P2P and Human Evolution: Peer to peer as the premise of a new mode of civilization

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Latest draft version is located at http://noosphere.cc/P2P2bi.htm

An earlier draft version for the 'integral discourse community' is located at http://207.44.196.94/~wilber/bauwens2.html

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1. Introduction

1.A. What this essay is about

The following essay describes the emergence, or expansion, of a specific type of relational dynamic, which I call peer to peer. It's a form of human network-based organisation which rests upon the free participation of equipotent partners, engaged in the production of common resources, without recourse to monetary compensation as key motivating factor, and not organized according to hierarchical methods of command and control. This format is emerging throughout the social field: as a format of technology (the point to point internet, filesharing, grid computing, the Writeable Web initiatives, blogs), as a third mode of production which is also called Commons-based peer production (neither centrally planned nor profit-driven), producing hardware, software (often called Free Libre Open Sources Software or FLOSS) and intellectual and cultural resources (wetware) that are of great value to humanity (GNU/Linux, Wikipedia), and as a general mode of knowledge exchange and collective learning which is massively practiced on the internet. It also emerges as new organizational formats in politics, spirituality; as a new 'culture of work'. This essay thus traces the expansion of this format, seen as a "isomorphism" (= having the same format), in as many fields as possible. But it does more than that: it tries to provide an explanatory framework of why it is emerging now, and how it fits in a wider evolutionary framework. Note that within the sections, the first subsection is descriptive, the second is explanatory, and the third is evolutionary. In the latter, I use the triune distinction premodernity/modernity/postmodernity, well aware that it is a simplification, and that it collapses many important distinctions, say between the tribal and the agrarian era. But as an orienting generalization that allows the contrasting of the changes occurring after the emergence of modernity, it remains useful.Thus, the concept of 'premodern', means the societies based on tradition, before the advent of industrial capitalism, with fixed social roles and a social organisation inspired by what it believes to be a divine order; modern means essentially the era of industrial capitalism; finally, the choice of the term postmodern does not denote any specific preference in the 'wars of interpretation' between concepts such as postmodernity, liquid modernity, reflexitive modernity, transmodernity etc.. It simple means the contermporary period, more or less starting after 1968, which is marked by the emergence of the informational mode of capitalism. I will use the term cognitive capitalism most frequently in my characterization of the current regime, as it corresponds to the interpretation,

which is the most convincing in my view. The French magazine Multitude[i] is my main source for such interpretations. It's essential meaning is the replacement of an older 'regime of accumulation', centered on machines and the division of labor corresponding to them; and one centered on being part of a process of accumulation of knowledge and creativity, as the new mainspring of power and profit.

I will conclude my essay with the conclusion that P2P is nothing else than a premise of a new type of civilization that is not exclusively geared towards the profit motive. What I have to convince the user of is that 1) a particular type of human relational dynamic is growing very fast across the social fields, and that such combined occurrence is the result of a deep shift in ways of feeling and being. 2) That it has a coherent logic that cannot be fully contained within the present 'regime' of society. 3) that it is not an utopia, but, as 'an already existing social practice', the seed of a likely major transformation to come. I will not be arguing that there is an 'inevitable evolutionary logic at work', but rather that a new and intentional moral vision, holds the potential for a major breakthrough in social evolution, leading to the possibility of a new political, economic, and cultural 'formation' with a new coherent logic.

Such a large overview will inevitably bring errors of interpretation concerning detailed fields. I would appreciate if readers could bring them to my attention. But apart from these errors, the essay should stand or fall in the context of its most general interpretative point: that there is indeed a isomorphic emergence of peer to peer throughout the social field, that despite the differences in expression, it is the same phenomena, and that it is not a marginal, but a 'fundamental' development. It is on this score that my effort should be judged. If the effort is indeed judged to be successful, I then would hope that this essay inspires people from these different fields to connect, aware that they are sharing a set of values, and that these values have potential in creating a better, but not perfect or ideal, society.

1.B. The use of a integral framework

One word about my methodology. I have been inspired by mostly two traditions or methods of inquiry: the integral method, and the sociology of form.

I use as heuristic device, and as such device only, the four quadrant system developed by Ken Wilber (Wilber, 2001). This does not mean I share the conclusions of his 'Theory of Everything', which I think are seriously flawed. But as a method for assembling, presenting and understanding my data, I find it to be extremely useful. The four quadrant system organizes reality in 'four aspects', which encompass the subjective (evolution of self and subjectivity), the materiality of the single organism (objectivity), the intersubjective (the interaction of groups of subjectivities and the worldviews and cultures they so create), and the behavior of groups of objects, i.e. the interobjective perspective of systems. The integral theory tradition tries to construct a narrative of the unfolding cosmic processes, in explanatory frameworks that enfolds them all. It also does this historically, trying to make sense of an evolutionary logic, trying to enfold the different historical phases into a unified human understanding. Apart from the 'neoconservative' Wilberian version of integral theory, I have equally been influenced by the 'critical integral theory', or anti-systemic 'materialist-subjectivist' account of Toni Negri (Negri, 2001)

If you'd place explanatory theories about the evolution of matter/life/consciousness into 2 axis define by the 'relative attention given to either the parts or to the whole', and another one

'relative attention given to difference or to similarities', integral theory would be that kind of hermeneutical system that pays most attention to the whole, and to structural similarities, rather than to the parts and to difference. In doing this it runs counter to the general tendency of modern objective science to focus on parts (to be analytical), of postmodernism to focus on difference, and hence to reject integrative narratives, and to systems theories and its follow-ups, which ignore subjectivity. It is this distinction from dominant epistemologies, which makes it particularly interesting to uncover new insights, missed by the other approaches. A key advantage of the integral framework is that it integrates both subjective and objective aspects of realities, refusing to reduce one to the other.

To conclude, generally speaking, an integral approach is one that:

- respects the relative autonomy of the different fields, and looks for field specific laws
- affirms that new levels of complexity causes the emergence of new properties and thus rejects reductionisms that try to explain the highly complex from the less complex
- always relates the objective and subjective aspects, refusing to see any one aspect as a mere epiphenomena of the other
- in general, attempts to correlate explanations emanating from the various fields, in order to arrive at an integrative understanding

My modified form of the four-quadrant system starts with the 'exterior-individual', i.e. single objects in space and time, i.e. the evolution of the material basis of the universe, life, and mind (the evolution from atoms to molecules to cells etc..), but in my personal modification, this quadrant includes technological evolution, as I (and others such as McLuhan, 1994) can legitimately see technology as an extension of the human body. Second, we will look at the systems (exterior-collective) quadrant: the evolution of natural, political, economic, social and organizational systems. Third, we will look at the exterior-collective quadrant: human culture, spiritualities, philosophies, worldviews. In the fourth quadrant we will be discussing the interior-individual aspects, and we look at changes occurring within the sphere of the self. However, in practice, despite my stated intention, I have found it difficult to separate individual and collective aspects of subjectivity and they are provisionally treated in one section. That this is so is not surprising, since one of the aspects of peer to peer is it participative nature, which sees the individual always-already embedded in social processes.

Figure 1: Typology of scientific approaches (ways of looking at the world)

	Parts	**Whole**	**Includes**
Difference	Postmodern approaches	**Integral Approaches**	**Subjects and Objects**
Similarity	Analytical Sciences	Systemic Sciences	**Objects Only**

Figure 2: An integral framework for understanding P2P

	Individual Aspects	**Collective Aspects**
Interior Aspects	**Subjective field** The subject / the self	**Intersubjective field** Spirituality / Worldviews
Exterior Aspects	**Objective field** Technological artifacts as extensions of the body	**Interobjective field** Natural Systems / Political, economic, organizational systems

The combined use of the four quadrants also has important advantages in avoiding various kinds of reductionisms:

1) the analytical-materialist reductionism (scientism), which attempts to totally explain the world of life and culture by the properties and processes of matter
2) the biological/Darwinistic reductionism, which attempts to totally explain the life of culture by the animalistic processes of survival of the fittest.
3) The 'wholistic' reductionism of the system sciences, which do not take into account the agency of the subject
4) The linguistic reductionism of extreme postmodernists, which tend to totally bypass materiality and reduce everything to language games

In conclusion: the integral approach allows us to use these various partial perspectives and to use them as heuristic devices, so that we can obtain a fuller picture combining them. What distinguishes an 'integral approach' from the other approaches is its use of a subjective-objective explanatory framework.

1.C. The Sociology of Form

If the above integral approach has guided me as a safeguard to avoid proposing overtly reductionist interpretations and to cast my net as wide as possible, as well as for the organization of the subject matter, then the search for 'isomorphism' has been of great value in precisely defining what P2P is and how it differs from its close cousins, such as the gift economy. The method involves looking at the emergence of a same form throughout the social field, to define its precise characteristics in a ideal type as we gathered more information, which then in turn again helps in differentiating 'pure P2P' from its derivatives.

The sociology of form focuses neither on the parts (individuals and their choices), nor on the collective as a whole (society and its socialization), but on the interaction between the parts, their 'form of exchange'[ii]. Particular usage is made of Alan Page Fiske's quaternary model of human intersubjective relationships.

1.D. Some acknowledgments

This essay is part of a larger project, the writing of a French-language book, which I'm undertaking with Remi Sussan, a Paris-based free-lance journalist working for 'digital' magazines like TechnikArt. Hence, the continuing dialogue with him has been a great source of inspiration and clarification in terms of the ideas expressed in this essay. We share an enthousiasm for understanding P2P, though we frequently differ in our interpretations. The current essay therefore reflects my own vision.

A first essay on P2P, essentially descriptive, but supported by many citations, is available on the internet on the Noosphere.cc site, and was written in 2003. However, most of these citations have now been integrated as endnotes. In this current essay, which was written pretty much in a 'free flow of consciousness' mode, though I will mention quite a few names of social theorists, citations have been kept at a minimum, but I may add them in later version as footnotes.

Some acknowledgements about the sources used: amongst the contemporary and near-contemporary thinkers that I have been reading most recently in preparing this essay are: Norbert Elias (Elias, 1975), Louis Dumont (Vibert, 2004), and Cornelis Castoriadis (Castoriadis, 1975); the Italian-French school of thought around Multitude magazine, especially Toni Negri and Michael Hardt, Maurizio Lazzarato (Lazzarato, 2004), Philippe Zafirian (Zafirian, 2003).Amongst the specific P2P pioneers I have read, are Pekka Himanen (Himanen, 2002), for his study of work culture; John Heron (Heron, 1998) and Jorge Ferrer (Ferrer, 2001), for their work on participatory spirituality. Timothy Wilken of Synearth.org was instrumental in the discovery of the theories of Edward Haskell and Arthur Coulter, on synergetics and cooperation, which are explained on his the Wilken website.

As I was finishing this draft, I just in time received the formidable Hacker Manifesto from McKenzie Wark (Wark, 2004), and I have made a last-minute attempt to integrate his profound and provocative analysis into the essay as well.

2. P2P as the Technological Framework of Cognitive Capitalism

2.1. The emergence of peer to peer as technological infrastructure

What is peer to peer? Here's a first tentative definition: It is a specific form of relational dynamic, is based on the assumed equipotency of its participants[iii], organized through the free cooperation of equals in view of the performance of a common task, for the creation of a common good. Equipotency means that there is no prior formal filtering for participation, but rather that it is the immediate practice of cooperation which determines the expertise and level

of participation. It does not deny ‘authority’, but only fixed forced hierarchy, and therefore accepts authority based on expertise, initiation of the project, etc…

P2P is a network, not a hierarchy; it is decentralized; it a specific form of network using distributive intelligence: intelligence is located at any center, but everywhere within the system. Assumed equipotency means that P2P systems start from the premise that ‘it doesn’t know where the needed resource will be located’, it assumes that ‘everybody’ can cooperate, and does not use formal rules in advance to determine its participating members. Equipotency, i.e. the capacity to cooperate, is verified in the process of cooperation itself. Validation of knowledge, acceptance of processes, are determined by the collective. Cooperation must be free, not forced, and not based on neutrality (i.e. the buying of cooperation in a monetary system). It exists to produce something. These are a number of characteristics that we can use to describe P2P systems ‘in general’, and in particular as it emerges in the human lifeworld. To have a good understanding of P2P, I suggest the following mental exercise, think about these characteristics, then about their opposites. So doing, the radical innovative nature of P2P springs to mind. Though P2P is related to earlier social modes, those were most in evidence in the early tribal era, and it now emerges in an entirely new context, enabled by technologies which go beyond the barriers of time and space. After the dominance during the last several millennia, of centralized and hierarchical modes of social organisation, it is thus in many ways now a radically innovative emergence, and also reflects a very deep change in the epistemological and ontological paradigms that determine behaviour and worldviews.

But how does it apply to technology?

The Internet, as it was conceived by its founders (Abbate, 1999), and evolved in its earliest format, was a point to point network, consisting of equal networks, and the travel of data uses different sets of resources as necessary. It is only later, after the rise of stronger and weaker networks, of open, semi-closed and closed networks, that the internet became hybrid, but it still in essence functions as a decentralized network, having no central core to manage the system.

The web similarly was seen as a many-to-many publishing medium, even though it follows a semi-hierarchical client-server model. However, it is still and will remain a essentially participative medium allowing anyone to publish his own webpages. Because of its incomplete P2P nature, it is in the process of becoming a true P2P publishing medium in the form of the Writeable Web projects, that allow anyone to publish from his own or any other computer,in the form of blogging etc… Other P2P media are instant messaging, chat, IP telephony systems, etc.. For the internet and the web, P2P was not yet explicitly theorized (though the idea of a network of networks was), they are weak P2P system in that they only recognize ‘strong’ members, DNS-addressed computers in the internet, servers in the case of the web. In the systems developed afterwards, P2P was explicitly theorized: they are ‘strong’ P2P systems, in which all members, also the weak members (without fixed DNS address for the internet, blogs with permalinks in case of the web) can participate.

Filesharing systems were the first to be explicitly tagged with the P2P label, and this is probably the origin of the concept in the world of technology. In such systems, all voluntary computers on the internet are mobilized to share files amongst all participating systems, whether that be documents, audiofiles, or audiovisual materials. In June 2003, videostreaming became the internet application using the largest bandwidth, and some time before, online

music distribution had already surpassed the physical distribution of CD's (in the U.S.). Though the earliest incarnations of these P2P systems still used centralized databases, they are now, largely thanks to the efforts of the music industry, mostly true P2P systems, in particular Bittorrent and the planned development of Exeem.

Finally, grid computing uses the P2P concept to create 'participative supercomputers', where resources, spaces, computing cycles can be used from any participant in the system, on the basis of need. It is the next paradigm for computing.

In terms of media, the broadband internet is rapidly mutating to enhance the capacities to create online publishing (blogging), internet radio systems, and the distribution of audiovisual programming in the forms of vlogs (video blogging) or podcasting (music or video distribution through iPod or MP3 players). In physical terms of the evolving telecommunications infrastructure, the broadcast model is being replaced by the 'meshwork system', which is already used by the Wireless Commons movement to create a worldwide wireless communications network that aims to bypass the Telco infrastructure [iv]. In such a system a wide array of local networks is created at very low cost, while they are interlinked with 'bridges'. Communication on these networks follows a P2P model, just like the internet. Mark Pesce has already developed a realistic proposal to build an integrated alternative network within then years, based on similar premises. And think about the potential of 'file-serving television' models as pioneered by TiVo[v]. Telephony using the Internet Protocol, recently popularized by Skype, is similarly destined to change the nature of the hitherto centralized telephone system. P2P is generally seen as the coming format of the telecommunication infrastructure. [vi]

While mobile telephony is strongly centralized and controlled, it will have to compete with wireless broadband networks, and users are busily turning it into yet another participative medium, as described by Howard Rheingold in Smart Mobs.

I could go on, but what should emerge in your mind, is not a picture of a series of marginal developments, but the awareness that P2P networks are the key format of the technological infrastructure that supports the current economic, political and social systems. Companies have used these technologies to integrate their processes with those of partners, suppliers, consumers, and each other, using a combination of intranets, extranets, and the public internet, and it has become the absolutely essential tool for international communication and business, and to enable the cooperative, internationally coordinated projects carried out by teams.

In the above phenomenology of P2P, notice that I have taken an extreme literal definition of P2P, as many hybrid forms exist, but the important and deciding factor is: does it enable the participation of equipotent members? One of the key factors is: how inclusionary is the social practice, or technology, or theory ,or any other manifestation of the P2P ethos.

2.2. Explaining the Emergence of P2P technology

Why this emergence? The short answer is: P2P is a consequence of abundance (in fact it is both cause and consequence). With the advent of the 'Information Age' that started with mass media and unintegrated private networks for multinationals, but especially with the advent of

the internet and the web itself, which allow for digital copying and distribution of any digital creation at marginal cost, information abundance is created. For business processes, the keyword becomes ‘flow’, and the integration of these endless flows. Production of material goods is predicated on the management of immaterial flows. In such a context, centralized systems inevitably create bottlenecks holding up the flow. In a P2P system, any node can contact any other node, without passing through such bottlenecks. Hierarchy only works with scarcity, and in a situation where the control of scarce resources determines the end result of the zero-sum power games being conducted. In a situation of abundance, centralized nodes cannot possible cope. Information, I probably do not need to remind the reader of this, is different from material goods, in that its sharing does not diminish its value, but on the contrary augments it.

Second, P2P systems are predicated on redundancy, several resources are always available to conduct any process. This makes them a lot less vulnerable than centralized systems to any kind of disruption, P2P systems are extraordinarily robust. One cannot, in terms of resources, compare any centralized system, to the extraordinary combination of millions of peripheral systems with the billions and trillions of unused memory, computing cycles, etc…. These are only unlocked in a P2P system.

Abundance is again both a cause and a consequence of complexity. In a situation of a multiplication of flows, flows that no longer follow predetermined routes, it cannot possible be predicted, where the ‘solution’ for any problem lies. Expertise comes out of a precise combination of experience, which is unpredictable in advance. Thus, systems are needed that allow expertise to unexpectedly announce itself, when it learns that it is needed. This is precisely what P2P systems allow to an unprecendented degree.

2.3.A. Placing P2P in the context of the evolution of technology

Premodern technology was participative, but not differentiated. The instruments of artisans were extensions of their bodies, with which they ‘cooperated’. But the lifeworld, was not differentiated into different spheres or into subject/object distinctions, since they saw themselves, not as separate and autonomous individuals, but as parts of a whole, following the dictates of the whole, moving in a world dominated by spirits, the spirits of men (the ancestors), of the natural world (with no distinction natural/supernatural), and of the objects they used.

Modern technology could be said to be differentiated, but is no longer participative. The subject-object dichotomy means that nature becomes a resource to be used (objects used by subjects). But the object, the technological instrument, also becomes autonomous, and in the factory system typical of modernity, a dramatic reversal takes place: it is the human who becomes a ‘dumb’ extension of the machine. The intelligence is not so much located in the machine, but in the organization of the production, of which both humans and machines are mere cogs. Modern machines are not by itself intelligent, and are organized in hierarchical frameworks. Modern humans think themselves as autonomous agents using objects, but become themselves objects of the systems of their own creation. This is the drama of modernity, the key to its alienation.

In post-modernity, machines become intelligent (though not in the same way as humans, they can only use the intelligence put in them by the humans, and so far lack the creative innovation, problem-solving and decision-making capabilities). While the old paradigm of humans as objects in a system certainly persists, a new paradigm is being born. The intelligent machines become computers, extensions now of the human brain and nervous system (instead of being extensions of the external limbs and internal functions of the body in the industrial system). Humans again start cooperating with the computers, seen as extensions of their selves, their memories, their logical processes, but also and this is crucial: it enables affective communication amongst a much wider global community of humans. Of course, within the context of cognitive capitalism (defined as the third phase of capitalism where immaterial processes are more important than the material production; where information 'as property' becomes the key asset), all this still operates in a wider context of exploitation and domination, but the potential is there for a new model which allies both differentiation (the autonomous individual retains his freedom and prerogatives), and participation. Within the information paradigm, the world of matter (nanotech), life (biotech) and mind (AI) are reduced to their informational basis, which can be manipulated, and this opens up nightmarish possibilities of the extension of the resource-manipulation paradigm, now involving our very own bodies and psyches. However, because of the equally important paradigm of participation, the possibility arises of a totally new, subjective-objective, cooperative way of looking at this, and this is an element of hope.

2.3.B. P2P and Technological Determinism

Starting our description with the emergence of P2P within the field of technology could be misconstrued as saying that P2P is a result of technology, in a 'technology-deterministic fashion'.

The precise role of technology in human evolution is subject to debate. A first group of positions sees technology as 'neutral'. Humans want more control over their environment, want to go beyond necessity,and in that quest, built better and better tools. But how we use these tools is up to us. Many inventors of technology and discoverers of scientific truths have argued this way, saying for example that atomic energy can be used for good (energy) or for bad (war), but that is entirely a political decision.

A different set of positions argues that on the contrary, technological development has a logic of its own, that as a system is goes beyond the intention of any participating individual, and in fact becomes their master. In such a reading, technological evolution is inevitable and has unforeseen consequences. In the pessimistic vision, it's in fact the ultimate form of alienation. This is so because technology is an expression of just a part of our humanity, instrumental reason, but when embedded in the technological systems and its machines, it then forces us to ressemble it, and we indeed follow the logic of machines loose many parts of our full humanity. Think of the positions of Heidegger, Baudrillard, and Virilio as exemplars of such a type of analysis. Like-minded analysis would point out that though strict Taylorism has disappeared from immaterial-based production ,the factory model has in fact spread out throughout society now, forming a kind of 'Social Taylorism'. Efficiency and productivity thinking has taken over the sphere of intimacy. There has been a dramatic destruction of social knowledge and skill, of autonomous cultures, and this type of knowledge has been

'appropriated' by the system of capital, and re-sold to us a commodities. Think of paid-for online dating, as a symptom of the loss of skill in dating, as one example.

Technological determinism can also have a optimistic reading. In this view, for example represented by the progress ideology of the late 19th century, and currently by the technological transhumanists, such as Kurzweil (Kurzweil, 2000), technology represents an increasing mastery and control over nature, a means of going beyond the limitations set to us by nature, and, for this type of interpretation, that is an entirely good thing.

The position I personally feel the closest to is the 'critical philosophy of technology' developed by Andrew Feenberg (Feenberg, 1991, 1999). In his analysis, technological artifacts are a social construction, reflecting the various social interests: those of capital, those of the engineering community conceiving it, but also, those of the critical voices within that community, and of the 'consumers' subverting the original aims of technology for entirely unforeseen usages. Feenberg comes very close to recognize the new form of power that we discuss in section four: i.e. the protocollary power (Galloway, 2004) which concerns the 'code'. The very form of the code, whether it is for the hardware or the software, reflects what usages can be made of technology.

