Peer to Peer and Human Evolution

On "the P2P relational dynamic" as the premise of the next civilizational stage

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- The most recent version (mid-June 2005) of the essay is located at **http://integralvisioning.org/article.php?story=p2ptheory1**

- Older draft versions are located at http://noosphere.cc/P2P2bi.htm (html); http://www.networkcultures.org/weblog/archives/P2P_essay.pdf (pdf); http://noosphere.cc/wiki/pmwiki.php?n=Main.P2pEvolution (wiki)

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

However, it's always best to ask me for the latest version by email attachment, since I tinker with the essay almost daily.

A weekly newsletter, Pluralities/Integration, monitoring P2P developments is also available from the same author, free by email request. See the archive at http://integralvisioning.org/index.php?topic=p2p

The foundation website-in-progress is at http://p2pfoundation.net/index.php/Main_Page ; a mailing list for the site's development is available at p2pf@yahoogroups.com / http://groups.yahoo.com/group/p2pf/join; a mailing list to discuss political strategy is available at strategic_p2p@googlegroups.com / http://groups.google.com.au/group/strategic_p2p

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0. Executive Summary

Peer to Peer is mostly known to technologically-oriented people as P2P, the decentralized form of putting computers together for different kind of cooperative endeavours, such as filesharing and music distribution. But this is only a small example of what P2P is: it's in fact a template of human relationships, a "relational dynamic" which is springing up throughout the social fields. The aim of this essay is to describe and explain the emergence of this dynamic as it occurs, and to place it in an evolutionary framework of the evolution of modes of civilization. We emit the hypothesis that it both the necessary infrastructure of the current phase of 'cognitive capitalism', but at the same time, significantly transcends it thus pointing out the possibility of a new social formation that would be based on it in an even more intense manner. In section one, you will find an initial definition, an explanation of our methodology for research, and some acknowledgements. The structure of the sections consists of 3 parts: a phenomenological description of the emergence of this social form in a particular field, an explanation of this emergence based on the relative advantages of the format, and a discussion of the succession of different phases in the evolution of this sphere.

After a first initial definition of the peer to peer format, we start describing the emergence of P2P as the dominant mode, or 'form', of our current technological infrastructure (section two), as an alternative information and communication infrastructure, and as a global platform for potentially autonomous cooperation on the basis of rapidly evolving forms of 'social software'. We then describe its emergence in the economic sphere (section three), as a 'third mode of production', neither profit-driven nor centrally planned, but as a decentralized cooperative way of producing software (free software and open source movements), and other immaterial products, based on the free cooperation of 'equipotential' participants. It uses copyright and intellectual propery rights to transcend the very limitations of property, because in free software, if you use it, you have to give at least the same rights to those who will use your modified version, and in open sources, you have to give them equal access to the source code.

Such commons-based peer production has other important innovations, such as it taking place without the intervention of any manufacturer whatsoever. In fact the growing importance of 'user innovation communities' (section 3.1.B), which are starting to surpass the role of corporate sponsored marketing and research divisions in their innovation capacities, show that this formula is poised for expansion even in the world of material production, provided the design phase is separated from the production phase. It is already producing major cultural and economic landmarks such as GNU/Linux, the Wikipedia encyclopedia, the Thinkcycle global cooperative research projects, and a Writeable Web/Participative Internet/Global Alternative Communications infrastructure that can be used by all, beyond the corporate stranglehold on mass media. Finally, CBPP exemplifies a new work culture (section 3.1.C), that overturns many aspects of the Protestant work ethic as described by Max Weber. It is based on new temporal conceptions as well. In section three, we also discuss the evolution of forms of cooperation (3.4.A), and of collective intelligence (3.4.B). It is also here that we are starting to address key analytical issues: what are the specific characteristics of the ideal-type of the P2P form (3.4.C), namely de-institutionalisation (beyond fixed organizational formats and fixed formal rules), de-monopolisation (avoid the emergence of collective individuals who monopolise power, such as nation-state and corporation), and de-commodification (i.e. production for use-value, not exchange value); Using the fourfold typology of intersubjective relations proposed by anthropologist Alan Page Fiske, we examine the differences between P2P and the bottom-up market, then demonstrate that the format cannot be explained by the gift economy model of equal sharing and 'exchange of similar values', but rather by a model of communal shareholding (section 3.4.D), i.e. the creation of a Commons based on free

participation both regarding input, and output (free usage even by non-producers). Finally, we end this third section by an analysis of the contermporary class configuration: we pay attention to the current power structure of cognitive capitalism, with a discussion of the thesis of McKenzie Wark's Hacher's Manifesto (section 3.4.E.) but conclude that both the hypothesis of cognitive capitalism (accumulation of knowledge assets) and vectoralism (ownership of information vectors) are inadequate and that we have to posit the birth of a new capitalist class segment, the netarchists, based not on the control or ownership of information, but on the enabling and exploitation of the participatory networks themselves.

We then turn to its political manifestations, and describe how P2P is emerging as a new form of political organisation and sensibility, already exemplified in the workings of the alterglobalisation movement (section 4.1.A.) which is a network of networks that refuses the principle of 'representation', i.e. that someone else can represent your interests. In France, the recent social movements since 1995 were led by "Coordinations" exemplifying exactly this sort of practice (section 4.1.B). Thus the birth of new political conceptions such as those of 'absolute democracy' (Negri et al.) or 'extreme democracy' (Tom Attlee et al.). A new field of struggle arises (section 4.1.C), based on the defense and development of an Information Commons, against the corporate strategies who are trying to replace this 'free culture' (Lawrence Lessig) by a form of 'information feudalism' (described by Jeremy Rifkin in The Age of Access). We then examine the evolution of the monopolization of power (4.2.A.), the relations between the political ideals of freedom, equality, and hierarchy, and their practice in P2P (4.2.B), and place this discussion in the context of the general evolution of power and authority models (4.2.C)

Section Five discusses the discovery of P2P principles at work in physics, and in particularly in the physics of organisation, as developed by network theory, and its concept of 'small worlds', and hierarchical vs. egalitarian networks. We discuss various subtopics such as the 'long tail in marketing', and the mathematical laws of networks as explained by David Reed.

