel contributor Jonathan Corbet, 75% of code is written by paid developers working for IBM, Red Hat, Novell, etc. —companies who compete with each other in the marketplace, but cooperate by funding development of the Linux kernel. … Another example is WebKit, the main technology behind Google's Chrome browser, which is run by programmers from Apple, Google, Nokia, Palm, Research in Motion, Samsung and others." www.mrteacup.org/post/peer-production-illusion-part-1.html

- What is the relative influence of contributor communities, participating companies, and the nonprofit foundations on the community dynamic?
- What is the relative influence of contributor communities and participating companies on the nonprofit foundations?
- To what degree do the market strategies affect the integrity of the common pool?
- What can communities do, and what have they done, to maintain and defend the integrity of the common pool?

The following box shows the type of conflict that can ensue when both logics intersect in non-optimal ways, i.e. when the for-profit motivations of a commercial partner leads to the appropriation of freely contributed data. However, there are many examples of thriving commons where community, foundation and enterpreneurs cohabit in productive cooperation, as for example with the Linux Kernel community.

15. Appendix: Three Examples Of Open Hardware And/or Distributed Manufacturing

Compiled by Michel Bauwens

Arduino

One of the most important cases of open hardware is that of Arduino. The creators of this open source electronics prototyping platform have managed to build a strong ecology around it, engaging an ever-growing community.

Arduino has been important for demonstrating that the ecology that has grown around certain software can also function with hardware too. Arduino is

> *"an open-source electronics prototyping platform based on flexible, easy-to- use hardware and software. It's intended for artists, designers, hobbyists, and anyone interested in creating interactive objects or environments . . . It's an open-source physical computing platform based on a simple microcontroller board, and a development environment for writing software for the board."* [518]

While anybody can make an Arduino board if they want, and even sell them, the only thing they can't do is use the brand name, which is a registered trademark. As Wired reported, "So the Arduino inventors decided to start a business, but with a twist: The designs would stay open source. Because copyright law — which governs open source software — doesn't apply to hardware, they decided to use a Creative Commons license called Attribution-Share Alike. It governs the "reference designs" for the Arduino board, the files you'd send to a fabrication plant to have the boards made.

Under the Creative Commons license, anyone is allowed to produce copies of the board, to redesign it, or even to sell boards that copy the design. You don't need to pay a license fee to the Arduino team or even ask permission. However, if you republish the reference design, you have to credit the original Arduino group. And if you tweak or change the board, your new design must use the same or a similar Creative Commons license to ensure that new versions of the Arduino board will be equally free and open.

The only piece of intellectual property the team reserved was the name Arduino, which it trademarked. If anyone wants to sell boards using that name, they have to pay a small fee to Arduino. This, Cuartielles and Banzi say, is to make sure their brand name isn't hurt by low-quality copies.

Members of the team had slightly different motives for opening the design of their device. Cuartielles — who sports a mass of wiry, curly hair and a Che Guevara beard — describes himself as a left-leaning academic who's less interested in making money than in inspiring creativity and having his invention used widely. If other people make copies of it, all the better; it will gain more renown. ("When I spoke in Taiwan recently, I told them, 'Please copy this!'" Cuartielles says with a grin.) Banzi, by contrast, is more of a canny businessman; he has mostly retired from teaching and runs a high tech design firm. But he suspected that if Arduino were open, it would inspire more interest and more free publicity than a piece of proprietary, closed hardware. What's more, excited geeks would hack it and — like Linux fans — contact the Arduino team to offer improvements. They would capitalize on this free work, and every generation of the board would get better.

518 http://www.arduino.cc/

Sure enough, that's what happened. Within months, geeks suggested wiring changes and improvements to the programming language. One distributor offered to sell the boards. By 2006, Arduino had sold 5,000 units; the next year, it sold 30,000. Hobbyists used them to create robots, to fine-tune their car engines for ultrahigh mileage, and to build unmanned model airplanes. Several quirky companies emerged. A firm called Botanicalls developed an Arduino-powered device that monitors house plants and phones you when they need to be watered.

In one sense, Arduino's timing was perfect. There's a resurgence of DIY among geeks interested in hacking and improving hardware, fueled by ever-cheaper electronics they can buy online, build-it-yourself publications like Make magazine, and Web sites like Instructables. In recent years, hackers have been aggressively cracking consumer devices to improve them — adding battery life to iPhones, installing bigger hard drives on TiVos, and ripping apart Furby toys and reprogramming them to function as motion-sensing alarm bots. Inexpensive chip-reading tools make it possible to reverse-engineer almost anything.

This is the unacknowledged fact underpinning the open hardware movement: Hardware is already open. Even when inventors try to keep the guts of their gadgets secret, they can't. So why not actively open those designs and try to profit from the inevitable?" [519]

With Google choosing Arduino for their "Android Open Accessory" kit [520], the platform will be potentially used on millions of phones around the world, extending the ecology even further.

Wikispeed

Wikispeed is an example of extremely rapid modular design, and distributed manufacturing. It is a 100 Mile per Gallon (MPG) car, the SGT01, developed and built using processes borrowed from the software world; Agile, Lean, Scrum and Extreme Programing.

> *"Team WIKISPEED uses methods developed by the fastest moving software companies. In fact, in many ways we have more in common with Google or Twitter than GM or Toyota. Manufacturing and old-thought software teams gather requirements, design the solution, build the solution, test the solution, then deliver the solution. In existing automotive companies, the design portion of that process alone takes more than 10 years, and then the vehicle design is built for 5 to 14 years. This means it is possible to buy a brand new car from a dealer and that car represents the engineering team's understanding of what the customer wanted, 24 years ago! Team WIKISPEED follows the model of Agile software teams, following the same cycle but compressing it into 1 week "sprints". We iterate the entire car every 7 days. That means every 7 days we re-evaluate each part of the car and re-invent the highest priority aspects, instead of waiting 10 to 24 years. This enables a completely different pace of development."* [521]

One of the most important aspects of the project is modularity. Matthew Halverson reported in the Seattle Met, "What makes the SGT01 really intriguing, though — aside from the fact that Justice (Wikispeed founder) will sell you one for about 21 grand — is that virtually every system and component can be pulled out and quickly replaced by someone with no automotive experience. Have a sporty body on your Wikispeed car but want something more practical and sophisticated for carpooling with coworkers? Unbolt it from the chassis, lift it off, and drop on your four-door sedan body (the carbon fiber construction is so light that two people can do the job without breaking a sweat). The interior in the car you bought last year looking a little dated? Swap it out for the 2013 model. "Let's say tomorrow Volvo comes out with an amazing new air bag," Justice says. "You'd have to buy a new Volvo to get that. Even if they wanted to they couldn't give it to all of their existing customers. Well, when you modularize a car, suddenly that's not true anymore. "Think about your email client — maybe you use Outlook or Gmail," he goes on. "You don't have to buy a new computer when you change

519 http://www.wired.com/techbiz/startups/magazine/16-11/ff_openmanufacturing

520 http://blog.makezine.com/archive/2011/05/why-google-choosing-arduino-matters-and-the-end-of-made-for-ipod-tm.html

521 http://www.wikispeed.com/p/agile,-lean,-and-scrum

email clients, right? Imagine if you did." Ah, computers. This idea of interchangeable, plug-and-play components has been around for years in the computer industry, and that's where Justice got it." [522]

Glif

Glif shows how it is possible to develop without owning anything, almost purely through distributed mechanisms. The remarkable process described on the blog of the co-founder shows how Glif went from idea to market in 5 months and how the new capabilities of distributed funding, manufacturing, designing can come together. [523]

Glif itself is a simple iPhone tripod attachment and kickstand to prop up the iPhone. However the real importance of what the founders achieved is how they used the new tools afforded to them by the Internet to achieve their "idea to market in 5 months" and with customers already established via the use of Kickstarter.

They provide a great summary of the tools and services they used to bring this project together:

- 3D modeling software: Rhinoceros for Mac
- 3D printed prototypes: Shapeways
- Project funding: Kickstarter
- Manufacturing: Premier Source
- Printer (for packaging): Keystone Folding Box Co
- Fulfillment Service: Shipwire
- eCommerce Store: Shopify
- Domain Hosting: Dreamhost
- Payment gateways: Braintree and Paypal
- Email campaigns: Mailchimp
- Monitoring Internet chatter: Google Alerts
- Monitoring Twitter chatter: Tweet Deck for iPhone

522 http://www.seattlemet.com/issues/archives/articles/wikispeeds-100-mpg-car-january-2011/1/

523 http://www.therussiansusedapencil.com/post/2794775825/idea-to-market-in-5-months-making-the-glif

16. Appendix: Examples Of Open Design Projects

Compiled by Michel Bauwens

Architecture for Humanity

A charitable organization that seeks architectural solutions to humanitarian crisis and brings design services to communities in need. They provide innovative, sustainable and collaborative design where resources and expertise are scarce. In addition to responding to recent natural disasters and systemic issues they are working with a number of high tech companies, including Sun Microsystems, AMD and Creative Commons to develop the Open Architecture Network to allow for online collaborative design and project implementation. A beta version of this network launches March 8, 2007 at the annual TED conference.

Instructables[524]

A website where people can share how they construct something in a step-by-step format. It was started by the MIT spin-off 'Squid Labs' originally as a quick and easy way to document and collaborate on their many projects, but is now open for everyone to use and is growing fast. Full of fun, interesting and useful things to make.

ThinkCycle

Perhaps the oldest successful open design organization. ThinkCycle has a small, active community of participants. Several ThinkCycle projects have won development and innovation awards. Features limited message board type collaboration. The primary focus of Thinkcycle is on challenges among underserved communities and the environment.