It is in this sense that I see a first important relation between the emergence of P2P and its technological manifestations. The engineers who conceived the point to point internet already had a wholly new set of conceptions which they integrated in their design. It was in fact explicitely designed to enable peer-based scientific collaboration. Thus, the emergence of peer to peer as a phenomena spanning the whole social field is not 'caused' by technology; it is rather the opposite, the technology reflects a new way of being and feeling, which we will discuss in section 6A in particular.

But our argument is stronger than that. In a certain sense, peer to peer, understood as a form of participation in the commons, i.e. as communal shareholding, which we discuss in section 3.4.C, has 'always existed' as a particular relational dynamic. It was especially strong in the more egalitarian tribal era, with its very limited division of labor, before the advent of property and class division. But it was always limited to small bands. After the tribal era, as we enter the long era of class-based civilization, forms of communal shareholding and egalitarian participation have survived, but always subvervient, first to the authority structures of feudalism and similar 'land-based systems', then to the 'market pricing' system of capitalism. But the situation is now different, because the development of P2P technology is an extraordinary vector for its generalization as a social practice, beyond the limitations of time and space, i.e. geographically bounded small bands. What we now have for the first time is a densely interconnected network of affinity-based P2P networks. Thus, the technological format that is now becoming dominant, is an essential part of a new feedback loop, which strengthens the emergence of P2P to a degree not seen since the demise of tribal civilization. It is in this particular way that the current forms of P2P are a historical novelty, and not simply a repeat of the tolerated forms of egalitarian participation in essentially hierarchical and authoritarian social orders.

To repeat: it is not the technology that causes P2P. Rather, as technology, it is itself an expression of a deep shift in the epistemology and ontology occurring in our culture. But nevertheless, this technology, once created, becomes an extraordinary amplifier of the existing shift. It allows a originally minoritarian cultural shift to eventually affect larger and

larger numbers of people. Finally, that shift in our culture, is itself a function of the emergence of a field of abundance, the informational field, which is itself strongly related to the technological base that has helped its creation.

To explain this argument, let us formulate this question of 'why now?', in a slightly different manner. Technology philosophers such as Marshall McLuhan (McLuhan, 1994) and others, have pointed out that technology is an 'extension of our bodies', or more precisely of the faculties of our bodies and minds. In a simplified way: tribal-era technologies, such as spears and arrows, reflect the extremeties of our limbs, the nails and fingers. Agricultural era technologies reflect the extension of our muscular system and the limbs proper: arms and legs. Industrial era technologies reflect our central body and its internal metabolic functions: the transformation of raw materials into more refined products that can be used by our body. Industrial economies are about producing, distributing and consuming physical products. But the information economy era is characterized by the externalization of our nervous system (telephone and telegraph) and our minds (computers), with a logic of first one-to-one communication technologies, then many to one (mass media), and finally with the internet and computer networks: many to many.

If we look at history in such a broad and large way, we can see P2P principles operating in the small bands of the tribal era. But as soon as society complexified itself through more and more elaborate division of labor, such was the complexity of organisation society, that it seemed to make more sense to create centralized institutions. According to system theorists, 'fixed arrangements dramatically reduce transaction costs'. In a Darwinian sense, one could say that they could better manage information scarcity, so that a lesser number of players could rationalize the organisation of such complexity, through hierarchical formal rules. After the revolution of print, followed by the invention of electronic communication, and a dramatic lessening of information scarcity, we see a further integration of a more differentiated world system, and the emergence of a market, though within that market, it still made more sense to have larger and larger monopolistic players. With the advent of worldwide communication networks through, and before the internet these were a monopoly of the large companies, we see the occurrence of major changes in organizational logic: a flattening of hierarchies. According to system theorists complex systems cannot themselves control there increasing number of ever-more efficient subunits, unless by granting them ever-more increasing functional autonomy. The larger system controls whether a subunit has carried a task, but no longer how it is carried out. Thus his law of 'requisite hierarchy' which states that the need for hierarchy diminishes in so far as the subunits increase their own capacity for control. And the 'law of requisite variety' of Arvid Aulin[vii], which states that where internal controls or external regulation is absent, hierarchy is needed. Thus one of the keys to understand current processes is that communication technologies have enabled this kind of control and regulation to such a degree, as shown in P2P processes, that centralized command and control can in fact be overcome to a very great extent. Or more correctly, that the subunits become primary, down to the level of individual participants, who can now voluntarily defer to the subunit for minimal control of 'what is produced' (and no longer 'how it is produced'), while the subunits to the same vis a vis the overall system. Within corporations P2P processes can only partially thrive, because they have to protect the profit motive, but outside the corporation, this limit can be overcome, and those processes of 'production going outside the boundaries of the corporation' are increasingly showing that the profit imperative, and the private appropriation of the social-cooperative processes, is becoming counter-productive. In a lot more simpler terms, let us then conclude that the development of information-processing capabilities has liberated cooperation from the constraints of time and space. Thus, while accepting the

argument that P2P processes have always existed, but confined to small bands (or, it eventually emerged for very short periods in revolutionary situations only to be defeated by their then still more efficient authoritarian and centralized enemies), it is indeed 'only now', that such massive emergence of P2P is possible. We must thus inevitably conclude that technology <IS> a very important factor in this generalized emergence.

3. P2P in the Economic Sphere

3.1.A. The third mode of production

In the economic sphere, P2P is emerging as nothing less than a 'third mode of production' (as first defined by Y. Benckler[viii] using the concept of 'Commons-based peer production'). Worldwide, groups of programmers and other experts are engaging in the cooperative production of immaterial goods with important use value, mostly new software systems, but not exclusively. The new software, hardware and 'wetware' thus being created are at the same time new means of production, since the computer is now a universal machine 'in charge of everything'. This takes the form of either the Free Software Movement ethos [ix], as defined by Richard Stallman, or in the form of Open Source projects, as defined by Eric Raymond. Both are innovative developments of copyright that significantly transcend the implications of privaty property and its restrictions. Free software is essentially 'open code'. Its General Public Licence says that anyone using free software must give subsequent users at least the same rights as they themselves received: total freedom to see the code, to change and improve it[x]. FS explicitely rejects the ownership of software, since every user has the right to distribute the code, and to adapt it and is thus explicitely founded on a philosophy of participation and 'sharing'. Open Sources is admittedly less radical: it accepts ownership of software, but renders that ownership feeble since users and other developers have full right to use and change it[xi]. But since the OS model has been specifically designed to soften its acceptance by the business community, it generally over a lot more control of the labor process. Despite their differences, in subsequent chapters of the book I will use both concepts more for their underlying similarity, without my use denoting a preference, but on a personal level would be probably closer to the free software model, which is the 'purer' form of commons-based peer production.

Despite it rootedness as a modification of intellectual property rights, both do have the effect of creating a kind of public domain in software, and can be considered as part of the information commons. Free software and open sources are exemplary of the double nature of peer to peer that we will discuss later: it is both within the system, but partly transcends it. Though it is increasingly attractive to economic forces for its efficiency, the profit motive is not the core of why these systems are taken up, it is also about the use value of the products. Studies show that the personal development of participants are primary motives, despite the fact that quite a few programmers are now paid for their efforts. Open Sources explicitely promotes itself through its value to create more efficient software in the business environment. It is even being embraced by corporate interests such as IBM and other Microsoft rivals, as a way to bypass the latter's monopoly, but the creation of an open infrastructure is clearly crucial and in everyone's interest. But through the generalization of a cooperative mode of working, and through its overturning of the limits of property, which

normally forbids other developers and users to study and ameliorate the source code, it is beyond the property model, contrary to the authoritarian, bureaucratic, or 'feudal' modes of corporate governance; and beyond the profit motive.

How important are these developments? Open-source based computers are already the mainstay of the internet's infrastructure (Apache servers); Linux is an alternative operating system that is taking the world by storm. It is now a practical possibility to create an Open Source personal computer that exclusively uses OS software products for the desktop, including database, accounting, graphical programs, including browsers such as Firefox. Wikipedia is an alternative encyclopedia produced by the internet community which is rapidly gaining in quantity, quality, and number of users. And there are several thousands of such projects, involving at least several millions of cooperating individuals. If we consider blogging as a form of journalistic production, then it must be noted that it already involves between and 10 million bloggers, with the most popular ones achieving several hundred thousands of visitors. We are pretty much in an era of 'open source everything', with musicians and other artists using it as well for collaborative online productions. In general it can be said that this mode of production achieves 'products' that are at least as good, and sometimes better than their commercial counterparts. In addition, there are solid reasons to accept that, if the open source methodology is consistently used over time, the end result can only be better alternatives, since they involved mobilization of vastly most resources than commercial products.

Open source production operates in a wider economic context, of which we would like to describe 'the communism of capital', with 'the hacker ethic' functioning as the basis of it's new work culture.

3.1.B. The Communism of Capital, or, the cooperative nature of cognitive capitalism

In modernity, the economic ideology sees autonomous individuals entering into contracts with each other, selling labor in exchange for wages, exchanging commodities for fair value, in a free market where the 'invisible hand' makes sure that the private selfish economic aims of such individuals, finally contribute to the common good. The 'self' or subject of economic action is the company, led by entrepreneurs, who are the locus of innovation. Thus we have the familiar subject/object split operating in the economic sphere, with an autonomous subject using and manipulating resources.

This view is hardly defensible today. The autonomous enterprise has entered a widely participative field that blurs clear distinctions and identities. It is linked with its consumers through the internet, today facing less a militant labor movement than a 'political consumer' who can withhold his/her buying power with an internet and blogosphere able to damage corporate images and branding in the very short term through viral explosions of critique and discontent. It is linked through extranets with partners and suppliers. Processes are no longer internally integrated, as in the business process re-engineering of the eighties, but externally integrated in vast webs of inter-company cooperation. Intranets enable widespread horizontal cooperation not only for the workers within the company, but also without. Thus, the employee, is in constant contact with the outside, part of numerous innovation and exchange networks, constantly learning in formal but mostly informal ways. Because of the high degree

of education and the changing nature of work which has become a series of short-term contracts, a typical worker has not in any real sense gained his skills within the company, but expands on his skill and experience throughout his working life. Because the complexity, time-based, innovation-dependent nature of contemporary work, for all practical terms, work is organized as a series of teams, using mostly P2P work processes. The smarter companies are consciously breaking down the barriers between production and consumption, producers and consumers, by involving consumers, in an open-source inspired manner, into value creation. Think of how the success of eBay and Amazon are linked to their successful mobilization of their user communities: they are in fact integrating many aspects of commons-based peer production. There are of course important factors, inherent in the functioning of capitalism and the format of the enterprise, which cause structural tensions around this participative nature, and the use of P2P models, which we will cover in our explanatory section.

So the general conclusion of all the above has to be the essentially cooperative nature of production, the fact that companies are drawing on this vast reservoir of a 'commons of general intellectuality', without which they could not function. That innovation is diffused throughout the social body. That, if we accept John Locke's argument that work that adds value should be rewarded, then it makes sense to reward the cooperative body of humankind, and not just individuals and entrepreneurs. All this leads quite a few social commentators, from both left and liberal (free enterprise advocates), to bring the issue of the universal wage on the agenda.

Why do we speak of ‘cognitive capitalism’? For a number of important reasons. The relative number of workers involved in material production is dwindling rather rapidly, with a majority of workers in the West involved in either symbolic (knowledge workers) or affective processing (service sector) and creation (entertainment industry). The value of any product is mostly determined, not by the value of the material resources, but by its level of integration of intelligence, and of other immaterial factors (design, creativity, experiential intensity, access to lifeworlds and identities created by brands). The immaterial nature of contemporary production is reconfiguring the material production of agricultural produce and industrial goods. In terms of professional ‘experience’, more and more workers are not directly manipulating matter, but the process is mediated through computers that manage machine-based processes. Cognitive capitalism is therefore a hypothesis that the current phase of capitalism is distinct in its operations and logic from earlier forms such as merchant and industrial capitalism.

McKenzie Wark’s Hacker Manifesto goes one step further in this analysis and argues that the key factor of the new era is ‘information as property’. According to him, we have a new class configuration altogether. While the capitalist class owned factories and machinery, once capital was abstracted in the form of stocks and information, a new class has arisen which controls the ‘vectors of information’, the means of producing, storing and distributing information, the means to transform use value in exchange value. This is the new social force he calls the ‘vectoralist’ class. The class who actually produces the value (as distinct from the class that can ‘realise’it and thus captures the surplus value), he calls the hacker class. It is distinguished from the former because it actually creates new means of production: hardware, software, new knowledge (wetware). See 3.3.D. for a fuller explanation of the different interpretations of the current political economy, of which P2P is a crucial element.

3.1.C. The Hacker Ethic or 'work as play'

In section 3.2 we will attempt to show the contradictory nature of the relationship between capitalism and peer to peer processes. It needs P2P to thrive, but is at the same threatened by it. A similar contradiction takes place in the sphere of work. We said before how in the industrial, 'Fordist' model, the worker was considered an extension of the machine. Another way of saying this, is that intelligence was located in the process, but that the worker himself was deskilled, he was required to be a 'dumb body', following instructions. The worker had to sell his labor in order to survive, and meaning could only be found in the activity of working itself, as a means of survival for the family, as a way of social integration, as a means of obtaining identity through one's social role. But finding meaning in the content of the work itself was exceptional. In post-Fordism important changes and reversals occur. Today, the worker is supposed to communicate and cooperate, to have a capacity to solve problems. He is required not only to use his intelligence, but also has to engage his full subjectivity. Certainly this increases the possibility to find fulfillment and meaning through work, but that would be to point a too rosy picture. Inside the company, the quest for fulfillment is often contradicted by the empty purpose of the company itself, especially as efficiency thinking, short termism and a sole focus on profit, are taking hold as the main priorities[xii]. Peer to peer processes characteristic of the project teams are in tension with the hierarchical, feudal-like nature of the management by objectives models[xiii], whose 'information scarcity'-based model is becoming counterproductive even on capital's own terms[xiv]. Psychological pressure and stress levels are very high, since the worker has now full responsibility and very high targets.[xv] One could say that instead of exploiting the body of the worker, as was the case in industrial capitalism, it is now the psyche being exploited, and stress-related diseases have replaced industrial accidents. But this is not all: the productivity model and modes of efficiency thinking have left the factory to diffuse throughout society. It is not uncommon to manage one's family and children and household according to that model. Human relations (dating) and creative activities have been commoditized and monetized. As the pressure within the corporate timesphere intensifies through the hypercompetition based model of neoliberalism, learning and other necessary activities to remain creative and efficient at work have been exported to private time. Thus paradoxically, the Protestant work ethic has been exacerbated, or as Pekka Himanen would have it in his Hacker Ethic[xvi], there has been a 'Friday-isation of Sunday' going on. In other words, the values and practices of the productive sphere, the sphere of the workweek including Friday, defined by efficiency, have taken over the private sphere, the sphere of the weekend, Sunday, which was supposed to be outside of that logic.

Yet at the same time, new subjectivities and intersubjectivities (which we will discuss later), are creating a counter-movement in the form of a new work ethic: the hacker ethic. As mass intellectuality increases through formal and informal education, and due to the very requirements of the new types of immaterial work, meaning is no longer sought in the sphere of salaried work, but in life generally, and not through entertainment alone, but through creative expression, through 'work', but outside of the monetary sphere. Occasionally, and it was especially the case during the new economy boom, companies try to integrate such methods, the so-called 'Bohemian' model. This explains to a large part the rise of the Open Sources production method. In the interstices of the system, between jobs, on the job when there is free time, in academic circles, or supported by social welfare, new use value is being created. Or more recently, by rival IT companies who are understanding the efficiency of the model and seeing it as a way to break the monopoly of Microsoft software. But it is done through a totally new work ethic, which is opposed to the exacerbation of the Protestant work

ethic. And as it was first pioneered by the community of 'passionate programmers, the so-called hackers, it is called 'the hacker ethic'. Himanen explains a few of its characteristics[xvii]:

- *time is not rigidly separated into work and non-work; intensive work periods are followed by extensive leave taking, the latter necessary for intellectual and creative renewal; there is a logic of self-unfolding at work, workers look for projects at which they feel energized and that expands their learning and experience in desired directions; participation is voluntary; learning is informal and continuous; the value of pleasure and play are crucial; the project has to have social value and be of use to a wider community; there is total transparency, no secrets; there is an ethic that values activity and caring; creativity, the continuous surpassing of oneself in solving problems and creating new use value, is paramount.*

In open source projects, these characteristics are full present; in a for-profit environment they may be partly present but enter into conflict with the different logic of a for-profit enterprise.

3.2 Explaining the Emergence of P2P Economics

3.2.A. The superiority of the free software/open sources production model

Part of the explanation is cultural, located in a changing set of values affecting large parts of the population, mostly in the Western world. The World Values research by R. Inglehart has shown that there is a large number of people who identify with post-material values and who have moved up in the 'hierarchy of values' as defined by Abraham Maslow. For those people who feel relatively secure materially, and are not taken in by the infinite desires promoted by consumer society, it is inevitable that they will look to other means of fulfillment, in the area of creation, relationships, spirituality. The demand for free cooperation in a context of self-unfolding of the individual, is a corollary of this development.

By abolishing distinctions between producer and consumer, open source processes dramatically increase their access to expertise, to a global arena networked through the internet. No commercial entity can afford such a large army of volunteers. Commercial software, which forbids other developers and users from ameliorating it, is much more static in its development. With FLOSS (=Free Libre Open Sources Software) projects, any user can participate, at least through a bug report, or by offering his comments. Because the cooperation is free, participants function passionately and optimally without coercion. The 'Wisdom Game', which means that social influence is gained through reputation, augments the motivation to participate with high quality interventions. In surveys of participants of such projects, the most frequently cited motivation is 'learning'[xviii]. Because a self-unfolding logic is followed which looks for optimal feeling of flow, the participants are collaborating when they feel most energized. Open source availability of the source code and documentation means that the products can be continuously improved. Because of the social control and the reputation game, abusive behavior can be controlled and abuse of power is similarly dependent on collective approval.

In the sphere of immaterial production and distribution, such as for example the distribution of music, the advantages of online distribution through P2P processes are unmatched. In the sphere of material production, through essentially the contributions of knowledge workers, similarly P2P processes are more efficient than centralized hierarchical control.

Yochai Benkler, in a famous essay, 'Coase's Penguin', has given a rationale for the emergence of P2P production methodologies, based on the ideas of 'transcaction costs'. In the physical world, the cost of bringing together thousands of participants may be very high, and so it may be cheaper to have centralized firms than an open market. This is why earlier experiences with collectivized economies could not work. But in the immaterial sphere used for the production of informational goods, the transaction goods are near-zero and therefore, open source production methods are cheaper and more efficient. The example of Thinkcycle[xix], where open source methods are used for a large number of projects, such as fighting cholera, show a wide applicability of the method.

Aaron Krowne, writing for Free Software magazine, has proposed a set of laws to explain the higher efficiency of CBPP (= Commons-based peer production) models:

(Law 1.) When positive contributions exceed negative contributions by a sufficient factor in a CBPP project, the project will be successful.

This means that for every contributor that can 'mess things up', there have to be at least 10 others who can correct these mistakes. But in most projects the ration is 1 to 100 or 1 to 1000, so that quality can be maintained and improved over time.

(Law 2.) Cohesion quality is the quality of the presentation of the concepts in a collaborative component (such as an encyclopedia entry). Assuming the success criterion of Law 1 is met, cohesion quality of a component will overall rise. However, it may temporarily decline. The declines are by small amounts and the rises are by large amounts.

Individual contributions which may be useful by themselves but diminish the overall balance of the project, will always be discovered, so that decline can only be temporary.

(Corollary.) Laws 1 and 2 explain why cohesion quality of the entire collection (or project) increases over time: the uncoordinated temporary declines in cohesion quality cancel out with small rises in other components, and the less frequent jumps in cohesion quality accumulate to nudge the bulk average upwards. This is without even taking into account *coverage quality*, which counts any conceptual addition as positive, regardless of the elegance of its integration.

Krowne has also done useful work to define the authority models at work in such projects. The models define access and the workflow, and whether there is any quality control. The free-form model, which Wikipedia employs, allows anyone to edit any entry at any time. But in the owner-centric model, entries can only be modified with the permission of a specific 'owner' who has to defend the integrity of his module. He concludes that "These two models have different assumptions and effects. The free-form model connotes more of a sense that all users are on the "same level," and that expertise will be universally recognized and deferred to. As a result, the creator of an entry is spared the trouble of reviewing every change before it is integrated, as well as the need to perform the integration. By contrast, the

owner-centric authority model assumes the owner is the de facto expert in the topic at hand, above all others, and all others *must* defer to them. Because of this arrangement, the owner must review all modification proposals, and take the time to integrate the good ones. However, no non-expert will ever be allowed to "damage" an entry, and therefore resorting to administrative powers is vanishingly rare."[xx]

The owner-centric model is better for quality, but takes more time, while the free-form model increases scope of coverage and is very fast.

Given that open source is predicated on abundance, how far can it be extended into the material economy, and leave its confinement in the field of pure immaterial production, such as software? The logical answer is: it can be extended whenever there is perceived abundance. If we look at material production, there are two facets. Material production itself requires large resources and capital, it seems at first antithetical to P2P. But the other facet is that the whole process of design is immaterial and by definition in the sphere of abundance. Making a car today is highly, essentially dependent on the immaterial factors such as design, cooperation of dispersed international teams, marketing and communication. After that, the production of the cars through standardized parts in outsourced production companies, is -- despite the capital requirement -- more of an epiphenomenom. It is therefore not extremely difficult to expect an extension of OS production models, at least in the design and conception phase of even material production. We can envisage a future form of society, as described in the GPL (General Public License) Society scenario of Oekonux[xxi], where the intellectual production and design of any material product, is done through P2P processes.

We should also see that scarcity is in many ways a social construction. Nature was abundant to the tribal peoples, but when it was transformed into land that counted as property, land became scarce and a resource to be fought for. The enclosures movement in England was designed to to precisely that. Out of land, previously plentiful resources were taken, and transformed into the form of property known as capital. Capital became scarce and to be fought for. Similarly today, the plentiful information commons that we produce, is being fought, so that it can turn into intellectual property, that can artificially be rendered scarce. Thus the whole dialectic between abundance and scarcity is not a given objective fact, as for example, when we say that the immaterial is by definition abundant, and the material by definition scarce. As McKenzie Wark explains, information might be abundant, but in order for it to be accessed and distributed, we need vectors, i.e. the means of production and distribution of information. And these are not in the hands of the producers themselves, but in the hands of a vectoral class. Use value cannot be transformed into exchange value, without their intervention. At the same time, through intellectual property laws, this vectoral class is in the process of trying to make information scarce. For Wark, the key issue is the property form, as it is the property form, and nothing else, which renders resources scarce. However, the natural abundance of information, the peer to peer nature of vectors such as the internet, makes this a particularly hard task for the vectoral class. Unlike the working class in industrial capitalism, knowledge workers can resist and create to numerous interstices, which is where true P2P is thriving. Their natural task is to extend free access to information, to have a commons of vectoral resources; while the natural task of the vectoral class, is to control the vectors, and change the information commons into tightly controlled properties. But at the same time, the vectoral class needs the knowledge workers (or the hacker class, as McKenzie Wark puts it), to produce innovation, and in the present regime, in many cases, the knowledge workers need the vectors to distribute its work.