In Section Six, we turn our attention to the cultural sphere. We claim and explain that the various expressions of P2P are a sympton of a profound cultural shift in the spheres of epistemology (ways of knowing) and of ontology (ways of feeling and being), leading to a new articulation between the individual and the collective (6.1.A), representing a true epochal shift. We then look at the spiritual field and how this affects the dialogue of civilizations and religions away from euro- and other exclusionist views in culture and religions (6.1.B); as well as to a critique of spiritual authoritarianism and the emergence of cooperative inquiry groups and participatory spirituality conceptions (6.1.C), as theorized in particular by John Heron and Jorge Ferrer. The new ideas related to cosmology and metaphysics are explained in 6.1.D., centered aroud the demise of the subject-object paradigm in favour of partnership-based visions of our relationships with matter and nature.

What does it all mean in terms of social change? In section 7 we examine if all of the above is just a collection of perhaps unrelated marginal trends, or rather, the view we espouse, represents the birth of a new and coherent social formation (section 7.1.A). In section 7.1.B we examine how P2P relates to the current system of cognitive capitalism (economics) or 'post' or 'late modernity' (cultural sphere), concluding that it is both within and beyond. Three scenarios are described (7.1.C): peaceful and complementary co-existence, the emergence of a cooperative civilization, and the destruction of P2P in the context of information feudalism. All of this leads us to concluding remarks on possible political strategies (7.1.D) to defend

and expand P2P models, and to the principles behind the launch of a Foundation for P2P Alternatives (section 8).

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. It creates a Commons, rather than a market or a state, and relies on social relations to allocate resources rather than on pricing mechanisms or managerial commands.

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 (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. The common format in which the peer to peer dynamic emerges is the format of the "distributed network", which, according to the defintion of A. Galloway in his book Protocol, differs both from the centralized network (all nodes have to pass through one single hub), and from the decentralized network (all nodes have to pass through hubs). In a distributed network the nodes, as autonomous agents, can connect through any number of links. Hubs may exist, but are not obligatory.

The essay tries not only to describe, but attempts to provide an explanatory framework of why it is emerging now, and how it fits in a wider evolutionary framework (not in the sense of an inevitable natural evolution, but as an intentional moral breakthrough).

The underlying logic of development in which the emergence of P2P is best understood, may be by viewing 'participation' as the key variable, seeing how it intensifies historically in various social formations. This idea was best expressed by John Heron in a personal communication:

"There seem to be at least four degrees of cultural development, rooted in degrees of moral insight and not in an evolutionary logic:

(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****."*

Note that within most of the sections, the organisation is as follows: the first subsection is descriptive, the second is explanatory, and the third is historical. 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. Finally, note that in the accompagnying graphs of figures, I sometimes use the "early modern/late modern/P2P era" framework. In this way, the current time frame can be distinguished from a hypothetical coming situation where P2P is more dominant than it is today, and what that would change in the characteristics of such a society.

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 (ontology), of knowing (epistemology), and of core value constellations (axiology)
- 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[ii], 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.

Implicit in my interpretation of peer to peer as a social formation, is that it is accompanied by a nascent socio-political movement, much as industrial class relations triggered a labour

movement. In the case of the 'peer to peer movement' this movement concerns itself with the promotion and defense of the Commons, i.e. the existence of a common-property regime that exists alongside the state and the market, but which is also under threat by a frenetic movement to privately appropriate common resources.

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.

How does the explanatory framework which I will provide for P2P, differ from the use of the earlier metaphor of the network society, described by Manuel Castells and many others, and lately in particular by the network sociality concept proposed by Andreas Wittel? The best way to differentiate the approaches is to see P2P as a subset of network conceptions.

If you would have been a social scientist during the lifetime of Marx and witnessed the emergence and growth of the factory-based industrial model, and you would then have arrived at the equivalent of what social network theory is today, i.e. an analysis of mainstream society and sociality. This is what the network sociality model of Andreas Wittel provides. But at the same time that the factory system was developing, a reaction was created as well. Workers were creating cooperatives and mutualities, unions and new political parties and movements, which would go on to fundamentally alter the world. Today, this is what happens with peer to peer. Whereas Castells and Wittel focus on the general emergence of network society and society, and describes the networks overall and the dominant features of it, I want and tend to focus on the birth of a counter-movement, centered around a particular format of sociality based in distributed networks, where the focus is on creating participation for all, and not the buttressing of the 'meshworks of exploitation'. As the dominant forces of society are mutating to networked forms of organizing the political economy (called Empire by Toni Negri), a bottom-up reaction against this new alienation is occurring (alienated, because in Empire, the meshwork are at the service of creating ever more inequality), by the forces of what Negri and Hardt call the multitude(s). These forces are using peer to peer processes, and a peer to peer ethos, to create new forms of social life, and this is what I want to document in this essay.

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. It is not superior, but complementary to other approaches[iii]. But 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. This implies a certain agnosticism as to the theories that posit one particular quadrant as the more fundamental cause (such as for example historical materialism)
- 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 brain (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 interior-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. In the context of such a relational self, chararcterized by a 'cooperative individualism', and a

network sociality which is also predicated on a retention of the achieved individuation aspects, it makes sense to cover both aspects together.

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

	Parts	**Whole**	**Includes**
Difference	Postmodern approaches		**Subjects and Objects**
Similarity		**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.

In the following pages, I do not aim to create a 'Theory of Everything'. I try to function as an integrator, as everyone is obliged to do today, i.e. construct temporary and malleable integrative understandings, which are then confronted with other ones. The only moral and scientific obligation is that such integration embrace as much of reality, as one possibly can. Thus, the following is an integration of all the descriptive, explanatory and social-evolutionary (i.e. historicized in social formations) strands, that I can possibly hold together in a coherent fashion. And the 'object' of this integration is 'Peer to Peer'.

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'[iv]. 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 website. Mackenzie Wark's Hacker Manifesto (Wark, 2004) and Alexander Galloway's Protocol (Galloway, 2004), have strongly influenced my analysis of P2P power structures.

2. P2P as the Technological Framework of Cognitive Capitalism[v]

2.1.A. Defining P2P as the relational dynamic of distributed networks

Alexander Galloway in his book Protocol makes an important and clear distinction between centralized networks (with one central hub where everything must pass and be authorized, as in the old telephone switching systems), decentralized systems, with more than one center, but these subcenters still being authorative (such as the airport system in the U.S. centered around hubs where planes must pass through), from distributed systems, where hubs may exist, but are not obligatory (such as the internet). In distributed networks, participants may freely link with each other, they are fully autonomous agents. Hence the importance to clearly distinguish between our usage of the concepts 'decentralized' vs. 'distributed'. Peer to peer is specifically the relational dynamic that arises in distributed networks.

