Commons Based Peer Production in the Information Economy

Adam Arvidsson
Alessandro Caliandro
Alberto Cossu
Maitrayee Deka
Alessandro Gandini
Vincenzo Luise
Brigida Orria
Guido Anselmi

The publication of Yochlai Benkler's *The Wealth of Networks* in 2006 introduced the notion of Commons based peer production (CBPP) to the theoretical vocabulary of the social sciences. Similar issues had been debated for some time, mainly within the disciplines of computer science and management, and within the mainly non-academic debates that constituted what Richard Barbrook and Andrew Cameron (1996) called the 'Californian Ideology' of Silicon Valley entrepreneurs, hackers and computer enthusiasts (for an overview see Turner, 2010, Romele and Severo, 2016). However, Benkler's work, along with the contemporary writings of Michel Bauwens (2005), gave a coherent definition to the phenomenon and placed it within the tradition of mainstream social theory.

Benkler makes explicit the implicit suggestion already current within exponents of the 'Calfornian ideology', that CBPP should be understood as a new mode of production, alternative to markets and networks, which is emerging in digital environments. Departing form the perspective of transaction cost economics Benkler suggests the most important determinant of this development is the ability of digital media to greatly reduce the transaction costs involved in large-scale collaboration among strangers. These new forms of productive collaboration are marked by three central features: First, decentralization: in CBPP "the authority to act resides with individual agents faced with opportunities for action,

rather than in the hands of a central organizer, like the manager of a firm or a bureaucrat" (Benkler and Nissenbaum, 2006:400). (In Michel Bauwens' (2005) words CBPP communities are self organized 'adhocracies': organizational structures and hierarchies emerges as a consequence of practice and members invest significant time and energy in developing organizational forms and governance systems as they go along.) Second, "a frequent use of common resources and public goods" (Benkler & Nissenbaum, ibid.). CBPP communities are commons based: they make use of shared resources, mostly immaterial as in the case of Open Software or other knowledge commons, but sometimes also material resources as in the case of Fab Labs, where machinery and other resources are shared among members, or within the 'Sharing Economy' more generally (Benkler, 2004). Within most communities, what members make out of such common resources is itself made common, put back into the commons pool, as when a line of open source code is deposited back into a common archive. The common nature of such wealth is sometimes extended beyond particular communities, as when Creative Commons licenses make it publicly available, in whole or in part. Third, CBPP is marked by the prevalence of non-monetary motivations. Here Benkler makes two apparently contradictory points. On the one hand he suggests that participants in CBPP are driven by a plurality of diverse motivations. This is because declining transaction costs and easy connectivity have made it so that enough interested talent will somehow find its way. There is no need to posit any common driver for participation in order to explain the functioning and sustainability of initiatives like Wikipedia or Seti@Home. At other times Benkler suggests that there is indeed such a a common driver for participation. This common driver consists in the 'common decency' manifested in the kinds of social sharing that goes on, and that has gone on for a long time in the ordinary social relations that make up everyday life. CBPP is simply a technologically enabled extension of the forms of 'social

sharing' that have been a feature of human life throughout history. They have been

extended into the domain of high-tech digital production. That is, 'sharing nicely' has

become a feature not just of neighborly relations, but also of 'creative labor' more generally

(Benkler, 2004).

> We need to assume no fundamental change in the nature of humanity. We merely
> need to see that the material conditions of production in the networked information
> economy have changed in ways that increase the relative salience of social sharing and
> exchange as a modality of economic production. That is, behaviors and motivation
> patterns familiar to us from social relations generally continue to cohere in their own
> patterns. What has changed is that now these patterns of behavior have become
> effective beyond the domains of building social relations of mutual interest and
> fulfilling our emotional and psychological needs of companionship and mutual
> recognition. They have come to play a substantial role as modes of motivating,
> informing, and organizing productive behavior at the very core of the information
> economy.
>
> (Benkler 2006: 92).

At times Benkler suggests that such 'social sharing' is able not only to motivate but also to

coordinate the productive practice that unfolds in CBPP communities. "*Participants to social

production use social cues and motivations, rather than prices or commands to motivate and

coordinate the actions of participating agents*" (Benkler & Nissenbaum, 2006:400).

Throughout Benkler's writings the possible contradiction between these two points of view

is never addressed: Is participation in CBPP driven by a plurality of different motivations? Or

is 'social sharing', 'sharing nicely' , 'social cues and motivations' the one overwhelming factor

that motivates participants and coordinates their actions? This omission is probably

explained by Benkler's reluctance to identify a theory of value for CBPP. To Benkler CBPP is

primarily a civic, rather than an economic phenomenon. As such it is driven by virtues, which

he understands to be beyond calculation (Benkler, 2006:109). And although he concedes

that it is sometimes possible to construct economic explanations for participation in CBPP

communities (as in the early work of Lerner & Tirole, 2002), this, he suggests, somehow

does violence to the phenomenon:

> Although it is entirely possible that the persistent and pervasive practice of spending time and effort producing something of value and giving it freely to be used by others for no compensation can be explained as self-serving behavior in   pursuit of, say, reputation, a more efficient and direct explanation in many, if not most cases, is the pleasure or satisfaction of giving - generosity, kindness, benevolence.

(Benkler & Nissenbaum, 2006:408)

This non-economic nature of CBPP is central to Benkler's whole theory. Not only does it

serve to separate CBPP from markets and hierarchies, but it is also key to the civic and

political potential of this movement. CBPP, he claims '*offer not only a remarkable medium of*

production for various kinds of information goods, but serve as a context for positive

character formation '(Benkler and Nissenbaum, 2006: 396). CBPP fosters particular kinds of

collaborative virtues, and the motivations of participants are related to the realization of

such virtues. Michel Bauwens goes even further and sees CBPP as the seed form of a new

human civilization based on collaborations and self-organization (Bauwens and Kostakis,

2014).

Benkler's early work was innovative and visionary but, at the time, little in terms of empirical

studies were available to substantiate his ideas (Benkler, 2006:410). As a consequence, most

of his theory development occurred with a few highly successful cases on mind, like chiefly,

Wikipedia and Seti@home. Today this has changed, as the decade that has passed since the

publication of Benkler's *magnum opus* has seen the accumulation of a massive corpus of

empirical studies of various aspects of CBPP (for a partial review, see Benkler et al., 2013). In

the light of this material, and in particular, in the light of our own contributions to it within the research project P2PValue, we would like to revisit and discuss some of Benkler's key ideas about peer production. In particular we would like to focus on and explore the question of value in CBPP trying to reconcile Benkler's focus on the virtuous nature of participation with more sociological explanations that are able to account for the actual and potential relations between CBPP communities and the over all economic ecology of the information society.

1. Methodology

The material discussed in this essay builds on collective research on six CBPP communities WeMake (IT), MediaLab Prado (ES), OKFN (FR), Symba (FR), RuralHub (IT) and Login (IT). We adopted a qualitative research framework seeking to understand the complexities of community interaction and structure. The aim has been to develop insights and theoretical hypotheses. The research used a combination of ethnographic observation, semi-structured interviews, surveys and digital methods. This choice stems from the complexity in which the communities exist and act. A multiplicity of factors contribute in the shaping of the activities of these communities: digital presence, local communities, institutions and the urban space itself. Our combination of Digital methods with participant observation allowed us to cross validate insights. Overall our research strategy aimed to:

a) Understand, map and measure interactions on a variably wide scale, map a whole community, map single mailing lists.

b) Understand meaning-making processes unique to the case studies and connected to a more general discourse on current re-articulation of the economic and the social.

Interviews and Participant observation

Each community has been studied through a 2-months period of participant observation. We have also conducted in depth interviews with members of each community.

During the participant observation phase researchers observed formal events, informal meetings as well as day to day activities carried out by community members. In particular we concentrated on understanding members' activities as part of an ongoing everyday *practice*. Ethnography gave us a in depth view of such situated meaning-making processes (Melucci, 1996) both inside the four communities we had identified, and in the broader ecosystem of alliances and support networks they are part of.

Digital Methods

Digital Methods (DM) consist in a set "techniques for the study of societal change and cultural condition with online data" (Rogers, 2015:1). The overarching methodological scope of DM is to 'follow the medium', that is, to conceive the Internet as an environment where "native" methods of research are built into online devices, such as Google Web Search and Facebook's Graph Search. Therefore, DM urge researchers to take advantage of the "natural logic the Internet applies to itself in gathering, ordering and analysing data" (Caliandro, 2014: 748) – as with tags, links, hashtags or retweets. DM take the nature and affordances of the digital environments seriously by studying how these structure communications and interactions among social actors as well as how these can be used as methodological strategies and techniques of social researchers.

Our digital inquiry focused on 5 CBPP communities: WeMake (Milano), Open Knowledge France (Paris), Symba (Paris), MediaLabPrado (Madrid) and RuralHub (Salerno). For each community we collected and extracted data from the following digital media: Official Web Site, Internal Mailing Lists, Twitter, and Facebook – with few exceptions. Globally, we analysed 88.994 digital messages, collected from 14/01/2015 to 26/05/2015.

We processed the digital data performing two kind of analysis: *network analysis* and *content analysis*. Both the analysis have been useful for investigating and understanding the social and symbolic structures of the CBPP communities.

Survey

We conducted two surveys, one with peripheral members of the Rural Hub network (201 respondents) and one with members of CBPP communities listed in the P2PValue projects directory (64 respondents). The main aim of the survey was to get an idea of earnings, economic performance and motivations. The later survey has too few respondents to generate any solid insights. We have drawn on it sporadically for illustrative purposes.

The Cases

What follows is a brief presentation of the individual cases and our apporach to them.

WeMake

Wemake (Milano) defines itself as a community hinged on three different physical-cultural areas: a) Electronic; b) Textile; c) Fabrication. WeMake is a place in which different machines for digital manufacturing (3D Printers, Lasercut, etc.) are available for the members as well as the training for using them. The machines can be used paying a time-fee. The fee can be paid

via cash (Euro) or Candies, that is credits that one can collect giving a contribution to the community (e.g. compiling a tutorial, doing community management, participating in event, etc.).Wemake also sells services to private companies, such as experiences of team building and training, hinged on digital tools (e.g. 3D Printer) which serve as focus of attention (as 'catalysts').

Data and Approach

Six interviews were conducted among the members of Wemake. Two amongst them belonged to the core group, two in the middle and two others in the periphery. Apart from interviews with the members, eight other interviews were conducted with temporary visitors and resident artists. Interviews were roughly based on a interview schedule that lasted between 30 and 90 minutes. Non participant observation was also part of the fieldwork, as the researcher attended events, workshops and social gatherings on a regular basis. The fieldwork was mainly conducted in February-May 2015. In addition we performed digital analyses of *Wemake*. Mailing list (304 messages), Twitter (909 messages), Facebook (411 messages).

OKFN France

OKFN (Open Konpwledge Foundation France, Paris) is a worldwide non-profit network of people passionate about openness, using advocacy, technology and training to unlock information and enable people to work with it to create and share knowledge. Their mission is to give to everyone access to data as well as the skill to manage them. OKFN rather than pushing an organic set of activities has worked on projects , among which two appear the most relevant. The first is the "School of Data", a project that disseminates knowledge on how to make a good use and understand data, involving 20-30 people at different levels. The

second is a project "calculateur de domain public", developed (and completed) by Primavera de Filippi and other two people (among a hired developer), that was mainly developed autonomously by this almost independent team, with little or no involvement of the broader OKFN community.

Data and Approach

Six interviews were conducted among members belonging to three different "circles" in the community (core, middle, periphery) during February 2015. An additional two months ethnography in Paris, during April and May 2015 allowed the researcher to take part in a number of informal and formal meetings organized by Open Knowledge France. We performed digital analysis of Mailing lists (121 messages), Twitter (458 messages) and Facebook (67 messages).

Symba

Symba (Paris) is a community aimed at creating a new monetary system for connecting all the actors belonging to the - what they call - symbiotic economy of the in Île de France. Symba, has a broad and humanist project (to rebuild networks of trust through the medium of a complementary currency) but it's still not really started nor concluded. Their first year of activity was mainly focused on communication and internal organization while now, from April 2015 onwards we might see some developments since they will try to experiment Symba on a test community (Coopaname, an important cooperative who federates 700 individual workers). At any rate, their platform for the exchanges is not ready yet like the rest of their technical tools (currency algorithms etc): they simply don't exist. As someone said in the interviews "Symba is a dream" implying it is a beautiful idea but far from being tangible.

N.B. Symba is not active anymore since June 2015.

Data and Approach

Six interviews were conducted amongst members belonging to three different "circles" in the community (core, middle, periphery) during February 2015. An additional two months ethnography in Paris, during April and May 2015 allowed the researcher to take part in a number of informal and formal meetings organized by Symba. Our digital analysis built on Twitter (286 messages) and Facebook (98 messages) – we did not analyse the internal mailing list because in the meanwhile the community broke up.

MediaLab- Prado

Medialab-Prado (Madrid) is a program part of the Department of Arts, Sports and Tourism of the Madrid City Council. It is conceived as a citizen laboratory for the production, research and dissemination of cultural projects that explore collaborative forms of experimentation and learning that have emerged from digital networks.