The Concentrated Solar Power Open Source Initiative (CSPOSI)

"Low cost solar energy through open source design". Umbrella website for multiple projects.

Design for Download

Massimo Menichinelli:

> *"We can certainly say that Open Design is now mainstream if the most famous conceptual design company starts a business around it. This is the case of Droog Design, that with Mediagilde started the Design for Download initiative [525] (previously called downloadable-design).*
>
> *This initiative will be presented during the Salone del Mobile in Milan in 2011, but the launch of the platform, featuring various brands and institutions alongside Droog, will*

524 http://en.wikipedia.org/wiki/Instructables

525 http://www.droog.com/projects/events/design-for-download/

occur later this year. The platform will not only include products, but also architecture, home accessories, fashion, food, wearables, and more.

For the moment Droog will present furniture and accessories designed for download by EventArchitectuur and Minale-Maeda, including CNC cut tables, cupboards, desks, side tables, shelves, couches and 3D printed electrical outlets, flowers and charms. Furthermore:

Droog will also present digital design tools that allow ordinary computer users to easily make functional design decisions, automatically generating blueprints for local execution in various materials. The tools also enable communication between designer and customer, streamlining and lowering the cost of a custom design process. The presented products have been customized by Droog for its collection.

According to an interview to Droog director Renny Ramakers, this is not the first time that Droog considers Open Design as an option. In 2004, Mario Minale designed Red blue Lego chair, a Lego version of the iconic Red blue chair by Gerrit Rietveld. Mario Minale, originally wanted people to make the Lego chair by themselves, releasing the project as open source. Droog wanted to make it accessible for everybody, but since it was not possible to mass produce it due to copyright reasons, they produced it in a copy of 5 and it became an art project.

Renny Ramakers explains then that with Open Design:

With the opening up of the design industry to consumers now empowered with easy-to-access and low-cost design and production tools, the role of curation becomes ever more important.

For this project Droog Design have collaborated with consultants Cathal McKee (CMK1), Catherine Jasserand (Ivir), Hans Lensvelt, Institute of Relevant Studies, Joris Laarman and Michiel Frackers. The project has been initiated by Droog and was made possible by Agentschap NL.

Moreover, according to Waag Society, within their program called Open Design:

- *The Open Design Lab aims to make design innovation an open, collective and shared effort, as in open-source, open content and ultimately open design.*
- *The Open Design Lab also intends to build a database of open designs with Droog design under the title 'downloadable design'.* [526]

Open Ideo

Massimo Menichinelli [527]:

"OpenIDEO [528] is a project launched in August 2010 by IDEO, one of the most famous design and innovation consultancies. OpenIDEO can be regarded as an hybrid between Crowdsourcing and Open Design, since they launch challenges to the online crowd, but

526 http://www.openp2pdesign.org/2011/open-design/open-design-is-going-mainstream-now-second-part/

527 http://www.openp2pdesign.org/2011/open-design/open-design-is-going-mainstream-now-first-part/

528 http://openideo.com/

later the process is collaborative. We must note however that the paradigm here is more Web 2.0 than Open Source: collaboration on OpenIDEO is only about voting, commenting and talking about the projects, in order to refine them and discard the less interesting, so that one winner will be chosen in the end. There is no actual collaborative design with an Open Source process. All concepts generated are shareable, remix-able, and reusable in a similar way to Creative Commons (though this means they're not using Creative Commons), since participants own the concepts but grant a non-exclusive license to the Challenge Host for possible publication. Beyond that, organizations that partner with OpenIDEO on challenges may choose to implement the top ideas.

All challenges posted will be for social good, meaning that they won't be used for commercial projects. In time, IDEO may use the same platform as part of their client work for closed challenges (that won't appear on OpenIDEO). It seems therefore that it is for social and non-commercial goals now, but at the same time it's a research about using the same approach (that is, more Open Innovation that real Open Design) to the commercial side of IDEO.

"They especially paid attention to the problem of metrics: how do we measure collaboration, the work of every participant and the state of the community? I will return on this issue in the future, since it's critical for the development of Open Design and any open projects (and therefore of Open P2P Design, that enables them). For the moment, the approach of OpenIDEO is an interesting case:

The Design Quotient (DQ) is a measure of your contributions to OpenIDEO. It corresponds to how active you are in the inspiration, concepting, and evaluation phases of a challenge. It also measures your collaboration, increasing every time you comment or build on other people's inspirations and concepts. When you take part in a challenge, you build up your DQ by accruing points. A DQ can help to publicly identify your design expertise and strengths. Maybe you're excellent at providing inspiration that shapes the conversation, or you're great at building off of others' ideas. Share it with your friends, colleagues, teachers, and even potential employers to give them some insight into what you're best at. "

frogMob

Massimo Menichinelli:

"Another renowned design and innovation consultancy, Frog Design, has started being interested in bringing mass collaboration inside the design process developing frogMob [529], "an experimental method of guerilla research". This is clearly not a case of Open Design, but of Crowdsourcing: there is no real collaboration, but only challenges offered to any internet surfer (i.e. the crowd) that can then help Frog Design in developing design research of existing solutions worldwide.

frogMob is an open, crowdsourced approach to research […] frogMob gives us the opportunity to rapidly identify patterns across markets and geographies, and ultimately glean inspiration from unexpected sources.

frogMob is not about real etnographic research, but it looks just for "small adaptations invented by real people": it began as an internal experiment, and now it is publicly open to

529 http://frogmob.frogdesign.com/

participants. It seems like a business version of a Wikipedia of product hacking done by users: they're not yet co-designers, but this is one of the first steps in that direction.

Incentives are very basic: you participate because you'd like to play an active role in Frog Design's design process, engaging in a dialogue with Frog Design's research teams, and then you can get your submission featured on the online and print magazine design mind. Submissions are voluntary and unpaid, and participants own the rights to their content."

The (Un)Limited Design Competition

Massimo Menichinelli:

"The first Open Design competition, (Un)limited Design Contest [530], was held in 2009 and 2010, in first instance in The Netherlands, in the second year also in Germany and Belgium. During the first year about 80 designs/products were submitted to form the first (Un)limited Design collection. The competition has been organized by Premsela (who runs an interesting program about Open Design called People's Republic of Design), Waag Society, Etsy, FabLab Netherlands and Creative Commons Netherlands.

To enter the competition, anyone could either submit a new design or make a derivative of an existing design submitted by others by using the machines in a Fab Lab or any other prototyping facility. For this reason, apart from the designs themselves, the blueprints and instructions relating to the submissions are also published on the competition website under a Creative Commons license.

As part of the festival Future en Seine 2011, Fablab Squared and Mag/Lab will host a French edition of the (Un)limited Design Contest (from 25th March until 29th May). The contest received a lot of international attention currently, with requests for an edition in Austria and Brazil."

530 http://unlimiteddesigncontest.org/

17. Appendix: Interview: Agata Jaworska On The Design For Download Project

Source: Design for download: an interview with Droog's Agata Jaworska. Vogue Living. 2011.

Droog's Agata Jaworska spoke to Vogue Living about the design for download project and the concept of open design —an approach that brings consumers and other collaborators into the creative process —for 'Complete Fabrication'.[531]

Vogue Living: In what way is Droog's design for download project an example of open design?

Agata Jaworska: It is open design in the sense we are working at bringing people into the design process and creating more interactive products. For example, we launched the 'Do' series of products in the early 2000s which was all about open design. Basically, we are looking at how you design tools for users so they can also become designers to an extent, which you can see in the products that we showed at our recent exhibition at Milan Design Week. For example, 'Box-o-rama' by Eventarchitectuur is a drag and drop system where users can drag boxes, scale them and combine them to create a shelving system. The program does everything else automatically and doesn't allow users to create something that won't work structurally. It will put in structural braces if necessary and resolves all the details automatically based on just dragging and dropping and scaling of boxes. So it makes the process fun for the user and not frustrating. Because really solving design from scratch is difficult and most people can't do that, or choose not to do it because they have other things to do.

VL: At what point was it decided that Droog would engage people via an online interface as opposed to simply giving people the opportunity to intervene in the products at home as the brand has done with past products?

AJ: The back story to that is that we opened a store in New York in 2009 with an interior designed by Studio Makkink & Bey. The staircase had this CNC (Computer Numerically Controlled) cut wall which housed CNC cut furniture within it that could be taken out and used. So those CNC products had the potential to be downloadable and so forth and part of the concept was that you could customise them. That same year in Milan we showed the next step of that development which was a house that was also CNC cut. And those projects are kind of what spurred the interest in downloadable design.

On the other hand, Droog is interested in developing new models for the design, distribution and production of design. Downloadable design is a whole chain redesigned and we are interested in innovating on both levels —on a system level and a product level. We're always looking at structural innovation of supply chains for design —innovation on the level of the system behind design, not just innovative product design. We are interested in what the interaction will be with the user. How is a product distributed? What parts are transported? What parts are digital? Some other examples of that system based approach can be seen in the Saved by Droog exhibition which was shown in Milan in 2010 where we asked designers to use waste.

VL: In the last year and a half rapid prototyping and digital printing services has become a lot cheaper and more easily accessible by designers and the public, is that part of why this project is happening now?

AJ: The rise in cheaper technology has meant a rise in different user habits. Open design is a very trendy and hot topic right now, a lot of people are working in this area. We decided to step in because we think we have some unique capacities

531 http://blog.vogueliving.com.au/2011/08/16/design-for-download-an-interview-with-droogs-agata-jaworska/

and that we could find a unique angle within this trendy topic area. So our actual platform has some unique features such as our emphasis on curated design. The stance we take is that as design becomes more open and more democratic, the design of the tools becomes the critical thing. How much choice do the consumers or the users have?

VL: Droog establishes the parameters of the designs tools and decides how much freedom to give the user – how are those parameters decided upon?