So: 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[vi], organized through the free cooperation of equals in view of the performance of a common task, for the creation of a common good, with forms of decision-making and autonomy that are widely distributed throughout the network.

P2P processes are not structureless, but are characterized by dynamic and changing structures which adapt themselves to phase changes. It rules are not derived from an external authority, as in hierarchical systems, but generated from within. . It does not deny 'authority', but only

fixed forced hierarchy, and therefore accepts authority based on expertise, initiation of the project, etc… P2P may be the first true meritocracy. The treshold for participation is kept as low as possible. 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. Communication is not top-down and based on strictly defined reporting rules, but feedback is systemic, integrated in the protocol of the cooperative system. Techniques of 'participation capture' and other social accounting make automatic cooperation the default scheme of the project. Personal identity becomes partly generated by the contribution to the common project.

P2P is a network, not a hierarchy (though it may have elements of it); it is 'distributed', though it may have elements of centralization and 'decentralisation'; intelligence is not 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. It enables the widest possible participation. 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. Whereas participants in hierarchical systems are subject to the panoptism of the select few who control the vast majority, in P2P systems, participants have access to holoptism, the ability for any participant to see the whole. Further on we will examine more in depth characteristics such as de-formalisation, de-institutionalisation, de-commodification, which are also at the heart of P2P processes.

Whereas hierarchical systems are based on creating homogeinity amongst its 'dependent' members, distributed networks using the P2P dynamic regulate the 'interdependent' participants preserving heterogeinity. It is the 'object of cooperation' itself which creates the temporary unity. Culturally, P2P is about unity-in-diversity, it is concrete 'post-Enlightenment' universalism predicated on common projects; while hierarchy is predicated on creating sameness through identification and exclusion, and is associated with the abstract universalism of the Enlightenment.

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 that 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.

An important clarification is that when we say that peer to peer systems have no hierarchy or are not centralized, we do not necessarily mean the complete absence of such characteristics. But in a P2P system, the use of hierarchy and centralization, serve the goal of participation and many-to-many communication, and are not used to prohibit or dominate it. This means that though P2P arises in distributed networks, not all distributed networks exhibit P2P processes. Many distributed bottom-up processes, such as the swarming behaviour of insects,

of the behaviour of buyers and sellers in market, are not true P2P processes, to the degree that they lack holoptism, and do not promote participation. P2P, as a uniquely human phenomenom integrates moral and intentional aspects. When distributed meshworks, for example interlinking boards of directors[vii], serve a hierarchy of wealth and power, and are based on exclusion rather than participation, this does not quality as a full P2P process.

P2P can be a partial element of another process; or it can be a full process. For examples, the technological and collaborative infrastructure build around P2P principles, may enable non-P2P processes. In the example just above it is the infrastructure of Empire, but it can also enables new types of marketplaces[viii], gift/sharing economy practices. Where P2P is a full process, we will argue that it is a form of communal shareholding producing a new type of Commons.

2.1.B. The emergence of peer to peer as technological infrastructure

But how does all of the above it apply to technology?

In this and the next section, I will attempt to describe two related aspects. One is that P2P-formatted technologies are now the very infrastructure of business processes. Second, that the new technologies of communication being created are in fact an alternative communication infrastructure that in part transcends the state and corporate control of traditional one-to-many mass media. It is also emerging as a infrastructure of the free cooperation of autonomous agents.

This is not to say that the new infrastructure is not controlled 'at all', that corporate forces are not at work in it, but means that we cannot be blind to its radical potential, and radical 'actuality' neither. Here as in the other sections we will see how P2P is at the same time the very basis of the system, while also significantly transcending it. While there is no direct cause to effect link between peer to peer technology, as such, and the peer to peer relational dynamic which is the topic of our research. Peer to peer technology is more likely than centralized technology to be a technological basis for enabling and supporting peer to peer human relationships. This relationship is borne out by our description of the use of P2P technologies to create an alternative peer-based communications infrastructure (2.1.C), as well as for an infrastructure of human cooperation (2.1.D.).

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 distributed network, having no central core to manage the system. Its hierarchical elements, such as the layered internet protocol stack (though specifically designed to allow P2P processes), the domain name system (a decentralized system of authorative servers which can disconnect participants, you can't arrive at an address without DNS intervention), or internet governance bodies[ix], do not prohibit many-to-many communication and participation, but enable it. The evolution of the internet is largely seen to be 'organic' rather than centrally directed, no single central player can direct it, though some players are more influential than others.

The web similarly was seen as a many-to-many publishing medium, even though it follows a semi-hierarchical client-server model (hence decentralized rather than distributed). 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.). Of course, in the public mind filesharing is mostly associated with the sharing of piracy of copyrighted music and video's[x]. Though the earliest incarnations of these P2P systems still used centralized databases, they are now, largely thanks to the efforts of the music industry[xi], mostly true P2P systems, in particular Bittorrent and the planned development of Exeem. Each generation of P2P filesharing has been more consistent in its applications of peer to peer principles[xii].

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 generally seen as the next paradigm for computing. Even programming now uses the P2P concept of object-oriented programming, where each object can be seen as a node in a distributed network.

All of the above clearly shows that the new format of our technological infrastructure, which lies at the basis of basic and economic processes, follow the P2P design. This infrastructure enables the interlinking of business processes, beyond the borders of the individual factory and company, and the interlinking of all the individuals involved. Soon, and perhaps it is already the case today, it will be justified to claim that without P2P-formatted technologies, it will be impossible to carry out production and all the related economic mechanisms.

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.

On the other hand, P2P systems are not just the outcome of plans of the establishment, but are the result of the active intervention of consumers avid for free access to culture, of knowledge workers actively working to find technical solutions for their needed cooperative work, and of activists consciously working for the creation of tools for an emerging participative culture[xiii]. P2P is both 'within' and 'beyond' the current system.