Medialab's Goals are: a) To enable an open platform that invites and allows users to configure, alter and modify research and production processes; b) To sustain an active community of users with the development of these collaborative projects; c) To offer multiple forms of participation that allow people with different profiles (artistic, scientific, technique), levels of specialization (experts and beginners) and degrees of implication, to collaborate. In order to achieve those goals Medialab-Prado offers: a) A permanent space for information, consulting and encounters, attended by cultural mediators, who explain the nature of the space and connect different people and projects with each other; b) Open Calls for the presentation of proposals and the participation in the development of collaborative projects; c) Activities

Program that comprises workshops, seminars and debates, as well as the meetings of different work groups, exhibitions, conferences and other events such as concerts and performances; d) A work atmosphere dedicated to the encounter, cooperation and exchange, where there is room for life and affects; and informality and closeness are appreciated.

Data and Approach

Research consisted in two 1 month period of participant observation, 12 interviews with core members and peripheral visitors, as well as the digital analysis of Mailing list (135 messages), Twitter (5033 messages) and Facebook (18630 messages).

Rural Hub

Rural Hub (Salerno) is part of a research program founded by Italian Ministry of Education, University and Research which has as its final objective the creation of a model of rural entrepreneurship oriented towards social innovation. Rural Hub is the first Italian hacker space based in Southern Italy (Campania region) which allows the connection among researchers, activists, scholars, and managers that are interested in identifying new emerging models of economic development in rural areas. It facilitate the connection between new and innovative enterprises, investors and associations. Rural Hub also is *A)* a co-living and co-working rural space, *B) a* study center on social innovation studies and Do It Yourself (DIY) methodology, *C)* a connector space between innovators and rural change-makers *D)* A laboratory, concerned with new business and communitarian realities, both formal and informal, involving agri-food, *E)* a common space where to develop project of activation of rural communities

Data and Approach

The research consisted in two months of participant observations, one survey with 201 respondents administered to peripheral members of the rural hub network, 26 semi structured interviews with core and semi-peripheral members, and digital analysis of Twitter (62542 messages) – We analyzed exclusively Twitter since the digital activities of RuralHub are situated only there.

Login

LogIn (Milan) is a coworking space part of the Enter, Internet Service Provider company in Milan. It hosts around 150 members, some of whom are individual freelance workers. Other members worked in groups and formulated their own companies/startups. People who usually worked from LogIn are graphic designers, programmers, and interface designers. There were a few people who were part of advertising company, travel agency and hotel managements.

Data and Approach

Eight intensive interviews were conducted among the coworkers in LogIn. Apart from that casual conversations, attending meetups and events were part of the fieldwork. Fieldwork was conducted in June-July 2015.

II. A third mode of production? The co-evolution of digital technologies and CBPP:

Benkler's definition of CBPP as a third mode of production, distinct from markets and

hierarchies' is intuitively compelling. Yet his definition is at times unclear. In themselves

there is nothing in the three dimensions that he uses that distinguishes CBPP from modern

economic action in general. This becomes evident when Benkler's definition of CBPP is

contextualized within the larger tradition of economic sociology. Since the late 1970s a long

literature has emphasized the coexistence, within both markets and hierarchies, of self-

organized relational networks very similar to the kinds of 'adhocracies' that Benkler and

Bauwens describe as typical of CBPP. In such networked modes of organization actors

participate freely without needing to feel either the stick of bureaucratic command nor to

desire the carrot of market rewards, and they develop enduring relations of trust that are

sometimes governed by entrenched moral economies organized around particular sets of

values (Ahrne, el al. 2014, Stark, 1996, Uzzi, 1997, cf. Podolny and Page, 1998). Such

networked forms of organization have coexisted with markets and hierarchies throughout

the history of modern economic institutions, without this *per se* prompting the need for

positing the existence of an alternative mode of production (Granovetter, 1985). Networks

and adhocracies are simply more or less pronounced *features* of markets and organizations.

Similarly, non-monetary motivations have been a significant driver of economic action

throughout the history of modern capitalism (and in particular before than that, Polanyi,

1957). Professional organizations, for example, have been an important feature of modern

economic life for at least a century. They have institutionalized motivations like peer

recognition, reputation and adherence to a professional ethic or ethos as important

motivations for economic action. For some professional categories, like medical doctors,

lawyers or architects, achieving a good standing among one's professional peers might be a more important than monetary gain as an immediate goal. In many cases it has been a necessary precondition, Parsons (1939). Within industrial sociology the prevalence of multiple motivations for work was emphasized by the classic Hawthorne studies and the tradition of Human Relations management that emerged form them (Mayo, 1933, cf. Wren, 2005). The literature on knowledge work and knowledge management has been particularly adamant in suggesting that monetary motivations are insufficient for understanding or motivating contemporary knowledge work where 'creativity' has become a core feature. Instead self-realization and the ability to sense that work is both meaningful and virtuous in some way have become understood as key factors (Maravelias, 2003). Indeed, Peter Drucker made this point already in1959 (Drucker, 1959).

The reliance on common resources, and in particular common knowledge has been a feature of industrial production since the inception, as already Karl Marx emphasized in the mid 19th century (see below). All in all, there is nothing new in actors engaging in self –organized commons based collaborative wealth production that is chiefly coordinated by non-monetary motivations. They have done this as part of ordinary practice within the context of markets and organizations for a long time.

However, if we historicize Benkler's claim, the specificity of CBPP as a mode of production comes out more clearly. It is true that self-motivated collaborative commons based production has been a feature of economic action for a long time. However there has been a general perception that the importance of this modality of production has increased throughout the economy since, roughly, the 1980s. That decade saw the combined impact

of automation (Morris- Suzuki, 1984), computers (Zuboff, 1988, Morris-Suzuki, 1986) and the

organizational innovations associated with 'toyotism' – themselves premised on the

automation and 'informationalization' of work- which promoted self-organized teams and

the creation of organizational knowledge commons (Dyer and Kentaru, 2000). Within

knowledge management in particular, the cultivation of 'collective intelligence' and

'communities of practice', began to be understood as an important key to success in

knowledge intensive organizations (Wenger, 1998, Por, 1995, Edvinson, 1997). This was

paired with an emphasis on the need to cultivate intrinsic non-monetary motivations, as

these were understood to be more effective in spurring creativity and collaboration

(Maravelias, 2003). Such motivations were understood to derive form a strong 'corporate

culture', again something, at least initially, apprehended from Japanese firms (Ouchi, 1982).

In brief, within the managerial sciences something very similar to CBPP in Benkler's version

was understood to grow in importance during the 1980s and 1990s. At the time this was

seen to be a consequence of the greater importance of knowledge and flexible cooperation

as keys to value creation in organizations where automation and computerization had made

immaterial assets like brands, innovation and flexibility more central (Arvidsson & Peitersen,

2013, Drucker, 1994). In their subsequent work on what they called 'Collaborative

Community', Paul Adler and Charles Heckscher (2006) built on this tradition to suggest that

collaborative communities emerge as a consequence of the capitalist development of

knowledge work. As organizations rely on intangible assets they promote the formation of

intrinsically motivated self-organized teams that deploy commonly available knowledge as

an alternative to the bureaucratic division of labor that marked knowledge work in Fordist

organizations. Such 'collaborative communities' build on trust and shared values and they

promote forms of solidarity and a subjective outlooks that frequently contrast with the

individualistic discipline imposed by corporate organizations. Indeed Adler & Heckscher see the dialectic between collaborative community as an outcome of capitalist development on the one hand, and the hierarchical discipline necessary for the operation of capitalist corporations on the other, as an important contradiction with a potential to point beyond and offer alternatives to the capitalist mode of production. In short something very similar to CBPP in Benkler's definition began to develop within the managerial sciences as way of understanding the mode of production that emerges from knowledge work under conditions of digital mediation. From this perspective, Benkler's discovery of CBPP can been understood as a reaction to the empirical phenomenon in which declining costs of digital technologies made such self -organized 'collaborative communities' sustainable also outside of corporate organizations. Similar phenomena were observed in diverse fields like the culture or 'creative' industries (Florida, 2002), collaborative consumer practices (von Hippel, 2004, Muniz and O'Guinn, 2001) and audience participation or 'fan culture' (Jenkins, 2006). Rather than simply associating CBPP with recent manifestations of what Eric Raymond (1998) has called 'hackerdom', we can create a deeper and more theoretically solid definition by pointing at the longer genealogy that connects CBPP as a modality of production to the digital mediation of knowledge work.

Indeed a sustained focus on the aspect of mediation can bring us even deeper. Already Adam Smith emphasized how the organizational re-meditation of work made a significant contribution to the productivity of manufacturing. In his famous example of the pin factory he suggests that while in isolation a single craftsman can hardly manage to create more than twenty pins a day, and perhaps not even that, the division of labor within the pin factory makes so that ten people:

could, therefore, make among them upwards of 48,000 pins in a day. Each person, therefore, making a tenth part of 48,000 pins, might be considered to be making 4,800 pins a day. But if they had all wrought separately and independently, and without any of them having been educated to this peculiar business, they certainly could not each of them have made twenty, perhaps not one pin, a day.

(Smith, 1776 [2010]:11).

Marx develops this perspective in the *Grundrisse*, and subsequently in *Capital* by suggesting that alongside individual labor time, value in industrial production also derives form cooperation. The more complex and mediated the production process is, the greater the relative impact of cooperation. Indeed, he suggests that once factory production becomes sufficiently complex, the productive contribution of cooperation, of the generally available knowledge and competences embodied in mediated networks of cooperation, what he calls General Intellect, would dwarf the contribution of labor time to value creation. He suggested that this would challenge the hegemony of the capitalist mode of production. Later in Capital, Marx emphasizes how capitalist surplus value derives not only form the direct 'theoft of labour time' but also from the appropriation of the 'synergic' value created from cooperation. Recent proponents of the 'cognitive capitalism' thesis have built on this insight to suggest that the contemporary 'becoming rent of profit' reflect an growing component of non salaried corporation within the overall composition of capitalist profits (Vercellone, 2013, Moulier-Boutang, 2012). In simple terms: in the form of rent, surplus value is appropriated by 'taxing' or otherwise extracting rent (through indebtedness for example) from a resource that is otherwise beyond the direct control of capitalist discipline. This insight points at a direct link between the growing importance of financial rent in the world economy on the one hand, and the increasing importance of cooperation organized around common knowledge or General Intellect as a factor of production on the other

(Fumagalli, 2007). According to this thesis the unprecedented financialization that marks contemporary capitalism reflects, at least in part, an unprecedented importance of CBPP like forms of productive organization within contemporary relations of production overall.

So rather than simply a manifestation of 'hackerdom', or an technological extension of 'human decency' from neighborly relations into productive activity, CBPP can be understood as the mode of production that emerges as such General Intellect affirms itself as the most important source of value, not only within the factory system, but throughout society. The affirmation of hackerdom during the first decade of the 21st century, in the form of Free and Open Source Software, Wikipedia and other digital projects was an important step in this affirmation of CBPP. Today we are seeing how this mode of production is migrating outside digital environments to promote a general industriousness as it gives rise to a multitude of organizations and enterprises in fields as far away and diverse as social enterprise, the food economy, open hardware, finance and urban transportation, to name just a few. CBPP is driving a new 'industrious revolution' similar to the one that preceded and paved the way for the modern capitalist economy during the 17th and 18th centuries (de Vries, 1994). And this new industrious revolution is based on the commons that are created as capitalist expansion drives a socialization of knowledge and competences in the form of General Intellect.

This perspective also prompts an interest in how CBPP, as a distinct mode of production, unfolds across the information economy as its particular institutional logic interacts with those of capitalism, markets, the state and the emerging institutional framework of the new commons. An attempt to understand these interactions and contaminations, rather than a

quest for 'pure' instances of peer production (cf.Benkler, et al. 2013: 3) will inform the analysis in the second part of this paper. Before going there, however, let us try to flesh out a more detailed ideal type of the institutional logic of peer production itself.

III. Collaboration and Value in CBPP 'Communities'

Benkler's theory of CBPP has two central propositions: That CBPP occurs in communities, and that CBPP has no proper logic of value. Let us address them:

Communities.

Benkler's take on the organizational form of CBPP 'communities' remains contradictory. At times he describes CBPP as marked by ' the collaboration of large groups of individuals, sometimes in the order of tens or even hundreds of thousands, who cooperate effectively'. At the same time he claims that CBPP would create the kinds of tight relational networks that would be able to foster the emergence of common virtues (cf. Benkler & Nissenbaum, 2006: 394). A similar tenet traverses most of the early literature on CBPP (academic and lay), where this pursuit is mostly understood to occur in communities that in addition to getting the job done by mobilizing a large number of people, foster communitarian virtues as well as feelings of solidarity and social purpose. As Kreiss et al. summarize the consensus:

> Many scholars now assume that peer production resolves the key social and psychological problems of the industrial era and at the same time makes possible a society built on voluntary collaboration, the pursuit of psychological health, and the search for individual well-being.
>
> (Kreiss et al. 2011:247).