AJ: As a designer you have to think "If I give the user this realm of freedom that is going to give them this realm of possible outcomes." That's totally a matter of design. Those are design decisions. You have to design a certain amount of freedom and hand over a certain amount. And you also have to give the user the means to participate by designing the interfaces and making programs and program tools.

VL: The role of the designer appears to change in this scenario, is their position being usurped in any way by opening up the process and allowing others to participate?

Designers have shifted from designing the end result, something with no options for the consumer to interact with, to shifting to designing of the tools. But in design for download the design of the tools is just as controlled as the design of the final product. Design is a window of opportunity for the user to interact and this interaction gives the user a feeling of creativity. The feeling is real but that process is designed which is interesting. Basically the designer is designing the template or the starting point and also the tools for design. So even though it is "open design" —it is a heavily designed process —and also if you look at the other open design movements, which for example, provide a grid system online that allows you to manufacture products, even though this grid is a kit of parts that lets people do "anything" it is really a very heavily designed system. Somebody still has to design the grid. It is very controlled. In open design, the role of the designer doesn't diminish —it just changes.

It is a lot of work to bring people into the design process and have good outcomes, outcomes that are satisfactory both for the user and for the designer. Because you know we ask the designers "What if the users design something that is ugly based on your template?" I think most designers in that situation feel that they designed the template and control it to some extent but there is a sense that they don't care if the outcome is ugly. Alternatively, they know their design won't become ugly because they have designed so as not to give that kind of freedom.

VL: Since we are talking about authorship and opening up participation, if someone customises a product on the Droog interface that is then manufactured, will it still be considered a Droog design?

AJ: The platform will not be branded Droog but will have its own name —Make Me —and there will be different brands. Droog will be one of them but there will be other shops within shops —you can think of it that way. So the business models of each shop will be set by their owner who will also curate the design within the store and set the rules, on intellectual property rights for example.

For the Droog shop on the platform we will invite specific designers to design for download. Two of the designers that were exhibited in Milan —Eventarchitectuur and Minale Maeda —we have already asked them to design for our label within Make Me so those indeed are Droog products designed by different designers.

VL: Do you envisage the open side of the website to have a strong community around it?

AJ: Yes, I think that is a really important that there is a sense of community and that people can reach out to one another and share what they have done. That definitely builds momentum and could be the engine behind Make Meand the thing that propels it. I think that being part of a community will have a much bigger impact on selling and buying in the future than it does now. I mean that is definitely happening already, communities and being part of a community is driving purchasing behaviour. Droog wants to have a community around our projects so another thing we are working on is the creation of a point system on our website where if you influence someone else in your community to buy something from Droog you get points. So we are also innovating the shop experience, learning from things like Facebook, or tapping into those kinds of online community forming habits.

VL: I want to discuss manufacturing. When you design a product on Make Me and press order, you are given the option to make it yourself or have it manufactured and sent to you. Where will that manufacturing occur?

AJ: We are creating an international network of manufacturers that are both low and high-tech. So some of them are more involved in CNC and computer-aided design and manufacturing. On the other hand we will also have low-tech manufacturers, because with design for download, you can also download very simple instructions, for example, how to fold a piece of paper. So that is an example of a design that doesn't have to be computer-aided. It ties in to this idea we like of revisiting low-tech workshops through this high-tech global platform.

VL: Are the manufacturers going to be worldwide?

AJ: Yes. It is a huge project and to be honest, I am not sure if we will start to phase it in, or how exactly we will manage to get all these manufacturers around the world, and arrangements with all of them. People in our team are working on the logistics, but it is a big task and we depend on partners and stuff for that.

VL: How does open design and downloadable design work in terms of intellectual property?

AJ: In many situations a creative commons license could apply so consumers are allowed to copy the design but not reproduce it for commercial purposes. All the intellectual property concepts we are leaving up to the decision of the individual brands that are on the platform. So anyone who uploads an image can choose the license that should go with it. And in some situations for example, the actual blueprint for the design might not be uploaded. It might be that you see the design, you participate in the design —if there is some kind of co-creation possible —you hit the purchase button and the file gets sent directly to your nearest manufacturer and is made and delivered to your house. So there might like user interaction tools build into the interface but you might never actually see the design. But that's up to each brand to decide. We expect innovation from the designer in response to all those kind of questions. We would like to challenge designers and ask them —how do you deal with intellectual property rights? How do you respond to the notion say of limited editions on a platform like this?

The other thing is that we imagine that designers could design products that are not a one-time download but that have a longer term downloading structure or lifespan. So you could download upgrades to your furniture or download other services perhaps and maybe with downloads, it is coupled with something physical that needs to happen. So this is sort of how we brief the designer and we are still going to be looking for more innovations in those directions."

18. Appendix: Four Stages In The Spatio-Temporal Configuration Of The Human World

Source: "Local Economies for a Global Future". Jason F. McLennan. 2011

Jason F. McLennan distinguishes four essential time-space combinations in human history: Thousands of Years of Human History[532]

1. A Heavy-Near, Light-Near Paradigm

For most of human history, everything in a person's life was intensely local. People all over the earth had a deep understanding of their place and the world that they could literally see, touch and feel. Moving things that were physically heavy was difficult and limited first to what people could carry, then the limits of domesticated animals. Culture too was intensely local — with peoples only a short distance away who they couldn't understand due to differences in language and customs. These cultural differences emerged in relation to climate, the range of species and other place-based distinctions. Oral cultures, by necessity, stayed close to home, keeping beliefs and ideology very local —sometimes as local as a family group or small village. The world had hundreds of languages and thousands of dialects and even more foundational stories, creation myths and ways of looking at the world. Most of human existence has operated under this paradigm of 'Heavy Near and Light near'.

2. Heavy-'Nearish', Light-Somewhat Far

Slowly as new inventions arose and were refined, our species began to move some physical objects (heavy) and ideas and beliefs (light) across the globe. The emergence of agriculture, the domestication of animals and the written word made change inevitable. During the rise of the first great civilizations, resources like gold, jewels, salt and spices were transported through caravan, sailing vessel and on the back of slaves. With them traveled early ideas including the migration of all the world's great religions. The circumference of travel —both 'heavy and light' grew in proportion to the size and influence of the empire behind it. Yet energy during this era was still a precious commodity and because of the extreme costs to move goods and even people, it was only the most valuable things that really traveled far — and only the richest and most powerful members of the society that benefited. For most of humanity this second age was still intensely local with but mere glimpses of world's beyond their own.

By the middle Ages, some ideas (particularly religious beliefs) began to spread more widely. Exploration or conquest began to transcend language barriers. But religious and political leaders held many of the most important ideas closely, limiting the general public's access to them in order to control their populations and to keep 'divine information' in the hands of the 'anointed'.

So even widely traveled belief systems like Christianity and Islam were localized in a different way, carefully released and controlled by the intellectual elite. Priests, monks and royals were the typical gatekeepers.

532 http://www.stwr.org/imf-world-bank-trade/local-economies-for-a-global-future.html

3. Heavy-Far, Light-Far

Most of the history we now study is centered on the huge changes that have occurred globally in the span of just a few hundred years. From the age of enlightenment and the industrial revolution to today, ideas, technologies and inventions have allowed us to radically remake the world. The beginning of this age often saw violent clashes between civilizations still operating in earlier paradigms and the civilizations that had rushed ahead (the old paradigms always lost). The 'civilized' speech of empires eclipsed tribal languages and beliefs the world over, which weakened and in most cases disappeared. Large-scale manufacturing models called for inexpensive human labor and the scourge of human slavery spread.

Gutenberg paved the way for many modern inventions when he introduced the printing press in the mid-15th century, allowing language and ideas to be distributed widely for the first time in human history. The Industrial Revolution enabled the most dramatic change in our ability to move the fruits of our labor, first with the steam engine and eventually with the combustion engine. Advances in weaponry — gunpowder in particular changed the rules forever. Suddenly, anything we made or conceived of could reach people in the farthest corners of the planet simply by shipping it overland or overseas. The United States and Canada as new nations were some of the first products of this new paradigm and the cultural mythologies that exist with us today (and are so hard for us to shake) are a result of this timing.

After thousands of years in the first paradigm, then a couple thousand years in the second, we fully transformed to this third paradigm in the span of just a few hundred years — with exponential acceleration happening in the last one hundred years — matched graphically with the huge explosion in human population. Each decade the world became smaller and smaller — and the human toll on the environment suddenly tipped beyond what was sustainable. All of this was made possible through the availability of cheap, plentiful energy — borrowing on the stored carbon of millions of years of dead organisms partnered with human ingenuity and invention that did not see nor believed in limits. Moving heavy objects like stone, concrete, furniture and even people require enormous inputs of energy. Coal and petroleum met the need and easily satisfied the demand. Ideas — just like goods, traveled the globe; first through printed publications — but then through even more powerful mediums — the radio, the phone, the television and finally the computer. In the last century ideas finally began to move not only across physical boundaries — but across socio-economic, racial and gender boundaries as well, with the average person in modern society having access to information and ideas from anywhere on the planet.

By the 1980s and 1990s, we could — and did — ship anything anywhere. We could and did share ideas and stories with others across the globe. There was no limit placed on the distribution of anything — indeed our society completely re-ordered itself around this reality within the span of a single lifetime — seemingly completely oblivious to the long-term disruptions it would cause.

Gradually, in the midst of this "success," people questioned the sanity of the paradigm — and the modern environmental movement was born only 30 years ago. And here we are — a world with 7 billion people, rapidly closing on 8 billion. A world where the era of cheap energy is quickly disappearing and the economic house of cards built on it as well.