2.1.C. The construction of an alternative media infrastructure

Distributed technological networks are the most important infrastructure for cognitive capitalism. But as a communication infrastructure, the dominant transnational corporations could for a long time rely on their own private telecommunication networks. The internet has radically democratized access to this kind of infrastructure, to everyone with access to a computer. Similarly, for its cultural hegemony, the dominant social system has relied on "one to many" broadcasting system, which require a heavy capital outlay, and are controlled by monopolistic corporate interests, in charge of 'manufactured consent', and in other countries, by the state itself. The stranglehold of corporate media is such, including its hold on our very psyche's (we 'think like television' even when we've not been watching it for years). It has become all but impossible for any social minority (except religious and ethnic groups which can marshall vast resources themselves) to have its voice heard. Media reform seems definitely beyond reach. However, though the internet is also characterized by a certain commercial exploitation, and by very strong commercial entities such as Yahoo, as a whole, and as a distributed network, it is not owned nor controlled by commercial entities, but by a network of various entities: commercial, governmental, nongovernmental, etc... It contains the historical promise of an 'alternative information and communication infrastructure', a many to many, bottom-up resource that can be used by various social forces. Mackenzie Wark, in his Hacker Manifesto, distinguishes the producers of immaterial use value, from the owners of the vectors of information, without whom no exchange value can be realized. The promise of the internet is that we now have a vector of information production, distribution and exchange, that functions at least partly outside of the control of what he calls the 'vectoralist' class. The situation seems to be the following, and we use the distinctions drawn up by Yochai Benkler in his "The Political Economy of the Commons" essay. The physical layer, networks, and communication lines, are widely distributed between commercial, state, and academic interests, with no single player or set of players dominating, and the computers themselves are widely in the hands of the public and civil society. The logical layer, especially TCP/IP, and increasingly the various aspects of the read/write Web, the filesharing protocols are still systematically rigged for participation. The content layer, is on the one hand subject to an increasingly harsh intellectual property regime, but, commercial players are themselves subject to the logic of the economy of attention and the Wisdom Game, dictating policies of information sharing and giving, in order to get the attention. Next to the commercial portals, which may or may not play a nefarious role, the public is widely enabled to create its own content, and has been doing so by the millions. While part of the previously existing Information Commons or public domain is disappearing, other parts are being continuously constructed through the myriad combined efforts of civil society users.

This process is in full swing and is what we attempt to describe in this section. Below, I reproduce an adapted version of a diagram from Hans Magnus Enzensberger, which outlines the difference between 'repressive' and 'emancipatory' media. Without any doubt, the emerging alternative media infrastructure has an overwhelming number of characteristics of being an 'emancipatory' medium: 1) it is based on distributed programming (not just a few); 2)

each receiver is a potential transmitter (not just a few broadcasters); 3) it has mobilization potential (it doesn't generate passivity); 4) it is characterized by interaction and self-production; 5) it enables a political learning process; it allows collective production by equipotent participants; 6) the social control is effected through self-organisation. Just compare this list to the characteristics of corporate television! Thus, the historical importance of these developments seems overwhelmingly clear. This does not mean that the alternative internet media infrastructure automatically leads to emancipation, but that it can certainly enable political processes in that direction.

Let us now summarise these developments in technical terms. In terms of media, the broadband internet is rapidly mutating to enhance the capacities to create distributed online publishing in the form of the Writeable Web[xiv] (also called read-write web) and blogging[xv] in particular; the distribution of audio programming is possible through internet radio and various audioblogging developments such podcasting[xvi] (audio content, music or video distribution through iPod or MP3 players), and other types of 'time-shifted radio' such as mobcasting[xvii] ('casting' to mobile phones), and even Skypecasting (using the popular Voice over Internet Telephony software Skype[xviii], but for broadcasting purposes, especially Internet radio programs). Audiovisual distribution, which we can call public webcasting[xix] as it incorporates both audio and video, is possible through the emerging video blogging (vlogging[xx]), but mostly through broadband P2P filesharing systems such as Bittorrent[xxi] and Exeem[xxii], now already responsible for the majority of internet traffic[xxiii]. While Exeem is still in development at the time of writing this paragraph (June 2005), Bittorrent is considered to be a major innovation making easy broadband-based audiovisual distribution all but inevitable. A wide variety of associated services is being developed by small companies or cooperative groups to assist citizens in their own production of audiovisual material[xxiv]. What these services such as Common Bits and the Broadcast Machine do, is to transform Bittorrent technology into a internet broadcasting platform that can be used by common users without expert technical knowledge.

All these developments taking together mean that the creation of an alternative information and communication infrastructure, outside of the control and ownership of the state and corporate-based one-to-many broadcasting systems, is well under way. These developments are not the product of a conscious activist strategy as the one proposed by Mark Pesce and practiced by players such as Indymedia, but it also to a large degree the natural outgrowth of the empowerment of the users, who, whenever they by a WiFi hub, or install Skype for personal usage, or any other natural act of ameliorating their own connectivity, are building this alternative infrastructure, from the edges onward, step by step, and this is also why it seems quite unstoppable[xxv]. In a sense, this is another example of the 'production without a manufacturer' or 'the supply-side supplying itself", explained in 3.1.A (and notes).

These technological developments form the basis for a new practice of citizen-produced 'journalism'[xxvi] or 'reporting' by a 'self-informing public'[xxvii] centered around the phenomemon of blogs, and augmented by the other techniques we have been discussing[xxviii]. See the example of the Korean OhMyNews[xxix], working with 35,000 citizen reporters and 40 staff members, as an example of a new type of hybrid journalism. These developments are a new vehicle for the production of 'public opinion', for the creation, expression , distribution and sharing of knowledge. And it is both supplementing and competing with the traditional

mass media vehicles that used to mold public opinion[xxx]. It represents an important opportunity to distribute views that fall outside the purview of 'manufactured consent'. Clay Shirky has called it a 'process of mass amateurisation'[xxxi], an analysis that is related to my own concept of 'de-institutionalisation', a key aspect of peer to peer process which I discuss in 3.3.C.