In effect these definitions conflate two distinct modalities of productive co-operations to be found in digitally mediated environments, what Caroline Haythorntwaite (2009) calls 'crowds' and 'communities'. In her terminology, 'crowds' denote a 'lightweight' model of

productive collaboration where each member pursues her individual goals in the form of

modularized tasks; there is little interaction between members, and integration is secured by

'weak tie attachment' to a common goal: i.e. integration mostly occurs at the level of values,

commitments and a common imaginary. 'Communities', on the other hand represent a

'heavyweight' model where members not only collaborate, but also build strong ties with

each other based on the relational social capital that emerges from frequent interactions. As

Haythorntwaite shows, both models are present in the literature on CBPP, and research

suggests that both organizational forms are co-present in most CBPP communities.
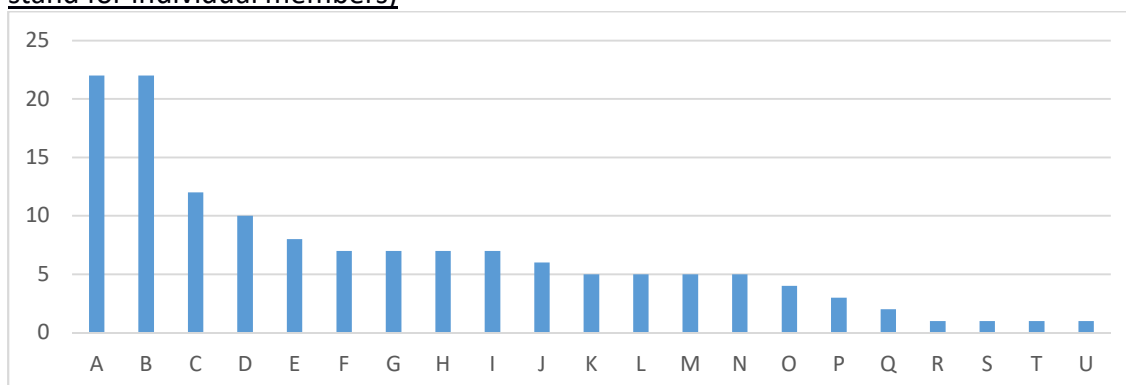

In the case of the Italian Arduino Community, of which many members of the WeMake

maker space take part, we can see how the five most active users generate 65 per cent of

the traffic, while the others constitute a long tail with very low levels of participation.

Fig I. Activity levels: Italian Arduino mailinglist (Mails sent 12/03/14 – 23/02/15, letters stand for individual members)
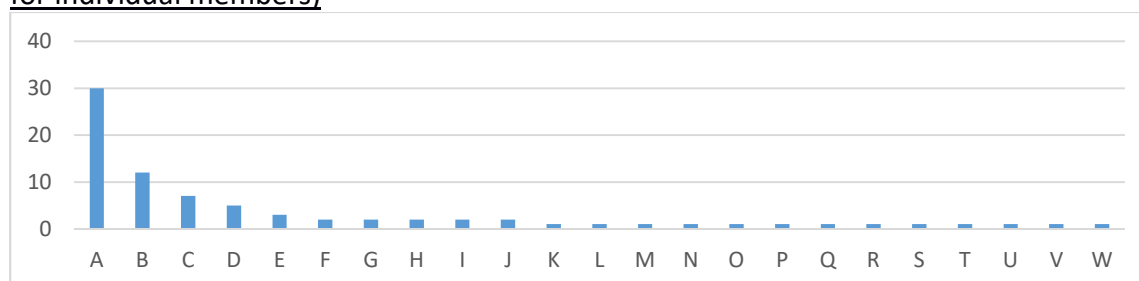

We found a similar situation in all of the communities that we studied. For example, the

situation in MediaLab Prado is very similar. Out of 23 members of the community mailing

list, 4 core members generate 45 per cent of traffic.

Fig 2. Activity levels: Prado MediaLab Mailing list (Mails sent 12/03/14 – 23/02/15, letters stand for individual members)

The centrality of the core member is also visible form this network visualization (based on

the Arduino Mailing list).

Fig 3. Network Visualization, Italian Arduino Community (the bigger the circle the higher the in/-degree of a user).
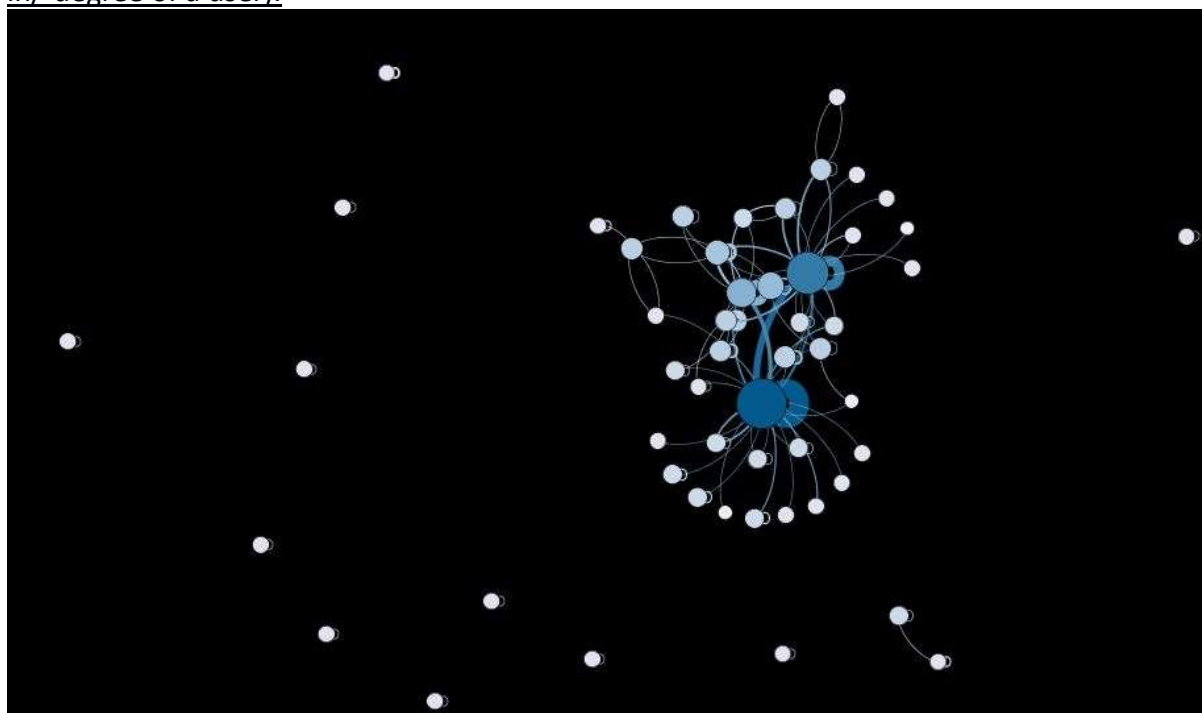
A similar two-tired structure, a core of highly connected key members on the one hand and

a crowd of loosely integrated occasional contributors on the other has been observed in a

multitude of different cases of CBPP, from Wikipedia, via Open Source Software to Crowdfunding campaigns (Colombo et al, 2015, Crowston et al. 2012, Jullien, 2012).

At the same time as most CBPP communities are structured as a duality of crowds and communities, the imaginary of all of these communities is marked by a self -representation as egalitarian, collaborative communities where everybody has a similar role: communities that are marked precisely by the kinds of virtues related to social sharing that Benkler & Nissenbaum (2006) posit as the positive effect of participation in CBPP on character formation. Indeed many of our informants emphasized the experience of social and emotional support that came with participating in CBPP contexts: As one of member of the maker space WeMake claimed

> *You feel that you have support. You are not alone. You feel safer and you're confident enough to try out things that maybe you're not really skilled at at the moment, but you're interested and you'd like to learn more.*

Indeed the key function of the core members is to generate an experience of horizontality and inclusion where all members, even those who participate only sporadically, or even do not participate at all, are able to feel part of an egalitarian and collaborative community. In part this is done by engaging in what Gabriela Coleman (2013) has called 'ethical labor'. Core members devote a large share of their time to organizing the work of the community; solving conflicts and coaching other members into reaching agreement and finding ways to cooperate. This is all done in the open, with mails circulating on community mailing-lists and potentially visible to all members. In their organizational communications, core members seldom draw on the implicit power that comes with their core status. Instead they

tend to coach or nudge other members so that they themselves act or move in the desired

direction.

As we can see from the figure below representing the content of WeMake and MediaLab

Prado's internal mailing lists, the second category after communications related to internal

organization is 'news sharing' and what we call phatic communication. These two categories

are strictly linked. Most of the news sharing is about spreading a vision of the overall social

impact of the community. A qualitative analysis of WeMake's mailing list shows how the

posts that share news in the community mainly speak of the overall social and ethical effects

of 3D printing, the maker Movement, Arduino and similar objects of concern for the

WeMake community. The result of the creation of this imaginary is to represent WeMake as

a community dedicated to a grander purpose, not simply the everyday nitty-gritty of plastic,

cables, programming and other technical concerns involved in 3D printing, but a greater

movement that has the capacity to solve pressing social or ethical issues, or even 'Change

the world'. News sharing tends to generate phatic communication, the third most important

category, as members recognize the greatness of the relevant events thus chronicled.

Reactions on the We Make mailing litst to news about the new Open Hardware knitting
machine.
*A:"aiutooooh, n'altra!! :D http://makezine.com/2015/01/07/circular-knitic-an-open-
hardware-knitting-machinehttp://makezine.com/2015/01/07/circular-knitic-an-open-
hardware-knitting-machine*
B: Naaaaaaaaaaaaa!!!! :))))))))))
C: "Uuuuh!! Che pregio! A dopo :)

Similarly, in the case of Prado Medialab we can see how the sharing of an article in the

widely circulating newspaper "El Mundo" about medical uses of 3 D printing technology

generates strong affective responses from the members. (In this particular case the 3 D

printer was used to cure a young girl with a facial deformation).

« Me parece una super idea y proyecto!! Dani, hayque ver esto!!!
LLoro de emoción…»

Similarly news of the WeMake's success in publicizing their workshop:

A: "*yo, hanno pubblicato il video del workshop al museo della scienza
https://www.youtube.com/watch?v=HtEtu1Ac6PA&feature=youtu.be a breve lo condivido
sui social :))*
B: "*Brava, carino! ((e per chi se lo fosse perso c'è anche il trailer :
https://www.youtube.com/watch?v=qwpjNwLKh4A&list=UUIuyeL8sblxI9d_7FqH27LQ)
commento a latere: il canale youtube del museo della scienza ha dei numeri di
visualizzazione incredibilmente bassi :(*
C: *bellissimo! E la la sercutter ha anche cucito la cerniera della borsa!*
D: "*bello bello! w le svitatone :D*
E *Feeko! Mi piacerebbe sapere a cosa serviva il guanto con le frecce @_@*
F: *grande!*

Such phatic reactions commonly greet news of the social impact on the part of CBPP

communities, either in the case of the technology that they promote having been successful

in solving a problem or addressing some wrongdoing (as in the case of MediaLab Prado's 3D

printer healing a young girl), successfully educating the public in what a specific activity or

practice can accomplish or simply sharing news of advances within a particular technology

or practice. This kind of communication enables members to momentarily experience their

affiliation with a higher purpose; and share that identification in the form of a phatic

message.

The construction of an imaginary is continued on social media, where all communities are

very active. In particular on twitter the use of hashtags serves to continuously situate the

community within an appropriate discursive space with social and political connotations.

Such hashtags are added on to most twitter communications so that every communication, regardless of its content also serves to reproduce the imagined ideological place of the community, its 'brand' so to say. ON Facebook communities maintain strategic alliances with partners that help them define and stregthen this brand. Here are two examples of such social media activity from WeMake and RuralHub

Fig 4. Network of Facebook Affiliations, WeMake.
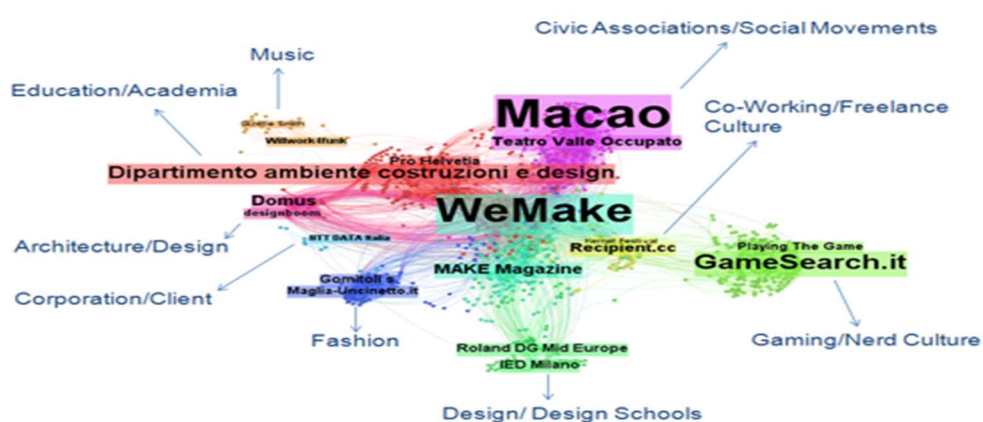

Fig 5. Twitter Hashtag Network, RuralHub

These social media visualizations provide an insight into the imaginary that continuously

informs and is reproduced in the communications, inernal as well as external that CBPP

communities engage in. Core members invest a lot of time and energy in creating and

reproducing this imaginary.