This is the reason that relations between P2P and the for-profit model of the enterprise are highly contradictory and rife with tensions. P2P-inspired project teams have to co-exist with a hierarchical framework that seeks only to serve the profit of the shareholders. The authority model of a corporation is essentially a top-down hierarchical even 'feudal' model. Since traditionally corporate power was a scarce resource predicated on information control, very few companies are ready to actually implement coherent P2P models and their inherent demand for an information sharing culture, as it threatens the core power structure. By their own nature, companies seek to exploit external resources, at the lowest possible cost, and seek to dump waste products to the environment. They seek to give the lowest possible socially-accepted wage, which is sufficient to attract workers. Mitigating factors are the demands and regulations of the democratic polity, and today in particular the demands of the political consumer; and the strength and scarcity of labor. But essentially, the corporation will be reactive to these demands, not pro-active.

We will argue elsewhere that P2P is both 'within' and 'beyond' the present system. It is within because it is the condition for the functioning of the present system of 'cognitive capitalism'. But P2P, if it follows its own logic, demands to be extended to the full sphere of material and social life, and demands its transformation from a scarce resource, predicated on private property to an abundant resource. Therefore, ultimately, the answer to the question: can P2P be extended to the material sphere, should have the following reply: only if the material sphere is liberated from its connection to scarce capital, and instead starts functioning on the predicate of over-abundant and non-mediated labour, will it effectively function outside the immaterial sphere. Thus P2P points to the eventual overcoming of the present system of political economy.

3.3.A. The evolution of cooperation: from neutrality to synergetics

If we take a wider view of economic evolution, with the breakdown of the tribal 'gift economy', which operated in a context of abundance (this counter-intuitive analysis is well explained by anthropologists such as Marshall Sahlins, who showed that tribal peoples only needed to work a few hours per day for their survival), we can see that premodern imperial and feudal forms of human cooperation where based on the use of force. Using Edward Haskell's triune categorization of human cooperation (adversarial, neutral, synergetic): It was a win-lose game, which inevitably led to the monopolization of power (either in land and military forces in precapitalist formations, or in the commercial sphere, as in capitalism). Tribute was exacted from losers in a battle (or freely offered by the weak seeking protection), labor and produce from slaves and serfs. In forced, adversarial cooperation, in this win-loose game, cooperative surplus is less than optimal, it is in fact negative: 1 + 1 is less than two. Productivity and motivation are low.

In capitalist society, neutral cooperation is introduced. As we said above, in theory, free workers exchange their labor for a fair salary and products for a 'fair' amount of money. In neutral cooperation, the result of the cooperation is average. Participants give just their money's worth. Neither participant in a neutral exchange gets better, 1 plus 1 equals 2. We can interpret this negatively or positively. Negatively, capitalist theory is rarely matched in practice, where fair exchange is always predicated on monopolization and power relationships. The situation is therefore much darker, more adversarial and less neutral, than the theory would suggest. Nevertheless, compared to the earlier feudal models, marked by

constant warfare, the monopoly of violence exercised by the capitalist state model, limits internal armed conflicts, and adversarial relationships are relegated to the sphere of commerce. The system has proven very productive, and coupled with the distributive nature of the welfare state which was imposed on it, has dramatically expanded living standards in certain areas of the world. Seen in the most positive light, a positive feedback loop may be created in which both partners feel they are winning, thus it can sometimes be seen as a win-win model. But what it cannot do, due to its inherent competitive nature, is transform itself into a win-win-win model (or in the formulation of Timothy Wilken of synearth.net, a win-win-win-win model, with the biosphere as fourth partner). A capitalist relationship cannot freely care for the wider environment, only forced to care. (This is the rationale for regulation, as self-regulation generally proves even more unsatisfactory in terms of the general interest of the wider public and the survival of the biosphere)

Here peer to peer can be again defined as a clear evolutionary breakthrough. It is based on free cooperation. Parties to the process all get better from it: 1 plus 1 gives a lot more than 2. By definition, peer to peer processes are mobilized for common projects that are of greater use value to the wider community (since monetized exchange value falls away). True and authentic P2P therefore logically transforms into a win-win-win model, whereby not only the parties gain, but the wider community and social field as well. It is, in Edward Haskell's definition, a true synergetic cooperation. It is very important to see the 'energetic' effects of these different forms of cooperation, as I indicated above: 1) forced cooperation yields very low quality contributions; 2) the neutral cooperation format of the marketplace generates average quality contributions; 3) but freely given synergistic cooperation generates passion. Participants are automatically drawn to what they do best, at the moments at which they are most passionate and energetic about it. This is one of the fundamental reasons of the superior quality which is eventually, over time, created through open source projects.

Arthur Coulter, author of a book on synergetics, adds a further twist explaining the superiority of P2P. He adds to the objective definition of Haskell, the subjective definition of 'rapport' based on the attitudes of the participants. Rapport is the state of a persons who are in full agreement, and is determined by synergy, empathy, and communication. Synergy refers to to interactions that promote the goals and efforts of the participants; empathy to the mutual understanding of the goals; and communication to the effective interchange of the data. His "Principle of Equivalence" states that the flow of S + E + C are optimal when they have equivalent status to each other. If we distinguish Acting Superior, Acting Inferior on one axis and Acting Supportively and Acting with Hostility on another axis, then the optimal flow arises when one treats the other as 'somewhat superior' and with 'some support'. Thus an egalitarian-supportive attitude is congenial to the success of P2P.

Above we have focused on the means of cooperation, but another important aspect is the 'scope' of cooperation, or the amount or 'volume' of what can be shared, in both relative and absolute terms.

This is how Kim Veltman, a Dutch academic, echoed by evolutionary psychologist John Steward[xxii] puts it:

"Major advances in civilization typically entail a change in medium, which increases greatly the scope of what can be shared. Havelock noted that the shift from oral to written culture entailed a dramatic increase in the amount of knowledge shared and led to a re-organization of knowledge. McLuhan and Giesecke explored what happened when Gutenberg introduced

*print culture in Europe. The development of printing went hand in hand with the rise of early modern science. In the sixteenth century, the rise of vernacular printing helped spread new knowledge. From the mid-seventeenth century onwards this again increased as learned correspondence became the basis for a new category of learned journals (*Journal des savants*,* Journal of the Royal Society*,* Göttinger Gelehrten Anzeiger *etc.), whence expressions such as the "world of letters. The advent of Internet marks a radical increase in this trend towards sharing. "(http://erste.oekonux-konferenz.de/dokumentation/texte/veltman.html)*

In a similar vein, a French philosopher, Jean-Louis Sagot-Duvauroux , who wrote the book, "Pour la Gratuite", stresses that many spheres of life are not dominated by state or capital, that these are all based on free and equal exchange, and that the extension of these spheres is synonymous with civilisation-building[xxiii]. The very fact that the cooperation takes place in the sphere of free and non-monetary exchange of the Information Commons, is a sign of civilisational advance. By contrast, the 'monetarisation of everything' (commodification) that is a hallmark of cognitive capitalism, is a sign of de-civilisation (X).

Figure – The Evolution of Cooperation

	Nature of cooperation	**Nature of Game**	**Quality of Cooperation**
Premodern	Adversarial	Zero-sum: win-lose	Low, 1+1 < 2
Modern	Neutral	Zero-sum: draw	Average, 1+1 = 2
P2P	Synergetic	Non Zero-sum: win-win-win	High, 1=1 > 2

3.4.B. The Evolution of Collective Intelligence

Related to the above evolution of cooperation is the concept of collective intelligence, which concerns any knowledge of the collective, which goes beyond or transcends the knowledge of its parts. Collective Intelligence is the process whereby groups take charge of their challenges and future evolution, by using the resources of all its members in such a way that a new level emerges which has added qualities.

Jean-Francois Noubel in an online book at http://www.thetransitioner.org/ic outlines three stages, arguing that we are in a transition to a fourth. The following is a synthesis of his work.

The first stage is the 'original collective intelligence', which can only exist in small groups, and historically has been typified by the human organisation in the tribal era. Seven characteristics define this stage:

- 1) an emerging whole that goes beyond its parts
- 2) the existence of a 'holoptic' space, which allows the participants to access both horizontal knowledge, of what others are doing, and access to vertical knowledge, i.e. about the emerging totality; to have collective intelligence, all participants must have this access, from their particular angle
- 3) a social contract with explicit and implicit social rules about the forms of exchange, common purpose, etc..
- 4) a polymorph architecture which allows for ever-changing configurations
- 5) a shared 'linked object', which needs to be clear. This can be an object of attraction (the ball in sports), of repulsion (a common enemy), of a created object (future goal, artistic expression).
- 6) the existence of a learning organisation, where both individuals and the collective can learn from the experience of the parts
- 7) a gift economy, in the sense that there is dynamic of giving in exchange for participating in the benefits of the commons

This original stage had two limits: the number of participants, and, the need for spatial proximity.

The second stage is the stage of pyramidal intelligence. As soon as a certain level of complexity is reached, it will transcend the limits in numbers as well as the spatial limits. Cooperation takes on hierarchical formats, with the following characteristics:

- 1) division of labour, in which the constituent parts become interchangeable; based on specialized access to information and panoptism, i.e. only a few have centralized access to the totality
- 2) authority organizes a asymmetrical information transfer, based on command and control
- 3) regulated access to scarce resources, usually through a monetary system

- 4) the existence of norms and standards, often privatized, that allow knowledge to be objectified

Pyramidal intelligence exists to obtain 'economies of scale' through repetitive processes that can add value to an undifferentiated mass of raw material. To see what kind of intelligence predominates in an organisation, adds Noubel, look at how it produces. If it produces mass products, then, despite eventual token usage of peer to peer processes, it will essentially be based an hierarchy-based pyramidal intelligence.

The third form of collective intelligence is swarming. It exists where 'simple individuals' cooperate in a global project without holoptism, i.e. collective intelligence emerges from their simple interactions. The individual agents are not aware of the whole. This is the mode of organisation of social insects, and of market-based societies. The problem is that in the insect world, individuals are expendable for the good of the system, while this is unacceptable in the human world because it negates the full richness of persons. This means that the contempary enthusiasm for swarm intelligence has to be looked at with caution. It is not a peer to peer process, because its lacks the quality of holoptism, the ability of any part to know the whole.

Thus, a fourth level of collective intelligence is emerging, which Noubel calls 'global collective intelligence'. Compared to original CI is has the following added characteristics:

- a 'sufficient' money as opposed to a scarce money (see The Transitioner.org/ic site for more details)
- open standards that maximize interoperability
- an information system to regulate symbolic exchange
- a permanent connection with cyberspace
- personal development to acquire the capabilities for such cooperation

In this new global collective intelligence, the original limits in numbers and spatial proximity are transcended by creating linkages through cyberspace. In this context, we can see why technological developments are an integral part of this evolution, as it enables this form of networking. What cyberspace does it to create the possibility of groups cooperating despite physical distance, and to coordinate these groups in a network.

How is the concept of collective intelligence related to P2P, since they are clearly 'cousins'? Peer to peer is the dynamic which makes the emergence of a global collective intelligence possible, or in other words: its organizational format or form of exchange. But whereas we are describing peer to peer as pertaining to the four quadrants, subjective and objective, agent and collective, IC pertains to the collective process of knowledge exchange only. The Commons is the sphere in which it operates.

3.4.C. Beyond Formalization, Institutionalization, Commodification

Observation of commons-based peer production and knowledge exchange, unveils a further number of important elements, which can be added to our earlier definition and has to be added to the characteristic of holoptism just discussed in 3.4.B.

In premodern societies, knowledge is ‘guarded’, it is part of what constitutes power. Guilds are based on secrets, the Church does not translate the Bible, and it guards its monopoly of interpretation. Knowledge is obtained through imitation and initiation in closed circles.

With the advent of modernity, and let’s think about Diderot’s project of the Encyclopedia as an example, knowledge is from now on regarded as a public resource which should flow freely. But at the same time, modernity, as described by Foucault in particular, starts a process of regulating the flow of knowledge through a series of formal rules, which aim to distinguish valid knowledge from invalid one. The academic peer review method, the setting up of universities which regulate discourse, the birth of professional bodies as guardians of expertise, the scientific method, are but a few of such regulations. An intellectual property rights regime also regulates the legitimate use one can make of such knowledge, and which is responsible for a re-privatization of knowledge. If original copyright served to stimulate creation by balancing the rights of authors and the public, the recent strengthening of intellectual property rights can be more properly understood as an attempt at ‘enclosure’ of the information commons, which has to serve to create monopolies based on rent obtained through licenses. Thus at the end of modernity, in a similar process to what we described in the field of work culture, there is an exacerbation of the most negative aspects of the privatization of knowledge: IP legislation is incredibly tightened, information sharing becomes punishable, the market invades the public sphere of universities and academic peer review and the scientific commons are being severely damaged.

Again, peer to peer appears as a radical shift. In the new emergent practices of knowledge exchange, equipotency is assumed from the start. There are no formal rules to engage in participation (unlike academic peer review, where formal degrees are required). Validation is a communal intersubjective process. If there are formal rules, they have to be accepted by the community, and they are ad hoc for particular projects. There is a move away from public categorization, such as the bibliographic formats (Dewey, UDC, etc..) to informal communal ‘tagging’, what some people have termed folksonomies. In blogging, news and commentary are democratized and open to any participant, and it is the reputation of trustworthiness, acquired over time, by the individual in question, which will lead to the viral diffusion of particular ‘memes’. Power and influence are determined by the quality of the contribution, and have to be accepted and constantly renewed by the community of participants. All this can be termed the de-formalization of knowledge.

A second important aspect is de-institutionalization. In premodernity, knowledge is transmitted through tradition, through initiation by experienced masters to those who are validated to participate in the chain mostly through birth. In modernity, as we said, validation and the legitimation of knowledge is processed through institutions. It is assumed that the autonomous individual needs socialization, ‘disciplining’, through such institutions. Knowledge has to be mediated. Thus, whether a news item is trustworthy is determined largely by its source, say the Wall Street Journal, or the Encyclopedia Brittanica, who are supposed to have formal methodologies and expertise. How different it is in the P2P arena, where there are no such mediating institutions. It is thoroughly de-institutionalized, which represents another major shift in our civilisational history.

A good example of P2P principles at work can be found in the complex of solutions instituted by the University of Openness. UO is a set of free-form ‘universities’, where anyone who wants to learn or to share his expertise can form teams with the explicit purpose of collective learning. There are no entry exams and no final exams. The constitution of teams is not

determined by any prior disciplinary categorization. The library of UO is distributed, i.e. all participating individuals can contribute their own books to a collective distributed library. The categorization of the books is explicitely 'anti-systemic', i.e. any individual can build his own personal ontologies of information, and semantic web principles are set to work to uncover similarities between the various categorizations.

All this prefigures a profound shift in our epistemologies. In modernity, with the subject-object dichotomy, the autonomous individual is supposed to gaze objectively at the external world, and to use formalized methodologies, which will be intersubjectively verified through academic peer review. Post-modernity has caused strong doubts about this scenario. The individual is no longer considered autonomous, but always-already part of various fields, of power, of psychic forces, of social relations, molded by ideologies, etc.. Rather than in need of socialization, the presumption of modernity, he is seen to be in need of individuation. But he is no longer an 'indivisible atom', but rather a singularity, a unique and ever-evolving composite. His gaze cannot be truly objective, but is always partial, as part of a system can never comprehend the system as a whole. The individual has a single set of perspectives on things reflecting his own history and limitations. Truth can therefore only be apprehended collectively by combining a multiplicity of other perspectives, from other singularities, other unique points of integration, which are put in 'common'. It is this profound change in epistemologies which P2P-based knowledge exchange reflects.

A third important aspect of P2P is the process of de-commodification. In traditional societes, commodification, and 'market pricing' was only a relative phenomenom. Economic exchange depended on a set of mutual obligations, and even were monetary equivalents were used, the price rarely reflected an open market. It is only with industrial capitalism that the core of the economic exchanges started to be determined by market pricing, and both products and labour became commodities. But still, there was a public culture and education system, and immaterial exchanges largely fell outside this system. With cognitive capitalism, the owners of information assets are no longer content to live any immaterial process outside the purview of commodification and market pricing, and there is a strong drive to 'privatize everything', education included, our love lives included Any immaterial process can be resold as commodities. Thus again, in the recent era the characteristics of capitalism are exacerbated, with P2P representing the counter-reaction. With 'commons-based peer production' or P2P-based knowledge exchange more generally, the production does not result in commodities sold to consumers, but in use value made for users. Because of the GPL license, no copyrighted monopoly can arise. GPL products can eventually be sold, but such sale is only a credible alternative (since it can always be downloaded for free), if it is associated with a service model. It is does in fact the services around it that are sold. Since the producers of commons-based products are rarely paid, their main motivation is not the exchange value for the eventually resulting commodity, but the increase in use value, their own learning and reputation. Motivation can be polyvalent, but will generally be anything but monetary.

One of the reasons of the emergence of the commodity-based economy, capitalism, is that a market is an efficient means to distribute 'information' about supply and demand, with the concrete price determining value as a synthesis of these various pressures. In the P2P environment we see the invention of alternative ways of determining value, through software algorhythms. In search engines, value is determined by algorhythms that determine pointers to documents, the more pointers, and the more value these pointers themselves have, the higher the value accorded to a document. This can be done either in a general matter, or for specialized interests, by looking at the rankings within the specific community, or even on a

individual level, through collaborative filtering, by looking at what similar individuals have rated and used well. So in a similar but alternative way to the reputation-based schemes, we have a set of solutions to go beyond pricing, and beyond monetarisation, to determine value. The value that is determined in this case is of course an indication of potential use value, rather than 'exchange value' for the market.

3.4.D. Not a Gift Economy, but a new form of Communal Shareholding

In my opinion, there is a profound misconception regarding peer to peer, expressed by the various authors who call it a gift economy, such as Richard Barbrook, or Steven Webber. But, as Stephan Merten of Oekonux.de has already argued, P2P production methods are not a gift economy based on equal sharing, but a form of communal shareholding based on participation. In a gift economy if you give something, the receiving party has to return if not the gift, then something of at least comparable value (in fact the original tribal gift economy was more about creating relationships and obligations and a means to evacuate excess, since they did not need it for their basic survival needs[xxiv]). In a participative system such as communal shareholding, organized around a common resource, anyone can use or contribute according to his need and inclinations.

Let me give a context to this claim by introducing the typology of intersubjective relations, as defined by anthropologist Alan Page Fiske. There are he says, historically and across all cultures, only four basic types of relating to one another, which form a grammar of human relationships, these are Authority Ranking, Equality Matching, Market Pricing, and Communal Shareholding. From the following description, one can deduce that P2P does not correspond to Equality Matching, which is the principle behind a gift economy, but to Communal Shareholding.

"People use just four fundamental models for organizing most aspects of sociality most of the time in all cultures . These models are Communal Sharing, Authority Ranking, Equality Matching, and Market Pricing. Communal Sharing (CS) is a relationship in which people treat some dyad or group as equivalent and undifferentiated with respect to the social domain in question. Examples are people using a commons (CS with respect to utilization of the particular resource), people intensely in love (CS with respect to their social selves), people who "ask not for whom the bell tolls, for it tolls for thee" (CS with respect to shared suffering and common well-being), or people who kill any member of an enemy group indiscriminately in retaliation for an attack (CS with respect to collective responsibility). In Authority Ranking (AR) people have asymmetric positions in a linear hierarchy in which subordinates defer, respect, and (perhaps) obey, while superiors take precedence and take pastoral responsibility for subordinates. Examples are military hierarchies (AR in decisions, control, and many other matters), ancestor worship (AR in offerings of filial piety and expectations of protection and enforcement of norms), monotheistic religious moralities (AR for the definition of right and wrong by commandments or will of God*), social status systems such as class or ethnic rankings (AR with respect to social value of identities), and rankings such as sports team standings (AR with respect to prestige). AR relationships are based on perceptions of legitimate asymmetries, not coercive power; they are not inherently exploitative (although they may involve power or cause harm).*

In Equality Matching relationships people keep track of the balance or difference among participants and know what would be required to restore balance. Common manifestations are turn-taking, one-person one-vote elections, equal share distributions, and vengeance based on an-eye-for-an-eye, a-tooth-for-a-tooth. Examples include sports and games (EM with respect to the rules, procedures, equipment and terrain), baby-sitting coops (EM with respect to the exchange of child care), and restitution in-kind (EM with respect to righting a wrong). Market Pricing relationships are oriented to socially meaningful ratios or rates such as prices, wages, interest, rents, tithes, or cost-benefit analyses. Money need not be the medium, and MP relationships need not be selfish, competitive, maximizing, or materialistic—any of the four models may exhibit any of these features. MP relationships are not necessarily individualistic; a family may be the CS or AR unit running a business that operates in an MP mode with respect to other enterprises. Examples are property that can be bought, sold, or treated as investment capital (land or objects as MP), marriages organized contractually or implicitly in terms of costs and benefits to the partners, prostitution (sex as MP), bureaucratic cost-effectiveness standards (resource allocation as MP), utilitarian judgments about the greatest good for the greatest number, or standards of equity in judging entitlements in proportion to contributions (two forms of morality as MP), considerations of "spending time" efficiently, and estimates of expected kill ratios (aggression as MP). " (source: Fiske website)

From the above description, it should be clear that the tribal gift economy is a form of sharing, based on 'equal' parts, according to a specific criteria of 'what it is that functions as common standard for comparison'. Thus in the tribal economy, when a clan or tribe gives away its surplus, the recipient group is forced to eventually give back, say the next year, at least as much, or they will loose relative prestige. What such a gift economy does however is create a community of obligations and reciprocity, unlike the market-based mechanisms, where 'equal is traded with equal', and every transaction stands alone.

Similarly, in the feudal social redistribution mechanism, the rich and powerful compete in the gift giving to Church or Sangha, as a matter of prestige. In this case, what they receive back is not other material gifts, but, on the one hand social prestige, and on the other hand, the immaterial benefits of 'better karma' ('merit' in S.E. Asian Buddhism), or being closer to salvation (in the form of indulgences in medieval Christianity).