All this outpouring of expression, news and commentary is interlinked in a blogosphere, which has developed its own techniques to distill what is important, from what is less important. Similar with the broadcast model is that the blogosphere still has hubs and connectors drawing large crowds, but different is that it creates the possibility of a "long tail". This means that whereas in the broadcast world the distribution curve bottoms out at the end, with no resources left for minority interests, in P2P media, this bottoming out does not occur (the curve flattens before reaching the bottom), because the possibility exists of creating thousands upon thousands of micro-communities, organized by affinity. David Weinberger, focusing on the role of the blog for the individual, says it is 'an expression of 'the self in conversation'[xxxii], that is available as a permanent record (through the innovation of permalinks,which create a fixed and permanent URL for every entry, unlike webpages which were always subject to change and disappearance). A crucial innovation for the spread of blogs has been the development of RSS feeds[xxxiii], i.e. Really Simple Syndication, which allows internet users to 'subscribe' to any blog they like, and to manage the totality of their feeds through their email, RSS reader software, or online sites like Bloglines. Related to the emergence and growth of the blogosphere, is the growth in self-publishing, no longer the domain of dejected authors, but becoming a first choice for many who desire to reach a public directly without the traditional publisher intermediaries[xxxiv].

Therefore, in physical terms, for the evolving telecommunications infrastructure, the broadcast model is being replaced by the ‘meshwork system’, which is already used by the Wireless Commons movement[xxxv] to create a worldwide wireless communications network that aims to bypass the Telco infrastructure [xxxvi]. Several local governments aim to aid such a process[xxxvii]. For Yochai Benkler,the development of a "Open physical layer" based on open wireless networks, the so-called Spectrum Commons, is a key precondition for the existence of a "Core Common Infrastructure".

In such a system a wide array of local networks is created at very low cost, while they are interlinked with ‘bridges’. The technical breakthrough making this possible is the invention of Viral Communicators[xxxviii], or meshworks of cooperating devices that do not need an infrastructure or a backbone but themselves create the network through their excess capacity. 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 ten years[xxxix], based on similar premises, and with the additional concept of developing a 'Open Source TV Tuner'[xl] which he predicts will completely overturn traditional broadcasting. (The same technology could also be used for phone calls, once hybrid WiFi phones are available[xli].) He has developed serious arguments about why 'netcasting' is not only economically feasible, but superior to the broadcasting model[xlii]. There are also already commercial versions of ‘file-serving television’ models such as the one pioneered by TiVo[xliii] as well as the different plans involving TV over Internet Protocol[xliv]. "Radio Your Way" is a

similar, though less popular, application for radio[xlv] and there is a similar broad array of internet radio developments[xlvi]. Telephony using the Internet Protocol[xlvii], recently popularized by Skype, is similarly destined to overcome the limitations of the hitherto centralized telephone system. P2P is generally seen as the coming format of the telecommunication infrastructure, even by the industry itself, and confirmed by my own former experience as strategic planner in that industry. British Telecom has declared that by 2008, the entirety of its network will have been converted to TCP/IP protocols.

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.

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.

These developments almost certainly mean that a new format of distribution and consumption is arising. At stake is the eventual unsustainability of the current TV broadcast model, in which the TV stations sell their audiences to advertisers, because they control the audience and the distribution of the programs. In the new form of distribution, in which users themselves take control of the choice and timing of the programs, because of the easy replication throughout the internet, both disintermediation and re-intermediation occur. The "hyperdistribution" of audiovisual material, think about the millions already downloading movies and TV programs, creates a direct link between producers and consumers. However, the economy of attention suggests process of re-intermediation. But as we have seen in the blogosphere for printed content, this process can be undertaken by clever algorhythms and protocols and reputation-based systems, coupled with processes of viral diffusion of recommendations in affinity groups, and do not necessarily mean commercial portals or intermediaries. In a upcoming book, Mark Pesce has coined the concept of 'hyperpeople' to describe the new generation of techno-savvy youngsters who are already living this new reality, and as the technology becomes increasingly easier to use, it will be spreading throughout the population. And of course, it is not just a new form of consumption, there are also changes at the producer side, with audiences becoming themselves the producers of audiovisual material, as we can see in the growth of podcasting programs. Two consequences flow from this. First, the generalization of the phenomemom of the "Long Tail",whereby minority audiences are no longer constrained by the 'lowest common-denominator' mass media and mass marketing logic; and we can expect a flowering of creativity and self-expression. Second, the possibility of new majorities of taste and opinion forming, outside of the constraints of the mass production of unified corporate taste. As we expect from the playing out of P2P processes, we see both a strengthening of personal autonomy and a new type of collectivity. For some time now, we have seen democracies bypass majority opinions and the development of hypermanipulation. The hope is that techno-social developments are creating the possibility of a new balance of power, a 'second superpower' of global public opinion that is more democratic in character.

To judge the progress or regress of these efforts, we should look at developments in the physical layer of the internet: who owns and controls it, at present a wide variety of players, with a key role for the public and civil society who own the computers which are in fact the intelligent core of the internet; the logical layer or protocols, which pits closed systems

against open systems in a continious conflict; and the content layer, which pits the free creation of an Information Commons against permanent attempts to strengthen restrictive intellectual property rights. According to Yochai Benkler, what we need is a Core Commons Infrastructure, which would consist of an

- an open physical layer in the form of open wireless networks, a 'spectrum commons'
- an open logical layer, i.e. systematic preference for open protocols and open platforms
- an open content layer, which means the roll back of too restrictive IP laws geared to defend business monopolies and stifle the development of a free culture

Let's conclude by assessing the current 'techno-social' state of progress of such an alternative infrastructure:

- Bittorrent , Exeem, and other software programs enable broadband peercasting
- Viral diffusion exists to circulate information about programming

What needs to be built is:

- a meshwork of netcasting transmitters, as proposed by Mark Pesce
- user-friendly desktop software, to manage content (Pesce's Open Tuner proposal)
- better social mechanisms to select quality into such an alternative framework

Figure – Repressive Media vs. Emancipatory Media

Repressive Media	**Emancipatory Media**
Centrally controlled programming	Distributed programming
One transmitter, many receivers	Each receiver potentially a transmitter
Immobilisation of isolated individuals	Mobilisation potential
Passive consumers	Interaction and self-production
Depolitisation	Political learning process
Production by specialists	Collective production
Control by property owners or the state	Social control through self-organisation

Source: Hans Magnus Enzensberger. Video Culture. Peregrine Smith, 1986, pp. 110-111

2.1.D. P2P as a global platform for autonomous cooperation

We have described peer to peer as the technological infrastructure of cognitive capitalism, and as an alternative information and communications infrastructure. But is also emerging as much more than that: as a whole set of enabling technologies that allow global affinity groups to work and create value together on a autonomous basis.

Let's quickly review what we have already seen, but in this new context.