In so doing they engage in the kinds of ethical or affective labor that effectively constitutes

CBPP networks as communities. In communities that have a physical co-presence this work

of imagining community (Anderson, 1988) is also undertaken through the organization of

events and occasions that enable the network to come together and experience itself as a

community, and by the day to day affective 'labor' of the processional community manager

that most co-working spaces employ. In this sense CBPP 'communities' are 'recursive

communities' in Chirs Kelty's (2007) terms, communities that have as an important purpose

the ongoing reproduction of themselves as communities.

However in CBPP communities this imagination of community mostly happens at the level of

imaginary rather than trough actual social interaction. Data from our analysis of mailing lists

shows that participation, in terms of sending and replying to messages is disproportionately

concentrated to the small group of active core members. It is also quite frequent to see

complaints about members not reading or engaging with emails, or urges for them to do so.

Guys I'm sorry about all the mails, but please READ THEM, because I have the feeling that they're all useless..

This low density of interaction obvious for entirely digital communities where, apart from

core members, most other members participate only sporadically. As the existing literature

suggests such participation mostly occurs individually, as in the case of people writing for

Wikipedia or in small, loosely connected teams that evaporate once a particular task is done, as in the case of FLOSS communities (Chelkowski et al, 2016). However the situation is similar in most physically rooted communities, where very little actual interaction goes on. Co -working spaces, for example, are generally marked by silence. People work side by side in front of computer screens, often wearing headsets to mark that they are not available for socialization. The kinds of socialization that occurs is often limited to short breaks or organized events or in any case regulated by detailed implicit norms (rather than directly approaching a 'colleague' for advice for example it is advisable to first send an email to 'book' a time). This low density of socialization is evident from many of our ethnographies of physically rooted communities: In MediaLab people generally concentrate on a personal or small group project. They exchange information through emails, but they gather physically only for specific purposes. They use the space for their own individual projects and rarely go there to spend time independently of their project. MediaLab, like most co-working spaces is a space devoted to the pursuit of practice related projects, not a place for general socialization. Similarly, like most co-working communities. MediaLab remains disconnected from the surrounding urban context. Most managers of co-working spaces that we have talked to recognize this low density of sociality as a problem and dedicate significant resources to address it, mainly by organizing internal as well as externally oriented events, lunches, seminars, workshops, or concerts, parties and Open Days. But the issue remains. This restricted socialization also translates in an affectively neutral atmosphere. In most co working spaces for example, members report trying to keep personal issues out of the context, and cases of practical solidarity, like helping other colleagues with money or personal matters are quite rare (Arvidsson and Colleoni, 2015).

Rather the sense of solidarity and community is anchored in practice. It is by *doing* things together that participants in CBPP experience that they have something in common and belong to something more valuable and meaningful. It is the common practice that connects a multiplicity of individual projects and outlooks into a common movement. Rather than communities, physically rooted CBPP 'communities' are better understood as spaces of practice (to paraphrase Wenger's term). WeMake is a fluid 'community' where people come and go and where most 'members' have but a fleeting or temporary affiliation. It maintains a number of external affiliations and collaborative projects with a range of institutions, like Schools, Universities, Companies, Museums and the Press. What defines it is that it is a space devoted to the ethic of Open Hardware, to a particular practice that is deeply endowed with ethical and social connotations that are continuously build and rebuilt through the affective labor of core members. Rather than a community of practice. Like the Burnung Man festival in Turner's analysis (2009) WeMake embodies an idea of practice that can be materialized in concrete actions on the part of members as they adhere to and connect within the WeMake virtual space. This emphasis on practice came out clearly when interviewing L a resident artist at the WeMake community. As a furniture designer using 3D printing technology she had been attracted by and related to the WeMake 'community' as a space of practice rather than as a web of concrete social relations. It seems that even when she was part of the place, it existed as an exteriority. In a way the reputation precedes the place and the lack of dense social interaction coincides with fluid membership of the community. And the use of machines is more identifiable to being part of the place than interacting with people. L came to WeMake as she has been hearing about the place, how it opens up the space of collobaroation for 'making things more viable than a coffee machine'. However, when she was physically in the place, she agrees that it is still in an initial phase

and only time will tell how the place develops in the future. When it came down to social interactions, she was discussing things with A and B regarding her project and also going out with them to display their models during the Design Week in Milano. Apart from the limited interaction, the place came alive through machines. This has to do with the fact that there are not more than a handful of people at a given point in time in Wemake and whoever is there is often found working on their laptops. As against thin social interaction, the identity of the places is strictly rooted in 3D printing and laser machines.

Similarly members of co-working spaces often point at the particular form of practice that the space allows as what identifies it and its members. A co-working manager says '*Only those people who are okay with this model come here. Not everyone is okay with it. We had some people from the south of Italy who found it strange that everyone could see your desktops. So they did not get the coworking mentality, here everything is out there to share and grow from the process. Also the behaviour is important.*

RuralHub is a augmented physical space, a location where occasional seminars and workshops are held and where people can come together to work momentarily on particular projects, augmented by a 'virtual space' that situate individual members within a particular imaginary that defines what they do as part of a socially and ethically relevant, transformative practice.

These spaces of practice are however not particularly communitarian. Rather than dense web's of social relations organized around collective identities, they are more like the forms of 'connective action' that Bennet and Seerberg (2011) have identified in recent social

movements like Occupy, more or less momentary aggregations of individual projects endowed with low densities of social relations but strong and repeated alliance to shared values. As on of our ethnographers noted around on the mailing list of MediaLab Prado: Event though there is little actual interaction among people using the space, its communitarian character is often discursively peroformed, as when members are referred to individually as 'comrades' or 'friends' or collectively as 'team', 'dear team' (*queridoequipo*), or "*todxs*", "*compis*", "*compañerxs*", "*amigxs*".

Overall CBPP communities are seldom 'communities' in the traditional sense of that term They not marked by dense webs of social interaction. Rather they are spaces of practice. People frequent such spaces (either online or off-line) to engage in a particular practice and it is by engaging in such practice that they connect together and form social bonds. Contrary to traditional communities such social bonds are not based in traditions that precede the individual and determine his or her identity: CBPP communities do not generate collective identities. Rather individual members come and go, practice based projects are temporary and dissolve once a period of often intense identification has come to its end. The practice of CBPP is informed by a common imaginary that connects it to an *ethos* and to a higher purpose. Again, contrary to traditional communities, this imaginary is oriented towards the future: the values that inform CBPP 'communities' is about what they can become, how the particular practice around which they are organized can change the world or revolutionize a particular sector of it. Rather than traditional communities rooted in tradition, CBPP 'communities' are organized around the promise of a future: they are 'coming communities' to use Giorgio Agamben's (1990) term. Community is a value more than a reality, the

important reality lies in practice; it is by engaging in such a practice even in an isolated and rather solitary way, that one can imagine oneself as part of a community.

Value and Virtue

In Benkler's analysis CBPP 'communities' are spaces for virtue but not for value. He insists that the motivations that guide participants are multiple and that their behavior is coordinated by forms of social sharing that are rooted in civic virtues, or even 'basic human dignity', and that remain, at any rate, beyond calculation. Many exponents of the commons movement share a similar attitude, insisting, like David Bollier that the new commons that arise around CBPP and similar pursuits are not governed by any universal notion of exchange value, but that they on the contrary give place to and nurture a plurality of values that maintain their irreducible particularity (cf. Bollier, 2007). This way, as Bollier suggests, CBPP and, more generally, 'the commons' offer an alternative to the iron cage of calculative rationality that has been imposed by us by capitalism, the market or even simply by modernity.

In practice however the situation is more complex. It is true that some studies stress the plurality of motivations that drive people to participate in CBPP 'communities' (Benkler et al., 2013, Forte et al. 2013). Most studies suggest however that motivations on the part of the people who keep contributing are concentrated to two main value clusters: the cultivation of practice and skills on the one hand, and reputation on the other (Crowston et al. 2012:14, Fang and Neufeld, 2009, Budhathoki and Haythorntwaite, 2012, Hertel et al. 2003). Our fieldwork suggests that these two motivations are intrinsically linked.

To engage in a particular practice and improve one's skills and abilities to do so is the main reason why the people that we have met participate in CBPP communities. To quote some of the participants in WeMake:

> The main motivation why I participate is that I learn something. I had also left my former job because of the crisis, then there is the positivity of working n a space like this, to be able to count on other people with other skills.

As we have suggested above, such practice has a strict relation to virtue. It is generally enhanced by an imaginary that highlights the virtuous aspects of engaging in a particular practice. In Symba for example, the aim of the community is to change the economy by launching an alternative currency. Most of its constituency included people with a political background who viewed a alternative currencies as a viable medium to achieve a "better society". Therefore, engaging in Symba meant to work towards a goal that mattered to them even before joining Symba. Carolina Bandinelli's work on Social Entrepreneurs further illustrate this fusion between value and virtue. She shows how social entrepreneurs, more than anything else, are driven by a motivation to Change the World, often in the abstract, and how such motivations precede and become a precondition for professional success (Bandinelli, 2015)

But a similar attitude is common also in less ideologically conscious communities. To most members being part of a CBPP 'community' is also, in part, an experience of being part of a movement that is aiming at achieving social and political change at some level. To the 'neo-rurals' at RuralHub, engaging in traditional agriculture with modern technology is not simply a way of producing better food, but also a way of being part of a movement that seeks to

rediscover and promote the values of an antique peasant society (*civiltà contadina*) as an antidote to the perceived crisis of modernity.

Indeed in the eyes of some participants it is this commitment to virtuous *practice* that sets them off from members of older social movements, often identified as harboring lofty ideological ideals but achieving little in practice. CBPP communities are less concerned with lengthy meetings and ideological consensus, and more oriented to getting things done, to achieving results. Indeed in some communities there is a tension between members who have a more managerial outlook and who favor business-like decisions and members who, usually, come from a political background and who favor bottom up democracy, involving often lengthy processes of deliberation. Difficulties in resolving this tension can put communities sin serious trouble. This happened to Symba: when, faced with internal dissent, A, the leader and front figure took a decision on his own (claiming he was the CEO and that he had responsibility over Symba). This led to a major rupture in the board, one influential member left, and investor worried the project would fail (as it eventually did).

Individual reputation is related to skills in engaging in such virtuous practice. As many studies have shown this is not simply a matter of technical virtuosity but also a matter of embodying and living the virtues associated with a particular practice (Coleman, 2013, Kelty, 2007). As well as social rewards for people who do so, CBPP communities can occasionally enact collective sanctions against people who do not.

Most participants agree that reputation based on virtuous practice is a just way of legitimating positions of status and power as well as access to resources within

communities. Leadership roles for example are not understood to be based on charisma, but are things that are earned through devotion and the cultivation of skills. It is generally recognized in WeMake, for example that A and B the two perceived leaders of the 'community' occupy those positions because of the time and energy they devoted to practice, because of their technical skills and because of their ability to generally embody the values of the 'community' in their everyday conduct. In Symba the leadership of A is justified by him having been working and doing research for almost a decade on finance and currencies. He is also successful blogger on this topic. The rest of the community is slowly picking up skills in this field and view him as an expert. Furthermore, in Symba, the inner circle is understood to be composed by influential people who have their own organizations running and who are specialists in their own field (governance etc.). This topic has emerged in several interviews, with someone referring to the inner circle as a "dream team" of talents but that lack real team spirit. Overall leadership is understood to be based on a process where influential members are constantly put under scrutiny and critique as to their skills and virtuos, and their positions of legitimate authority is an outcome of such a continuous process of peer review.

While many theorists of the commons emphasize the irreducibility of local values, we observed a general desire to render peer based reputation more rational, more efficient and more 'portable'. Indeed most of the communities that we spoke to had in place, or planned to build some sort of system that was able to calculate such internal reputation in an objective way, based on a combination of activity levels, expressions of mutual esteem (some form of likes for example) and a measure of external reputation like, for example, social media visibility. Indeed in our research on technical guidelines for our collaborative

platform, it emerged that properly designed reputation metrics are one of the strongest

needs expressed by CBPP communities. This was part and parcel of frequently expressed

need for a more scientific approach to community management, including a clear

identification of the skills and responsibilities and roles of individual members. Indeed in a in

a survey performed by by the Barcelona team in Year 1 it emerged that 74 per cent of the

communities surveyed had some sort of system designed along these lines. Overall there

was a strong desire to quantify and objectify reputation in order to make it more just as well

as more efficient. Members recognized the need to build systems to measure the objective

value of contributors in this way (Deliberable 1.2 p.35)

As Arvidsson and Peitersen (2013) suggest reputation operates as a new kind of general

equivalent in CBPP communities. It is a measure that is able to synthesize a number of

judgments, performed by a diversity of individuals according to a diversity of value horizons

into a single 'substance': reputation becomes the reification of the ethos of 'social sharing'

that Benkler suggests guide the operations of CBPP communities.

Along with the desire to make reputation into a measurable value, there was a tendency,

stronger in some communities, weaker in others, towards an individualistic approach tot eh

accumulation and valorization of such social capital. Our research showed that individuals

and organizations alike tend to have multiple affiliations within the same CBPP 'ecosystem'

(currency, open data etc.). Regardless of expressed motivations such multiple affiliations also

reflect an individual strategy that aims to cope with the uncertain success of such initiatives.