4. What's Next: Heavy Near – Light Far – the Responsible Paradigm

We are about to take a dramatic leap into the next era: the modern age of Heavy-Near, Ideas-Far. In a world where energy is increasingly scarce and expensive we simply won't be able to transport goods and people over far distances. Yet we'll prioritize energy use for technologies that bring us together virtually —that allow us to connect and share regardless of the distances between communities. The world is about to get simultaneously bigger and smaller depending on the field of human activity concerned. Imagine an America where people stick much closer to home. Where we aren't defined by the open road, but by the quality and depth of our neighborhoods and communities. Where the majority of the things in our lives —our clothes, furniture, food and building materials come from close at hand rather than being globally sourced. We eat according to seasonal variations and see the reemergence of incredible regional diversity in architectural and cultural expressions.

At the same time it won't be a return to provincialism and hierarchical society — an intensely localized economy will be punctuated by key global technologies that keep us connected, informed and up-to-date — with uniform access to information and ideas despite socio-economic, gender or racial backgrounds. The possibilities for environmental and social/cultural healing is immense. Yet, this radical re-ordering won't be easy for us and will at times be violently resisted by those rooted in the current paradigm. I believe that the riots we have been seeing around the world are natural permutations of this emerging paradigm — a world where the average person is super-connected with one another and informed — and frustrated with the status quo world power that refuses to change.

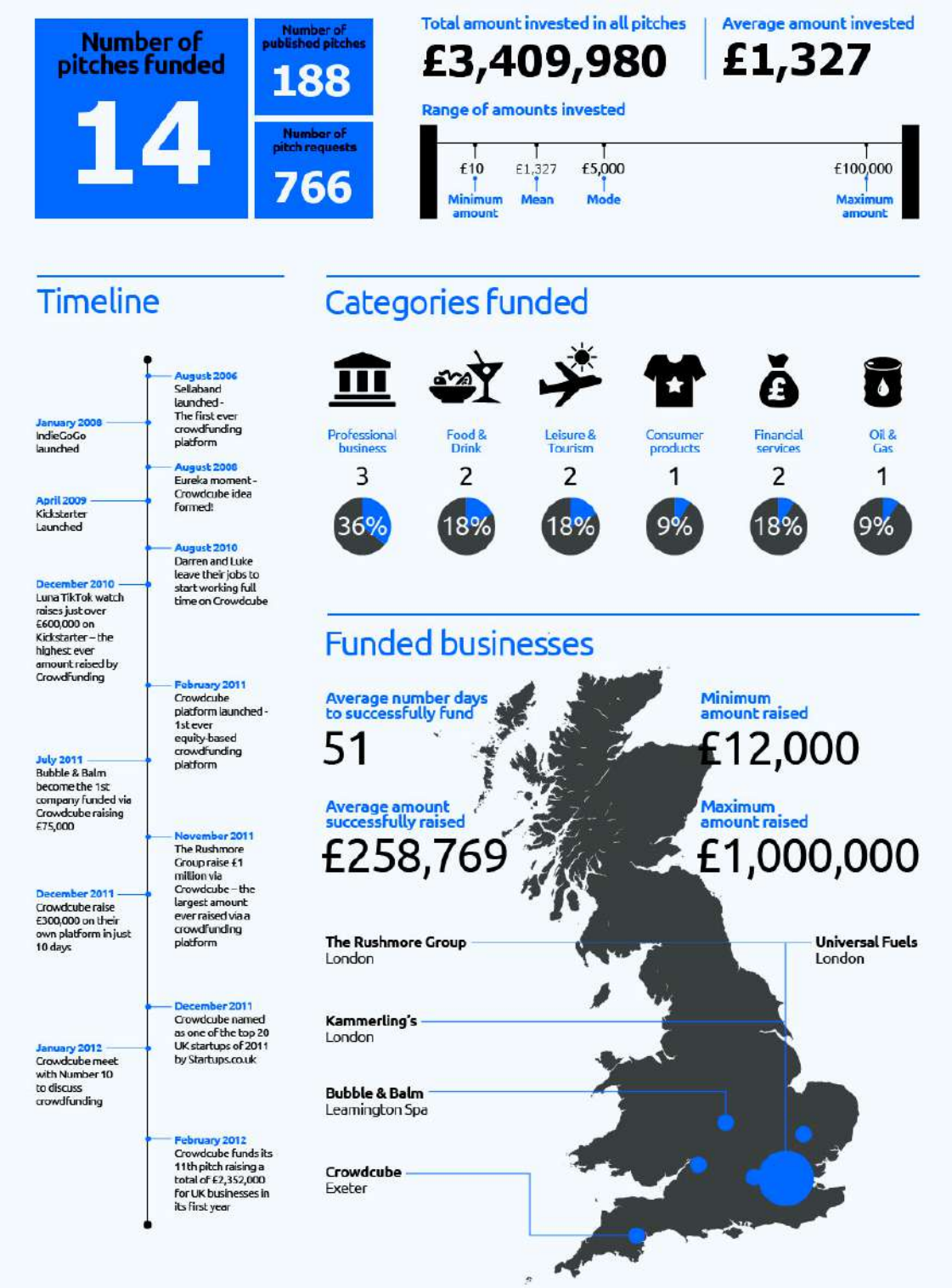
Here are some of the characteristics of the new re-ordering as I see it:

- The 'global economy' as its now defined will shrink rapidly between 2012-2030, as energy scarcity will limit our ability to ship things all over the world. In a short span of time the cost of transporting human or material cargoes over any appreciable distance will simply be too high and the market will begin to correct itself. In its place will emerge strongly local 'living economies' with an emphasis on local materials, local knowledge, durability and craft.
- Super-sized retailers and one-stop shops will all but disappear. If Wal Mart, Costco, Target and others like them survive, its because they will have learned to operate on a new business model based on locally produced goods globally managed through information management technologies (heavy near, light far).
- As we focus again on food and goods that can be grown or made locally it will have the positive effect of reinvigorating local cultures and revealing regional variations. Artisanship will reemerge and quality will trump quantity. Food and drink will become intensely local — inspiring the re-emergence of creative cuisines and local flavors. Wine from France or Australia will once again be a true luxury here — but thankfully equally good vintages will be available close to home!
- 'Winning' technologies (as defined by those technologies we'll continue to invest in) will be those that require less energy to make and operate relative to the benefits they provide. Web-enabled cell phones are a perfect present-day example, as they put a world of information in the hands of any user and draw very little energy in the process, which is why they already are ubiquitous in third world countries. Small solar panels will power hand-held electronics and tablets. Larger machines (cars, elevators, HVAC systems, etc.) will either be completely re-engineered to be super-efficient or will disappear. Larger utility infrastructure (regional energy grids and regional waste treatment plants etc.) will give way to a network of decentralized, distributed technologies.
- The era of the automobile will finally end. Expect a rapid 'de-autoization' of our culture over the next twenty years- despite the introduction of better electric vehicles and hybrids. While some larger specialty vehicles will continue to be supported (I think we'll keep trains and specialized automobiles for key tasks like ambulances and fire suppression) the original mechanical horse — the bicycle, will emerge as the world's transportation tool of choice even here in the US (as it is already in many places). Electric assist will extend our ranges, but there is still nothing more efficient than a person on a bike.
- As we become more globally connected via electronic information exchanges, we will become more physically disconnected beyond a small radius of travel. The costs of mechanized transport will limit our ability to travel overseas and relocate on a whim, but virtual communication we will expand our ability to share ideas with our across-the-world neighbors. So while you may increasingly talk and share ideas with people in other countries the chances of physically visiting them will diminish. The flip side is that we will know our own communities much more intimately while maintaining open dialog with our fellow global citizens. Information will become even more democratic and widely shared.
- The ultra-rich will continue to be the exception to most of the rules. Wealthy individuals will pay — dearly — or the privilege of globetrotting and having heavy special goods shipped from afar. Yet in a world where the exploitation of the environment and other people's is no longer tolerated, what it means to be 'rich' will begin to be redefined as well.
- It goes without saying that the network of Certified Living Buildings around North America will only grow and become beacons of hope for the future of our homes, buildings and offices."

19. Appendix: CrowdCube First Year Infographic

Source: "Crowdcube Infographic". CrowdCube.

Total amount successfully funded: 2,562,000[533]