As a technological infrastructure we have seen how grid computing can function as a way to combine untapped resources that lay dormant throughout the network. Since human processing power is inherently slower than computer processes, no single user uses his resources to the full, and this capacity can now be combined in common projects. Using this methodology any community can now mobilize vast 'super-computing'-like resources. Filesharing is also an example of the same ability, which can be extended to any meshwork of devices that can be connected. Resources that can be shared are computer processing power, memory storage, any content located on any participating computer, and collective monitoring through all kinds of interconnected sensors. The key role in this systems is that any participant automatically becomes a provider. Any user of the Skype telephony networks also offers his PC as a resource for the network, as does any filesharer, or user of Bittorrent. This obligatory participation can be generalized because it comes at no extra cost to the owner of the technological resource.

As a information and communications infrastructure it enables any group to communicate and create online knowledge collectives and to become a publisher. A combination of the open source infrastructure consisting of the Linux operating system, the Apache web server, the MySQL database system, the PHP publishing system (the four together are grouped together under the concept of the LAMP[xlviii] infrastructure) combined with BitTorrent, allow for full-scale broadband multimedia webcasting.

Social mobile computing enables dispersed groups to act in a coherent fashion, it is a powerful agent of mobilization. Such mobile or non-mobile networks are also known as 'group forming networks' since they enable the formation of subgroups. All kinds of social software[xlix] has been developed to enable the emergence and management of webs of cooperation which go beyond information sharing. Amongst these are the various forms of social networking software that are based on the theory of 'six degrees of separation' which says that anybody in the world is connected to anybody else through no more than 6 steps. Friends-of-a-friend software is a fast growing segment. These type of software is often coupled to 'presencing' software which allow you to know, who is also visiting your webpage, whom of your friends is available for instant messaging, and mobile proximity alert services[l] which tell you if one of your associates is close by, by using 'geo-location' services such as GPS (Global Positioning Systems).

A crucial ingredient are the social accounting tools, which allow anyone to judge and know about the degree of participation and trustworthyness of other members of the network, through communal validation processes. Similar in intent are formal ratings systems, such as the one used by Amazon to rate books, often used to gauge the reputation and trustworthyness (eBay, Slashdot's karma system).

Automatic referral systems or recommendation systems look to like-minded users by presenting each other's tastes, a system also used by Amazon. Google's success in present the most appropriate results is to a large degree the result of its decision to rank any resource accoding to the 'collective wisdom' of web users, i.e. calculating the pointers from other webpages. The latter are called 'implicit' referral systems since they do not require any conscious decision by users. Sites are learning to use the collective judgment of their participants through opinion sites (Epinion), through social bookmarking sites, with collective online publishing systems such as Slashdot and KuroShin using self-evaluation ratings.

A number of companies such as Groove and Shinkuro, aim to develop fully fledged cooperation environments[li].

The point of all the above is to show how software is being created that has at its aim to enhance various forms of collaboration.

Howard Rheingold and others, in an excellent overview of Technologies of Cooperation, has outlined seven dimensions of such cooperative ventures.

1) the structures are dynamic and evolving, not static.
2) The rules are not imposed by any outside authority, but emerge from the group itself
3) The resources are made available to the public, not kept private or available through sales
4) Tresholds are kept as low as possible, so that anyone can participate
5) Feedback becomes systemic, through the use of social accounting software and other forms of 'participation capture'
6) Memory is becoming persistent, and no longer ephemeral as it was in the first phase of everchanging URL's
7) Identity is derived from the group and participation in the group

Howard Rheingold has also distilled seven recommendations to anyone thinking of launching technology-enabled cooperative ventures:

1) shift from designing systems to providing platforms. The system must allow emergent structures decided upon by the participants
2) engage the community in designing the rules: the protocol must be democratically arrived at
3) learn how to tap invisible resources
4) track thresholds and phase changes: this is important as online communities evolve through various phases that have different rules and success factors
5) foster diverse feedback loops
6) convert present knowledge into deep memory: through archiving, persistent addressing, version control and archiving, contributions are never disgarded but remain available

7) support participatory identities, through keeping track of contributions so that this process acts as a recognition for the participants.

It is important to envisage the availability of such an ecology of cooperative tools as enabling autonomous cooperation and peer production, and not just as an auxiliary to the corporate world. In our overview of the emergence of P2P in the economic sphere we will see that this is not a pious wish.

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 almost 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[lii]. From the engineering standpoint therefore, P2P is an appropriate solution to distribute workloads among a large number of loads, a solution which is effective in many case, but not always. 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. Conclusion: P2P is 'deblocking'.

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. Conclusion: P2P is 'enabling'.

There is also a 'democratic rationale' to the above enabling of resources. Since it is a bottom-up rather than a top-down process. P2P is 'empowering'. It reflects the cultural evolution towards an ethos of sharing abundant resources that gain value through their distribution.

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

Premodern technology was participative, and not as differentiated and autonomous. The instruments of artisans were extensions of their bodies, with which they 'cooperated'. The social lifeworld, was not yet as differentiated into different spheres or into subject/object distinctions, since they saw themselves, not as much as separate and autonomous individuals, but much more as parts of a whole, following the dictates of the whole (holism), moving in a world dominated by spirits, the spirits of men (the ancestors), of the natural world, and of the objects they used. (Dumont, 1981).

Modern technology could be said to be differentiated (division of labour, differentiation of social fields, relative autonomy of technological evolution), 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.

According to the reworking of Foucault's insights by Deleuze and Guattari, there is a clear connection between the type of society and the type of technology that is dominant. Simple mechanistical machines were dominant in the classical period of modernity, the period of sovereignity (18th cy.); thermodynamic systems became dominant in the 19th cy, inaugurating disciplinary societies; finally Deleuze dates the advent of control societies, to the advent of cybernetic machines and computers. Our sections on the evolution of power will detail this aspect of the evolution of technology.

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',[liii] 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. This position is a version of that put forward by Cornelis Castoriadis in his "L'Institution Imaginaire de la Societe". Society is not just a physical arrangement, or a rational-functional arrangement, but everything is experienced symbolically and reflects a meaning that cannot be reduced to the real or the rational. It is the product of a 'radical social imaginary'. And this imaginary though rooted in the past (through the symbolic meaning of institutions), is nevertheless a constitutive creation of mankind. Technology is just such a creation, a dimension of instituted society, that cannot be divorced from the other elements[liv]. In this context, peer to peer is the product of a newly arising radical social imaginary. Nevertheless, this does not mean that technology is not an important factor.