A structural consequence of this strategic investment in more CBPP initiatives is that a

disproportionate investment of time and energy on the part of founders. Others tend to take a freer ride, and join in with devotion once a particular initiative acquires success and reputation. The numerous linkages among CBPP organizations in each ecosystem (Milan, Paris, Madrid) form a web that confers visibility and worth to each initiative, legitimising the whole ecosystem at the same time. This is especially necessary for those initiatives that aim to build a narrative and an imaginary capable of capturing and influencing institutions at both local, regional, national and European level. In other words there seem to be local CBPP 'scenes' that act as amplifiers for the reputation of single initiative as well as individuals.

As an individual asset, reputation has principally three different kinds of uses. First, reputation enhances the value of practice. Most members participate in CBPP communities because they are devoted to a particular virtuous practice, like writing free software, participating in the Maker revolution of engaging in Social Enterprise. This practice is undertaken together with others: indeed it is through practice that one generally connects to others and experiences moments of sociality. A good reputation enhances the feeling of enjoyment and meaningful nature of this experience of practice

Second, reputation also works as a kind of social capital. Members who have a high reputation find themselves in positions of authority and have it easier to mobilize other members for tasks and projects. The greater is the reputation of members within the community, the more core members will be able to gain trust to the community to start new collective and individual projects. Reputation works also as a signal for peripheral members to identify the most skilled members to ask support for solving a problem or starting a new

project. Reputation also plays an important role in the extent to which people might obtain some kind of support from other community members. People are eager to help the member that contributed the most to the community, whereas they are reluctant to help those that did not contribute in any way to the community —unless they are newcomers, which might justify their lack of contributions so far.

Third and finally, reputation operates as a sort of proto-currency that gives access to scarce goods within communities or, sometimes, scenes. This is particularly clear in the WeMake community where reputation is used both internally to justify access to scarce resources like machines, and externally as a source of income and business opportunities for individual members. In the case of Symba and OKFN, the communities are not profit-oriented, therefore there are no business opportunities that can be directly connected with the internal reputation of community members. However, the reputation of the community as a whole can help community members get involved into specific initiatives or jobs that would have been otherwise harder to get into. The fact that the leader of Symba used a substantial percentage of the funding obtained by the community to pay himself a salary was justified by his reputation.

The communities that we have studied all gave primary importance to reputation and almost universally desired systems that was able to better quantify and objectify this value, with a view to institutionalizing it as a kind of communitarian exchange value that could provide access to scarce resources and justify differences in hierarchy. This observation suggests that reputation, in some form is effectively emerging as a kind of exchange mechanism particular to CBPP communities, which is able not simply to motivate

contributions, but also to coordinate actions and justify the distribution of resources.

III. *The Place of CBPP in the Information Economy.*

CBPP is in part an economy organized around 'social sharing': productive efforts are freely

shared and their results are put into a pool of common resources, freely available to all

members of a particular 'community', and mostly also to the public at large. The growth of

these new commons has created an enormous wealth in the form of free software, online

participatory cultur,e and lately in fields like the food economy and financial and personal

services. This has made a significant contribution to the welfare of individuals and

communities, as well as to economic growth, chiefly within the fields of software, app and

game development, marketing and branding. In 2011, the U.S. Fair Use Report suggests that

one sixth of U.S. GDP activities rely on such common resources and that these activites

involve an estimated 17 million workers (Rogers and Szamosszegi, 2011). This is likely to be

the 'tip of the iceberg' since most of this wealth is not valorized; it is not given a socially

recognized exchange value by means of which productive efforts in CBPP communities can

be exchanged and traded for other goods or services. This incomplete valorization is clearly

suggested by the surveys that the project has conducted of CBPP communities as well as of

their members. Out of the 51 communities surveyed in the first survey in the project, 40 per

cent had a turn over of less than Euro 1000 a year, and 60 per cent of less than Euro 10.000

(D 1.2 p. 107); in our survey of 201 Rural Enterprises that identify with the CBPP 'ethos'

conducted as parto of our research effort, 40 per cent reported earnings of less than Euro

10.000 per year, in our 2016 survey of members of CBPP communities, 60 per cent of the 53

respondents stated that their engagement in CBPP communities made no significant

contribution to their income. These results seem to confirm Yochlai Benkler's idea of CBPP

as a 'liberation from economic concerns' (Benkler and Nissenbaum, 2006:406). At the same time however, a substantial proportion of the respondents to our surveys did declare that CBPP made a significant contribution to their income: 20 per cent of the respondents to our P2P agriculture survey claimed earnings of more than 100.000 (the level at which an agricultural enterprise is able to generate income enough to sustain a family), and 15 per cent of members of CBPP communities declared that all or almost all of their income derived from their activities in CBPP communities. Overall, participants in CBPP seem to fall in two classes: a majority that does not derive any substantial income from their CBPP activities, and a substantial minority that, instead, does. Given the overall economic impact of the new commons, it is obvious that a substantial share of CBPP is not 'free from economic concerns', but does translate into exchange value in some way.

Indeed in our ethnographic fieldwork we frequently encountered the issue of valorization as a significant bottleneck. A substantial share of people who contribute to CBPP activities do not simply undertake this as part of a hobby, but they desire to be able to make a living out of their CBPP activities. In order to do so it is necessary that the wealth that they produce can acquire some value, either on the market or in some other way. In our fieldwork we saw that in attempting to valorize the wealth that they produce participants in CBPP interact with four different institutional logics (Williamson, 1988): i) the logic of capitalism, ii) the logic of markets, iii) the logic of states and other public funding bodies or clients and iv) the logic of an as yet fragile and indeterminate, but gradually emerging institutional framework of the 'commons'.

The value logic of CBPP

When interacting with these external institutional logics, participants in CBPP translate appreciations of the value of their efforts that are internal to their communities, or to more or less restricted 'scenes' into monetary or other kinds of exchange value in different ways. But how do such internal value logics operate?

Within CBPP communities, labor, time and other productive efforts are freely shared without, generally, any expectation of reciprocity. What is not freely shared is reputation. Indeed most participants to CBPP see their reputations as valid assets and go to great lengths to protect and cultivate them. Most communities also operate some implicit or explicit rules for conferring reputation on members or for allowing members to capitalize on the community brand in building their own reputations. For example when a WeMake member asks for help in order to develop a personal project, granting such support is considered legitimate if her/his request is not aimed at earning a personal income or building a personal brand or if the personal project can also benefit the overall reputation of the WeMake community. Labor and productive efforts is seen by most members to have little or no value, also because such labor is mostly undertaken freely, out of passion for a practice. Investments of labor and time serve to build a reputation, which is instead understood to be a precious resources, subject to the explicit or implicit rules of some economy, either moral or monetary.

Within CBPP communities reputation is rewarded for community contributions. Such contributions can be technical as well as affective or ethical, in the sense of solving conflicts, socializing members or enabling the community to operate as a community by contributing to its imaginary. In short, reputation is a reward for the contribution of members to the

project of making the community possible as a community of practice. The dynamic here is quite different from Elinor Ostrom's model of communitarian management of commons however. In her model, communities manage commons on the basis of established traditions. In most CBPP communities such traditions have not been established, and, in many cases, members seek out CBPP communities precisely as an alternative to more traditional economic pursuits. Instead CBPP communities are imagined communities in so far as they are kept together by an imaginary projects the community into the future. They are 'coming communities' to use Italian philosopher Giorgio Agamben's term, kept together by a future project or promise (Agamben, 1990). This orientation to the future and to potentiality rather than actuality also explains the importance of the communal imaginary. Contributing the to imaginary is crucial as it allows community members to imagine their practice as pregnant with a potential for future impact: not just writing code but contributing to a revolution in property relations within the information society: not just growing wheat but contributing to the realization of more just society based on recovered peasant values and a new sharing economy. Reputation is rewarded for contributions that make the community pregnant with a future promise. This way the common imaginary enables the transformation of the uncertainty inherent in interaction with strangers into calculable risk.

Just as reputation is awarded for the ability to contribute to the potential of community, so reputation represents an abstraction of the faith and esteem put into a member on the part of his or her peers. This way reputation represents the social capital that a member has at his or her disposal or, which is the same thing his or her ability to mobilize the social relations that can make common resources valuable. This ability of reputation to operate as

commodified social capital means that reputation also becomes a measure of the trustworthiness of strangers. In other words, reputation offers a measure of the risk that an individual or a project poses. It is as a measure of risk, that reputation interacts with and acquire value in relation to institutional logics other than that of CBPP.

CBPP and Capitalism

Interaction with large capitalist organizations remains the most important way in which CBPP is valorized. For several decades the development of the capitalist economy has stimulated the growth of CBPP like processes within, and lately, around large corporate organizations. The reorganization of supply chains made possible by digital technologies since the early 1980s has moved significant aspects of material production out of the factory floor and located it to small enterprises organized in local districts or, later, global value chains. As many studies have shown both local industrial districts and global value chains approximate aspects of CBPP in their organization (cf. Rullani, 2015). Already in the 1980s, studies of Italian industrial districts emphasized how they owe their competitiveness and flexibility to informal relations of inter-firm cooperation that are organized around a commons pool make up of traditional handicraft skills along with new technological knowledge, which is shared among firms. Furthermore the district itself owes its flexibility and adaptability to the social capital by means of which cooperation is organized (Beccatini, . et al. 1990, Bagnasco, 1988, Piore and Sabel. 1984). More recent studies of the Chinese industrial districts that produce the lions share of the world's components for cell phones and computers have shown that these too replicate aspects of CBPP organization: in Shenzhen China tens of thousands of small firms collaborate both to share orders form large

Original Design Manufacturers like Apple, and to socialize and share product and process innovation. Like in the Italian industrial districts, such collaborations are regulated by trust, reputation and social capital (Lee et al. 2016).

Similarly when organized in hierarchical global value chains, such small companies are often contractually obliged to make contributions to a collaborative innovation process, and to participate in knowledge sharing schemes that involve the whole value chain (Gopal, 2010).

Since the 1990s corporate knowledge work has also been reorganized to occur in collaborative teams based on project work: at the mid to top level, large global corporations have developed a multitude of collaborative communities that operate in ways that are very similar to CBPP (Adler and Heckscher, 2006). Since the 2000s such productive collaborations have been increasingly located outside of corporations as a digitally enabled participatory culture has become increasingly important as s a source of innovation and content production in a wide range of sectors like fan driven consumer culture, (Jenkins, 1992), brand communities and social media world or mouth, (Muniz and O'Guinn, 2001), user led innovation communities (van Hippel, 2005) , fashion and design. Under headings like 'creativity' (Florida, 2002) such socialized peer production has been target by policies aiming to support and sustain it, as well as enable and facilitate its valorization as part of capitalist value chains. In the last decade this participatory culture has fused with the traditions of FLOSS programming to create an 'app economy', based on millions of mostly small developers who work on development platforms like Android or iOS where the corporate owners make money by taxing transactions on the platform (the sale of iOS apps alone make up a significant share of Apple's revenues, amounting to $ 6 billion in 2015 alone, Keizer, 2016). In recent years a similar platform model has crystalized as a way for capitalist

corporations to make money from relatively autonomous collaborative wealth creation. Facebook, AirBnb, Uber all allow their members to transact freely, to then tax their transactions in order to extract revenue. A similar logic of rent (rather than profit, strictly speaking, cf. Vercellone, 2008) stand behind the venture capital model. Faced with the 'cambrian explosion' of small enterprises or start-ups, many of which drawing on wealth that derive from CBPP processes, venture capital funds aim at selecting those that have a promise to be able to single out an aspect of human behavior and then monopolize it as a source of rent extraction: this is the model followed by all recent unicorns within the 'sharing economy'.

In all of these interactions reputation is the main medium of exchange between CBPP and the monetary exchange value with which capitalist institutions operate. For example, platforms like Uber or Airbnb are proprietary markets where services are traded for money. However, in order to have success as an Uber driver or a Airbnb host it is necessary to engage in the peer production of an experience of sociality (Schor et al. 2015). Uber drivers socialize with their customers and make an extra effort to make them feel at ease, Airbnb hosts feel compelled to socialize, to offer guides to the neighborhood, and to create relations that go beyond the mere transaction. For both categories the ability to engage successfully in such peer production of an experience is rewarded by reputation, which in turn facilitates, or as in the case of Uber, becomes a precondition for continued existence on the platform. In other words: what remains of CBPP on platforms like Uber or Airbnb is commodified as reputation and valorized as it translates into a competitive advantage for hosts and drivers. Similarly Start-ups are selected for venture funding, not on the basis of their actual business potential, but on their potential growth as represented by their

reputation. Here their reputation represents, among other things, their ability to execute an idea by enabling virtuous collaboration and teamwork (mere ideas, on the other hand 'are cheap', Marwick, 2013). This way Start-uppers do not only egage I what Gina Neff calls 'venture labour', shouldering investment risk ; they also contribute in creating and strengthening the very imaginary that enables insecurity to be transformed into calculable risks, by reproducing the norms and values of the start up system and by catering to its often explicit templates for the generation of hype and brand. In sectors like freelance knowledge work, and the inter-organizational careers of knowledge workers reputation measures the ability to promote and maintain the kinds of virtuous cooperation that creates value, and hence the riskiness of subjects as objects of investment in human capital (Gandini, 2016, Martin, 2005). In relation to the capitalist economy reputation earned in CBPP contexts translates into a brand like asset, which in turn serves to estimate the investment risk presented by a particular person or project. CBPP based reputation is inserted in a logic of financial accumulation where value is calculated in relation to risk rather than in relation to productive output.