533 http://www.crowdcube.com/infographic

Creating new jobs

Number of employees before successful funding

150

Estimated employees 3 years after successful funding

396

About the successfully funded entrepreneurs

Average age of an entrepreneur

42

Youngest entrepreneur

20

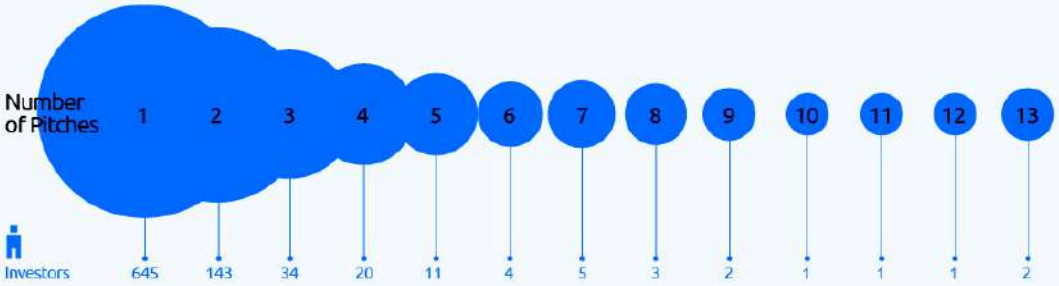
Gender

Male

Female

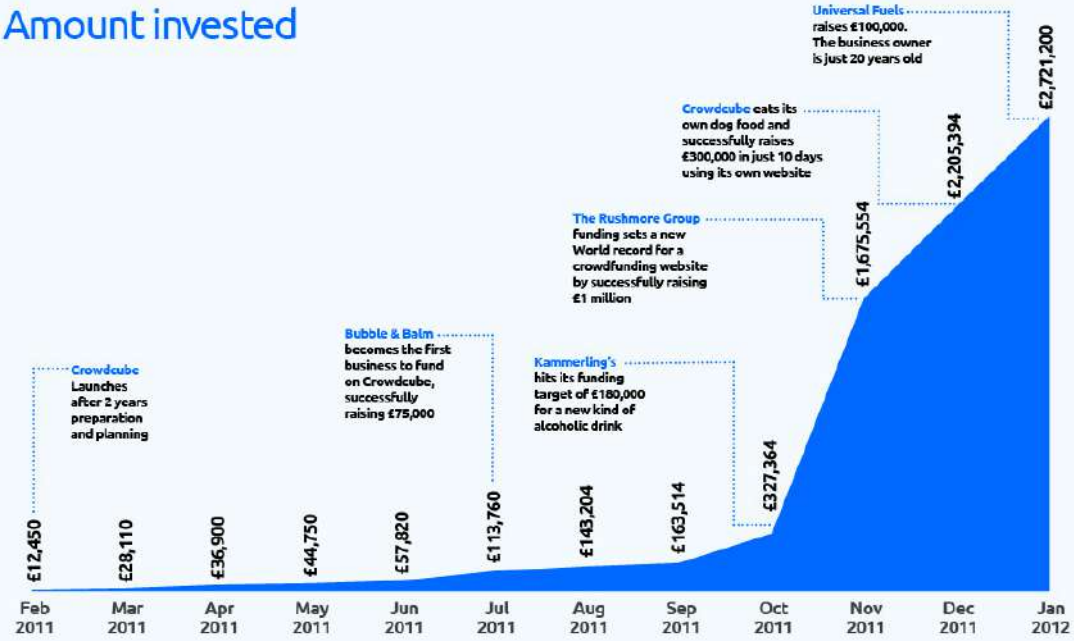
About investors

Number of investors who have invested in multiple pitches



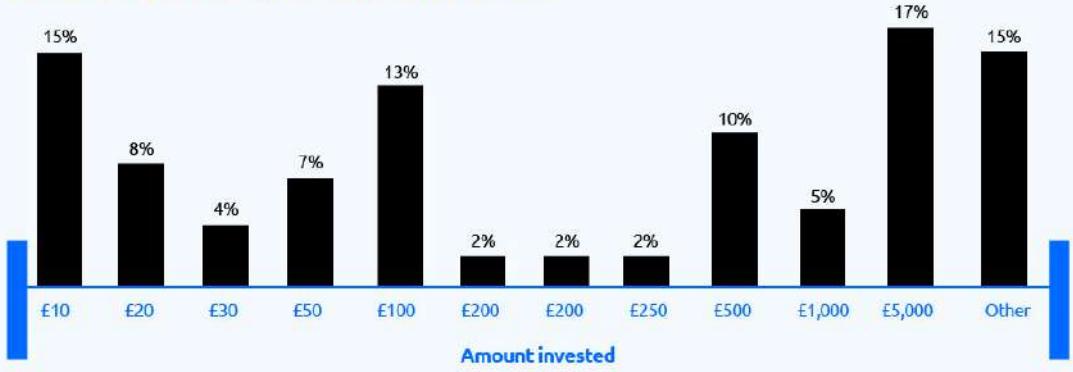
Total number of registered investors 8,811

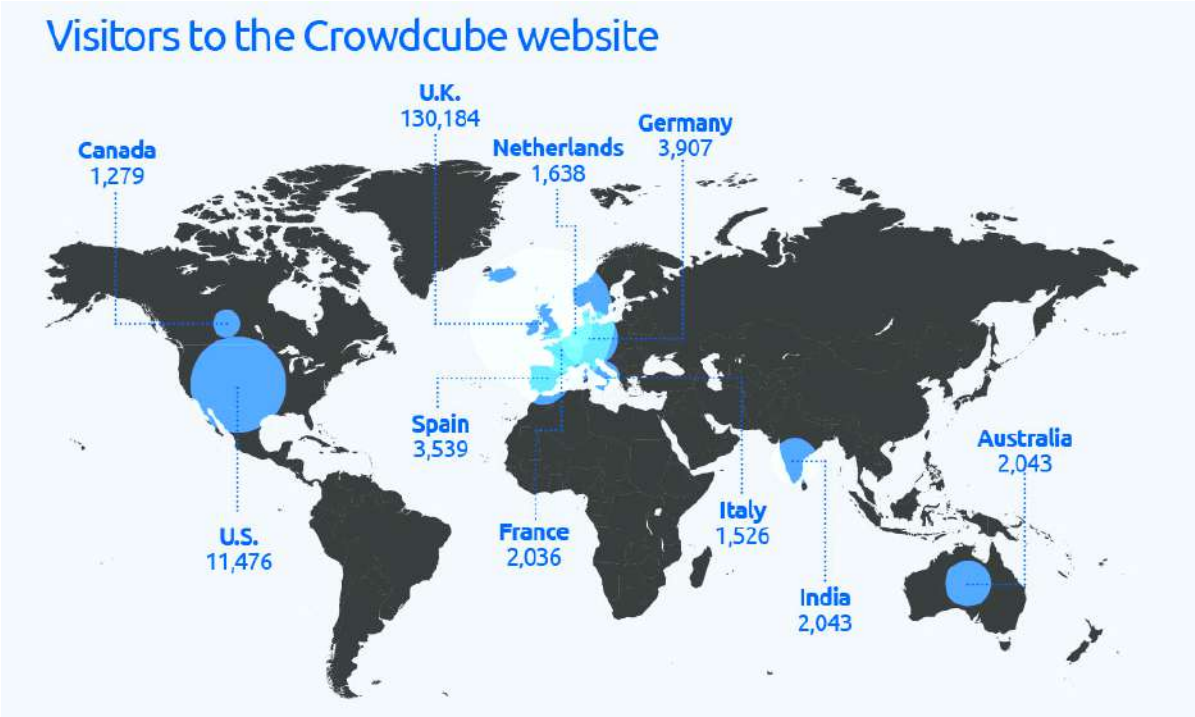
Amount invested



Most popular amounts invested

Percentage of users




Visitors to the Crowdcube website
U.K.
130,184
Canada
1,279
Netherlands
1,638
Germany
3,907
Spain
3,539
Australia
2,043
Italy
1,526
U.S.
11,476
France
2,036
India
2,043

20. Appendix: Axel Bruns On Produsage In Citizen Journalism

Source: "From Production to Produsage: Interview with Axel Bruns". Henry Jenkins. 2008.

Henry Jenkins interviews Axel Bruns on his concept of Produsage in citizen journalism[534]:

HJ: Your analysis emphasizes the value of "unfinished artifacts" and an ongoing production process. Can you point to some examples of where these principles have been consciously applied to the development of cultural goods?

AB: My earlier work (my book Gatewatching: Collaborative Online News Production, and various related publications) has focussed mainly on what we've now come to call 'citizen journalism' - and (perhaps somewhat unusually, given that so much of the philosophy of produsage ultimately traces back its lineage to open source) it's in this context that I first started to think about the need for a new concept of produsage as an alternative to 'production'.

In JD Lasica's famous description, citizen journalism is made up of a large collection of individual, "random acts of journalism", and certainly in its early stages there were few or no citizen journalists who could claim to be producers of complete, finished journalistic news stories. Massive projects such as the comprehensive tech news site Slashdot emerged simply out of communities of interest sharing bits of news they came across on the Web - a process I've described as gatewatching, in contrast to journalistic gatekeeping -, and over the course of hours and days following the publication of the initial news item added significant value to these stories through extensive discussion and evaluation (and often, debunking).

In the process, the initial story itself is relatively unimportant; it's the gradual layering of background information and related stories on top of that story - as a modern-day palimpsest - which creates the informational and cultural good. Although for practical reasons, the focus of participants in the process will usually move on to more recent stories after some time, this process is essentially indefinite, so the Slashdot news story as you see it today (including the original news item and subsequent community discussion and evaluation) is always only ever an unfinished artefact of that continuing process. (While Slashdot retains a typical news-focussed organisation of its content in reverse-chronological order, this unfinishedness is even more obvious in the way Wikipedia deals with news stories, by the way - entries on news events such as the 2004 Indian Ocean tsunami and the 2005 London bombings are still evolving, even years after these events.)

This conceptualisation of news stories (not necessarily a conscious choice by Slashdot staff and users, but simply what turned out to make most sense in the context of the site) is common throughout citizen journalism, where community discussion and evaluation usually plays a crucial role - and it's fundamentally different from industrial journalism's conception of stories as discrete units (products, in other words) which are produced according to a publication schedule, and marketed as 'all the news that's fit to print'.

And that's not just a slogan: it's essentially saying to audiences, "here's all that happened today, here's all you need to know - trust us." If some new information comes along, it is turned into an entirely new stand-alone story, rather than added as an update to the earlier piece; indeed, conventional news deals relatively poorly with gradual developments in ongoing stories especially where they stretch out over some time - this is why its approach to the continuing coverage of long-term disasters from climate change to the Iraq war is always to tie new stories to conflict (or to manufacture controversies between apparently opposing views where no useful conflict is forthcoming in its own account). The more genuinely new stories are continually required of the news form, the more desperate these attempts to manufacture new developments tend to become - see the witless flailing of 24-hour news channels in their reporting of the current presidential primaries, for example.