This is not the mechanism that operates in the sphere of knowledge exchange on the internet. In open source production, filesharing, or knowledge exchange communities, I freely contribute, what I can, what I want, without obligation; on the recipient side, one simply takes what one needs. It is common for any web-based project to have let's say 10% active contributing members, and 90% passive lurkers. This can be an annoyance, but is never a 'fundamental problem', for the very reason that P2P operates in a sphere of abundance, where a tragedy of the commons, an abuse of common property, cannot occur. In the concept of Tragedy of the Commons, communal holdings are depleted and abused, because they belong to no one. But in the Information Commons created through P2P processes, the value of the collective knowledge base is not diminished by use, but on the contrary enhanced by it. This is so because of the network effect, which makes resources more valuable the more they are used. Think about the example of the fax, which was relatively useless until a critical mass of users was reached.

What the better P2P systems do however, is to make participation 'automatic', so that even passive use becomes useful participation for the system as a whole. Think of how BitTorrent

makes any user who downloads a resource, in his/her turn a resource for others to use, unbeknownst and independent of any conscious action of the user. Say I have a team working on a software project, and it creates a special email system to communicate around development issues. This communication is considered a common resource and archived, and thus, without any conscious effort of the participating members, automatically augments the common resource base. One of the key elements in the success of P2P projects, and the key to overcoming any 'free rider' problem, is therefore to develop technologies of "Participation Capture".

The social logic of information and resource sharing is a cultural reversal vis a vis the information retention logic of hierarchical social systems. Participation is assumed, and non-participation has to be justified. Information sharing, the public good status of your information, is assumed, and it is secrecy which has to be justified.

So what people are doing in P2P systems, is participating, and doing so they are creating a 'commons'. Unlike traditional Communal Shareholding, which starts from already existing physical resources, in peer to peer, the knowledge commons is created through participation, and does not exist 'ex ante'.

One more clarification, some American authors, especially libertarians such as Eric Raymond, but also 'common-ists' such as Lawrence Lessig, say that P2P processes are market-based, but this is partially misleading, although in the American context, it is a clever use of memetic warfare. Perhaps a useful distinction is the one made by Fernand Braudel in the 'Wheels of Commerce', where he distinguishes the ordinary economic life of exchanges at the local level, the fairly transparent market of towns and cities, and monopolistic capitalism. P2P exchange can be considered in market terms only in the sense that free individuals are free to contribute, or take what they need, following their individual inclinations, with a invisible hand bringing it all together, without monetary mechanism. Thus, it is a market only in the sense of the first and perhaps second level of distinction in the Braudel interpretation, not the third.

Though some programmers get paid for commons-based peer production, it is not in general their main motivation. P2P products are rarely made for the profit obtained from the exchange value, but more often and more fundamentally for their use value and acceptance by a user community. So what Lessig means by with his notion of a market-based solution is simply to say that users are free to use them or not. All this means that it is hard to pin down P2P within the old categories of left and right ideologies, it is a hybrid form with market-based and commons-based aspects.

Eric Raymond's landmark description of the Open Source model, i.e. 'Cathedral and the Bazaar', compares the different methodologies to produce software. Corporate software production methods are called 'the Cathedral', i.e. a big planned and bureaucratic project, while open source is coined a 'bazaar', a free process of cooperation involving many participants, but the concept also implies connotations with the free market idea. An argument to the contrary may be that the internet and many open source projects own their existence to the public sector, which financed internet research and the salaries of participating scientists. And the so-called 'bazaar' is at best a very indirect way to make money! Moreover, in actual practice, the building of Cathedrals were massive collective projects, initiated by the Church but drawing on popular fervor, a competition in gift giving, and lots of volunteer labor!!! When we define P2P processes as a form of Communal Shareholding, the process is a lot less confused. What people are doing is voluntarily and cooperatively constructing a commons,

according to the ‘communist principle’ (described by Marx in his definition of the last phase of history): from each according to his abilities, to each according to his needs’.

Since the famous opinion storm generated by Bill Gates charge that copyright reformers were ‘communists’, it is important to stress specifically what we are talking about when we use the concept of communism as related to P2P. Let’s therefore not confuse the utopian definition of Marx, with the actual practices of the Soviet Union, which were centralized, authoritarian and totalitarian, one of the more pernicious forms of social domination. Using Fiske’s grammar of relationships, we could say that the Soviet system or ‘really existing socialism’, consisted of the following combination: 1) property belonged to the state, but was in fact controlled by an elite social fraction, the nomenclatura, and did not function as common property; 2) the economic practices were a combined form of equality matching and market pricing, though the monetary prices were most frequently determined not by an open market, but by political and planning authorities; 3) there was no free participation but obligatory hierarchical cooperation; 4) socially, there was a very strong element of authority ranking, with one’s status largely determined by one’s function in the nomenclatura. The reason of course is that these systems arose in a context of social and material scarcity and deprivation, inevitably given rise to a process of monopolization of power for the control of scarce resources.

In contrast, Marx’s definition was predicated on abundance in the material world. If P2P emerges according to this very definition, it is because of a sufficient material base, which allows the types of volunteer labor P2P thrives on (and pays the wages of a substantial part of them), as well as the abundance inherent in the informational sphere of non-rival goods with near-zero transaction costs.

But since peer to peer is not a ideology nor utopian project, but an actual social practice which responds to true social needs, it can be practiced by anyone, despite one’s formal personal philosophy and eventual ideological blinders[xxv]. Thus the paradox is that American libertarians call it a market, while the European digital left calls it a ‘really existing anarcho-communist practice’ (Andre Gorz), though they are speaking of the same process. The libertarian theorists associated with the Open Source movement, can argue that there is a continuity and linkage between FLOSS philosophy and traditional liberal throught on property and community, while neo- and post-Marxist interpreters will stress how it transcends the norms of property and commodification.

Lawrence Lessig’s apparently tongue-in-cheek suggestion (in reply to Bill Gates equating copyright reforms with communism), to call the P2P movement’s advocates ‘Common-ists’, not a bad concept at all.

The above argumentation that P2P is not a Equality Matching model, but Communal Shareholding, has an ideological subtext. The reason I am stressing this analysis is to counter neoliberal dogma that humans are only motivated by greed. Saying that P2P is a gift economy requires a strict accounting of the exchange. Or saying that such participation is motivated by the quest for reputation only, or that it is a game to obtain attention, corresponds to this same ideology which cannot accept that humans also have a ‘cooperative’ nature, and that it can thrive in the right conditions.

The above does not mean that P2P is unrelated to the contemporary revival of gift economy applications. Local Exchange Trading Systems, which are springing up in many places, are forms of Equality Matching, and, from an 'egalitarian' point of view, they may be preferable

to Market Pricing mechanisms, since for them, any hour of labour has an equal value. Both P2P as 'Communal Shareholding', and contemporary expressions of the gift economy ethos, are part of the same 'spirit' of 'gifting', or of free cooperation. Substantial numbers of participants to P2P projects freely give, as do participants in LETS systems and other schemes. The difference is in the expectation that they will receive something specific and of equal value in return.

I would think it likely that in a future civilisational model, both models are complementary. P2P will function most easily where there is a sphere of abundance, in the sphere of non-rival goods, while gift economy models may bean alternative model to manage scarcity, in the sphere of rival goods and resources.

3.4.E. Who rules: cognitive capitalists, the vectoral class, or netocrats?

We already mentioned the analysis of both the school of 'cognitive capitalism' and the theories of McKenzie Wark. They are part of a larger debate on the nature of the new regime of economic exchange.

According to the school of cognitive capitalism, capitalism needs to be historicized. This because the main logic of economic exchange is different. In a first phase, we have an agrarian- or merchant-based capitalism. Land is turned into capital, and commerce, especially on the basis of the triangular trade involving slavery, is the basis for producing a surplus. Non-machine assets are the key to producing the surplus, i.e. land and people. At some point, industrial capitalism arises based on capital assets in industry. The capitalists are the owners of the factories, machinery, and forges. But as these assets are abstracted into stocks, they start having their own life, both financial and informational, and industry processes are transformed into processes based on the flows of finance and information. So, according to the cognitive capitalism hypothesis, we have a third stage, cognitive capitalism, based on the predominance of immaterial flows, which in turn reconfigure industrial and agriculture modes of production to its own image. But according to the main CC theorists, such as Yann-Moulier Boutang, M. Lazzarato, C. Vercellone and others, it is a change <within> capitalism. CC theorists argue both against neoclassical economists, which fail to historize capitalism, and against postcapitalism information age interpretations, which declare capitalism dead. In fact, if anything, there is a move to a postmodern form of hypercapitalism, of which neoliberal ideology is a symptom.

If modernity (aka industrial capitalism) still has to compromise with a strong legacy of traditional elements, which muted its virulence (what possible use could the learning of Latin and the classics have for business!), in postmodernity, the instrumental logic reigns supreme. The interest, and in my opinion the strength of the CC hypothesis is that it can account for both radical change (the dominance of the immaterial) and for continuity (the capitalist mode), and can then start looking at the different changes taking place, such as new modes of regulation, social control, etc.. In such a scenario, the working class is also transformed, becoming involved in knowledge production, affect-based services, and other 'immaterial forms'. But the knowledge workers clearly become the key sector of the multitudes.

McKenzie Wark, adds a twist, since he insists a new class is now in power. Unlike capitalists, who based their control on capital assets, a vectoral class has arisen that owes it power to the

control of information (which it owns through patents and copyrights), the stocks (archives) through which it is accessible, and the control of the vectors through which the information must flow (media). Thus, they own not only the media which manipulate our mindsets, but also achieve dominance over industrial capitalists, because they own and trade the stocks based on information, and the latter need the information flows and vectors to run the process flows. It is now no longer a matter of making profits through material industry production, but of making margins in the trading of stocks, and of the development of new monopolistic rents based on the ownership of information.

And the mirror image of the vector class is the hacker class, those that 'produce difference' (unlike the workers which produced standard products, and yearned to achieve unity), i.e. new value expressed through innovation. A crucial distinction between the more general concept of knowledge workers, and the more specific class concept of the hacker class, is that the latter produce new means of production, i.e. hardware, software, wetware, and they are correspondingly stronger than farmers or workers could ever have been. Therefore, what McKenzie Wark explains perhaps more cogently and starkly that CC-theorists is the new nature of the class struggle, centered around the ownership of information, and the ownership of the vectors. Thus the key issue is the property form, responsible for creating the scarcity that sustains a marketplace. Another advantage is the clear distinction between the hacker class, which produces use value, and the vectoral value, i.e. the entrepreneurs, who transform it into exchange value. The predominance of financial capital is explained by the ownership of stocks, which replaces ownership of capital, a less abstract form, and unlike industrial capitalists, who were happy to leave a common and socialized culture, education, and science to the state, vectoral capitalists differ in that they want to turn everything into a commodity. The latter is a cogent explanation of the logic behind neoliberal 'hyperca;italism'.

Much less satisfactory is the netocratic thesis of Alexander Bard in his book Netocracy. He also insists of the postcapitalist nature of the new configuration, but the new class is described as 'in control' of networked information, and as operating in a hierarchy of networks. Here, we get no idea of a distinction between knowledge workers and information entrepreneurs. Similarly in Pekka Himanen's very useful Hacker Ethic, though we get a very interesting insight into the new culture of work, no distinction is made between knowledge workers and entrepreneurs, between the hacker class and the vectoral class.

4. P2P in the Political Sphere

4.1.A. The Alterglobalisation Movement

The alterglobalisation[xxvi] movement is a well-known example of the P2P ethos at work in the political field. The movement sees itself as a network of networks that combines players from a wide variety of fields and opinions[xxvii], who, despite the fact that they do no see eye to eye on every aspect, manage to unite around a common platform of action around certain key events[xxviii]. They are able to mobilize vast numbers of people from every continent, without having at their disposal any of the traditional newsmedia, such as televisions, radios or newspapers. Rather, they rely almost exclusively on the P2P technologies described above. Thus internet media are used for communication and learning on a continuous basis, prior to the mobilizations, but also during the mobilizations, where independent internet media platforms such as Indymedia, as well as the skillful use of mobile phones are used for real-

time response management[xxix], undertaken by small groups that use buddy-list technologies, sometimes open source programs that have been explicitly designed for political activism such as TextMob. The network model allows for a more fluid organization that does not fix any group in permanent adversarial positions, but various temporary coalitions are created on a ad hoc basis depending on the issues. A key underlying philosophy of the movement is the paradigm of non-representationality. In classic modern political ideology, participating members elect representatives, and delegate their authority to them. Decisions taken by councils of such representatives then can take binding decisions, and are allowed to speak 'for the movement'. But such a feature is totally absent from the alterglobalisation movement. No one, not even the celebrities, can speak for anyone else, though they can speak in their own name. Another distinguishing feature, is that we can no longer speak of 'permanent organizations'. While unions, political movements, and international environmental and human rights NGO's do participate, and have an important role, the movement innovates by mobilizing many unaffiliated individuals, as well as all kinds of temporary ad hoc groups created within or without the internet. Thus we can add to the de-formalization and de-institutionalization principles explained above, another one that we could call the process of de-organization, as long as we are clear on its meaning, which refers to the transcendence of 'fixed' organizational formats which allows power to consolidate.

A commonly heard criticism is that 'they have no alternative', but this in fact reflects their new approach to politics. The main demand is not for specifics, though that can occasionally be part of a consensus platform (such as 'abandoning the debt for developing countries'), more importantly is the underlying philosophy, that 'another world is possible', but that what is most important is not asking for specific alternative, but rather for an open process of world governance that is not governed by the power politics and private interests of the elite, but determined by all the people in an autonomous fashion that recognized the wide diversity of desired futures.

An important aspect of the alterglobalisation movement is the above-mentioned reliance on alternative independent internet media. Despite the overriding influence of corporate-owned mass media, groups such as the alterglobalisation movement have succeeded in created a vast number of alternative news outlets, in written, audio, and audiovisual formats. Those are used for a permanent process of learning and exchange, outside of the sphere of the 'manufacturing of consent' (as described by Noam Chomsky).

Of course, the new method of organisation that we described above, is not limited to movements on the left of the political spectrum, and can be found on the right as well. One often noted example is Al Qaeda, which mixes tribal, corporate but also strong network features; another example is the leaderless resistance model advocated by some on the extreme right[xxx].

4.1.B. The 'Coordination' format

Since the mid-eighties, observers have noticed that social struggles have taken a new format as well, that of the coordination. In France for example, all the important struggles of the recent decade, by nurses, by the educational workers, and most recently by the part-time art workers, have been led by such coordinations. Again, such coordinations are a radical innovation. They are also based on the principle of non-representationality: no one is elected to represent anybody else, anyone can participate, their decisions are based on consensus, while participants retain every freedom in their actions. Note how the coordination thus

differs from the earlier hyperdemocratic form of worker's councils, which were still based on the idea of representation.

The latest struggle of the artistic 'intermittents' was particularly significative. These are creative knowledge workers who move from artistic project to artistic project, and who are therefore, unlike earlier industrial workers, not in permanent contact with each others. Yet their 'network sociality', which means they keep in touch with a variety of subgroups of friends and associates to keep informed of opportunities and for permanent collective learning and exchange, meant that, when confronted with a reform they found intolerable, they were able to mount one of the most effective mass social movements in a very short time, through the use of viral diffusion techniques. Traditional power plays by established left political parties and unions are not tolerated in the coordinations, when they happen, people simply leave and set up shop elsewhere. Thus authoritarian political organizations are seriously restrained by this format.

4.1.C. New conceptions of social and political struggle

The change in political practices has been reflected by new thinking in the field of political theory. Among the thinkers that come to mind are Toni Negri and Michael Hardt, with their books Empire and Multitude, Miguel Benasayag[xxxi] with his book "Le Contre-Pouvoir", and John Holloway with 'Revolution Without Power'.

Negri/Hardt have introduced the concept of Multitude. Unlike the earlier concept of People or proletariat, multitudes do not have a synthetic unity. They exist in their differences. What is rejected is abstract human identity in favor of the organization for common goals of concrete humanity in its differences. The principle of non-representationality is reflected in their concept of transcendence. Modernity, while rejecting divine power, thought that the anarchic multitudes (Hobbes), should unify in a People, which then allowed its power to be exercised by the national sovereign. This transcendence of power is totally rejected in favor of 'absolute democracy', i.e. the immanent life and desires of the multitudes. Unlike the concept of People, which unifies but also rejects the non-People, the multitude is totally open and global from the outset. In terms of political strategy, they develop concepts like 'Exodus', which means no longer facing the enemy directly (in a network configuration of social movements, there is no direct enemy and in Empire 'there is no there there', i.e. the enemy cannot be precisely located as it is a network itself), but to route around obstacles and more importantly to refuse to give consent and legitimation by constructing alternatives in real-time, through networks. It is only when the multitudes are under direct attack, through reforms that are experienced as 'intolerable', that the network is galvanized into struggle, and that the very format of organizing prefigures already the society to come.

Essential components of the multitude are the knowledge workers, affective 'service' workers, and other forms of immaterial labor. Miguel Benasayag similarly argues that 'to resist is to create', and that political struggle is essentially about the construction of alternatives, here and now. Current practice has to reflect the desired future, and has to emerge, not from the 'sad passions' of hate and anger, but from the joys of producing a commons. The Hacker Manifesto is another important expression of this new ethos.

Though none of these authors explicitly use the peer to peer concept, their own concepts reflect its philosophy and practice, and they are generally in tune with the themes of the peer to peer advocates (such as favoring an information commons, support for free software and open source methodologies, etc…).

4.1.D. New lines of contention

Next to new forms of political organization, new conceptions regarding the tactics and strategies of struggle, the emergence of peer to peer also generates new conflicts, which are different from those of the industrial age.

In my opinion, the key conflict is about the freedom to construct the Information Commons, vs. the private appropriation of knowledge by for-profit firms[xxxii], which is not to say that an accommodation cannot eventually be found. In filesharing, it is now possible to share digital music and video. A process that always existed amongst groups of friends, is now extended in scope by technology. This endangers the intellectual property system. But the P2P system of music distribution is inherently more productive and versatile, and more pleasing to the listener of music than the older system of physically distributing CD's. But instead of building a common pool for the world's music, and finding an adequate funding mechanism for the artists, the industry is intent to destroy this more productive system, and wants to criminalize sharing by punishing the users, and even by attempting to render the technology illegal. Another strategy is to incorporate control mechanisms either in software (where it can be hacked and circumvented), or in the hardware (digital rights management schemes).

Another example is biopiracy. The age-old experience and knowledge of tribal groups concerning the herbal and healing properties is studied by pharmaceutical multinationals, who then patent the findings and expropriate the native peoples.

The problem for capitalism is that it has always been dependent on the private appropriation of common resources, as indicated for example by the Enclosures movement (the privatization of common land) that generated the first 'primitive accumulation' of capital. In a situation where the extensive 'territorial' growth period typical of imperialism has to be replaced by intensive growth on existing territories, the immaterial field of knowledge exchange and digital creativity is very important. As Mackenzie Wark eloquenty argues: the key to extracting a surplus is to convert information to a commodity. Hence a drive to strengthen the Intellectual Property system, to extend copyrights in time, but also in scope, inventing new areas of application such as software and university-based research. While such a policy can stimulate specific areas through the profit motive, it is also responsible for a structural decay of the scientific commons, that used to be based on the free sharing of scientific findings, and academic peer review. With software and even ideas being patented, there are more and more impediments to the free flow of scientific exchange, and it has become a strain on innovation. The strategy is that since knowledge products can be reproduced and distributed at marginal cost, IP protection can create temporary, but extendable monopolies, thereby creating monopolistic rents in the forms of licenses to use. The whole strategy and reason for growth of a company like Microsoft is based on that idea. At the same time, the industry as a whole has an interest in open standards that can be improved upon, seen as a necessary infrastructure for growth and innovation. Hence, the support given by certain sectors of industry for Open Sources and the use of Linux. We see, at

the same time, scientists advocating a renewal of the scientific commons, for example in the biotechnology industry. In Europe, a struggle is going on to impeach the advent of software patents, while South Asia and Latin America are concerned about biopiracy.

Also the forces arrayed start from diametrically opposed paradigms. For the entertainment industry, IP is essential to promote creativity, even though the current system is a 'winner-take-all' system that serves only a minority of artists. For them, without IP protection, there would be no creativity. But as P2P processes demonstrate, which are extraordinarily innovative outside the profit system, creativity is what people do when they can freely cooperate and share, and hence IP is seen as an impediment, impeding the free use what should be a common resource. Between the more radical positions on either side, it is likely that compromise (reform) positions can be found, but in the meantime, in true P2P fashion, the forces using peer to peer are devising their own solutions. It started with a legal infrastructure for the free software movement, the General Public License, which prohibits the commercial exploitation of such software. It continued with the very important Creative Commons initiative initiated by Lawrence Lessig, who also supported the creation of a Free Culture advocacy movement.

Another important line of conflict concerns the nature of the protocols incorporated in the digital systems that can be used for P2P. We will discuss this later, when we examine the evolution of power.

According to the Hacker Manifesto by McKenzie Wark, the deeper reason and underlying common logic between these different struggles is the struggle for control of both information (as intellectual property) and the vectors of information (needed for distribution), between those that produce information, knowledge and innovation (the hacker class, knowledge workers), and the groups that own the vectors (the vector class), through which its exchange value can be realised.

4.2.A. De-Monopolization of Power

How to explain the emergence of such P2P networks in the political field?

It reflects new cultural values, the desire that authority grows from engagement and expertise, and that it is temporary to the task at hand. It reflects the refusal to give away autonomy, i.e. the rejection of the transcendence of power as defined by Toni Negri. It reflects the desire for self-unfolding of creative potential.

Networks are incredibly efficient: they can operate globally in real-time, react and mobilize around events in the very short term, and offers access to alternative civic information that has not been massaged by corporate-owned mega-media. In a political network configuration, the participating individual retains his full autonomy.

Politically, P2P processes reflect a de-monopolization of power. Power, in the form of reputation that generates influence, is given by the community, is time-bound to the participation of the individual (when he no longer participates, influence declines again), and can thus be taken back by the participating individuals. In the case where monopolization should occur, participants simply leave or create a 'forking' of the project, a new path is formed to avoid the power grab.

There is an important counter-trend however, and it concerns the scarcity of attention. Because our time and attention are indeed scarce in a context of information abundance, mediating portals are created, who collate and digest this mass of information. Think about Yahoo, Google, Amazon, eBay who exemplify the process of monopolization in the 'attention economy'. But the user community is not without power to affect these processes: collective reaction through opinion storms are activated by abusive monopolistic behavior, and can quickly damage the reputation of the perpetrator, thereby forcing a change in behavior in the monopolistic ambitions. Competing resources are almost always available, or can be built by the open source community. But more fundamentally, the blogosphere practice shows that it is possible to route around such problems, by creating mediating processes using the community as a whole. Thus techniques such as folksonomies, i.e. communal tagging, or reputation ranking, such as the 'Karma' points used by the Slashdot community, avoid the emergence of autonomous mediating agents. The blogosphere itself, in the form of the Technorati ranking system for example, has found ways to calculate the interlinking done by countless individuals, thereby enabling itself to filter out the most used contributions. Again, monopolization is excluded. What is the mechanism behind this?