CBPP and the State

Lately initiatives that aim at supporting or creating markets for CBPP have received substantial state support, on the part of local, regional, national, and in particular European funding bodies. At the local or regional levels many cities like Amseterdam, London, or Milan have invested in ' sharing economy ' initiatives as ways to promote economic growth and innovation; to revitalize social relations and reduce waste. At a national level states have found it attractive to outsource a number of services previously provided by public administrations to social cooperatives who combine CBPP with voluntary or paid labor

(Bonomi-Savignon and Corvo, 2015). At the European level the Horizon 2020 program has made special provisions for CBPP as core components of the development of an European knowledge economy populated by smart cities. In interacting with state funding bodies CBPP communities go through a process of what Frank Knight called 'cephalization', similar to that which occurs when interacting with large-scale capital interests. Along with the productivity of efforts, it becomes important to accumulate reputation, which is subsequently accumulated in a brand. Differently from interacting with the capitalist economy, such brands are generally personalized: a number of individuals build reputations as a CBPP elite, and are subsequently able to attract funding and support for their projects. This 'elite' is generally drawn form people who have a relatively long experience in contributing to CBPP scene in various qualities. (The leader of WeMake for example, have been active in promoting collaborative design for at least 5 years before receiving a municipal grand to launch WeMake .Subsequently they have won additional EU finding within the H2020 program.) In other words, access to public funds require reputation acquired through sustained participation in CBPP. This leads to the formation of local or even European wide scenes of CBPP 'experts' who contribute to furthering the idea of the social virtues of CBPP by participating in conferences, writing articles books and academic papers, and who are subsequently able to capitalize on this reputation when competing for public funding or acting as consultants. Here as in the case of interaction with the capitalist economy, reputation serves as a measure of investment risk. Differently from the capitalist economy this risk is calculated in relation to the proven reliability of elite individuals to manage public funds. Reputation serves as a proxy for administrative risk.

CBPP and Markets

The diffusion of digital media has favored the concentration of market power in the hands of 'platform capitalists' like Facebook or Uber, who are able to extract rent from a multitude of transactions evolving on their platforms. The secret here lies in attracting large crowds of users by the ability to control a particular aspect of human behavior, globally if possible, and then extracting a small amount from each user. Facebook for example, has become the global standard for social media communication on line. As of now the platform realizes yearly earnings of about $3.5 billion on the basis of its 1.5 billion active users. The rent extracted corresponds to about $ 2 per user per year). At the same time digital technologies have substantially lowered the barriers of entry for engaging in productive activity. Platforms like Instagram and Line have given ordinary people and small businesses access to low cost marketing tools that enable them to reach a much larger customer base than before. Instagram has enabled a ordinary people to earn part of their living by dealing in antiques or vintage clothes, platforms like Etzy has done similar things for a multitude of ordinary craftsmen and women, and in much of Asia, Line has helped a multitude of small business like, laundries or restaurants to significantly expand their business. Similarly the costs of engaging in productive activities have been radically lowered. In 2001 the average costs for launching a digital start –up was around half a million dollars, now it is about $ 5000. The horizontally integrated Chinese industrial districts of semi conductor firms have equally been enabled by the fact that new generations of numerically controlled machinery makes it possible to engage even in advanced forms of digital manufacturing with a capital requirement of about $ 200.000, well within the reach of an industrious family. These lowered capital requirements, enabled by the socialization of the skills and technologies required to engage in the production of even advanced commodities , have created a radical

increase in the number of small enterprises competing on markets. Since the 1990s the 'pirate economy' of counterfeited or knock-off goods has expanded as an effect of the outsourcing of branded manufacturing and the subsequent becoming common of the skills and knowledge required to create high quality, brand-like goods. The pirate economy has revitalized the bazaars and street markets of many Asian and African countries, enabled a generation of poor lower class traders to improve their livelihood and, importantly, played an important role in distributing digital goods like fake cell phones, recycled computers or counterfeit DVDs and Computer games to the poorer 'bottom of the pyramid' who would otherwise not have been able to afford them (Matthews et al. 2012). Significantly the pirate economy also puts in motion market based systems of knowledge transfer and sharing that are able to realize CBPP like knowledge commons while building on traditional bazaar models (Deka, forthcoming, cf. Geertz, 1978). One of the most important instances of such CBPP based markets is the Chinese Shanzhai system.

The Shanzhai or 'pirate' (literally 'mountain fortress') system exploded in the 2000s. In the previous decade the shift away from vertical integration in the Chinese microelectronics industry had created large industrial districts of small family firms engaged in component manufacturing, chiefly for large ODMs like Apple, Nokia or Samsung. Overcapacity and easy access to shared technical and design knowledge made a number of these firms chose to produce alternative cell phones on the side. This was greatly facilitated by the introduction of modular design platforms like the Korean MediaTek multifunctional chipset. This significantly reduced the technological barriers to entry into the business of cell phone design. At its height around 2008 the Shanzhai industry consisted in around 1000 firms, employing around 100.000 workers. It is estimated that the Shanzhai system produced and

distributed some 200 million cell phone sin 2008, making it responsible for 15 per cent of

the Chinese market and having a significant impact on the digital alphabetization of India

and Africa. The phones were distributed around the world, an in particular to street markets

in Asia, Africa and the Middle East. Distribution networks were informal, street vendors who

would arrive to Shenzhen's Huaqiangbei market traveling with suitcases form Lagos or Delhi

(Liu et al, 2015, Yu and Kwan, 2015) This way, Shanzhai effectively managed to transform

what was an ureachable luxury good into something affordable for ordinary consumers (Zhu

and Shi, 2015: 46) Indeed Lakshane (2014) claims that it was the arrival of Shanzhai cell

phones that popularized cell phone usage in India and prompted telecommunications

companies to launch connectivity packages with more accessible pricing for a popular

market. Similarly Lindsay (2011) sustains that the spread of cheap Shanzhai phones was a

necessary precondition for the political social media activity that took place during the 'Arab

Spring' of 2011.

In the beginning, Shanzhai phones were essentially counterfeits, lower quality knock-off

versions of Nokia or Samsung.. Soon however the system would start designing its own

models. Small design houses would initiate short term collaborative projects around a

particular phone model by mobilizing informal contacts and social capital (Zhu and Shi,

2010) Component manufacturers were recruited among a multitude of ultra small –scale

firms ("5 guys and a couple of machines in a shop"). Design projects drew on common

knowledge that were quickly socialized in the system of component manufacturers as it was

common for a small factory to, for example make chips for Apple during the day and them

make similar components as apart of a Shanzhai network using spare capacity 'at night'.

Shanzhai innovations consisted in project-oriented re-combinations of commonly available

design and technological solutions (a cellphone that had an Apple back and a Blackberry front for example) that were aimed at quickly exploiting temporary market niches (like the Obama phone- a Blackberry clone popular in Kenya during the 2007 US presidential elections (Yang and Li, 2008). Aesthetically Shanzhai products were oriented towards a young audience made up of people who, as Chinese youth culture blogger Zhan Yiwu argues, had a strong desier for branded or brand like products but lacked the economic means to purchase them (Chubb, 2015, Ho, 2010). Overall as Bai argues, the Shanzhai system utilized several mechanisms similar to CBPP production, such as the sharing of knowledge and skills both informally and formally as designs for phones models were quickly put in the common domain, the reliance of social capital and trust to coordinate complex productive networks where monetary rewards were risky and at any case located in the future (Bai, 2011). Indeed as Lindtner argues, the principles that guided the organizations of the Shanzhai system are today employed in Shenzhen's dynamic open hardware networks that have taken its place (Lindtner et al. 2015). The Shanzhai system represented a model of market-based valuation of CBPP like activity. The system was structured as a horizontal network of small firms with more without any large discrepancies of market power (unlike the capitalist cell phone industry which is dominated by a handful of global brands), value was generated by the collaborative exploitation of market niches which were in turn discovered (or in some case created) though a complex inter personal network that involved traders, whole sellers, designer and producers and which gave instant information on the possibilities and openings in the market. Workers in Shanzhai shops were to large extent former employees of Foxconn or other large assembly companies who chose the "Shanzhai way" as an alternative to wage labor. Overall participation in the Shanzhai system was based on reputation transmitted

through interpersonal trust networks based on a common culture and a common habitus

(Bai, 2011).

While the success of the Shanzhai phenomenon has not been replicated in the West, the

combination of reduced barriers to entry and a massive exodus from corporate careers

(driven either by necessity or by choice) has created a generation of entrepreneurs that

draw on CBPP forms of organization and that aim at achieving market sustainability. Or, at

least this is a frequently voiced ideal. In the case of the Shanzhai system market

sustainability was ensured by the co-production, on the part of diverse members of the

system, of a Shanzhai market niche, including the production of a Shanzhai culture and

aesthetics that made the phones into something more than mere low quality replicas, and

added dimensions of irony, resistance against globalization and tongue in cheek coolness.

Thought this symbolic co-construction of a market imaginary, the Shanzhai system managed

to successfully challenge the implicit sumptuary laws that regulate access to consumer

goods and symbolic distinction in the global economy (Beede, 2014). In the West many

participants in CBPP struggle to create similar market niches. Co-working spaces and fab labs

are frequently engaged not simply in the sharing of skills and innovation but also in the

collective construction of an imaginary that aims at conferring value on the activities of

participants and to set them off from competitors. Designers can draw on their membership

of fab labs in order to add on an innovative or 'cool' dimension to their services: co-working

spaces act as amplifiers for personal branding projects, where the very membership of a co-

working adds on an aura of innovation and creativity; Floss communities work as sources of

reputation that confer symbolic capital to the 'labor' of programmers, which can be drawn

upon in other contexts. For freelance workers membership of a coworking space or a

collective 'scene' or community dedicated to the peer production of such a market niche is an important asset. Such membership enables them to acquire the kinds of reputation that sets them off form their colleagues and that makes it possible to represent their services as distinct and more worthy. In most of these scenes of communities, the ability to acquire a reputation that can be capitalized on elsewhere presupposes 'virtue' in the form of a continuous contribution to the scene or a life conduct that is 'true' to its core values or ethos. As Bandinelli and Arvidsson (2012) have described in the case of social entrepreneurs: it is crucial to remain a virtuous contributor to the social enterprise scene in order to acquire the kind of reputation that will allow one to operate a s a social entrepreneur. The situation is similar for freelance workers: As Gandini describes, membership of and contribution to a scene involves a significant amount of peer production of common resources, in the form of shared knowledge and shared imaginary. It is crucial to professional success (Gandini, 2016). Sometimes this peer production of a market niche can entail more formalized commitments, as in the case of Corto Circuito Flegreo farmers market sustained by members of the Rural Hub network:

Corto Circuito Flegreo (CCF) is an association that operates in the Campi Flegrei area in Campania– Southern Italy. It involves local producers and consumers. Once a month CCF organizes a farmer market. There are two ways to participate to the market. Consumers have to join the association in order to buy local quality food during the farmer market. In this way consumers are recognized as subjects whoe approve and share the same imaginary, values and practices promoted by CCF. Producers have to adhere to the *Garanzia Partecipata System* (GPS). It consists in a set of rules that determine the modalities of production, distribution and sale of local quality food within the market. Each producer

becomes part of the CCF only if accept the GPS and only after that they can sell their products within the market. The GPS is a common criterion that is constructed collectively through which the ethical dimension, the imaginary and the values promoted by CCF are translated into common practices shared by all producers. Within the market the reputation of each producers is defined by the degree of adherence to the GPS. Here reputation is earned by contributing to the rendering the product- agricultural produce produced according to the CCF rules- more 'solid' and reliable. Reputation is earned through the co-creation of an imaginary that enables a particular kind of use value to emerge.

In all of these cases sustainable existence on the market presupposes the creation of a symbolically charged market niche. Shanzhai culture, a Maker identity, Neorural agriculture, that is able make a particular kind of use value emerge, acquire substance and reliability. Reputation is rewarded for contributions to such virtuosity, which is able to sustain an experience of diversity in the face of an abundance of standardized and similar products. This way, virtuous conduct becomes a part and precondition for market action. Just like the traders depicted by Adam Smith in his observations of pre-industrial markets, to be able to propser on the market requires the trust of one's fellows, which, in turn is earned by a continuous exhibition of prudcence and propriety. Here a similar mechanism is at work: to be able to exploit a market niche that confers value on ones products or services and sets them off form others it is necessary to live virtuously, to enact the form of life that enables that furthers the kinds of practice that underlies the sustenance of that particular market niche. In difference to Smith such prudence and propriety is not defined in relation to traditional morals, but rather to the project of a future ethical community where the particular use value to which one is dedicated plays a significant part. Reputation on market

depends on the ability to realize the a particular use value and to contribute to its future promise. On markets this acquires value as a way of reducing risks related to innovative and new products and services.