534 http://henryjenkins.org/2008/05/interview_with_axel_bruns.html

By contrast, the produsage models of citizen journalism better enable it to provide an ongoing, gradually evolving coverage of longer-term news developments. Partly this is also supported by the features of its primary medium, the Web, of course (where links to earlier posts, related stories and discussions, and other resources can be mobilised to create a combined, ongoing, evolving coverage of news as it happens), but I don't want to fall into the techno-determinist trap here: what's happening is more that the conventional, industrial model of news production (for print or broadcast) which required discrete story products for inclusion in the morning paper, evening newscast, or hourly news update is being superseded by an ongoing, indeterminate, but no less effective form of coverage.

If I can put it simply (but hopefully not overly so): industrial news-as-product gets old quickly; it's outdated the moment it is published. Produsage-derived news-as-artefact never gets old, but may need updating and extending from time to time - and it's possible for all of us to have a hand in this.

21. Appendix: Open Vs. Closed Platforms

Source: "Is It Better for Businesses to Adopt Open or Closed Platforms?". Ian Sherr and Michael Totty. 2011.

From a dialogue between Jonathan Zittrain, a professor of Internet law at Harvard Law School, and Mark VandenBrink, who leads Frog Design, conducted by Mr. Sherr and Mr. Totty

WSJ: For companies seeking to launch a new digital product, which is better: an open platform or a closed one?

MR. ZITTRAIN: Open platforms tend to offer greater flexibility, and by making the use of a new digital product or service more flexible, a company can court far more usage and mind share.

For example, Twitter could have insisted from the start that people wanting to use its service visit twitter.com or use only applications made by Twitter. That would have given Twitter better control over the look and feel of the Twitter experience.

Instead, Twitter had open application programming interfaces, or APIs — a way of allowing other companies to write Twitter applications or interact with Twitter in automated ways. That led to new interfaces for Twitter that some users liked more, which drove usage and made Twitter more valuable.

MR. VANDENBRINK: Jonathan makes the argument that the key to launching a new product or service is to make it more flexible, and as a result, more mind share ensues. I disagree: The key to launching a service is to maximize profit, not to be flexible.

It's a simple equation: How do I get maximum return for minimal outlay? Let's look at the example of Apple and Google Inc.

Apple takes the approach that having a totally closed ecosystem [where it builds all the hardware and client software] allows it to create a more perfect experience for their customer, and it's hard to argue with the success they have had. That near-perfect control of the customer experience translates well to developers targeting iOS, or Apple's mobile operating-system platform. They get the advantages of Apple's obsession with perfection: The platform is predictable in terms of upgrades, delivers high performance and works the same on any generation of device.

Google's Android, while a fine platform, doesn't have that. Android runs a wide variety of phones from a variety of original equipment manufacturers, or OEMs. For each release of Android, Google works with an OEM as a lead partner, and helps tune Android to the particular hardware of that manufacturer. OEMs that aren't the lead partner must implement and tune Android on their own.

This is one of the reasons why you see vastly different performance on new phones running the same version of Android. And since you have multiple OEMs working at different paces and with different priorities, Android upgrades are unpredictable and in some cases may never happen for a given phone.

Flexibility, in this case, helps Google with platform adoption, but isn't good for customers. Longer term, that may not be good for Google."[535]

535 http://online.wsj.com/article/SB10001424052970204554204577023994194742720.html

Closed strategies are not for everyone: The Apple exception

By Paul Miller:

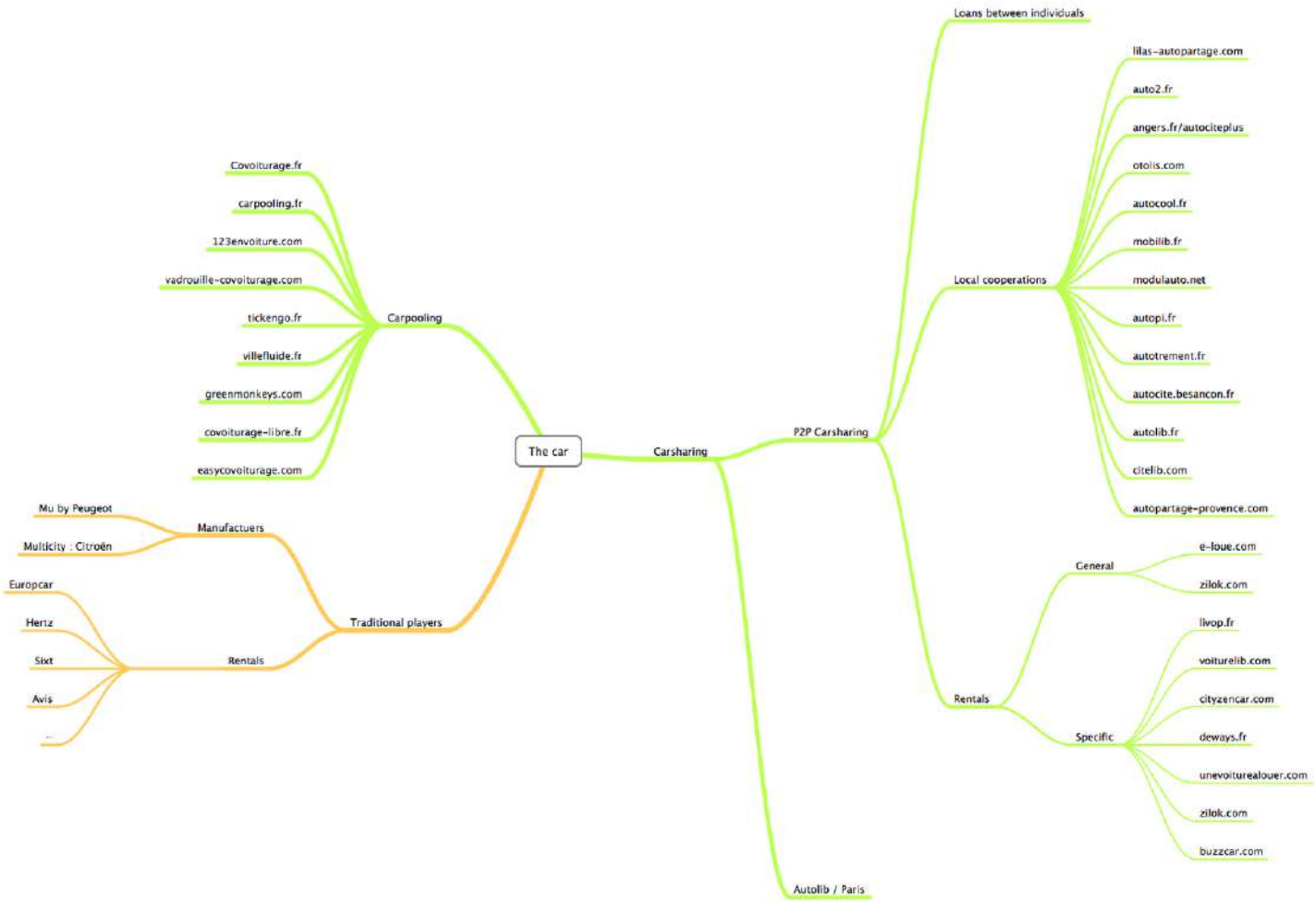
> *"Apple isn't the only company to take this our-way-or-the-highway approach. RIM's BBM is another popular example. I'll get a BlackBerry because it has BBM, and I'll convince my friends to get a BlackBerry because it has BBM, and now none of us can buy a different phone, because there's no equivalent pervasive service, and we'd all have to jump at once to guard against peer group fragmentation. RIM's ultimate failure wasn't in its ecosystem strategy, it was in its device strategy. It just shows that no quasi-monopoly is foolproof: if you don't continue to innovate, someone will come along and eat your lunch.*
>
> *The problem with copying this sort of strategy is that the road is littered with failures, or user-hostile prisons. Microsoft tried to imitate Apple's closed music ecosystem with Zune, and failed miserably. Apple itself has tried to do a BBM-style move in FaceTime and iMessage, but instead of opening up FaceTime like it promised, Apple has kept it as a differentiator. They might make for a good ad, but since FaceTime and iMessage don't play nice with others, and because Apple is far from a majority in the smartphone space, they're ultimately limited in utility, and confusing for users.*
>
> *Sony is the classic case of proliferating standards. It's almost a byword now. Sony builds its own version of almost every service or standard (music, movies, app stores, discs, memory cards), and rarely shares the love. Instead of making the Xperia Play the premier handheld for playing all Android games, Sony tried to create its own ecosystem, the PlayStation Suite, that could only really catch on if it really caught on.*
>
> *Carriers also seem to suffer from this disease of creating businesses that can only truly succeed if all others fail. They create a myriad of lock-ins, both monetary and mental, for users, and work hard to keep their networks incompatible with each other. Instead of sharing the load of network buildout, they duplicate efforts (to the tune of billions of dollars), and the user suffers because of it. Few people have to decide which car to drive because of which roads it's compatible with — car makers have found other ways to differentiate."*

22. Appendix: Mapping The Emergence Of Sharing Economies In France

Source: Antonin Léonard and Edwin Mootoosamy

The Car

This appendix registers diverse phenomena belonging to the collaborative economy, focusing on cases originated in France. We will start by focusing on new user behaviors in the mobility sphere and behavioral changes towards the car.



Consumer expectations seem to be shifting fast in Europe, and especially in France. The car market is an illustration of this shift. From 16 million units sold in 2007, 13 million cars were sold last year in Europe. In France, the number of cars sold dropped by 10% last year (source : Euler Hermes).