For this we have to turn again to the concept of non-representationality, or what Negri calls immanence. In modernity, the concept is that autonomous individuals cannot create a peaceful order, and therefore they defer their power to a sovereign, whether it be the king of the nation. In becoming a people, they become a 'collective individual'. They loose out as individuals, while the unified people or nation behaves 'as if' it was an individual, i.e. with ambition for power. It is 'transcendent' vis a vis its parts. In non-representationality however, nothing of the sort is given away. This means that the collective hereby created, is not a 'collective individual', it cannot act with ambition apart from its members. The genius of the protocols devised in peer to peer initiatives, is that they avoid the creation of a collective individual with agency. Instead, it is the communion of the collective which filters value. The ethical implication is important as well. Not having given anything up of their full power, the participants in fact voluntarily take up the concern not only for the whole in terms of the project, but for the social field in which its operates.

Anticipating our 'evolutionary' remarks in section 4.3, we can see the above examples as illustrating the new form of protocollary power, which is becoming all-important in a network. The very manner in which we devise our social technologies, implies possible and likely social relationships. The protocols of the blogosphere enable the economy of attention to operate, not through individual actors that can become monopolistic, but by protocols that enable communal filtering. But when used by private firms such as Yahoo and Google, they may have a vested interest in skewing the protocol and the objectivity of the algorhythms used. In the blogosphere, protocols are also important since they imply a vision: should everyone be able to judge, and in that case, would that not lead to a lowest common denominator, or should equipotency be defined in such a way that a certain level of expertise is required, to allow higher quality entries to be filtered upwards?

4.2.B. Equality, Hierarchy, Freedom

How do P2P processes integrate 'values' and 'social relation'-typologies such as equality, hierarchy, and freedom?

Cornelis Castoriadis gives an interpretation of Aristoteles on this issue: equality is actually present in all types of society, but it is always 'according to a criteria'. (this is so because a society is implicitly a form of exchange, and thus in need of comparative standards for such exchange). It is over the criteria of exchange that social and political forces are fighting. Is power to be distributed according to the merit accorded to birth, according to military exploits, according to commercial savvy shown in economic life, to intelligence?

In the modern sense, equality is defined mostly as an equal right to participation in the political process, and as an 'equality of opportunity', based on merit, in the economic sphere.

Similarly, hierarchy was based in premodern societies based on 'authority ranking' which depended on fixed social roles, and on the competition within these narrowly defined spheres (warriors competing amongst themselves, Brahmins competing through their knowledge of sacred scripture). The command and control hierarchy is fixed amongst the levels, somewhat flexible within the levels. In modern society, theoretically, hierarchy in power is derived from electoral choice in case of political power, through economic success in case of economic power. In theory, it is extremely flexible, based on 'merit', but in practice various processes of monopolization prohibit the full flowering of such meritocracy.

World-systems theorist Immanuel Walllerstein defines three important political traditions according to their position regarding equality/hierarchy. Conservatives want to conserve existing hierarchical relations, as they were at a certain point in time; liberals are in favor of a selective meritocracy and stress the formalized and institutionalized selection criteria; democrats are in favor of maximum inclusion, without formal testing. Thus, in the early modern system, conservatives were against elections, liberals were for selective census-based elections, democrats for general suffrage.

How does peer to peer fit in this scheme? P2P is a democratic process of full inclusion based on the idea of equipotency. It believes that expertise cannot be located beforehand, and thus general and open participation is the rule. But selection immediately sets in as well, since the equipotency is immediately verified by the work on the project. Thus there is a selection before the project, and a hierarchy of networks is created, where everyone finds his place according to demonstrated potential. Within the project, a hierarchy is also immediately created depending on expertise, engagement, and the capacity to generate trust. But in both cases the hierarchies are fluid, not fixed, and always depend on concrete context, the precise task at hand. It's the model of the improvising jazz band, where everyone can in turn be the solo-ist or the trendsetter. Reputation is generated, but constantly on the move. Peer to peer is not anti-hierarchy or even anti-authority, but it is against fixed hierarchies and 'authoritarianism', the latter defined as the tendency to monopolize power, with a will to perpetuate itself and deprive others of resources that it wants for itself. P2P is for equality of participation, for a natural and flexible hierarchy based on real merit and communal consensus. That P2P recognizes differences in potential, and thus natural hierarchy, does not preclude it from treating participating partners as equal persons. In fact research from within the synergistic tradition, which studies the practicalities of cooperation, has verified a remarkable fact. In free and synergistic cooperation, those groups function best, which treats its members 'as if' they were equals. Therefore, the recognized hierarchy in reputation, talent, engagement, etc.. does not preclude, but if requires an egalitarian environment to blossom.

Some authors, like David Ronfeldt and John Arquila of the Rand Corporation, claim we are moving to a 'cyberocracy', where power is determined by the access to the networks. While

there is indeed a digital divide that can exclude participation, it is important to stress the flexibility inherent in P2P networks, which undermines the idea of 'fixed and monopolistic cyberocracies'. Another author, Alexander Bard in Netocracy, argues that capitalism is already dead, and that we are already rules by a hierarchy of knowledge-based networks. At this stage, these are not very convincing arguments, but there is one scenario in which they can become possible. It has been described by Jeremy Rifkin in 'The Age of Access'. But this scenario of 'information feudalism' is predicated on the destruction of P2P networks. Cognitive capitalism in indeed in the process of trying to increase its monopolistic rents on patented digital materials, a strategy which is undermined by the filesharing and information sharing on the P2P networks. If the industry succeeds in its civil war against its consumers, by integrating Digital Rights Management hardware in our very computers, and outlaws sharing through legal attacks and imprisonment, then such a scenario is possible. At that time we would have only private networks for which a license has to be paid, with heavily restrictive usage rules, and no ownership what so ever for the consumer. This is indeed a scenario of exclusion for all those who will not be able to afford access to the networks. But we are far from that situation still, and personally, I do not think it is a likely scenario.

At this moment, P2P is 'winning' because its solutions are inherently more productive and democratic, and it is hard to see any social force, be it the large corporations, permanently sabotaging the very technological developments that it needs to survive. More likely, barring a scenario of a collapse of civilization and a return to barbarity, it is more likely to see a social system evolve that incorporates this new level of complexity and participation.

One element I have yet to mention is the freedom aspect, which seems obvious. P2P is predicated on the maximum freedom. The freedom to join and participate, to fully express oneself and one's potential, the freedom to change course at any point in time, the freedom to quit. Within the common projects, freedom is constrained through communal validation and consensus (i.e. the freedom of others). But individuals can always leave, fork to a new project, create their own. The challenge is to find affinities, to create a common sphere with at least a few others and to create effective use value. Unlike in representative democracy, it is not a model based on a majority imposing its will on a minority.

Despite the fact that Peer to Peer reverses a number of value hierarchies introduced by the Enlightenment, in particular the epistemologies and ontologies of modernity, it is a continuation and partial realization of the emancipatory project. It is in the definition of Wallerstein, an eminently democratic project. Peer to peer partly reflects postmodernity, and partly transcends it.

4.3. Evolutionary Conceptions of Power

Japanese scholar Shumpei Kumon has given the following evolutionary account of power. In premodernity, he says, power is derived from military force. The strong conquer the weak and exact tribute, part of the produce of the land, labor (the corvee system). Rome was rich because it was strong. In modernity, military force eventually looses its primary place and monetary power takes over. Or in other words, the U.S. is strong because it is rich. It is commercial and financial power, which is the main criterion. In late modernity, a new form of power is born, through the power of the mass media. The U.S. lost the war, not because the Vietnamese were stronger militarily, or had more financial clout, but because the U.S. lost the war for the hearts and minds, and lost social support for the war effort. With the emergence of

the internet and peer to peer processes, yet a new form of power emerges, and Kumon calls it the Wisdom Game[xxxiii]. In order to have influence, one must give quality knowledge away, and thus build reputation, through the demonstration of one's 'Wisdom'. The more one shares, the more this material is used by others, the higher one's reputation, the bigger one's influence. This process is true for individuals within groups, and for the process among groups, thus creating a hierarchy of influence amongst networks. But as I have argued, in a true P2P environment, this process is flexible and permanently reversible.

According to the French philosopher and historian Michel Foucault, premodern systems are characterized by the motto 'make die or let live': the sovereign has the power of life and death, but does not greatly interfere in the life of his subjects, which is ruled by custom and the divine precepts of the spiritual power. In modernity, Foucault sees two new forms of power arising: disciplinary power and biopower. Disciplinary power starts from the point of view that society consists of autonomous individuals, which are in need of socialization and 'discipline', so that they can be integrated in the normative framework of capitalist society. Biopower is the start of the total management of life, from birth to death, of the great mass of the people. The new motto is 'make live, let die'.

His contemporary Gilles Deleuze noted a change though. In mass-media dominated postmodern society, which became dominant after 1968, disciplinary institutions enter in crisis. What is used is the internalization of social requirements through the use of the mass media, advertising and PR, with control mechanisms in place, which focus on making sure the right results are attained. But the individual is now himself in charge of making it happen.

The P2P era adds a new twist, a new form of power, which we have called Protocollary Power. We have already given some examples. One is the fact that the blogosphere has devised mechanisms to avoid the emergence of individual and collective monopolies, through rules that are incorporated in the software itself. Another was whether the entertainment industry would succeed in incorporating software or hardware-based restrictions to enforce their version of copyright. There are many other similarly important evolutions to monitor: Will the internet remain a point to point structure? Will the web evolve to a true P2P medium through Writeable Web developments? The common point is this: social values are incorporated, integrated in the very architecture of our technical systems, either in the software code or the hardwired machinery, and these then enable/allow or prohibit/discourage certain usages, thereby becoming a determinant factor in the type of social relations that are possible. Are the algorhythms that determine search results objective, or manipulated for commercial and ideological reasons? Is parental control software driven by censorship rules that serve a fundamentalist agenda? Many issues are dependent on hidden protocols, which the user community has to learn to see, so that it can become an object of conscious development, favoring peer to peer processes, rather than the restrictive and manipulative command and control systems. In P2P systems, the formal rules governing bureaucratic systems are replaced by the design criteria of our new means of production, and this is where we should focus our attention.

John Heron (personal communication), gives the following account of the development of the theory and practice of hierarchy:

"There seem to be at least four degrees of cultural development, rooted in degrees of moral insight:

(1) autocratic cultures which define rights in a limited and oppressive way and there are no rights of political participation;

(2) narrow democratic cultures which practise political participation through representation, but have no or very limited participation of people in decision-making in all other realms, such as research, religion, education, industry etc.;

(3) wider democratic cultures which practice both political participation and varying degree of wider kinds of participation;

(4) commons p2p cultures in a libertarian and abundance-oriented global network with equipotential rights of participation of everyone in every field of human endeavour."

Heron adds that *"These four degrees could be stated in terms of the relations between hierarchy, co-operation and autonomy.*

(1) Hierarchy defines, controls and constrains co-operation and autonomy;

(2) Hierarchy empowers a measure of co-operation and autonomy in the political sphere only;

(3) Hierarchy empowers a measure of co-operation and autonomy in the political sphere and in varying degrees in other spheres;

(4) The sole role of hierarchy is in its spontaneous emergence in the initiation and continuous flowering of autonomy-in-co-operation in all spheres of human endeavour

Figure – The Evolution of Power

	Nature of Power	**Control Method**	**Monopoly**	**Power Game**
Premodern	Military & Religious	Force & Custom	Land & People	Force Game
Early Modern	Commercial & Industrial	Disciplinary & Biopower	Industrial & Financial Capital	Money Game
Late Modern	Financial & Mediatic	Control Society & Manufactured	Financial & Media	Money & Celebrity Game

		Consent		
P2P Era	P2P Media	Protocollary & Memetic Opinion Storms	Reputation-based De-monopolization vs. Attention Monopolies	Wisdom Game

Figure – The Evolution of Hierarchy – John Heron

	Degrees of Moral Insight	**Relationship between hierarchy, cooperation, autonomy**
Premodern	no rights of political participation	Hierarchy defines, controls and constrains co-operation and autonomy
Early Modern	political participation through representation	Hierarchy empowers a measure of co-operation and autonomy in the political sphere only
Late Modern	political representation with varying degrees of wider participation	Hierarchy empowers a measure of co-operation and autonomy in the political sphere and in varying degrees in other spheres
P2P Era	equipotential rights of participation of everyone in every field	The sole role of hierarchy is in its spontaneous emergence in the initiation and continuous flowering of autonomy-in-co-operation in all spheres of human endeavour

5. The Discovery of P2P principles in the Cosmic Sphere

Note the difference in the above section title. Here we are not speaking of emergence, but rather the recognition or discovery of principles within the natural world, which obey P2P principles. They were always-already there, but we have only recently learned to see them. Technology reflects, to a certain extent, humanity's growing knowledge of the natural world. Technological artifacts and processes integrate and embed in their protocols, this growing knowledge. And lately, we have learned to see the natural (physical, biological, cognitive) world quite differently from before. No longer as mechanisms or hierarchies, but as networks. Thus, the fact that engineers, software architects, and social network managers are devising and implementing more and more P2P systems also reflects this new understanding. Studies of distributed intelligence in physical systems, of the swarming behavior of social insects, of the 'wisdom of crowds' and collective intelligence in the human field, show that in many situations participative distributed system functions more efficiently than command and control systems which create bottlenecks. In natural systems, true centralized and hierarchic command and control systems seem rather rare.

Though there can be said to exist hierarchies in nature, such as a succession of progressively more enfolding systems, and many pyramidal systems of command and control in human society, the former are better called 'holarchies', as actual command and control systems are actually quite rare. More common is the existing of multiple agents, which through their interaction, create emergent coherent orders and behavior. The brain for example, has been shown to be a rather egalitarian network of neurons, and there is no evidence of a command center. And there are of course multiple scientific fields where this is now shown to be the case. Network theory is therefore focused on the interrelationships of equipotent, and distributed agents, and how complex systems arise from them. Network theory is a form of systemic reductionism, which focuses on the interaction of agents, without looking much at their 'personal' characteristics, but is remarkably successful in explaining the behaviour of many systems. Thus, if historians are starting to look at the world in terms of flows, social science in general is increasingly looking at its objects of study in terms of social network analysis.

Nexus, a book by Duncan Watts which summarises network theory investigations for the lay public, focuses on small world networks. These differ from totally random networks, where it takes many steps to go from one node to another, and are characterized by a relative 'low degree of separation'. Typically, human society is determined by no more than six degrees of separation: it never takes more intermediaries to contact any other person on the planet. Such networks come in two varieties: 1) aristocratic networks, where it is larger hubs and connectors who are responsible for linking the network together as a whole; and egalitarian networks, where the nodes have largely a same number of links, but while the majority has strong links to a few surrounding links with whom they interact a lot, a minority has weak ties with faraway nodes, and it is they who are responsible for holding the network together. Each forms has its strength and weaknesses: aristocratic networks are very strong in resisting random attacks, but vulnerable when their connectors are attacked, while egalitarian networks are more vulnerable to random disruption.

One of the most interesting findings is the existence of a power law. A power law says that for any x increase in the number of links per node (or specific characteristic per note, such as acreage per kilometer for a river), the number of nodes having that characteristic will decline by a fixed factor. In economics this gives us the famous Pareto principle, i.e. 20% of the people having 80% of the wealth. But the power law is nearly everywhere, suggesting a natural form of concentration and even monopolization as almost inevitable.

In terms of a normative P2P ethos, it is important to note that it is not systematically favouring egalitarian networks. More important is the key question: thus it promote efficient participation. The internet and the web are both aristocratic networks; the blogosphere is characterized by a power law distribution. The key question is: 1) is the network efficient; 2) does it enable participation; 3) is the emergence of an aristocratic structure non-coercive and reversible. In many cases, we have to admit that some form of centralization, is necessary and efficient. We all prefer one standard for our operating systems for example.

Another important area of contemporary research are the emergent cooperation studies, which study how to promote human cooperation. For example, they are trying to determine the maximum number to obtain efficient non-hierarchically cooperating groups, beyond which centralization and hierarchy sets in.

6. P2P in the Sphere of Culture and Self

I am here tackling the remainder of the two quadrants relating to intersubjectivity and subjectivity, considered in their basic linkage: the individual vs. the collective.

6.1.A. A new articulation between the individual and the collective

One of the key insights of psychologist Clare Graves' interpretation of human cultural evolution, is the idea of the changing balance, over time, between the two poles of the individual and the collective. In the popularization of his research by the Spiral Dynamics systems, they see the tribal era as characterized by collective harmony, but also as a culture of stagnation. Out of this harmony, strong individuals are born, heroes and conquerors, which will their people and others into the creation of larger entities. These leaders are considered divinities themselves and thus in certain senses are 'beyond the law', which they have themselves constituted through their conquest. It is against this 'divine individualism' that a religious reaction is born, very evident in the monotheistic religions, that stresses the existence of a transcendent divine order (rather than the immanent order of paganism), to which even the sovereign must obey. Thus a more communal/collective order is created. But again, this situation is overturned when a new individual ethos is created, which will be reflected in the growth of capitalism. It is based on individuals, and collective individuals, which think strategically in terms of their own interest. In the words of anthropologist Louis Dumont, we moved from a situation of wholism, in which the empirical individuals saw themselves foremost as part of a whole, towards individualism as an ideology, positing atomistic individuals, in need of socialization. They transferred their powers to collective individuals, such as the king, the people, the nation, which could act in their name, and created a sacrificial unity through the institutions of modernity.

This articulation, based on a autonomous self in a society which he himself creates through the social contract, has been changing in postmodernity. The individual is now seen as always-already part of various social fields, as a singular composite being, no longer in need of socialization, but rather in need of individuation. Atomistic individualism is rejected in favour of the view of a relational self, a new balance between individual agency and collective communion.

Thus the balance is again moving towards the collective. But the new forms of collective are not individualist in nature, meaning: they are not collective individuals, rather, the new collective expresses itself in the creation of the common. The collective is no longer the local 'wholistic' and 'oppressive' community, and it is no longer the contractually based society with its institutions, now also seen as oppressive. The new commons is not a unified and transcendent collective individual, but a collection of large number of singular projects, constituting a multitude[xxxiv].

This whole change in ontology and epistemology, in ways of feeling and being, in ways of knowing and apprehending the world, has been prefigured amongst social scientists and philosophers.

An important change has been the overthrow of the Cartesian subject-object split. No longer is the 'individual self' looking at the world as an object. Since postmodernity has established that the individual is composed and traversed by numerous social fields (of power, of the unconscious, class relations, gender, etc… , and since he/she has become aware of this, the subject is now seen (after his death as an 'essence' and a historical construct had been announced by Foucault), as a perpetual process of becoming ("subjectivation"). His knowing is now subjective-objective and truth-building has been transformed from objective and mono-perspectival to multiperspectival. This individual operates not in a dead space of objects, but in a network of flows. Space is dynamical, perpetually co-created by the actions of the individuals and in peer to peer processes, where the digital noosphere is an extraordinary medium for generating signals emanating from this dynamical space, the individuals in peer groups, which are thus not 'transcendent' collective individuals, are in a constant adaptive behavior. Thus peer to peer is global from the start, it is incorporated in its practice. It is an expression not of globalization, the worldwide system of domination, but of globality, the growing interconnected of human relationships.

Peer to peer is to be regarded as a new form of social exchange, creating its equivalent form of subjectivation, and itself reflecting the new forms of subjectivation. P2P, interpreted here as a positive and normative ethos that is implicit in the logic of its practice, though it rejects the ideology of individualism, does not in any way endanger the achievements of the modern individual, in terms of the desire and achievement of personal autonomy, authenticity, etc…. It is no transcendent power that demands sacrifice of self: in Negrian terms, it is fully immanent, participants are not given anything up, and unlike the contractual vision, which is fictitious in any case, the participation is entirely voluntary. Thus what it reflects is an expansion of ethics: the desire to create and share, to produce something useful. The individual who joins a P2P project, puts his being, unadulterated, in the service of the construction of a common resource. Implicit is not just a concern for the narrow group, not just intersubjective relations, but the whole social field surrounding it.

Imagine a successful meeting of minds: individual ideas are confronted, but also changed in the process, through the free association born of the encounter with other intelligences. Thus

eventually a common idea emerges, that has integrated the differences, not subsumed them. The participants do not feel they have made concessions or compromises, but feel that the new common integration is based on their ideas. There has been no minority, which has succumbed to the majority. There has been no 'representation', or loss of difference. Such is the true process of peer to peer.

An important philosophical change has been the abandonment of the unifying universalism of the Enlightenment project. Universality was to be attained by striving to unity, by the transcendence of representation of political power. But this unity meant sacrifice of difference. Today, the new epistemological and ontological requirement that P2P reflects, is not abstract universalism, but the concrete universality of a commons which has not sacrificed difference. This is the truth that the new concept of multitude, developed by Toni Negri and inspired by Spinoza, expresses (x). P2P is not predicated on representation and unity, but of the full expression of difference.

6.1.B. Towards 'contributory' dialogues of civilizations and religions

One of the more global expressions of the peer to peer ethic, is the equipotency it creates between civilizations and religions. These have to be seen as unique responses, temporally and spatially defined, of specific sections of humanity, but directed towards similar challenges. Thus we arrive at the concept of 'contributory worldviews' or 'contributory theologies'. Humanity as a whole, or more precisely, its individual members, have now access to the whole of human civilization as a common resource. Individuals, now being considered 'composites' made up of various influences, belongings and identities, in constant becoming, are embarked in a meaning-making process that is coupled to an expansion of awareness to the well-being of the planet as a whole, and of its concrete community of inhabitants. In order to become more cosmopolitan they will encounter the various answers given by other civilizations, but since they cannot fully comprehend a totally different historical experience, this is mediated through dialogue. And thus a process of global dialogue is created, not a synthesis or world religion, but a mosaic of millions of personal integrations that grows out of multiple dialogues. Rather than the concept of multiculturalism, which implies fixed social and cultural identities, peer to peer suggests cultural and spiritual hybridity, and which no two members of a community have the same composite understanding and way of thinking.

One of the recent examples that came to my attention are the annual SEED conferences in Albuquerque, New Mexico. They bring together, native elders, quantum physicists, philosophers, and linguists, none of them assuming superiority over one another, but collectively 'building truth' through their encounter.