Why is 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[lv], 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. Peer production as a third mode of production and new commons-based property regime

There are two important aspects to the emergence of P2P in the economic sphere. On the one hand, as format for peer production processes (called ‘Commons-based peer production' or CBPP by Y. Benckler[lvi]) it is emerging as a 'third mode of production' based on the cooperation of autonomous agents. The second aspect, as the juridical underpinning of software creation, in the form of the General Public License, or as the Creative Commons license for other creative content, it is engendering a new commons-based intellectual property regime. Taken together the GPL, the Open Source Initiative and the Creative Commons, together with associated initiatives such as the Art Libre license, may be seen as providing the 'legal' infrastructure for the emergence and growth of the P2P social formation.

Indeed, if the first mode of production is free-market based capitalism, and the second mode was the now defunct model of a centrally-planned state-owned economy, then the third mode is defined neither by the motor of profit, nor by any central planning. In order to allocate resources and make decisions, it is neither using market and pricing mechanisms, nor managerial commands, but social relations.

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 other immaterial products thus being created are at the same time new means of production, since the computer is now a universal machine ‘in charge of everything’ (every productive action that can be broken down in logical steps can be directed by a computer). Software is 'active text' which directly results in 'processes'. As a cooperation format, we will discuss it in more detail in the section 'Advantages of the peer production model'.

As creation of a new type of commons, it takes the form of either the Free Software Movement ethos [lvii], as defined by Richard Stallman (Stallman, 2002), or in the form of Open Source projects, as defined by Eric Raymond (Raymond, 2001). 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 it, to improve it and to distribute it[lviii]. There is some discussion as to whether Free Software must be 'free', in the sense of free beer[lix]. While its spokesmen clearly say that it is okay to charge for such software, the obligation of free distribution makes this a rather moot argument. The companies that sell software, such as Red Hat which sells version of Linux, could be said to charge for the services attached to its installation and use, rather than for the freely distributable software. This is an important argument for those stressing, as I do, the essential non-mercantile nature of free software. But in any case, if in a for-profit enterprise software is developed so that it can be sold as a product, in the case of free software, if it is sold by non-commercial entities, it is most often as a means of producing more software, to strengthen the community and obtain financial independence to continue further projects.

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[lx] 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[lxi]. But since the OS model has been specifically designed to soften its acceptance by the business community which is now increasingly involved in its development[lxii], it

generally over a lot more control of the labor process. OS licenses allow segments of code to be used in proprietary and commercial projects, something impossible with pure free software. But even free software projects have become increasingly professionalised[lxiii], and it now generally consists of a core of often paid professionals, funded by either nonprofits or by corporations having an interest in its continued expansion; they also use professional project management systems, as is the case for Linux. 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. However, the GPL does that by completely preserving the authorship of its creators. 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 much more about the use value of the products. You could say that they are part of a new 'for-benefit' sector, which also includes the NGO's, social entrepreneurs and what the Europeans call 'the social economy', and that is arising next to the 'for-profit' economy of private corporations. 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[lxiv]. 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[lxv], 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. We should also note that we have here the emergence of a mode of production that can be entirely devoid of a manufacturer[lxvi]. In the words of Doc Searls, senior editor of Linux magazine, we see the demand-side supplying itself[lxvii].

In conclusion:

Seen from the point of view of capitalism or private for-profit interests, commons-based peer production has the following advantages[lxviii]: 1) it represents more productive ways of working and of mobilizing external communities to its own purposes[lxix]; 2) it represents a means of externalizing costs or of lowering transaction costs[lxx]; 3) it represents new types of business models based on 'customer-made production', such as eBay and Amazon; 4) it represents new service-based business models, where by free software is used as the basis of providing surrounding services (Red Hat); 5) it represents a common shared infrastructure whose costs and building is taken up largely by the community and which prohibits both monopolistic control by stronger rivals as well as providing common standards so that a market can develop around it. In all these senses FS/OS forms of peer production are 'within the system'. But in other important senses, it still goes 'beyond' the system.

To summarise the importance of the 'transcending' factors of Commons-based peer production: 1) it is based on free cooperation, not on the selling of one's labour in exchange of a wage, nor motivated primarily by profit or for the exchange value of the resulting product; 2) it not managed by a traditional hierarchy; 3) it does not need a manufacturer; 4) it's an innovative application of copyright which creates an information commons and transcends the limitations attached to the property form.

How widespread are these developments? Open-source based computers are already the mainstay of the internet's infrastructure (Apache servers); Linux[lxxi] is an alternative operating system that is taking the world by storm[lxxii]. 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[lxxiii]. It is recognized as its main threat by the current operating system monopoly Microsoft[lxxiv]. As a collaborative method to produce software, it is being used increasingly by various businesses and institutions[lxxv]. Wikipedia[lxxvi] 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 5 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 often 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.

Figure – Choosing for a Open Source Desktop

Nature of Program	**Windows**	**Free Software / Open Source Alternative**
Desktop Operating System	MS Windows	**Linspire Lindows, Gnome, or BeOS Max**
Instant Messaging	AOL AIM	**Jabber**
Office Suite	MS Office	**OpenOffice or Gnome Office**

Accounting Program	Intuit	**Compiere**
Project Management	IBM Lotus Notes	**Horde Project, or Net Office Project**
Database Program	MS Access	**Twiki, Druid, Gnome DB**
Fax Management	Esher VSI Fax	**HylaFax or Mgetty+Sendfax**
Browsing	Internet Explorer	**Firefox**

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. Innovation has become a very diffuse process[lxxvii]. 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 essential skills and experience within the company that he is working for at any particular moment, but expands on his skill and experience throughout his working life. Innovation today is essentially 'socialized' and takes place 'before' production, or 'after' production, with reproduction being at marginal cost concerning immaterial goods, and even if costly in the material sphere, being just an execution of the design phase[lxxviii].