> *"There is also growing research showing that younger generations do not relate to the automobile as enabling "freedom". Instead, their electronic and social media devices - whether a smart phone, small lap top computer, music player, etc. - provide an alternate means for self expression and being free to do what they want. In the United States, kilometers driven by 18–34 year olds is declining, and this is likely the case in Canada as well (Neff, 2010). Younger generations seem to have less interest in automotive use, making apartment living in dense, walkable and transit-oriented urban areas a more natural fit for their lifestyles." Jay Walljasper*

What are the consequences of this new relationship to cars? Sharing alternatives are popping up to serve the general public. Carsharing might serve 5.5 million people in Europe by 2015. In France, carpooling for long trips answers the needs of growing numbers of travelers. French highway companies are even about to **launch specific parking spaces to help carpoolers meet up**[536]. The main French carpooling service provider, *Covoiturage.fr*, serves 1 million users, amongst which 600 000 have registered in the last 12 months. For Frédéric Mazzella, Covoiturage.fr's founder, these numbers are far from the market's potential. He states in an article of Le Parisien: *"I am convinced that in a few years we can serve 5 to 10 million users."*

Such optimism is confirmed by a number of studies, including one by TNS Sofres for the Chronos Group[537]. It focuses on user perception of transportation in the future: carpooling took first place, followed by public transportation, carsharing and bikes. Cars came in last. Another interesting aspect of this study is that 51% of the French consider that the essential part of their trips will involve shared cars in 2030.

Car pooling

This sector is led, in Europe, by two main actors: *Carpooling.com* and *Comuto*. Carpooling.com has 3.5 million people registered and Comuto 1.6 million. Both operate in most European countries but Comuto is more focused on Western Europe (France, UK, Spain). Comuto's brands are *Covoiturage.fr* in France, *BlaBlaCar* in the UK and Spain. Covoiturage.fr took 4 years to get a critical mass of users but now it is the most powerful player in the game (more than 90% of rides happening in France are by Covoiturage.fr).

The future of carpooling has a lot to do with providing an easy-to-use, convenient service to the final user. For that reason, Covoiturage.fr aims to provide a better, paid service. While before the service was free, Covoiturage.fr now aims to charge a fee on every transaction that happens through the platform. This will help to know exactly when rides happen and get users to provide references and reputation. The better the reputation system, the better the service as users will get more information on who they share a ride with. That will help scale ridesharing and make it an even more common practice.

Some secondary players, like *ecolutis.com*, also provide B2B services for companies that wish to organize ridesharing for their employees. New players also wish to offer a non-for-profit, community-based, free ("libre et gratuit") ridesharing service, e.g. *covoiturage-libre.fr*.

Our vision is that their will be three different players in the future:

1. Paid, convenient service providers (proprietary model)
2. Free service providers (free-software model)
3. B2B service providers (SaaS model)

Car sharing

Traditionally, carsharing providers in France were community-based, non-for profit cooperatives or associations. *Franceautopartage.com* is a network of 11 local carsharing providers.

536 http://www.leparisien.fr/abo-vivremieux/le-covoiturage-devient-l-auto-stop-du-xxie-siecle-09-06-2011-1486387.php

537 http://www.groupechronos.org/index.php/fre/projets/etudes/l-etude-auto-mobilites-tns-sofres-chronos-objectifs-et-methodologie

In Paris, *Caisse-commune.com*, launched in 1999, has been the pioneer in providing carsharing in France. *Mobizen.fr* was the second actor to launch in Paris. Since then, they have been acquired by big players (Veolia transport for Caisse Commune and Transdev for Mobizen).

Recently, two main actors have launched with innovative models:

- *Autolib*[538] (Bolloré Group) provides one-way carsharing in Paris with electric cars. As for now, there are said to be between 600 and 1000 cars rent every day (latest metrics[539])
- *Car2go*[540] (Caimler / Europcar) just launched in Lyon with 200 cars.

Neighbour-to-Neighbour Car Sharing: New Start-ups

Peer-to-peer car rentals are without doubt the most disruptive scheme in this new realm of shared mobility. It could also turn into the most important driver of this trend. In the US, Google invested 5 million dollars[541] in *RelayRides*; while *Getaround*, their main competitor won the *TechCrunch Disrupt*, a prize for the most promising start-up.

In France, six companies have already set their hearts on the peer-to-peer car rental market (current world record): *Zilok* (fr.zilok.com) -2500 cars for rent, *Voiturelib.com* -250 000 € in revenue since launch, *Deways.fr* -community focused, *Livop.fr, Cityzencar.com*, and the newcomer *Buzzcar.com*, founded by the former CEO of *ZipCar,* Robin Chase. During an event dedicated to the sharing economy, at a coworking space in Paris, he explained how:

> *"In big cities, the idea of carsharing is obvious to most [...] Car overcapacity and overpopulation in cities make carsharing amongst individuals a must."*[542]

Food

Food is one of the sectors where the collaborative economy holds more interesting promises in terms of consumer benefit. Indeed, ecological concerns, the desire to regain control of what we eat, as well as the economical pressure of hypermarkets are pushing consumers to favor more direct and collaborative channels. In this part we will try to give an overview of the different approaches and practices of the collaborative economy regarding food.

Sector Drivers

Collaborative consumption practices in the food sector are driven by a particular set of characteristics.

First, we mainly see an interest in establishing shortcuts between producers and consumers.[543] This desire is sometimes so strong that the barrier between consumer and producer often blurs, with initiatives such as *plantezcheznous.com* or *laruchequiditoui.fr*. The latter proposes to shorten the circuit of the product by involving consumers in a long term relationship with the product. Today, 26 open hives exist and 236 are in the building stage.

Second, there are semiotic synergies in this sector fueled by the overlap of the sharing imaginary and the symbolic power of food as a strong social enabler. Whether it is commercial sharing as for *super-marmite.com*, or non-commercial as for

538 http://www.autolib-paris.fr/

539 http://www.metrofrance.com/paris/autolib-entre-650-et-1000-locations-par-jour/mlbw!YUSxo64XLF4k/

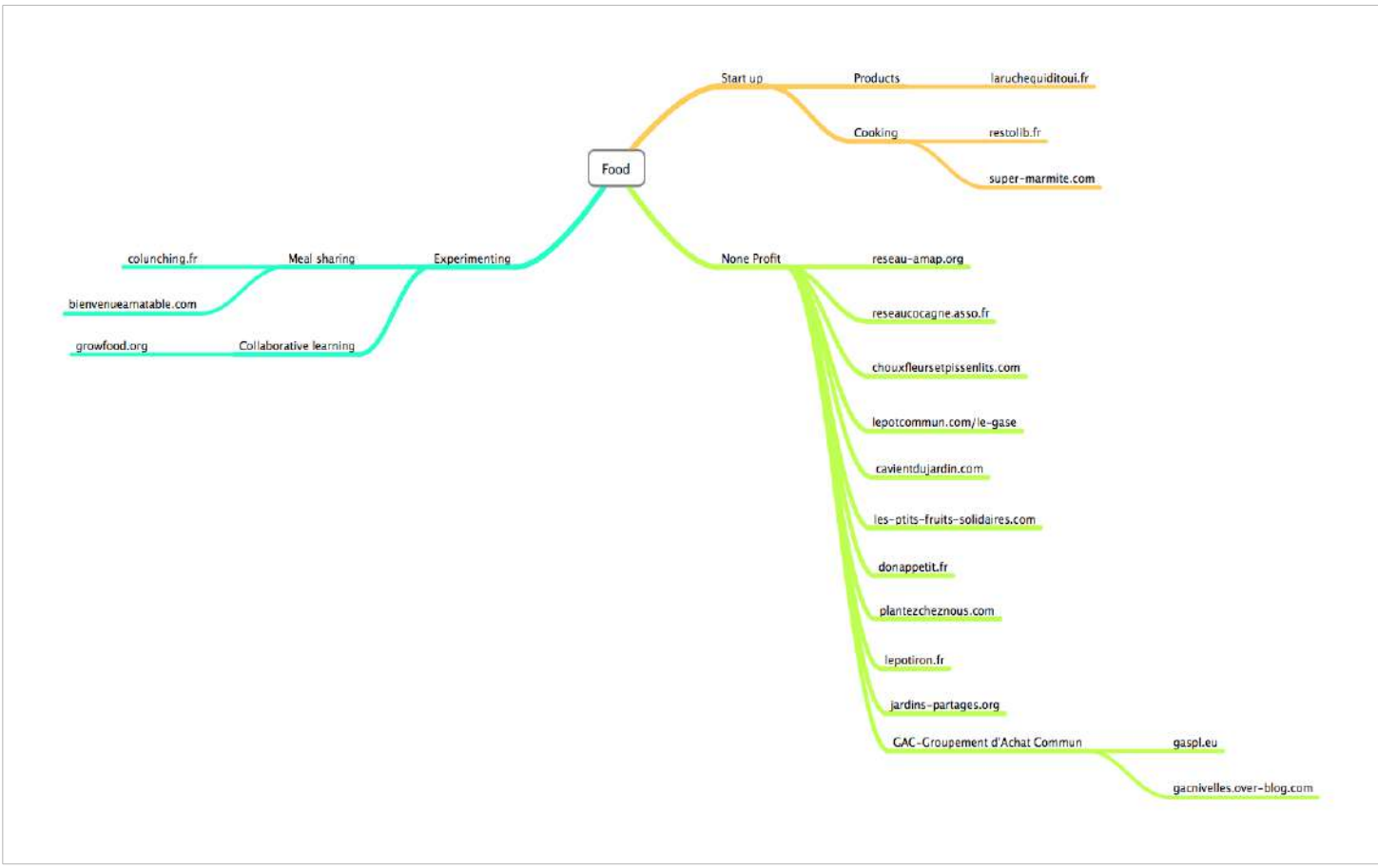
540 http://www.car2go.com/lyon/fr/

541 http://www.bloomberg.com/news/2010-12-14/google-backed-relayrides-lets-users-rent-cars-for-cash-taking-on-zipcar.html

542 http://lacantine.org/events/l-economie-du-partage-appliquee-au-secteur-du-transport-et-de-la-mobilite-quelle-viabilite

543 Explanatory video laruchequiditoui.fr (in French) http://www.youtube.com/watch?v=zAFZppRiFWY

donapetit.fr.and *bienvenueamatable.com*, the creation of social ties is constructed as a core aspect of development. Third, there is a strong trend towards autonomous collaboration. As seen on the mapping below, the main initiatives are non-profit ones, with for instance the *AMAP* network which is growing steadily with more than 1600 in France. The inter-regional movement of *AMAP* estimates that it represents more than 66,000 families and almost 270,000 consumers, with a annual turnover estimated to 48 millions euros.