P2P dialogues are not reprensentative dialogues, in which the participants represent their various religions, rather, they are encounters of composite and hybrid experiences, in which each full expresses his different understanding, building a spiritual commons.

6.1.C. Participative Spirituality and the Critique of Spiritual Authoritarianism

Traditional mystical and religious paths are exclusionary, based on strong divisions between the in and the out group. Internally, they reflect the social values and organizational models of the civilizations in which they were born. Thus they are premodern in authoritarian manner, patriarchal, sexist, subsuming the individual to the whole. Or, in their latter manifestations they are run as corporations and bureaucracies, reflecting the early emergence of capitalism as in the case of Protestantism, and in the case of the new age, operating explicitly as a spiritual marketplace reflecting the capitalist monetary ethos. When traditional religions of the East move to the West, they bring with them their authoritarian and feudal formats and mentalities. Epistemologically, in their spiritual methodologies, they are authoritarian as well, far from an open process, traditional paths start from the idea that there is one world, one truth, one divine order, and that some privileged individuals, saints, bishops, sages, gurus, have been privileged to know this truth, and that this can be taught to followers. The seventies and eighties have been characterized by the emergence of new religions and cults with a particularly authoritarian character, and by the appearance of a number of fallen gurus, characterized by abuses in terms of finance, sexuality, and power. If one decides to follow an experiental path, it is always the case that the experience is only validated if it follows the pregiven doctrine of the group in question.

It is clear that such a situation, such a spiritual offering is antithetical to the P2P ethos. Thus, in the emergence of a new participatory spirituality, two moments can be recognized, a critical one, focused on the critique of spiritual authoritarianism, and with books like those of June Campbell, J. Kripal, the Trimondi's, the Kramer's, and many others who have been advocating reform within the Churches and spiritual movements, and the more constructive approaches which aim to construct a new approach to spiritual inquiry altogether, those that explicitly integrate P2P practices in their mode of spiritual inquiry. The two pioneering authors who discuss 'participative spirituality' are Jorge Ferrer and John Hereon.

Ferrer's book, Revisioning Transpersonal Psychology: Towards a Participatory Vision of Human Spirituality, not only is a strong critique of spiritual authoritarianism, which integrates poststructuralist arguments against absolute knowledge claims, but also a first description of an alternative view[xxxv]. In it, a spiritual practice operates as an open process in which spiritual knowledge is co-created, and thus cannot fully rely on old 'maps', which have to be considered as testimonies of earlier creations, not as absolute truths. Spirituality is understood in terms of the present relationship with the Cosmos (the concrete Totality), accessible to everyone here and now. Instead of the perennialist vision of many paths leading to the same truth, Ferrer advocates for an 'ocean of emancipation' with the many moving shores representing the different and ever-evolving approaches to spiritual co-creation. In an article on 'Integral Transformative Practices', Ferrer also records new practices that reflect this participatory turn, such as the ones pioneered by Albareda and Romero in Spain: open processes of self- and group discovery that are no longer cognicentric, but instead fully integral approaches that collaborative engage the instinctual, emotional, mental, and transmental domains as equal partners in the unfolding of spiritual life.

New Zealand-based John Heron expounds, in the book "Sacred Science", the specific peer to peer practice that he has created, called Cooperative Inquiry. In such a process, individuals agree on a methodology of inquiry, then compare their experiences, adapting their inquiry to their findings, etc… thus creating a collective intelligence, which is totally open and periodically renewed, experimenting both with the 'transcendent' practices of eastern nondual religions (transmental 'witnessing') as well as with the immanent grounding methods of the nature religions, thus creating a innovative dipolar approach which does not reject any

practice, but attempts to integrate them. Peer circles (check the concept in a web search engine) have sprung up worldwide. My friend Remi Sussan stresses that the chaos magick groups on the internet, explicitly see themselves as self-created religions adopting open peer-based processes.

6.1.D. Partnering with nature and the cosmos

Throughout this essay, I have defined P2P as communal shareholding based on participation in a common resource (with the twist that in P2P it is we ourselves who are building that resource, which did not previously exist), whereby other partners are considered as equipotent. We also mentioned the co-existence within P2P groups of both natural hierarchy, and egalitarian treatment.

There are very good reasons to believe that we can and should extent this ethos to non-human forces, be they natural or cosmic, and if you have this kind of faith or experience, with spiritual forces as well. Thus in a sense, spiritually, the P2P or 'participative ethos' harks back to premodern animistic attitudes, which can also be found in Chinese Taoism for example. Instead of considering nature in a Cartesian fashion as 'dead matter' or a collection of objects to be manipulated, we recognize that throughout nature there is a scale of consciousness or awareness, and that natural agents and collectives have their natural propensities, and that, giving up our need for domination in the same way that we are able to practice in P2P processes, we 'cooperate', as partners, with such propensities, acting as midwives rather than dominators. French sociologists like Michel Maffesioli and Philippe Zafirian have analyzed a change in our culture, particularly in the new generations of young people, which go precisely in that direction, and it is of course specifically reflected in sections of green movement. Again, this is not a regression to an utopian and lost past, but a re-enactment of a potential, but this time, with fully differentiated individuals.

There is a natural progression in scope, from P2P groups, to the global partnership-based dialogues between religions and civilizations, to the new partnership with natural and cosmic forces, that forms a continuum, and that is equally expressive of the deep changes in ontology and epistemology that P2P represents.

7. P2P and Social Change

7.1.A. Marginal trend or premise of new civilization?

I hope to have convinced the reader of this essay that Peer to Peer is a fundamental trend, a new and emergent form of social exchange, of the same form, an 'isomorphism', that is occurring throughout the human lifeworld, in all areas of social and cultural life, where it operates under a set of similar characteristics. In other words, it has coherence.

How important is it, and what are its political implications? Can it really be said, as I claim, that it is the premise of a new civilizational order? I want to bring out a few historical analogies to illustrate my point.

The first concerns the historical development of capitalism. At some point in the Middle Ages, starting in the 11th to 13th cy. period, cities start to appear again, and commerce takes up. A new class of people specialize in that commerce, and finding some aspects of medieval culture antithetic to their pursuits, start inventing new instruments to create trust across great distances: early forms of contracts, early banking systems etc.. In turn, these new forms of social exchange create new processes of subjectivation, which not only influence the people involved, but in fact the whole culture at large, eventually leading to massive cultural changes such as the Renaissance, the Reformation, the Enlightenment and the great social revolutions (English, French, American, etc..). In this scenario, though the emergent bourgeois class was not directly political, what it did, i.e. its primary business of conducting commerce, inevitably created a political and civilisational chain reaction. This class also had a resource, capital (money), which was greatly needed by the other leading sectors of the population, especially the feudal class and the kings. Even today, for capital, politics is a secondary effect, their enormous power is an effect of what they do in the economic sphere: trading currency and shares, international capital flows, investments of multinational companies, the results of a myriad of small decisions by economic regularity bodies such as the IMF, etc..

Today, I would argue, we witness a similar phenomena. A new class of knowledge workers, in its broad sense already the majority of the working population in the West, and poised to be in the same situation elsewhere in a few decades, are creating new practices and tools that enable them to do what they need to do, i.e. knowledge exchange. As they create these new tools, bringing into being a new format of social exchange, they enable new types of subjectivation, which in turn not only changes themselves, but the world around them. When Marx wrote his Manifesto, there were only 100,000 industrial workers, yet he saw that this new social model was the essence of the new society being born. Similarly, even if today only a few million knowledge workers consciously practice P2P, one can see the birth of a new model of a much larger social consequence. This new model is inherently more productive in creating the new immaterial use value, just as the merchants and capitalists were more effective in the material economy. Thus, they have something of value, i.e. knowledge and innovation, which is needed by the whole society, as even agricultural and industrial production can no longer proceed without their intervention. As this feedback loop is reinforcing itself, the political consequences are equally secondary. By creating new social forms, they, we, are doing politics, in the sense of creating new realities. This does not mean that civil society alone can create a full civilisational change, as, inevitably, political conflicts and new lines of contention arise, that will draw in the adepts of the new modes of being into the political world. And the great issue will be the reform of the state and the global governance system. But they come prepared, with highly efficient modes of organization and knowledge building.

Another analogy I like is the one exposed by Negri in Empire, where he refers to the Christians. The Roman Empire, in a structural course of decline, could not be reformed, but at the same time, within it, the Christians were creating new forms of consciousness and organization, which, when the imperial structure collapsed, was ready to merge with the invading Barbarians and created the new European civilization of the Middle Ages. There are no Barbarians today, only other rising capitalist blocks such as the East Asian one, but they are in the process of creating the very same social configuration, which has created P2P in the West, though it will take a little more time. Civilisational differences will not, in my opinion, preclude the development of cognitive capitalism and the emergence of P2P modes of social exchange.

Finally, let us put our findings in the context of some social scientists.

First, Marcel Mauss, and his notion of 'total social fact'[xxxvi]; second, to the notion of Cornelis Castoriadis, that societies are coherent wholes and systems, otherwise they would collapse, animated by a particular kind of 'social spirit' that is the result of our social imaginary. Democratic capitalism was prepared by such an imaginary, the result of the religious civil wars and the strong desire to go beyond the feudal adversarial model. But today, even as it is being globalized, its premises are dying at the same time they are being exacerbated. The emergence of P2P is therefore to be considered both as a total social fact, and as the birth of a new social imaginary. P2P is a revolt of the social imaginary about the total functionalization of our society, about its near-total and growing determination by instrumental reason and efficiency thinking, that is now even infecting our social and personal lives. It is a vivid protest, a longing for a different life, not solely dictated by calculation and the overriding concern for profit and productivity. It is not just protest against the intolerable facets of postmodern life, but always already also a construction of alternatives. Not an utopia, but really existing social practice. And a practice founded on a still unconscious, but coherent set of principles, i.e. a new social imaginary. It is totally coherent, a total social fact.

Habermas has another important notion, which is the 'principle of organization' of society, and he distinguishes the primitive, traditional and liberal-capitalist principles of organization. He defines it as the innovations that become possible through 'new levels of societal learning'. Such a level determines the the learning mechanism on which the development of productive forces depend, the range of variation for the interpretative systems that secure identity, amongst others key factors. It would seem clear that P2P is precisely such a new learning mechanism, described in most detail in the book by Pekka Himanen, as well as in the new rules I have identified in this essay. Thus in Habermassian terms, we would have to conclude that P2P is a fourth principle of organization, emerging at this stage, but which could become dominant at a later stage.

We'll leave the latter open as a hypothesis, since history is an open process, and indeed different logics can co-exist. For example, in democratic capitalism, the two logics of democracy and capitalism are co-existing together, forming a coherent whole, even though its fabric is now in crisis.

My interpretation of P2P is related to the interpretation of Stephan Merten and the Oekonux group in Germany, but whereas they see the principles behind Free Software as indicative as a new mode of social exchange, I have broadened their area of application. Free Software is, in my interpretation, one of the forms of the P2P form of social exchange. While Free Software appears important, especially when taken together with the more liberal Open Source format, it is still more marginal than P2P. When we look at the same phenomena through the P2P lens, the social changes appear much more profound, much more important, than Free Software taking alone. We are much further ahead of the curve if we follow the P2P interpretation.

Nevertheless, when I talk, in such an optimistic and visionary fashion, about the emergence of P2P and it being the premise of a coming fundamental civilisational change, I can of course also see the terrible trends that are affecting our world: fossil energy depletion, global warming, increased inequality inside and between countries, the tearing apart of the social fabric, the increased psychic insecurity affecting the whole world population, the imposition of a permanent war regime that is dismantling civil rights and re-introducing the systematic

use of torture and lifelong imprisonment without trial in the heart of the West, the great extinction affecting biodiversity … All these things are happening, and disheartening, even though counter-trends from civil society are also sometimes hopeful. Certainly, it seems that the power structure of Empire, the new form of global sovereignty, is beyond reform, that it just routs around protest and democracy, making dissent marginal and inconsequential, even as 25 million people were protesting an illegimate war in one single day. Corporate media machines will devote days on end on the trial of a celebrity, but totally ignore massive literacy campaigns in Venezuela, and millions of people demonstrating will deserve just a few seconds of coverage. But historically, it is also when change 'inside' the system becomes impossible, that the greatest revolutions occur. The evening before the momentous events of May 68, the columnist Bernard Poirot-Delpech wrote in Le Monde: nothing ever changes, we are bored in this country …

The question of timing is difficult to answer. Objectively, it could take centuries, if we take the historical examples of the transition from ancient slavery to feudalism, or from feudalism to capitalism. Similar to the current situation, both ancient slavery (in the form of the conatus system of production, which freed slaves but bound them to the land, as of the 2nd and 3rd century), and feudalism, had the germs of the new system already within them. However, the precipitation of climatic, economic, political crises affecting the current world system, as well as the general speeding up of cultural change processes, seem to point towards changes that could proceed on a much more faster scale. If I may allow myself a totally unscientific prediction, then I would say that a culmination of systemic crises, and the resulting reform of the global governance system, is about two to four decades away. But in another sense, such predictions are totally immaterial to the task at hand. We need P2P today, in order to make our lives more fulfilling, to realize our social imaginary in our own lifetime, and to develop the set of methodologies that will be needed, that are needed, to help solve the developing crisis. We do not have the luxury of waiting for a dawn to come. A good example of the maturity of the system for change is what happened in Argentina: when the economy totally collapsed, in a matter of months, the country's population had built a series of P2P-based barter and alternative money systems (the largest in the world to date), and the significant movement of the Piqueteros arose, which, demanded and got from the state a major concession: that state money for the unemployed would not go to individuals, but the movement as a whole to invest in cooperative projects. It all depends on the dialectic between the crises and what the system still can offer. But if the system fails to provide the hope and the realisation of a decent life, such an event precipitates the building of alternatives that have many of the aspects of P2P that we described.

7.1.B. P2P, Postmodernity, Cognitive Capitalism: within and beyond

Peer to peer has clearly a dual nature. As we have showed, it is the very technological infrastructure of cognitive capitalism, the very organizational mode it needs to implement in its global teams. P2P exemplifies many of the flexible and fluid aspects characteristic of fluid modernity (or postmodernity): it disintegrates boundaries and binary oppositions, blurs the inside and the outside. Just as post- or late feudal society and its absolutist kings needed the bourgeoisie, late capitalist society cannot survive without knowledge workers and their P2P practices. It can be argued that the adoption of P2P processes is in fact essential for competitiveness: a strong foundation of P2P technologies, the use of free or open source software, processes for collective intelligence building, free and fluid cooperation, are now all

necessary facets of the contemporary corporation. The old format of 'pyramidal intelligence', i.e. a hierarchy of command and control, in its old bureaucratic format, or even as 'management by objectives', based on the assumption of information scarcity, is increasingly counter-productive.

At the same time, it cannot cope with it very well, and often P2P is seen as a threat. The entertainment industry for example, wishes to destroy P2P technology. In general, corporations are in constant tension between the logic of self-unfolding peer groups and the profit-driven logic of the feudally-structured management-by-objectives system, and by the tension between the cooperative production of innovation and its private appropriation. The dot.com crisis of 2001 showed how difficult it is for the present system to convert the new use value into exchange value, and created an important rift between the affected knowledge workers and the financial capital, which had taken them on that ride. After the short-term flourishing of the hope for instant riches in the dotcom economy, many of them turned their energies to the social sphere, where internet-based innovation not only continued, but thrived even more, but now based on explicit P2P modes of cooperation.

Thus, while being part and parcel of the capitalist and postmodern logics, it also already points beyond it. From the point of view of capital, it annoys it, but it also needs it to thrive and survive itself. From the point of view of its practitioners, they like it above all else, they know it is more productive and creates more value, as well as meaning in their life and a dense interconnected social life, but at the same time, they have to make a living and feed their families. The not-for-profit nature of P2P is at the heart of this paradox.

This is the great difficulty, and is why its opponents will not fail to point out the so-called parasitical nature of P2P. P2P creates massive use-value, but no automatic exchange value, and thus, it cannot fund itself. It exists on the basis of the vast material wealth created by the presently existing system. Peer to peer practitioners generally thrive in the interstices of the system: programmers in between jobs, workers in bureaucratic organizations with time on their hand; students and recipients of social aid; private sector professionals during paid for sabbaticals, academics who integrate it into their research projects. However, in terms of open source software, this is increasingly seen as essential for technological infrastrucre, favoured by an increasing numbers of governments who want an open standard, and also by rivals to Microsoft, who see it as a means of decreasing their dependency. It is more and more seen as an efficient means of production, and therefore, increasingly funded by the private sphere.

Apart from being an objective trend in society, it is also becoming a subjective demand, because it reflects a desired mode of working and being. P2P becomes, as it is for this author, part of a positive P2P ethos.

Therefore, a P2P advocacy emerges, which turns the tables around, and it becomes a political and social movement. What is the main message of this emergent movement? I'll try to paraphrase the emerging message, which is being increasingly clearly formulated:

It says*: "it is us knowledge workers who are creating the value in the monetary system; the present system privately appropriates the results of a vast cooperative network of value creation (as we argued in our section about the cooperative nature of cognitive capitalism). Most value is not created in the formal procedures of the enterprise, but despite it, because, despite impediments, we remain creative and cooperative, against all odds. We come to the job, no longer as workers just renting our bodies, but as total subjectivities, with all we have*

learned in our lives, through our myriad social interactions, and solve present problems through our personal social networks. It is not us knowledge workers living off on you, but you 'vectoralists' living off on us! We are the ones creating infinite use value, which you want to render scarce to transform it into tradable intellectual property, but you cannot do it without us. Even as we struggle to create a commons of information, in the meantime, while we lack the strength to totally transform the system, perhaps we will be strong enough to impose important transitory demands. Therefore, in your own interest, if you want innovation to continue, instead of ever larger number of us collapsing from stress-related diseases, you have to give us time and money. You cannot just use the information commons as an externality, you have to fund it. Establishing such a system, culminating in the instauration of a universal wage divorced from work, is in fact the very condition of your survival as an economic system, and at the same time, allows us to thrive as knowledge workers, by creating use value, meaning in our lives, time for learning and renewal, that we will bring back to your money-making enterprise."

The demand for a universal wage, increasingly debated, subject of academic research and government reports, and implemented for the first time in Brazil by President Lula, may well be the next great reform of the system, the wise course of action, awaiting its P2P "neo-Keynes", a collective able to translate the needs of the cooperative ethos in a set of political and ethical measures. Paradoxically, through the strengthening of cooperation, it will also re-invigorate cognitive capitalism (much like the welfare system create mass consumers), allowing the two logics to co-exist, in cooperation, and in relative independence from one another, installing a true competition in solving world problems.

The world system undoubtedly needs a number of important reforms. Amongst those I can think of is 1) the shift of the monopoly of violence from the nation-state, to an international cooperative body in charge of protecting human rights and avoid genocides and ethnic cleansings; it is no longer acceptable that any nation-state exerts illegitimate violence; 2) the setting up of regulatory bodies for the world economy, so that a through world society can emerge, in the sense of those proposed by George Soros, David Held and others; 3) changes in the nature of the system of capital in the sense described by Paul Hawken, David Korten, Hazel Henderson, i.e. a form of natural capitalism that can no longer appropriate the commons and externalize its environmental costs; 4) a new integral 'international account' systems no longer focused on the endless growth of material production, but on well-being indicators; 5) changes in the structures of corporations so that it no longer exclusively reflects the interests of the shareholders, but of all the stakeholders affected by its operations.

With historical hindsight, such a series of fundamental changes are only to be expected after major structural crises: they are probably still 20 to 50 years away.

7.1.C. Three scenarios of co-existence

In our earlier descriptive essay, we already described three possible scenarios concerning the entanglement of cognitive capitalism with P2P.

The first scenario is peaceful co-existence. There are a lot of historical precedents for that. In the Middle Ages and other agriculture-based systems, the system of authority ranking (feudalism), co-existed with the religious order, organized in a form of Communal

Shareholding (the Church and the Sangha), which was the pillar of a redistributive gift economy. In South-East Asia, which accepts temporary spiritual engagement, people would move from one sector to the other. Similarly, we can envision a continuation of the present system, with knowledge workers making money in the private sector, but regularly escaping, as much as they possibly can, to participate in the edification of the Commons. In this scenario, the one we are currently living and that would be poised to continue substantially the same, the current version of capitalism would also remain mostly unchanged, though perhaps eventually to be regulated by bodies of global governance.

The second scenario is the dark one. Cognitive capitalism succeeds in partly incorporating, partly destroying the P2P ethos, and an era of information feudalism ensues, a netocratic oligarchy based on access to resources and networks, living on rent monopolies from intellectual property licenses, as has been described by Jeremy Rifkin in the "Age of Access", (and echoed by Jordan Pollack[xxxvii], John Perry Barlow[xxxviii] and many others) and dis-appropriating any form of property from the consuming classes (the consumtariat, as Alexander Bard has coined them). It will co-exist with a total control society based on biometric identification, and will use highly advanced cognitive manipulation. But this scenario is predicated on the social defeat of the knowledge workers, and we are not there yet. In this scenario, access to information is predicated on the payment of restrictive licenses, which sharply reduce the freedoms and the creativity of the people who have access, while excluding many others from that access. Because of this loss of freedom, the loss also of the freedom to fully possess goods and to with them as we please, this scenario is often called one of 'information feudalism'.

The third scenario is, from the point of view of P2P advocates, the more hopeful one. After a deep structural crisis, the universal wage is implemented, and the P2P sphere can operate with increasing autonomy, creating more and more use value, slowly creating a cohesive system within the system, a 'GPL Society', as Stephan Merten would have it[xxxix]. At such moment, the new civilization is already born. It has to be stressed that P2P is not the same as a totally collectivized system, and that it can co-exist with markets and aspects of capitalism. But it does not need the current monopolistic system, it can reduce ‘market pricing mechanisms’ to their rightful place, as part of the human exchange system, not as its totality. In my opinion, we would have a core of pure P2P processes, surrounded by a gift economy based on shareable goods, a strong social economy run by non-profit companies, and a reformed market sector, where prices reflect more realistically the true cost of production, such as environmental externalities. This form of 'natural capitalism' has been described by Paul Hawken, David Korten, and Hazel Henderson. The main 'inspiring paradigm' would no longer be the competition paradigm based on win-lose scenarios, but the collaborative paradigm, where reformed corporations and other to-be-invented institutional and non-institutional forms, would find
their purpose in creating added value to the commons, and would attract productive means to the degree they are perceived of doing so.

7.1.D. Possible political strategies

In the meantime, while the three scenarios are competing to come into being, and if we are sympathetic to the emergence of P2P and its ethos of cooperation: “What is to be done?”