While there is a general desire for markets among participants of CBPP communities, a desire to realize an economy based on egalitarian and transparent interactions between small scale producers who share the same basic values, the reality is that most operators are forced to interact with corporate players with greater degrees of market power. This asymmetry is greatest in the case of platform markets where a number of fragmented individuals, like Uber drivers or Airbnb hosts, interact with a large capitalist monopoly, but it is present also in Freelance markets where, for example, the WeMake maker space, although wanting to achieve a dynamic market for products designed by their members in fact makes most of their revenue by selling seminars and tailor-made 'experiences for corporate clients. Generally the imaginary tends to change in relation to the power situation of the market. Generally speaking, the greater the predominance of market asymmetries, or, which is the same thing, the more capitalist markets are, the more the creation of an imaginary operates as a brand or 'hype' that follows scripted models and is aimed at reducing the financial risks involved in investing a project or a person. The more the market is participatory and open to a multitude of players, the more reputation is based on ethical conduct anchored in the concrete practice of contributing to the realization of new kinds of use value. Such reputation tends to be closer related to actual practice: rooted in the ability to contribute to the potential of an imaginary located much closer to the *longue durèe* of everyday life. It reduces uncertainty by conferring *authenticity* to products.

CBPP and the commons

There is a significant desire within the world of CBPP to create an institutional framework that enables the products and efforts of CBPP to be exchanged and valorized without the need to form markets or interact with states or capital. The notion of the commons as a model for such an institutional framework has been put forth by activists and scholars like David Bollier (2007, 2016), Silke Helfrisch (Bollier and Helfrich, 2014) and Michel Bauwens (Bauwens and Kostakis, 2014). Drawing on Elinor Ostrom's work, these perspectives see the commons as an institutional logic different form that of the market and the state. Different from both bureaucratic state power and the commodity logic of the market, the commons build on a definition of value that respects and reflects the irreducible diversity of particular local contexts and communities. To quote David Bollier, on the commons each of the different 'world making communities', be these ' community theater, open microscopy, open-source mapping to aid humanitarian rescue and hospitality for migrants' are 'animated by their own values, traditions, history and inter-subjectivity' In short: "The commons discourse seeks to rescue the messy realities of human existence and social organization from the faux regularities and worldview of standard economics, bureaucratic systems and modernity itself' (Bollier, 2016: 7).

This idea of the commons as an institutionalization of diversity, as a system of universal principles that build on and respect local self-determination without reducing the outcomes to any common principle or general equivalent is echoed in the legal initiatives that have emerged to safeguard the commons. Creative commons licenses, for example, leave it up to the creators of content and ideas to determine the content of the licenses that they want to confer on it: to what extent their products can be commodified and in what form, if at all,

creators should be recognized (Lessig, 2004). Similarly projects to safeguard and promote bottom-up innovation around the urban commons, like the Bologna regulation on public collaboration fro urban commons builds on the principle of partly handing over control and governance over urban common resources to communities and allow them to institutionalize and operate their own value structures (within limits, Foster, 2011).

However most attempts to institutionalize a commons based value logic build on some form of exchange. A significant amount of these projects consist in attempts at creating commons based markets. That is: forms of market exchange that transpire within a system of norms, values and, legal frameworks or algorithmic structures that are themselves determined, in some way, by participants in a commons based community, or by collaboration between several such communities. For example, *Funky Tomato* is a network of tomato growers and consumers that are dedicated to a particular productive standard: Funky tomatoes are grown from traditional plants, in small batches using traditional agricultural techniques without additives and fertilizer. The community has imposed its own productive standards that are different form established standards for organic agriculture, which they consider illegitimate. Along with common productive standards, the project institutionalizes structures of co-governance where members can participate in strategic decisions regarding its evolution as well as regarding the use of the small investment fund *Fondo Funky Tomato* destined to finance the seed phase of similar initiatives. The rules and principles of the initiatives are spelled out in a 'constitution' *Carta d'intenti Funky Tomato.* Along with this legal framework Funky Tomato works actively to create a common imaginary around the tomatoes, their gastronomic and nutritional qualities, as well as the ethics and the lifestyle that they embody. This imaginary (or brand) is ethical in the sense that it embodies a

number of principles, like the refusal to use over exploited immigrant labor- other wise common in Southern Italian agriculture- as well as aesthetic: Funky Tomato collects stories of individual members and their lives and works with local musicians to produce an appropriate sound track that animates and confers an ethos to the 'community'. This common framework is peer produced: it contains legal framework made up of a number of explicit rules, processes for co-governance and decision making, as well as an ethos made up of stories, music and elaborate design that endow the products of the community- the tomatoes- with a particular and unique value. Within this framework, market exchange occurs: tomatoes are paid for in money from which producers make a living.

The alternative food economy is rich with similar initiatives, perhaps because the tangible reality of material produce facilitates market exchange. Lately also the 'sharing economy' has seen the proliferation of 'platform cooperatives'; that is, platforms for market exchange- similar to those of Uber and Airbnb, that operate algorithmic matching of supply and demand, but that are, crucially, owned, controlled and operated by their users (Scholz, 2016). Some examples are Juna a New York based ride sharing platform, Union Taxi a Denver based cooperative platform for taxi drivers or VTC Cab a platform owned by former Uber drivers aimed at working as a cooperative alternative to the multinational one. On these platforms the rules of market exchange are inscribed in the software of the platform, including its matching algorithms, these rules have been decided and can be changed through some form of members co-governance structures. Within the framework of these rules, market exchange occurs and money is regularly exchanged for goods and services. Lately blockchain based technologies, like Backfeed, offers off the shelf solutions for building similar platform cooperatives with a minimum of effort in programming and design. Some of

these platforms, like the Enspiral or Sensorica, are networks (in the case of Enspiral physically located in a co-working space) of social entrepreneurs and similar projects that share work as well as revenue collectively. Sensorica also operates an Open Value Network, endowed with a sophisticated Value Accounting infrastructure that takes account not only of the time spent in contributing to a particular project but also of the reputation that contributors have gained in doing so. The Value Accounting infrastructure uses these parameters to calculate the value accumulated by particular users, which then translates into their share of the overall monetary profits accumulated by the particular project to which they have contributed. Many co-working spaces like Multiverso in Florence are experimenting with similar internal commons based markets. Similar forms of commons based exchange value are proliferating as blockchain technologies are making it significantly simpler to launch alternative currencies. Here too, the idea are to create institutionally supported systems of exchange that take into account notions of value that have been determined by participants in some form of collective deliberation, and that successively enable their efforts to be exchanged according to some principle of equivalence. While the principle here, as in Bollier's and Silke's vision of commoning is to re-appropriate the value produced by social cooperation (Braga et al, 2015), this re-appropriation is nevertheless achieved through market like exchange.

While similar commons based market systems have achieved comparatively slight attention in the philosophical literature of the new 'commoning' movement, they seem to be on the rise, at least in certain sectors. In our survey 73,9 per cent of the communities we asked used some form of internal value system, and in our ethnographic fieldwork the desire to quantify and above all to quantify in ways that were more rational more transparent and

that enabled exchange between communities, were one of the more frequent issues that we encountered. In the projects's research most of there metrics would be based on a combination of the quantity of efforts (57,3 per cent), the quality of results (56 per cent) and the overall reputation of members (33, 3 per cent, D 1.2, p. xxii). The later two metrics were usually based on some form of inter-subjective peer validation, while the later tended to include dimensions that went beyond technical skills to include the overall virtuous conduct of members: their contribution to the overall project in which the community recognizes itself. The overall direction of the emerging commons economy seems not to be the downright refusal of exchange value and markets in the interest of safeguarding the difference sand particularities of local value system, but rather the construction of new forms of exchange value that have been constructed in more democratic ways, and that, above all, reflect and render transferable the virtue of members in contributing to constructing and empowering those specific local communities. Rather than no economy, in other words, the emerging commons seems to take the form, in part, of an ethical economy.

Conclusion

Most CBPP communities operate with some form of reputation as their main value form. This can be institutionalized in explicit metrics, or simply implicitly recognized. Within these communities reputation mirrors the contribution that an individual makes to the overall project in which the community recognizes itself. It is a measure not only of productive capacity and technical skill, but also of overall virtue. Reputation is in this sense the 'fictitious commodity', to use Karl Polanyi's term, typical to peer production. Like labor in industrial modernity reputation serves as a medium that is able to objectify social relations

(the "social cues and motivations" that Benkler mentions as an important factor in CBPP) and transform them into an embodiment of exchange value.

As reputation social capital acquired within CBPP can be exchanged for money according to three different institutional logics. To capitalist corporations reputation acquired in CBPP communities is valuable as a measure of the investment risk that a person or a project poses. In relation to state actors reputation provides a measure of the riskiness of a project or an individual *vis a vis* the administrative logic that guides public funding. On markets were capitalist interests exercise little control, what Fernand Braudel would call 'non-capitalist markets', reputation is valuable as a measure of the risk posed by a product or an individual: reputation translates into estimates of the riskiness of use value. On the commons, finally, exchange can be for money or other kinds of alternative exchange values – sometimes embodied in alternative currencies. Here reputation is a measure of the overall risk that a person poses in relation to the realization of a future project: reputation is a measure of virtue. Overall CBPP follows a Knightian logic of value rather than a Marxian one. Value is generally not estimated in relation to the expenditure of labour or other finite resources, but in relation to the risk that a certain individual or project poses.

IV. Conclusion: The New Industrious Commons

CBPP has developed out of the dialectic of industrial capitalism itself. The socialization of skills and knowledge via technological mediation of ever more complex productive organizations has created a new commons in the form of generally available knowledge: of General Intellect. These new commons operate as an increasingly important productive resource within corporate organizations, and in the last decade also in processes that unfold outside of the control of the wage relation. Outside of corporate organizations these new commons have given rise to a new wave of entrepreneurship. It is, however, not simply a matter of economic entrepreneurship, like that promoted by neoliberal notions of an 'entrepreneurial society'. Instead it is the matter of entrepreneurship in the sense of a practice pregnant with a project for the future which is at once economic and ethical in the sense of promising to realize a set of values or, more abstractly, to Change the World. Rather than neoliberal enterprise we should compare it with the kinds of enterprise that marked the industrious revolution of early modern Europe (as well a China and Japan in the 13th and 16th centuries, respectively). It is a matter of an entrepreneurship which is only parlty guided by the prospect of monetary gain, and also firmly anchored in the desire to realize and make real a new future pregnant with new values.

Value in CBPP is related to contribution to such entrepreneurial projects. Such contributions need not only be economic or technical but are often also ethical. Reputation mirrors peer estimations of an individuals ability to live virtuously according to the ethos of a particular project. Within CBPP reputation is forming as a new 'ficitious commodity' that is able to translate 'social cues and motivations' into exchange value. As exchange value reputation provides a measure of the risks involved in collaborating with people who remain in a

certain sense 'strangers'.

Such estrangement is a feature of the structure of most CBPP communities. They are not 'communities' in traditional sense of being rooted in values or kept together by dense webs of interpersonal relations. Rather they are 'connective ' aggregations where individuals frequently join and dropout of practice centered projects, and remain connected through commitment to abstract values.

Rather than a desire to safeguard the irreducible particularity of each 'community and its values, there is a general desire to commodify reputation and to render it s quantifiable in different ways.

Most CBPP activity depends on capitalist institutions for its valorization. There is however a drive towards the creation of commons based, non-capitalist markets. In such commons based markets the conditions of exchange are set from the bottom up, in more or less deliberative processes. This can be done through the implementation of common ethical standards, or through some sort of alternative exchange mechanisms or currencies. Such market commons embed economic exchange within a value logic that looks towards the construction of a post traditional, post capitalist future.

CBPP points towards a post capitalist future. In doing so it retains and builds on key element of capitalism in its most advanced, neoliberal form. Notably, CBPP, like financial capital follows a knightian logic of value. Value is not principally estimated in relation to the expenditure of resources like labor time, but according to estimates of the risks involved in

complex collaboration. The construction of value commons able to re-appropriate such a knightian logic of value and put it to non capitalist uses, entails the creation of imaginaries by means of which risk can be estimated in different ways. This is an essential building block of the new commons.

References

Adler, P and C. Heckscher (2006) *The Firm as Collaborative Community: Reconstructing Trust in the Knowledge Economy*. Oxford; Oxford University Press.

Agamben, G. (1990) "La comunità che viene." *Notizie di Filosofia, pp.* 209-18.

Ahrne, G., Aspers, P., & Brunsson, N. (2014). The organization of markets. *Organization Studies*, 0170840614544557.

Anderson, B.(1988) *Imagined Communities: Reflections on the Origin and Spread of Nationalism.* London: Verso.

Arvidsson, A. and N. Peitersen (2013) *The Ethical Economy. Rebuilding Value after the Crisis*. New York; Columbia University Press.

Bagnasco, A. (1988) *La costruzione sociale del mercato: studi sullo sviluppo di piccola impresa in Italia*. Bologna; Il Mulino.

Bai G. (2011) 'The Informal economy in the era of information revolution and globalization: The Shanzhai cell phone industry in China, *Chinese Journal of Sociology,* 31(2): 1-41

Bandinelli, C. (2915) *Il miglior lavoro del mondo.* Milano; Doppiozero.