Material Goods

In this section we will look to material goods in general, and therefore we will address the potentially consumable goods in a collaborative way and different business models used.

Barter: a Business Opportunity for the Future?

Sophistication of Internet applications, an economic climate marked by growing uncertainty and precariousness, and sociological changes in attitudes towards consumption, are among the factors giving rise to a revival of these practices. The number of actors and business models is rising. There are two different types of organization:

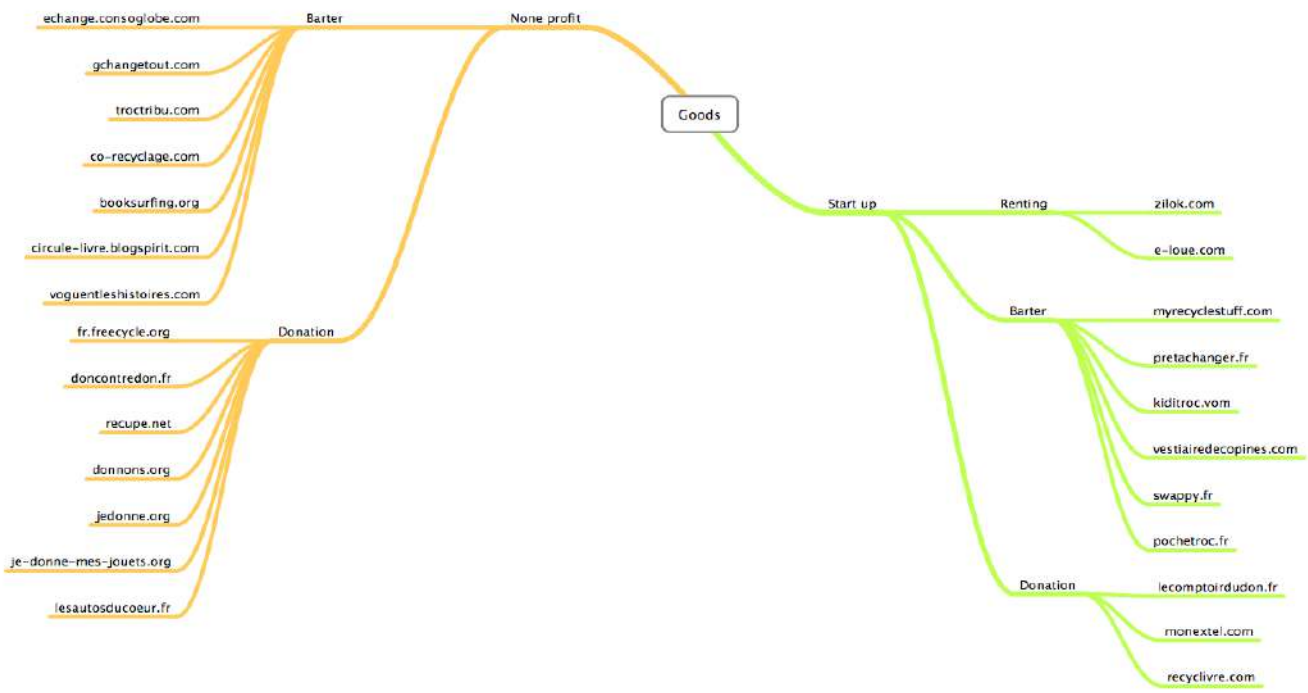
- The "bilateral": the exchange takes place between two people and is about two different objects. In this case each participant transfers ownership of the good to receive the other's. Examples include *pretachanger.fr* or *myrecyclestuff.com*

- The"multilateral": a unit of account is introduces thus making exchange smooth and enabling wider exchange choices. *Kiditroc.com*, for example, will introduce exchange points. In this model I no longer have to find someone who not only offers an item I'm looking for but will also be interested in any of my items.

The French renting industry is booming. For example *Zilok.com* has some 200,000 items available, 300,000 unique visitors per month, 100,000 registered users, and strong media coverage. In most cases, the business plan is built on a commission-based model and may be supplemented by a premium offer.

Barter: a Marketing Tool?

These practices are also being used by corporate actors as marketing tools that appear as positive brand associations while in reality being vehicles for deeper data mining of their customers. For example, *Decathlon* with its *'Trocathlon'* campaign or *Castorama* and '*lestrocheures.fr*' offering barter skill sharing hours of tinkering.



Travel

Through this section called Travel we will focus on the issue of housing in France and the solutions offered by the collaborative economy to tap into the revenue production potential of private houses.

The Weight of Housing in the French Household Budgets

Housing is the largest item of expenditure in the budget of the French. It is constantly growing:

> *"The French have spent a larger share of their budget on housing in 2010. They spent in this capacity of 297.7 billion euros last year, or 9,800 euros per household. This is 4.2% more than in 2009"*[544].

In these times of economic crisis the French are looking to save on all of their positions expenditure and above all: housing.

544 "Report on National Accounts of Housing" - Department of ecology, sustainable development and housing - 2012 - http://www.statistiques.developpement-durable.gouv.fr/publications/p/references/comptes-logement-edition-2012-partie.html

Solutions Related to the Collaborative Economy

7,1% of available housing units are unoccupied in France (*Distribution of housing by category and type in 2011*[545]). Collaborative consumption models by definition focus on minimising idleness or excess capacity of goods by optimising access to information concerning the locus of these excesses and to information concerning parties interested in them. For this reason models that bridge previously disconnected communities and focus on goods with frequent idleness periods hold the most potential. In the case of the housing market, the frequent idleness of dwellings (whether partial or total) which is caused by countless reasons, presents a large opportunity for optimisation of the resource through collaborative consumption.

From Collaboration to Retribution

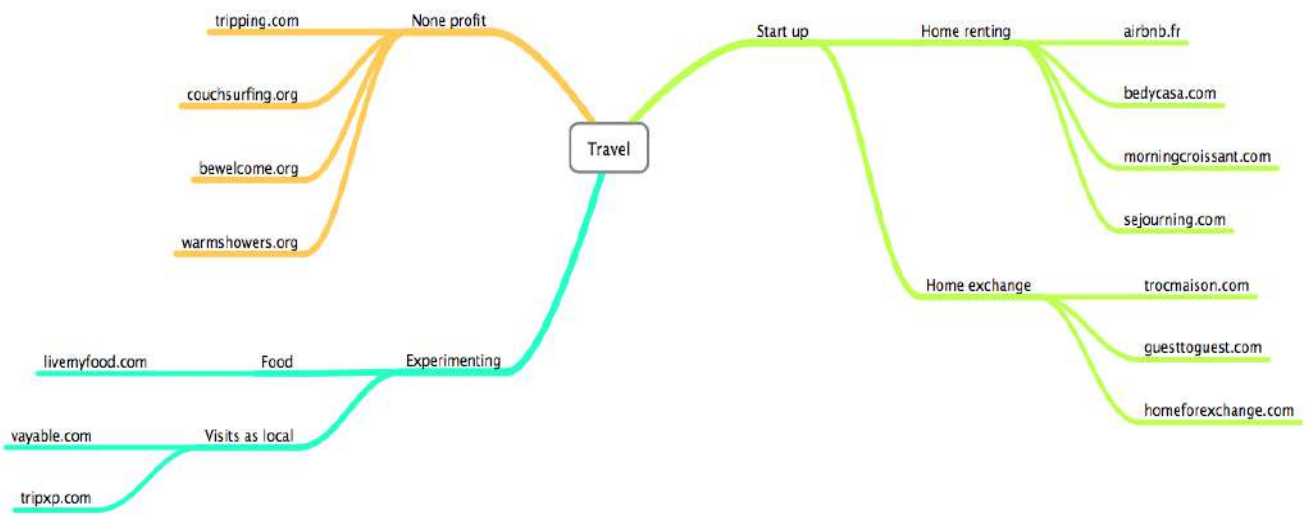
Observation of these models suggests a correlation between the concepts of collaboration and retribution. Thus, a model such as couchsurfing, which implies a strong collaboration will result in a lower retribution. Conversely, a model like Airbnb will involve a lower collaboration and therefore a greater retribution.

Mostly Touristic Rentals

Accommodations available through the platform of collaborative economy are primarily intended for short-term rental, making it ideally suited to cater to the travellers market . It is not surprising that this type of rental experience has grown significantly in Paris (which is the second *Airbnb* market after NY in number of nights booked) and France in general.

Airbnb growth in France was 400% last year. Indeed, the collaborative economy offers a new way to experience France, as well as any other country: from the perspective of a local. Through a collaborative economy booking like those on *Airbnb*, tourists attend districts not usually listed in guidebooks, and usually share their experience with the owner of the apartment. Their journey will thus correspond to a truly unique memory as opposed to the corporate standardization of tourist stays.

Thus, one can see that the strategy of *Airbnb* to locate physically in Paris, is a response to a request for special use of the service proposed by the American start-up. The French market is still cautious in this kind of initiative, and therefore potential development is enormous.



545 http://www.insee.fr/fr/themes/tableau.asp?reg_id=0&ref_id=NATFPS05201

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