A first step is to become aware of the isomorphism, the commonality, of peer to peer processes in the various fields. That people devising and using P2P sharing programs, start realizing that they are somehow doing the same thing than the alterglobalisation movement, and that both are related to the production of Linux, and to participative epistemologies. Thus what we must do first is building bridges of cooperation and understanding across the social fields. Amazingly, it has already started, as the last Porto Alegre forum showed an extraordinary enthusiastic reaction to the Open Source event, something that would have been unimaginable even a few years ago. I hope that my own essay plays a role in augmenting that awareness. We should also start to realize our basic commonality with earlier forms of the cooperative ethos: the communal shareholding of the tribal peoples, the solidarity movements of the workers, the environmental and other protectors of our physical commons. Following the analysis of Mckenzie Wark we should say that both knowledge workers (the hacker class for MW), workers, and farmers as producing classes share a similar interest in achieving first, a fairer share of the distribution of the surplus (the reformist agenda), and second, achieving control of the means of production (the more radical agenda). Of course, this can no longer take the form of centralized state control, and awaits innovative social practices and demands.

The second step is to "furiously" build the commons. When we develop Linux, it is there, cannot be destroyed, and by its very existence and use, builds another reality, based on another social logic, the P2P logic. Adopting a network sociality and building dense interconnections as we participate in knowledge creation and exchange is enormously politically significant. By feeding our immaterial and spiritual needs outside of the consumption system, we can stop the logic which is destroying our ecosphere.. The present system may not like opposition, but even more does it fear indifference, because it can feed on the energy of strife, but starts dying when it is shunted. In the past, the labour movement and other social movements mostly shared the same values, and it was mostly about a fairer share of the pie. But the new struggles are mostly about producing a new kind of pie, and producing it in a different way.

Today, the new ethic says that 'to resist is in the first place to create'. The world we want is the world we are creating through our cooperative P2P ethos, it is visible in what we do today, not an utopian creation for the future. Building the commons has a crucial ingredient: the building of a dense alternative media network, for permanent and collective self-education in human culture, away from the mass-consumption model promoted by the corporate media.

Thus, if there is an 'offensive' strategy it would look like this: to build the commons, day after day, the process of creating of a society within society. In this context, the emergence of the internet and the web, is a tremendous step forward. Unlike in earlier social formations, knowledge workers and others now have access to an important “vector of information”, to a means for creating, producing, and distributing immaterial products that was not available in earlier ages. Part of the struggle to build the information commons is the struggle for the control of the code (achieving protocollary power) and the creation of a ‘friendly’ legal framework, continuing the efforts pioneered by Richard Stallman and the General Public License and Lawrence Lessig’s Copyleft.

The third step is the defensive strategy. When the commons is attacked, it needs to be defended. We are thinking of the struggle in the EU to avoid software patents, avoiding the installment of digital rights management encoded in the hardware; the struggle against biopiracy; against the privatization of water.

Above all else what we need is a society that allows the building of the commons, and it is therefore impotant to refuse measures that would foreclose this development. Hence the importance of the intellectual property regime, which needs to be reformed to avoid a 'Enclosure of the Digital Commons", and also, we have to develop an awareness of the intricacies of protocollary power. Since we have no idea about the time span needed for a fuller transition to a P2P civilization, what me must do in the meantime is to protect the seed, so that it can grow unimpeded, until such time as it is called for a greater role.

I would guess that an important part of the struggle for decent life for all, important to make space for the development of cooperative practices, will be the instauration of a universal living wage. So that no one dies from hunger, poverty and exclusion from the world of culture. So than an increasing number of us can start working on the creation of real use value, instead of catering to the artificial desires concocted by the global advertising system.

We also wish for the creation of democratic peer to peer processes so that they can contribute to solving some of the crucial issues facing the world. This is why the demands of the alterglobalisation movement are sometimes considered vague. It is because, in this complex world, we know that we do not have all the answers. But we also know, that through a community of peers, through open processes, answers and solutions can emerge, in a way that they cannot if private interests and domination structures are not transcended. Thus a reform of the global governance system is very important, so that every human being voice can be heard..Current global governance institutions, as they are organized today (IMF, World Bank, WTO), often impede the finding of solutions because they are instruments of domination, rather than at the service of the world population. It is thus not just a matter of an alternative political program, but of alternative processes to arrive at the best solutions. I do not personally believe, that change can come <only> from the autonomous processes of civil society, and that attention to the state form is important. Thus politically, peer to peer advocates are interested in the transformation of the nation-state, to new forms open to the processes of globality, to participatory processes, such as the ones practiced with P2P formats.

Peer to peer also demands self-transformation. As we said, P2P is predicated on abundance, on transcending the animal impulse based on win-lose games. But abundance is not just objective, i.e. also, and perhaps most importantly, subjective. This is why tribal economies considered themselves to live in abundance, and were egalitarian in nature. This is why happiness researchers show that it is not poverty that makes us unhappy, but inequality. Thus, the P2P ethos demands a conversion, to a point of view, to a set of skills, which allow us to focus ourselves to fulfilling our immaterial and spiritual needs directly, and not through a perverted mechanism of consumption. As we focus on friendships, connections, love, knowledge exchange, the cooperative search for wisdom, the construction of common resources and use value, we direct our attention away from the artificial needs that are currently promoted, and this time we personally and collectively stop feeding the Beast that we have ourselves created.

8. Launch of The Foundation for P2P Alternatives

We are now reaching the conclusion of our essay. If I have been successful the reader has a descriptive, explanatory, and historical view of its emergence and potential.

Of course my purpose is also political. I believe that a P2P-based civilization, or at least one that has much stronger elements of it compared with today, would be a better civilization, more apt to tackle the global challenges that we are facing. This is why I propose that this essay is not just part of a process of understanding, but that it can be a guide to an active participation in the transformation of our world, into something better, more participative, more free, more creative.

I therefore announce the creation of a Foundation for P2P Alternatives. It would be centered around the following conclusions, the support for which you can find in the essay:

- that technology reflects a change of consciousness towards participation, and in turn strengthens it
- that the networked format, expressed in the specific manner of peer to peer relations, is a new form of political organizing and subjectivity, and an alternative for the political/economic order, which though it does not offer solutions per se, points the way to a variety of dialogical and self-organising formats to device different processes for arriving at such solutions; it ushers in a era of 'nonrepresentational democracy', where an increasing number of people are able to manage their social and productive life through the use of a variety of networks and peer circles
- that it creates a new public domain, an information commons, which should be protected and extended, especially in the domain of common knowledge creation; and that this domain, where the cost of reproducing knowledge is near zero, requires fundamental changes in the intellectual property regime, as reflected by new forms such as the free software movement
- that the principles developed by the free software movement, in particular the General Public Licence, provides for models that could be used in other areas of social and productive life
- that it reconnects with the older traditions and attempts for a more cooperative social order, but this time obviates the need for authoritarianism and centralization; it has the potential of showing that the new egalitarian digital culture, is connected to the older traditions of cooperation of the workers and peasants, and to the search for an engaged and meaningful life as expressed in one's work, which becomes an expression of individual and collective creativity, rather than as a salaried means of survival
- that it offers youth a vision of renewal and hope, to create a world that is more in tune with their values; that it creates a new language and discourse in tune with the new historical phase of 'cognitive capitalism'; P2P is a language which every 'digital youngster' can understand
- it combines subjectivity (new values), intersubjectivity (new relations), objectivity (an enabling technology) and interobjectivity (new forms of organization) that mutually strengthen each other in a positive feedback loop, and it is clearly on the offensive and growing, but lacking 'political self-consciousness'.

The Foundation for P2P Alternatives would address the following issues:

- P2P currently exists in discrete separate movements and projects but these different movements are often unaware of the common P2P ethos that binds them
- thus, there is a need for a common initiative, which 1) brings information together; 2) connects people and mutually informs them 3) strives for integrative insights coming from the many subfields; 4) can organize events for reflection and action;5) can educate people about critical and creative tools for world-making

- the Foundation would be a matrix or womb which would inspire the creation and linking of other nodes active in the P2P field, organized around topics and common interests, locality, and any form of identity and organization which makes sense for the people involved
- the zero node website would have a website with directories, an electronic newsletter and blog, and a magazine.

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i

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ii

- Some definitions in the tradition of the sociology of form:

"la forme prise par l'echange reciproque" (G. Simmel); "la configuration de cette dependence reciproque" (N. Elias); "la mise en situation de l'interaction" (G.H. Mead); "les modalites et les conventions de l'action collective" (Howard Becker). All are quoted in Claude Macquet and Didier Vrancken. Les formes de l'echange.Controle social et modeles de subjectivation. Ed. de l'Ulg, 2003. An earlier description of the method is: G.G. Granger. Pensee formelle et sciences de l'homme. Aubier. Ed. Montaigne, 1967.

iii

- Salvino Salvaggio, personal communication on hierarchy in FLOSS projects:

"D'abord et avant tout, il n'est pas entierement correct de soutenir que dans les initiatives P2P, les differents participants sont "equipotents". Il suffit d'aller relire, par exemple, les archives et la documentation non-technique de la plupart des projets pour constater que certaines personnes y jouent un role de coordination et qu'elles definissent les modalites de collaboration des autres intervenants. De la meme maniere, certaines personnes dans les initiatives P2P ont une vision globale du projet alors que d'autres sont uniquement chargees de realiser des petits morceaux fonctionnels. La principale difference par rapport au capitalisme traditionnel, c'est que dans le P2P, la segmentation des niveaux de "pouvoir" des uns et des autres est librement consentie, acceptee comme configuration des rapports visant l'optimisation de l'efficacite fonctionnelle. En tant que telle, toute configuration des rapports entre participants au projet peut etre ouvertement mise en discussion a chaque instant. Il ne s'agit pas d'une logique normative imposee et contre laquelle seule la voie du recours serait ouverte aux avis divergeants. Au contraire, la remise en cause par la discussion des pairs est inscrite au sein meme des processus d'auto-organisation. Decoule de ce premier aspect qu'il est excessif de dire que dans les projets P2P il ny a pas de hierarchie. Elle existe bel et bien mais est respectee la plupart du temps car librement consentie et discutee. J'en veux pour preuve que le projet Linux a ete coordonnepar une sorte d'instance directrice qui integre les changements et prend soin a maintenir la coherence du projet en evitant que les contributeurs ne fassent n'importe quoi.On pourrait dire que dans les 2 cas il s'agit de pouvoir ou de hierarchie sans coercition car ceux qui ne sont pas d'accord ne sont pas "punis", ils peuvent facilement circuler : entrer ou sortir du projet constitue un droit que nul ne conteste aux membres."

iv

- Wireless Commons

Here's a description of what is happening in Hawaii, where a peer to peer wireless network is covering more than 300 square miles:

Now people all over the island are tapping into Wiecking's *wireless links*, surfing the Web at speeds as much as 100 times greater than standard modems permit. High school teachers use the network to leapfrog a plodding state effort to wire schools. Wildlife regulators use it to track poachers. And it's all free. Wiecking has built his network through a coalition of educators, researchers, and nonprofit organizations; with the right equipment and passwords, anyone who wants to tap in can do so, at no charge.."
(http://www.business2.com/articles/mag/0,1640,38492,00.html)

v

- P2P as the necessary model for interactive TV:

Fortune magazine uncovered yet another aspect of the coming peer to peer age in technology, by pointing out that the current 'central server based' methods for interactive TV are woefully inadequate to match supply and demand:

"Essentially, file-served television describes an Internet for video content. Anyone--from movie company to homeowner--could store video on his own hard disk and make it available for a price. Movie and television companies would have tons of hard disks with huge capacities, since they can afford to store everything they produce. Cable operators and satellite companies might have some hard disks to store the most popular content, since they can charge a premium for such stuff. And homeowners might have hard disks (possibly in the form of PVRs) that can be used as temporary storage for content that takes time to get or that they only want to rent--or permanent storage for what they've bought."
(http://www.fortune.com/indexw.jhtml?channel=artcol.jhtml&doc_id=208364)

vi

- Mesh Networks or Ad Hoc Networks for the telecom sector, as described in The Economist:

The mesh-networking approach, which is being pursued by several firms, does this in a particularly clever way. First, the neighbourhood is "seeded" by the installation of a "neighbourhood access point" (NAP)—a radio base-station connected to the Internet via a high-speed connection. Homes and offices within range of this NAP install antennas of their own, enabling them to access the Internet at high speed.**Then comes the clever part. Each of those homes and offices can also act as a relay for other homes and offices beyond the range of the original NAP. As the mesh grows, each node communicates only with its neighbours, which pass Internet traffic back and forth from the NAP. It is thus possible to cover a large area quickly and cheaply**."
(http://www.economist.com/printedition/displayStory.cfm?Story_ID=1176136)

vii

A.Y. Aulin-Ahmavaara, "The Law of Requisite Hierarchy", Kybernetes, Vol. 8 (1979), p. 266

viii

- Coase's Penguin, or Linux and the Nature of the Firm. Yochai Benkler

URL = htpp://www.**benkler**.org/CoasesPenguin.html

ix

- Principles of the free software movement, described at Fsf.org:

"``Free software" is a matter of liberty, not price. To understand the concept, you should think of ``free" as in ``free speech," not as in ``free beer."

Free software is a matter of the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it refers to four kinds of freedom, for the users of the software:

- *The freedom to run the program, for any purpose (freedom 0).*
- *The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.*

- *The freedom to redistribute copies so you can help your neighbour (freedom 2).*
- *The freedom to improve the program, and release your improvements to the public, so that the whole community benefits. (freedom 3). Access to the source code is a precondition for this." (Stallman website)*

x

Richard Stallman on the free software principles:

"My work on free software is motivated by an idealistic goal: spreading freedom and cooperation. I want to encourage free software to spread, replacing proprietary software that forbids cooperation, and thus make our society better. That's the basic reason why the GNU General Public License is written the way it is--as a copyleft. All code added to a GPL-covered program must be free software, even if it is put in a separate file. I make my code available for use in free software, and not for use in proprietary software, in order to encourage other people who write software to make it free as well. I figure that since proprietary software developers use copyright to stop us from sharing, we cooperators can use copyright to give other cooperators an advantage of their own: they can use our code.:"

(http://www.gnu.org/philosophy/pragmatic.html)

Richard Stallman on why it is okay tocharge for free software:

"The word ``free'' has two legitimate general meanings; it can refer either to freedom or to price. When we speak of ``free software'', we're talking about freedom, not price. (Think of ``free speech'', not ``free beer''.) Specifically, it means that a user is free to run the program, change the program, and redistribute the program with or without changes. Free programs are sometimes distributed gratis, and sometimes for a substantial price. Often the same program is available in both ways from different places. The program is free regardless of the price, because users have freedom in using it."
(http://www.gnu.org/philosophy/selling.html)

xi

- Steve Weber, professor of political science at U.C. Berkeley, maintains:

"that the open source community has built a mini-economy around the counterintuitive notion that the core property right in software code is the right to distribute, not to exclude. And it works! This is profound "and has much broader implications for the property rights regimes that underpin other industries, from music and film to pharmaceuticals. Open source is transforming how we think about "intellectual" products, creativity, cooperation, and ownership--issues that will, in turn, shape the kind of society, economy, and community we build in the digital era." (publisher statement)

xii

- on the soul-destroying corporate cultures:

"Whether it is in response to us sensing that a new possibility exists for us on the horizons of our current ways of being, or whether it is to do with us sensing an increasing lack, is difficult to say. But, which ever it is, there is no doubt that there is an increasing recognition that the administrative and organization systems, within which we have long tried to relate ourselves to each other and our surroundings, are crippling us. Something is amiss. They have no place in them for us, for our humanness. While the information revolution bursts out around us, there is an emerging sense that those moments in which we are most truly alive and able to express our own unique creative reactions to the others and othernesses around us (and they to us), are being eliminated. In an over-populated world, there seems to be fewer and fewer people to talk to - and less and less time in which to do it."
(http://pubpages.unh.edu/~jds/)

xiii

- "Management-by-objectives" as a feudal structure:

By Robert Jackall, "Moral Mazes", 1988, in fact a in-depth anthropological study of the modern entreprise format:

"When managers describe their work to an outsider, they almost always first say: 'I work for [Bill James]' or 'I report to [Harry Mills].' and only then proceed to describe their actual work functions . . . The key interlocking mechanism of [modern corporate culture] is its reporting system. Each manager . . . formulates his commitments to his boss; this boss takes these commitments and those of his other subordinates, and in turn makes a commitment to his boss . . . This 'management-by-objective' system, as it is usually called, creates a chain of commitments from the CEO down to the lowliest product manager or account executive. In practice, it also shapes a patrimonial authority arrangement that is crucial to defining both the immediate experiences and the long-run career chances of individual managers. In this world, a subordinate owes fealty principally to his immediate boss."

Moral Mazes goes on to describe how bosses use ambiguity with their subordinates (and other more-or-less unconscious subterfuges) in order to preserve the power to claim credit and deflect blame, which tends to perpetuate the personalization of authority. ***Unlike a straight, Max Weber style bureaucracy, which is procedure-bound and rule-driven, a patrimonial bureaucracy is a set of hierarchical fiefdoms defined by personal power and patronage****."*

xiv

- David Isen on the inefficient nature of pyramidal intelligence:

"When there is good news, credit flows up -- so the boss, personifying the organization, looks good to superiors. Then credit flows up again. When there is bad news, it is the boss's prerogative to push blame onto subordinates to keep it from escalating. Bad news that can't be contained threatens a boss's position; if bad news rises up, blame will come down. This is why they shoot messengers. So it's easier to ignore bad news. Thus, Jackall's chemical company studiously ignored a $6 million maintenance item until it exploded (literally) into a $150 Million problem. "To make a decision ahead of [its] time risks political catastrophe," said one manager, justifying the deferred maintenance. Then, once the mess had been made, "The decision [to clean up] made itself," said another relieved manager."
(http://isen.com/archives/990601.html)

xv

- French 'sociologist of work', Philippe Zafirian, on the unease of workers in the contemporary enteprise:

"Depuis plusieurs années, les enquêtes nationales ne cessent de nous indiquer une nette dégradation des conditions de travail, telle que les salariés la vivent et la déclarent. Les enquêtes sociologique de terrain le confirment : c'est à un phénomène de vaste ampleur que nous avons affaire. Les individus au travail souffrent et ils l'expriment. On pourrait certes débattre des moteurs internes de cette souffrance : tous les chercheurs ne sont pas d'accord sur ce point. Mais il me semble qu'une réalité s'impose, par son évidence et son importance : les salariés plient sous la pression, elle les écrase. La pression n'est pas simple contrainte. Toute personne se développe en permanence, dans sa vie personnelle, dans un réseau de contraintes. Les indicateurs de cette pression, nous les connaissons bien : débit, rendement, délais clients, challenges, pression des résultats à atteindre, précarité de la situation, organisation de la concurrence entre salariés, salaire individuel variable… On y relève à la fois la reprise de vieilles recettes tayloriennes, mais aussi quelque chose de nouveau, de plus insidieux : la pression sur la subjectivité même de l'individu au travail, une force qui s'exerce sur son esprit, qui l'opprime de l'intérieur de lui-même, qui l'aliène. Mais il existe une autre facette de la situation actuelle : la montée de la révolte. Celle-ci transparaît beaucoup moins dans les statistiques ; elle s'extériorise moins en termes de conflits ouverts. Toutefois, pour un sociologue qui mène en permanence des enquêtes de terrain, le fait est peu contestable. On peut pressentir l'explosion d'une révolte d'une portée équivalente à celle qui a secoué la France à la fin des années 60, début des années 70, lors des grandes insurrections des O.S (red : 'Ouvriers Specialises')., quelles que soit les formes d'extériorisation qu'elle prendra. La révolte n'est pas simple réaction à la pression. Elle a des causes plus profondes. Elle renvoie d'abord à une évolution profonde, irréversible, de la libre individualité dans une société moderne. Elle touche enfin à ce phénomène important : à force de devoir se confronter à des performances, à des indicateurs de gestion, à une responsabilité quant au service rendu à l'usager ou au client, les salariés ont développé une intelligence des questions de stratégie d'entreprise. Ils jugent, et d'une certaine manière comprennent les politiques de leurs directions, voire en situent les contradictions et insuffisances. Mais il leur est d'autant plus insupportable d'être traités comme de purs exécutants, des machines sans âme et sans pensée propre, d'être en permanence mis devant le fait accompli. Je pense que notre époque connaît un véritable renversement : bien des salariés de base deviennent plus intelligents que leurs directions et que les actionnaires, au sens d'une pensée plus riche, plus complexe, plus subtile, plus compréhensive, plus profondément innovante. »

xvi

- A quote from the back cover of The Hacker Ethic, by Pekka Himanen:

"Nearly a century ago, Max Weber articulated the animating spirit of the industrial age, the Protestant ethic. Now, Pekka Himanen - together with Linus Torvalds and Manuel Castells - articulates how hackers represent a new, opposing ethos for the information age. Underlying hackers' technical creations - such as the Internet and the personal computer, which have become symbols of our time - are the hacker values that produced them and that challenge us all. These values promoted passionate and freely rhythmed work; the belief that individuals can create great things by joining forces in imaginative ways; and the need to maintain our existing ethical ideals, such as privacy and equality, in our new, increasingly technologized society.*

xvii

- A view on the hacker ethic by Richard Barbrook, in the "Manifesto for 'Digital Artisans'

4. We will shape the new information technologies in our own interests. Although they were originally developed to reinforce hierarchical power, the full potential of the Net and computing can only be realised through our autonomous and creative labour. We will transform the machines of domination into the technologies of liberation.

9. For those of us who want to be truly creative in hypermedia and computing, the only practical solution is to become digital artisans. The rapid spread of personal computing and now the Net are the technological expressions of this desire for autonomous work. Escaping from the petty controls of the

shopfloor and the office, we can rediscover the individual independence enjoyed by craftspeople during proto-industrialism. We rejoice in the privilege of becoming digital artisans.