Bandinelli, C. and A. Arvidsson (2013) 'Brand Yourself a Changemaker!' *Journal of Macromarketing* 33 (1): 67–71..

Barbrook, R. and A. Cameron (1996) "The Californian ideology." *Science as Culture* 6 (1):44-72.

Barton B. (2014) 'Shanzhai, Sumpturay Law and Intellectual Property Law in Contemporary China.' U.C.D.L. Rev. 47:849–874.

Bauwens, M. "The political economy of peer production." *CTheory* (2005): 12-1.

Bauwens, M. and V. Kostakis. (2014) "From the communism of capital to capital for the commons: Towards an open co-operativism." *tripleC: Communication, Capitalism & Critique. Open Access Journal for a Global Sustainable Information Society* 12 (1): 356-361.

Beccatini, G., F. Pyke, and W. Sengenberger (1990) *Industrial Districts and Inter-firms Cooperation in Italy*. Genève: International Institute for Labor Studies.

Benkler, Y. (2004) 'Sharing nicely: On shareable goods and the emergence of sharing as a modality of economic production.' *Yale Law Journal:* 273-358.

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

Benkler, Y. and H. Nissenbaum (2006) 'Commons-based peer production and virtue'. *Journal of Political Philosophy* 14: 394–419.

Benkler, Y., Shaw, A., Hill, B.M. (2013). 'Peer Production: A Form of Collective Intelligence.' eds. Bernstein, M. and T. Malone, The Handbook of Collective Intelligence, Cambridge, MIT Press.

Bollier, D. (2007) "The growth of the commons paradigm.eds. Hess, C. and E. Ostrom, *Understanding knowledge as a commons.* Cambridge: MIT Press, pp 27-40.

Bollier, D. (2016) Commoning as a Transformative New Paradigm. The Next System Project, http://thenextsystem.org/commoning-as-a-transformative-social-paradigm/ (accessed Sept. 21, 2016).

Bollier, D. and S. Helfrich eds. (2014) *The wealth of the commons: A world beyond market and state*. Amherst (MA): Levellers Press.

Braga, E., Fumagalli, A. and Terranova, T. (2015) 'Introduzione ragionata al convegno "La moneta del commune", in Braga E. and Fumagalli, A. (eds) *La moneta del commune. La sfida dell'istituzione finanziaria del commune*. Milano; Alfabeta.

Budhathoki, N.R. and C: Haythornthwaite, C. (2013) 'Motivation for open collaboration crowd and community models and the case of OpenStreetMap.' *American Behavioral Scientist* 57, 548–575.

Caliandro, A.(2014) 'Ethnography in digital spaces: Ethnography of virtual worlds, netnography, and digital ethnography.' eds. Denny, R. and P. Sunderland, *Handbook of Anthropology in Business.* Walnut Creek, CA: Left Coast Press, pp. 658–680

Chełkowski T, Gloor P, Jemielniak D (2016) Inequalities in Open Source Software Development: Analysis of Contributor's Commits in Apache Software Foundation Projects. *PLoS ONE* 11(4): e0152976. doi:10.1371/journal.pone.0152976

Chubb, A. (2015) 'China's Shanzhai culture: Grabism and the politics of hybridity.' *Journal of Contemporary China* 24: 260–79.

Coleman, G. (2013) *Coding freedom: The ethics and aesthetics of hacking*. Princeton: Princeton University Press.

Colleoni, E. and Arvidsson, A. (2015) *Metodi di acquisizione e riconoscimento delle skills informali dei giovani nell'economia della conoscenza di Milano. Il ruolo dei co-working spaces a Milano*, Research Report, Municipality of Milano, Italy

Colombo, M., Franzoni C. and C. Rossi-Lamastra (2015) 'Internal social capital and the

attraction of early contributions in crowdfunding.' *Entrepreneurship Theory and Practice* 39 (1): 75-100.

Crowston, K., Wei, K., Howison,J. and A. Wiggins (2012) 'Free/Libre open-source software development: What we know and what we do not know.' ACM Computing Survey 44 (2): 1-7.

De Vries, J. (1994) 'The industrial revolution and the industrious revolution.' *The Journal of Economic History* 54 (2): 249-270.

Deka, M. (forthcoming) 'Calculation in the pirate economy' under review for *Journal of Cultural Economy.*

Drucker P.(1959). *Landmarks of tomorrow*. New York, Harper.

Dyer, J. and K. Nobeoka. (2000) 'Creating and managing a high-performance knowledge-sharing network: the Toyota case.' *Strategic management journal* 21(3): 345-367.

Edvinsson, L. (1997) 'Developing intellectual capital at Skandia.' *Long range planning* 30 (3): 320-373.

Fang, Y. and D. Neufeld (2009) 'Understanding sustained participation in open source software projects.' *Journal of Management Information Systems* (25): 9–50.

Florida, R. (2002) *The Rise of the Creative Class.* New York*:* Basic Books.

Forte, A. and Lampe, C. (2013) 'Defining, Understanding, and Supporting Open Collaboration Lessons From the Literature.' *American Behavioral Scientist* (57): 535–547.

Foster, S. (2011) 'Collective Action and the Urban Commons' *Notre Dame Law Review*, 87: 57-??

Fumagalli, A. (2007) *Bioeconomia e capitalismo cognitivo: verso un nuovo paradigma di accumulazione*. Rome: Carocci.

Gandini, A. (2016) *The Reputation Economy: Understanding Knowledge Work in Digital Society*. New York: Springer.

Geertz, C. (1978) "The bazaar economy: Information and search in peasant marketing." *The American Economic Review* 68 (2): 28-32.

Gopal, C. (2010) "Global Automobile Industry: Changing with Times," http://www.outsource2india.com/kpo/site/includes/Global_Automobile_Industry11.pdf (accessed July 29, 2016).

Granovetter, M. (1985) 'Economic action and social structure: The problem of embeddedness.' *American Journal of Sociology* 91 (3): 481-510.

Haythornthwaite, C. (2009) "Crowds and Communities: Light and Heavyweight Models of Peer Production." In *System Sciences, 2009. HICSS'09. 42nd Hawaii International Conference on*, 1–10. IEEE, 2009.

Hertel, G., Niedner, S. and S.. Herrmann(2003) 'Motivation of software developers in Open Source projects: an Internet-based survey of contributors to the Linux kernel.' *Research Policy* 32:1159–1177.

Ho, J. (2010) 'Shanzhai: Economic/Cultural Production through the cracks of globalization.' Plenary Speech, Corssroads Conference on Cultural Studies, Hong Kong, https://www.academia.edu/3019707/Shanzhai_%E5%B1%B1%E5%AF%A8_Economic_Cultural_Production_through_the_Cracks_of_Globlization (accessed Sept 21, 2016).

Jenkins, H. (1992) *Textual Poachers: Television Fans and Participatory Culture.* New York: Routledge.

Jullien, N. (2012) 'What we know about Wikipedia: A review of the literature analyzing the project (s). ', Available at SSRN 2053597.

Keizer, G. (2016) 'Apple's cut of 2015 App Store revenue tops $6B', *ComputerWorld*, Jan 6, 2016. (Available at http://www.computerworld.com/article/3019716/apple-ios/apples-cut-of-2015-app-store-revenue-tops-6b.html accessed July 29, 2016).

Kelty, C. (2008) *Two Bits: The Cultural Significance of Free Software.* Duke University Press.
Kreiss, D., Finn, M., Turner, F., (2011) 'The limits of peer production: Some reminders from Max Weber for the network society.' *New Media & Society* 13 (?): 243–259.

Lerner, J. and J. Tirole (2002) 'Some simple economics of open source.' *TheJjournal of Industrial Economics* 50 (2): 197-234.

Lee, J., Kim, J.-C. and J. Lim (2016) 'Globalization and Divergent Paths of Industrial Development: Mobile Phone Manufacturing in China, Japan, South Korea and Taiwan.' *Journal of Contemporary Asia* 46: 222–246.

Lessig, L. (2004) Creative Commons' *Mont. L. Rev.* 65: 1.

Lindtner, S Greenspan, A. and D. Li (2015) 'Designed in Shenzhen: Shanzhai manufacturing and maker entrepreneurs. *Proceedings of The Fifth Decennial Aarhus Conference on Critical Alternatives*. Aarhus University Press.

Liu, X. Xie, Y and M. Wu (2015) 'How latecomers innovate through technology modularization: Evidence from China's Shanzhai industry. '*Innovation* 17: 266–80.

Maravelias, C. (2003) 'Post-bureaucracy-control through professional freedom.' *Journal of Organizational Change Management* 16 (5):547-566.

Marwick, A. (2013) *Status update: Celebrity, publicity, and branding in the social media age*. New Haven:Yale University Press.

Martin, B. (2005) 'Managers After the Era of Organizational Restructuring: Towards a Second Managerial Devolution?*' Work, Employment, and Society* 19(4): 752.

Mathews, G., Ribeiro, G.L. and C. Vega eds. (2012) *Globalization from Below:The World's Other Economy.* London: Routledge.

Mayo, E. (1933). *The social problems of an industrial civilization*. Boston, Division of Research, Graduate School of Business Administration, Harvard University.

Melucci, A. (1996). *Challenging Codes: Collective Action in the Information Age*. Cambridge:Cambridge University Press.

Morris-Suzuki, T. (1984) 'Robots and capitalism.' *New Left Review* 147: 109.

Morris-Suzuki, T. (1986) 'Capitalism in the computer age.' *New Left Review* 160: 81

Moulier-Boutang, Y. (2012) *Cognitive capitalism*. Cambridge: Polity Press.

Muniz A. and , O'Guinn, T. (2001) 'Brand community.' Journal of Consumer Research 27 (?) 412–432.

Neff, G. (2012) *Venture Labor. Work and the Burden of Risk in Innovative Industries*. Cambridge: MIT Press.

Ouchi, W.G. (1982) *Theory Z.* New York*:* Avon.

Parsons, T. (1939) 'The professions and social structure.' *Social Forces* 17 (4): 457-467.

Piore, M. and C. Sabel (1984) *The Second Industrial Divide: Possibilities for Prosperity*. New York: Basic Books.

Podolny, J. M., and K.L. Page (1998) 'Network forms of organization.' *Annual review of sociology* (1998): 57-76.

Polanyi, K. (1957) *The Great Transformation:(the Political and Economic Origin of Our Time. Boston:* Beacon Press.

Pór, G. (1998) *The Quest for Collective Intelligence. Community Building: Renewing Spirit and Learning in Business.* San Francisco, CA: New Leaders Press*,*

Raymond, E.(1998) 'The Cathedral and the Bazaar' *First Monday* 3 (3).

Rogers, R. (2015) Digital Methods for Web Research, eds Scott, R.A. and S. Kosslyn, *Emerging Trends in the Behavioral and Social Sciences*. Hoboken, NJ: Wiley, pp. 1-22

Rogers, T. & A. Szamosszegi (2011) *Fair Use in the US Economy,* Washington (D.C.); Computer and Communications Industry Association. (available at http://cdn.ccianet.org/wp-content/uploads/library/CCIA-FairUseintheUSEconomy-2011.pdf , accessed July 29, 2016).

Romele, A. and Severo, S. (2016) 'The economy of the digital gift: From socialism to sociality online', *Theory, Culture and Society*, DOI: 0263276415619474.

Rullani, E. (2015) *Economia della conoscenza: Creatività e valore nel capitalismo delle reti*. *Economia & lavoro* 49.3: 7-20.

Scholz, T. (2016*) Platform Cooperativism,* New York: Rosa Luxembourg Stiftung.

Schor, J. Walker, E. Lee, C. Parigi, P and K. Cook (2015) 'Viewpoints on the Sharing Economy. '*Contexts* 14: 12–19.

Smith , A. (2010 [1776]) *An Inquiry into the Nature and Causes or the Wealth of Nations*, London; Penguin.

Stark, D. (1996) 'Recombinant property in East European capitalism. *American Journal of Sociology* ?? (?): 993-1027.

Turner, F. (2010) *From Counterculture to Cyberculture: Stewart Brand, the Whole Earth Network, and the Rise of Digital Utopianism.* Chicago: University of Chicago Press.

Uzzi, B. (1997) 'Social structure and competition in interfirm networks: The paradox of embeddedness.' *Administrative science quarterly* ?? (??): 35-67.

Vercellone, C. (2013) "The becoming rent of profit? The new articulation of wage, rent and profit." *Knowledge Cultures* 1 (2): 194-207.

Von Hippel, E. (2006) Democratizing innovation. Cambridge (M.A): MIT Press.

Wenger, E. (1988) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge: Cambridge University Press.

Wren, D. (2005) *The History of Management Thought*. London: Wiley.

Yu, F. and D.S, Kwan, D.S. (2015) 'African Entrepreneurs and International Coordination in Petty Businesses: The Case of Low-End Mobile Phones Sourcing in Hong Kong.' *Journal of African Business* 16: 66–83.

Zuboff, S. (1988) *In the Age of the Smart Machine: The Future of Work and Power*. New York: Basic Books.

Zhu, S and Y. Shi (2010)' Shanzhai manufacturing- a alternative innovation phenomenon in China.' *Journal of Scien*