10. We create virtual artefacts for money and for fun. We work both in the money-commodity economy and in the gift economy of the Net. When we take a contract, we are happy to earn enough to pay for our necessities and luxuries through our labours as digital artisans. At the same time, we also enjoy exercising our abilities for our own amusement and for the wider community. Whether working for money or for fun, we always take pride in our craft skills. We take pleasure in pushing the cultural and technical limits as far forward as possible. We are the pioneers of the modern."
(http://www.hrc.wmin.ac.uk/hrc/theory/digitalArtisans/t.1.1.1)

xviii

- Hackers are motivated by learning:

Programmers are interested in and motivated by personal development and the use value of the product, according to this survey: http://opensource.mit.edu/papers/lakhaniwolf.pdf

xix

- a web-based 'open source based' industrial design project:

"ThinkCycle, is a Web-based industrial-design project that brings together engineers, designers, academics, and professionals from a variety of disciplines. Soon, some physicians and engineers were pitching in - vetting designs and recommending new paths. Within a few months, Prestero's team had turned the suggestions into an ingenious solution. Taking inspiration from a tool called a rotameter used in chemical engineering, the group crafted a new IV system that's intuitive to use, even for untrained workers. Remarkably, it costs about $1.25 to manufacture, making it ideal for mass deployment. Prestero is now in talks with a medical devices company; the new IV could be in the field a year from now.ThinkCycle's collaborative approach is modeled on a method that for more than a decade has been closely associated with software development: open source. It's called that because the collaboration is open to all and the source code is freely shared. Open source harnesses the distributive powers of the Internet, parcels the work out to thousands, and uses their piecework to build a better whole - putting informal networks of volunteer coders in direct competition with big corporations. It works like an ant colony, where the collective intelligence of the network supersedes any single contributor. Open source, of course, is the magic behind Linux, the operating system that is transforming the software industry. Linux commands a growing share of the server market worldwide and even has Microsoft CEO Steve Ballmer warning of its "competitive challenge for us and for our entire industry." And open source software transcends Linux. Altogether, more than 65,000 collaborative software projects click along at Sourceforge.net, a clearinghouse for the open source community. The success of Linux alone has stunned the business world."
(http://www.wired.com/wired/archive/11.11/opensource.html)

xx

- Aaron Krowne on CBPP 'authority models'

URL = http://www.freesoftwaremagazine.com/free_issues/issue_02/fud_based_encyclopedia/

xxi

- Stephan Merten, of Oekonux.de, define the 'General Public License Society':

In every society based on exchange - which includes the former Soviet bloc - making money is the dominant aim. Because a GPL Society would not be based on exchange, there would be no need for money anymore. Instead of the abstract goal of maximizing profit, the human oriented goal of fulfilling the needs of individuals as well as of mankind as a whole would be the focus of all activities.

The increased communication possibilities of the Internet will become even more important than today. An ever-increasing part of production and development will take place on the Internet or will be based on it. The B2B (business to business) concept, which is about improving the information flow between businesses producing commodities, shows us that the integration of production in the field of information has just started. On the other hand the already visible phenomenon of people interested in a particular area finding each other on the Internet will become central for the development of self-unfolding groups.

The difference between consumers and producers will vanish more and more. Already today the user can configure complex commodities like cars or furniture to some degree, which makes virtually each product an individual one, fully customized to the needs of the consumer. This increasing configurability of products is a result of the always increasing flexibility of the production machines. If this is combined with good software you could initiate the production of highly customized material goods allowing a maximum of self-unfolding - from your web browser up to the point of delivery.

Machines will become even more flexible. New type of machines available for some years now - fabbers are already more universal in some areas than modern industrial robots, not to mention stupid machines like a punch. The flexibility of the machines is a result of the fact that material production is increasingly based on information. At the same time the increasing flexibility of the machines gives the users more room for creativity and thus for self-unfolding.

In a GPL society there is no more reason for a competition beyond the type of competition we see in sports. Instead various kinds of fruitful cooperation will take place. You can see that today not only in Free Software but also (partly) in science and for instance in cooking recipes: Imagine your daily meal if cooking recipes would be proprietary and available only after paying a license fee instead of being the result of a world-wide cooperation of cooks. "

xxii

- The evolution of cooperation:

"Evolution's Arrow also argues that evolution itself has evolved. Evolution has progressively improved the ability of evolutionary mechanisms to discover the best adaptations. And it has discovered new and better mechanisms. The book looks at the evolution of pre-genetic, genetic, cultural, and supra-individual evolutionary mechanisms. And it shows that the genetic mechanism is not entirely blind and random. Evolution's Arrow goes on to use an understanding of the direction of evolution and of the mechanisms that drive it to identify the next great steps in the evolution of life on earth - the steps that humanity must take if we are to continue to be successful in evolutionary terms. It shows how we must change our societies to increase their scale and evolvability, and how we must change ourselves psychologically to become self-evolving organisms - organisms that are able to adapt in whatever ways are necessary for future evolutionary success, unfettered by their biological or social past. Two critical steps will be the emergence of a highly evolvable, unified and cooperative planetary organisation that is able to adapt as a coherent whole, and the emergence of evolutionary warriors - individuals who are conscious of the direction of evolution, and who use their evolutionary consciousness to promote and enhance the evolutionary success of humanity."
(http://pespmc1.vub.ac.be/Papers/Review_Complexity.pdf)

xxiii

- Free sharing as an aspect of civilisation-building:

Le rapport gratuit est quand même très différent du rapport marchand, même si le rapport marchand aboutit toujours à un rapport non marchand, à l'usage: quand vous achetez un abricot, il n'est qu'une pure marchandise au moment où vous hésitez entre lui, la pêche ou la grappe de raisins, mais une fois que vous l'avez acheté et que vous le mangez, c'est votre capacité à apprécier son goût qui entre en jeu. La gratuité, c'est un saut de civilisation. A un moment donné, notre problème n'est plus de

savoir si, oui ou non, notre enfant va aller à l'école, mais bien comment on va définir le rôle de l'éducation, assurer la réussite scolaire de chacun… Les interrogations gagnent en qualité, en ambition, elles créent du lien social. La société a montré qu'elle savait étendre le champ de la gratuité à des domaines qui n'étaient pas donnés au départ, qui n'étaient pas donnés par la nature, par exemple avec l'école publique ou la Sécurité sociale. Dès lors, il m'a semblé que faire reculer la frontière, identifier les lieux où on peut repousser la limite de ce qui est dominé par le marché et libérer des espaces du rapport marchand, c'était une possibilité très importante, très concrète, très immédiate. Cela ne renvoie pas à des lendemains ou des surlendemains qui chantent; ça peut se faire tout de suite et permettre ainsi d'expérimenter déjà une autre forme de rapport aux personnes et aux choses. La gratuité, rappelons-le, un bien vaut avant tout par son usage et n'a qu'accidentellement une valeur d'échange. « (http://www.peripheries.net/g-sagot1.htm)

xxiv

- Johan Soderbergh on the gift economy:

"On the question if peer-to-peer is a gift economy, I take a slightly different viewpoint on what archaic gift economy is really about. In my mind, when discussed on the Internt, the focus has wrongly been on gift economy as an inversion of the logic of market economy, where accumulation of capital is simply replaced with accumulation of moral debt. My reading of Marcel Mauss and Levi-Strauss is that gift economy is not primarily about allocating resources. Usually, tribal people are self-sustaining in life-supportive goods and gift swapping are restricted to a particular class of goods, tokens such as clams and jewelry. The real importance of gift is to strike aliances between giver and receiver. Both of them are winners, to put it pointingly, the loser is the third part who was left out from the exchange. Hence, I think the gift economy parallel is valid in parts of the virtual community, where aliances and communal bonding is key, and not valid in other parts, where relations are completely impersonal." (personal communication, March 2004)

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- A free-market advocate on the merits of dot.communism:

"*Left-leaning intellectuals have long worried about the way in which our public space - shopping malls, city centres, urban parks, etc. - have become increasingly private. Other liberals, like writer Mickey Kaus, have emphasised the dangers to civic life of pervasive economic inequality. But the web has provided small answers to both these conundrums. As our public life has shrunk in reality, it has expanded exponentially online. Acting as a critical counter-ballast to market culture, the web has made interactions between random, equal citizens, far more possible than ever before*." (http://www.andrewsullivan.com/text/hits_article.html?9,culture)

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I use the concept of alterglobalisation for the movement that emerged during the WTO Seattle protests, is concerned with global social justice, and organizes the Social Forums in Porto Alegre and other cities; alterglobalisation means the fight for another form of globalisation, rather than simple opposition against it, as the term anti-globalisation would imply.

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- The networked format of the alterglobalisation movement, note 1:

Here is a quote by Immanuel Wallerstein , 'world system' theorist and historian, on the historic importance of Porto Alegre and its network approach to political struggle:

"Sept. 11 seems to have slowed down the movement only momentarily.
Secondly, the coalition has demonstrated that the new antisystemic strategy is feasible. What is this new strategy? To understand this clearly, one must remember what was the old strategy. The world's left in its multiple forms - Communist parties, social-democratic parties, national liberation movements

- had argued for at least a hundred years (circa 1870-1970) that the only feasible strategy involved two key elements - creating a centralized organizational structure, and making the prime objective that of arriving at state power in one way or another. The movements promised that, once in state power, they could then change the world.

This strategy seemed to be very successful, in the sense that, by the 1960s, one or another of these three kinds of movements had managed to arrive at state power in most countries of the world. However, they manifestly had not been able to transform the world. This is what the world revolution of 1968 was about - the failure of the Old Left to transform the world. ***It led to 30 years of debate and experimentation about alternatives to the state-oriented strategy that seemed now to have been a failure. Porto Alegre is the enactment of the alternative. There is no centralized structure. Quite the contrary. Porto Alegre is a loose coalition of transnational, national, and local movements, with multiple priorities, who are united primarily in their opposition to the neoliberal world order. And these movements, for the most part, are not seeking state power, or if they are, they do not regard it as more than one tactic among others, and not the most important****."* (source: http://fbc.binghamton.edu/commentr.htm)

- The 'maillage' in the Argentine social movements:

Here is also a description by Miguel Benasayag (10) of the type of new organisational forms exemplified in Argentina:

"Les gens étaient dans la rue partout, mais il faut savoir quand même qu'il y a une spontanéité «travaillée», pour dire ce concept là. Une spontanéité travaillée, cela ne veut pas dire qu'il y avait des groupes qui dirigeaient ou qui orchestraient ça, bien au contraire. Quand arrivaient des gens avec des bannières ou des drapeaux de groupes politiques, ils étaient très mal reçus à chaque coin de rue. Mais en revanche, une spontanéité «travaillée» en ce sens que l'Argentine est «lézardée» par des organisations de base, des organisations de quartier, de troc...

C.A. : Lézardée, c'est un maillage?

M.B. : Oui, c'est ça, il y a un maillage très serré des organisations qui ont créé beaucoup de lien social. Il y a des gens qui coupent les routes et qui font des assemblées permanentes pendant un mois, deux mois, des piqueteros. Il y a des gens qui occupent des terres...Donc cette insurrection générale qui émerge en quelques minutes dans tout le pays, effectivement elle émerge et elle cristallise des trucs qui étaient déjà là. Donc c'est une spontanéité travaillée ; c'est à dire que quand même il y a une conscience pratique, une conscience corporisée dans des organisations vraiment de base. C'est une rencontre du ras-le-bol, de l'indignation, de la colère populaire, une rencontre avec les organisations de base qui sont déjà sur le terrain. J'étais en Argentine quelques jours avant l'insurrection. et il y avait partout partout des coupures de routes, des mini insurrections. Et ce qui s'est passé, c'est qu'il y a eu vraiment comme on dirait un saut qualitatif: les gens en quantité sortent dans la rue et y rencontrent les gens qui étaient déjà dans la rue depuis très longtemps en train de faire des choses. Et cela cristallise et permet de faire quelque chose d'irréversible. »
(http://oclibertaire.free.fr/ca117-f.html)

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- Networked format, note 2:

This analysis is confirmed by Michael Hardt, co-author of Empire, the already classic analysis of globalisation that is very influential in the more radical streams of the anti-globalisation movement:

"The traditional parties and centralized organizations have spokespeople who represent them and conduct their battles, but no one speaks for a network. How do you argue with a network? The movements organized within them do exert their power, but they do not proceed through oppositions. ***One of the basic characteristics of the network form is that no two nodes face each other in contradiction; rather, they are always triangulated by a third, and then a fourth, and then by an indefinite number of others in the web. This is one of the characteristics of the Seattle events that we have had the most trouble understanding: groups which we thought in objective contradiction to one another—environmentalists and trade unions, church groups and anarchists—were suddenly able to work together, in the context of the network of the multitude****. The movements, to take a slightly different perspective, function something like a public sphere, in the sense that they can allow full expression of differences within the common context of open exchange. But that does not mean that networks are passive. They displace contradictions and operate instead a kind of alchemy, or rather a sea change, the flow of the movements transforming the traditional fixed positions; networks imposing their force through a kind of irresistible undertow."*

(*http://www.newleftreview.net/NLR24806.shtml*)

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- Counternetworking strategies bv the security services:

A report from **the Canadian Security Intelligence Service** has paid particular attention to the innovative organising methods of the alterglobalisation protesters, and to their use of technology: internet before and after the event and cell phones during the events. It concludes that with these innovations, established police powers have great difficulty to cope:

"*Cell phones constitute a basic means of communication and control, allowing protest organizers to employ the concepts of mobility and reserves and to move groups from place to place as needed. The mobility of demonstrators makes it difficult for law enforcement and security personnel to attempt to offset their opponents through the presence of overwhelming numbers****. It is now necessary for security to be equally mobile, capable of readily deploying reserves, monitoring the communications of protesters, and, whenever possible, anticipating the intentions of the demonstrators****."***

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- P2P organising (i.e. leaderless resistance) on the extreme right:

Here's an example of P2P organising at the extreme right, related to what is reportedly one the fastest growing radical religion today, the Odinists:

"*Today, the number of white racist activists, Aryan revolutionaries, is far greater than you would know by simply looking at traditional organizations. Revolutionaries today do not become members of an organization. They won't participate in a demonstration or a rally or give out their identity to a group that keeps their name on file, because they know that all these organizations are heavily monitored. Since the late 1990s, there has been a general shift away from these groups on the far right. This has also helped Odinism thrive. Odinists took* ***the leaderless resistance concept*** *of [leading white supremacist ideologue] Louis Beam and worked on it, fleshed it out. They found a strategic position between the upper level of known leaders and propagandists****, and an underground of activists who do not affiliate as members, but engage instead in decentralized networking and small cells****. They do not shave their heads like traditional Skinheads or openly display swastikas."* (*http://www.splcenter.org/cgi-bin/goframe.pl?refname=/intelligenceproject/ip-4q9.html*)

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- Miguel Benasayag on the new forms of political and social struggle:

“C'est pourquoi nous pensons que toute lutte contre le capitalisme qui se prétend globale et totalisante reste piégée dans la structure même du capitalisme qui est, justement, la globalité. La résistance doit partir de et développer les multiplicités, mais en aucun cas selon une direction ou une structure qui globalise, qui centralise les luttes. Un réseau de résistance qui respecte la multiplicité est un cercle qui possède, paradoxalement, son centre dans toutes les parties. ***Nous pouvons rapprocher cela de la définition du rhizome de Gilles Deleuze : «Dans un rhizome on entre par n'importe quel côté, chaque point se connecte avec n'importe quel autre, il est composé de directions mobiles, sans dehors ni fin, seulement un milieu, par où il croît et déborde, sans jamais relever d'une unité ou en dériver ; sans sujet ni objet.****»*

“La nouvelle radicalité, ou le contre-pouvoir, ce sont bien sûr des associations, des sigles comme ATTAC, comme Act Up, comme le DAL. Mais ce sont surtout - et avant tout - une subjectivité et des modes de vie différents. Il y a des jeunes qui vivent dans des squats - et c'est une minorité de jeunes - , mais il y a plein de jeunes qui pratiquent des solidarités dans leurs vies, qui n'ordonnent pas du tout leur vie en fonction de l'argent. Cela, c'est la nouvelle radicalité, c'est cette émergence d'une sociabilité nouvelle qui, tantôt, a des modes d'organisation plus ou moins classiques, tantôt non. Je pense qu'en France, ça s'est développé très fortement. Le niveau d'engagement existentiel des gens est énorme. »
(http://www.peripheries.net/g-bensg.htm)

- Miguel Benasayag on the new 'radical subjectivities':

"Contrairement aux militants classiques, je pense que les choses qui existent ont une raison d'être, aussi moches soient elles..Rien n'existe par accident et tout à coup, nous, malins comme nous sommes, nous nous disons qu'il n'y a vraiment qu'à décider de changer. Les militants n'aiment pas cette difficulté; ils aiment se fâcher avec le monde et attendre ce qui va le changer. C'est toujours très surprenant: la plupart des gens ont un tas d'informations sur leurs vies, mais "savoir", ça veut dire, en termes philosophiques, "connaître par les causes", et donc pouvoir modifier le cours des choses. Oui, l'anti-utilitarisme est fondamental. Parce que la vie ne sert à rien. Parce qu'aimer ne sert à rien, parce que rien ne sert à rien. On voit bien cette militance un peu feignante qui se définit "contre": on est gentil parce qu'on est contre. Non! ça ne suffit pas d'être contre les méchants pour être gentil. Après tout, Staline était contre Hitler! "
(http://www.peripheries.net/g-bensg.htm)

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- Bifo, an Italian radical writer, on the private appropriation of collective knowledge:

“The attempt at coercive privatization of collective knowledge has encountered resistance everywhere. Since intellectual labour is at the center of the productive scene, the merchant no longer possesses the juridical or material means to impose the principle of private property. When immaterial goods can be reproduced at will, the private appropriation of goods make no sense. In the sphere of semiotic capital and cognitive labour, when a product is consumed instead of disappearing, it remains available, while its value increases the more its use is shared” (Bifo, in Neuro, e-newsletter)

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"The new social game that begins to prevail in the era of informatization is the game of wisdom, in which the goal is to acquire and exercise wisdom or intellectual influence by

disseminating and sharing information and knowledge. Some people call this the game of "reputation." This contrasts with old games of wealth and prestige."
(Kumon website)

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Y. Ichida, summarizing the concept of the "Multitude" on the Multitudes mailing list:

"In immaterial production, the products are longer material objects but new social (interpersonal) relations themselves. It was already Marx who emphasized how material production is always also the (re)production of the social relation within which it occurs; with today's capitalism, however, the production of social relations is the immediate end/goal of production. The wager of Hardt and Negri is that this directly socialized, immaterial production not only renders owners progressively superfluous (who needs them when production is directly social, formally and as to its content ?); the producers also master the regulation of social space, since social relations (politics) is the stuff of their works. The way is thus open for 'absolute democracy', for the producers directly regulating their social relations without even the detour of democratic representation."

xxxv *"Ferrer argues that spirituality must be emancipated from experientialism and perennialism. For Ferrer, the best way to do this is via his concept of* ***a "participatory turn"****; that is, to not limit spirituality as merely a personal, subjective experience, but to include interaction with others and the world at large. Finally, Ferrer posits that spirituality should not be universalized. That is, one should not strive to find the common thread that can link pluralism and universalism relationally. Instead, there should be emphasis on plurality and a dialectic between universalism and pluralism."*
(http://wilber.shambhala.com/html/watch/ferrer/index.cfm/xid,76105/yid,55463210)

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- Definition of a 'total social fact':

"A **total social fact** [fait social total] is "an activity that has implications throughout society, in the economic, legal, political, and religious spheres." (Sedgewick 2002: 95) "Diverse strands of social and psychological life are woven together through what he [Mauss] comes to call 'total social facts'. A total social fact is such that it informs and organises seemingly quite distinct practices and institutions." (Edgar 2002:157) The term was popularized by Marcel Mauss in his *The Gift* and coined by his student Maurice Leenhardt after Durkheim." (http://encyclopedia.laborlawtalk.com/Total_social_fact)

Bibliographic sources used for the definition are 1) Sedgewick, Peter (2002). *Cultural Theory: The Key Concepts*, Routledge Key Guides Series. Routledge: 2) Edgar, Andrew (2002). *Cultural Theory: The Key Thinkers*, Routledge Key Guides Series. Routledge.

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- Jordan Pollack on the 'information feudalism' scenario:

If the cultural sphere is indeed taken over completely by commodification, the consequences would be quite negative: we will never own anything anymore, we will always be dependent on all kinds of licensing ..

"*It seems to me that what we're seeing in the software area, and this is the scary part for human society, is the beginning of a kind of dispossession. People are talking about this as*

dispossession that only comes from piracy, like Napster and Gnutella where the rights of artists are being violated by people sharing their work. But there's another kind of dispossession, which is the inability to actually buy a product. The idea is here: you couldn't buy this piece of software, you could only licence it on a day by day, month by month, year by year basis; As this idea spreads from software to music, films, books, human civilization based on property fundamentally changes." (http://www.edge.org/documents/day/day_pollack.html)

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- John Perry Barlow, of the Electronic Frontier Foundation, on the privatization of the Commons:

" I'm spending an enormous amount of my time stopping content industries from taking over the world--literally. I feel like we're in a condition where private totalitarianism is not out of the question because of the increasingly thickening matrix of channels of communication owned by the same companies that own content, that own Web properties, that own traditional media. In essence, they're in a position to own the human mind itself. The possibility of getting a dissident voice through their channels is increasingly scarce, and the use of copyright as a means of suppressing freedom of expression is becoming more and more fashionable. You've got these interlocking systems of technology and law, where merely quoting something from a copyrighted piece is enough to bring down the system on you." (http://news.com.com/2008-1082-843349.html)

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- About the transition of one mode of production to another, by an Oekonux.de participant:

Venetian merchants, who had made their fortunes in the midst of feudalism by selling arms or luxury goods from Asia to European feudal seigniors, did not constitute the heart of social production. Even if they brought to the narrowness of feudal life - centered around the fief and its village church - an opening to world commerce (the courtesans of the European courts could wear robes made of Oriental products), the relations among the merchants and between them and the rest of the feudal world remained marginal, and would appear to be purely subsidiary. The production of essential, indispensable goods for the subsistence of men (agricultural goods and artisan ones, principally), was performed under feudal relations. This marginal, secondary aspect of capitalist relations in the midst of feudal society was so self-evident that even in the 18th century, the first bourgeois economists, the French Physiocrats, could, without laughing, pretend that merchants and manufacturers should not pay taxes because they do not create any true "net product": They do nothing but transport it or modify its form.

What do we want to deduce? That from their birth, in the midst of the old society, the superior relations of production, were not obligatorily born with a complete form, capable of managing the totality of social production, nor even its most vital part. The fact that, today, free software and, more generally, digitizable goods concern no more than a part, again, marginal, of social production and consumption, does not constitute any argument showing the impossibility that the economic relations that they induce will not one day become the dominant social relations.

That which has permitted capitalist relations to become dominant after centuries of existence is not only the ideological, military, and political victory of the bearers of the new capitalist values against the old feudal regime, even if they have played a determining role, but the material, concrete fact - which demonstrates daily and by methods more and more evident - that the new relations were the only ones that could permit the use of new productive forces engendered by the opening of commerce and the development of production techniques. "In the last instance," it is the economic imperative, the

irreversible historical tendency to the development of labor productivity, that finishes by imposing its own law.

That which today permits one to envision the possibility that relations of production founded on the principles of free software (production with a view toward satisfying the needs of the community, sharing, cooperation, the elimination of market exchange) could become socially dominant is the fact that these relations are the most able to employ the new techniques of information and communication, *and* that the recourse to these techniques, their place in the social process of production, can only grow, ineluctably.

Source: Raoul Victor, Free Software and the Market Society, http://www.oekonux.org