Moreover, 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. In fact, as documented very convincingly by Eric von Hippel, in his book "The Democratisation of Innovation" (Von Hippel, 2004), innovation by users (and particularly by what he calls 'lead users'[lxxix]) is becoming the most important driver of innovation, more so than internal market research and R & D divisions. It is subverting one of the mainstays of the division of labor. Users, better than the scientists, know what they need and now have the skills to develop solutions for themselves, using other users for peer support[lxxx]. These user innovation communities are very important in the world of extreme sports such as windsurfing for example, in technology and online music[lxxxi], and in an increasing number of other areas. Recently, in May 2005, Trendwatching.com, a business-oriented innovation newsletter using thousands of spotters worldwide, has devoted a whole issue to the topic of 'Customer-made innovation', highlighting several dozen examples in all sectors of the economy.[lxxxii] These trends will be greatly strengthened with the further development of 'personal fabricator'[lxxxiii] technology.

The smarter companies are therefore consciously breaking down the barriers between production and consumption, producers and consumers, by involving consumers, sometimes in a explicit open-source inspired manner, into value creation[lxxxiv]. 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[lxxxv]. The same type of user-driven innovation has also been noted in advertising[lxxxvi]. Accordingly, new business management theories are needed, which Thomas Malone calls "Coordination Theory", and it involves studying (and organizing accordingly) the dependencies and relationships within and without the enterprise[lxxxvii]. Not surprisingly this research into 'organisational physics' is also done through open source methods[lxxxviii]. Apart from 'vanguard corporations' (see my thesis on netarchical capitalism) that incorporate peer production as an essential component of their activities, there is a broad shift towards a new attitude towards consumers, with many associated phenomena. Management theorists with a feeling for these trends argue that a radical shift is occurring, and needs to occur, in the managerial class, in order to be able to capitalize on these developments. David Rotman of the Rotman School of Management argues that they have to become businesspeople will have to become "more 'masters of heuristics' than 'managers of algorithms'"[lxxxix]. Books describing this shift are Daniel Pink's A Whole New Mind: Moving from the Information Age to the Conceptual Age, and C.K. Prahalad's The Future of Competition: Co-Creating Unique Value with Customers.

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 and to retrieve the early Marxian notion of the 'General Intellect'[xc].

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.

But the most important argument as to the existence of a third phase of 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[xci]. It is based on the accumulation of essentially knowledge assets. Instead of the cycle conception-production-distribution-consumption, we have a new cycle conception – reproduction of the informational core – production – distribution. The key is now to possess an informational advantage, in the form of intellectual property, and that can be embedded in immaterial (software, content) or material (seeds, pharmaceuticals, biotechnology) products. The production itself can be outsourced and is no longer central to competitive advantage. And because the advantage is in the information, it is protected through monopolies, enforced by the state. This in turn leads to increasing and protected profits, with prices no longer bearing any necessary relation to the production cost. This fact is true for seeds, pharmaceuticals, software, content products, biotechnology, etc… These inflated profits in turn have put an enormous pressure on the totality of the economy.

According to the hypothesis of cognitive capitalism, there are three main approaches in analyses of the current political economy:

1) 'neo-classical economics' seeks for the laws of capitalism 'as such', and is today much involved in creating models and mathematizing them; according to CC theorists, it lacks a historical model to take into account the changes.
2) Information economy models claim that information/knowledge has become a independent third factor of production, changing the very nature of our economy, making it 'post-capitalist'
3) In between is the hypothesis of cognitive capitalism, which, though it recognizes that we have entered a new phase, a third 'cognitive' phase, it is still within the framework of the capitalist system.

What CC-researchers are building on is an earlier and still very powerful school of economic theory, known as the Regulation School[xcii] and especially strong in France (M. Aglietta), which considers that, despite differences in national models, there are commonalities in the structural evolution of the capitalist system, that it has been characterized by different 'regimes' which each had their particular modes of 'regulation' (forms of balancing the inherent instability of the system). It was they, who focused most on the theories of post-

Fordism, arguing that after 1973, the Taylorist-Fordist system of organizing work and the economy (with as its corollary Keynesianism) had been replaced by new systems of organizing work and regulating the economy.

McKenzie Wark's Hacker Manifesto (Wark, 2004) goes one step further in this analysis and argues that not only is the key factor of the new era 'information as property', but with it comes the creation of a new ruling class and 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.

However, we believe that though the cognitive capitalism and vectoralist class arguments are key to understand the current era, it is not sufficient, and we will put forward our own hypothesis that will help in understand the emerging future: the emergence of a netarchical class, which is not dependent on either knowledge assets or information vectors, but enables and exploits the networks of participatory culture. See section 3.4.E. for a full explanation of this idea.

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 paint 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[xciii]. Peer to peer processes characteristic of the project teams are in tension with the hierarchical, feudal-like nature of the management by objectives models[xciv], whose 'information scarcity'-based model is becoming counterproductive even on capital's own terms[xcv]. Psychological pressure and stress levels are very high, since the worker has now full responsibility and very high targets.[xcvi] 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. Dual-career parents come home tired and stressed to children that have spent their day time in institutions since their very early age and have little occasion to spend 'quality time' together; and are managed (or manage themselves) like 'human resources' in a very competitive environment. An increasing number of human relations (such as 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 (Himanen,2001) would have it in his Hacker Ethic[xcvii], 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. But even within the corporate sphere itself, these developments have lead to a widespread dissatisfaction of the workforce.[xcviii] Interesting work is being done in investigating the new forms of network sociality, as for example by Andreas Wittel, but he also writes that this form of sociality, which he contrasts with community[xcix], is geared to the creation and protection of proprietary information. This is in sharp contrast with the Peer to Peer sociality, and thus, focuses on the exacerbation of the Protestant work ethic, and its cultural effects, rather than on the reaction against it. Similary, Pekka Himanen will not distinguish between the entrepreneurs and the knowledge workers.

And this is precisely the important hypothesis of a Peer to Peer sociality: 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 (see also Kane, 2003). 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 (Himanen, 2004) explains a few of its characteristics[c]:
"

- *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 fully 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. Advantages of the free software/open sources production model

Why is are free cooperative projects of autonomous agents, i.e. peer production models, emerging now? 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 (Inglehart, 1989) 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. Just as the development of filesharing is related to the existence of an abundance of unused computing resources due to the differential between computer processing and human processing (the fact that the latter is much slower creates the abundance in PC-resources), P2P as a cultural phenomena is strongly related to the development of a mass intellectually and the resulting abundance in creative resources. Not only underemployment of these resources, but also the growing dearth of meaning associated with working for a consumption-oriented corporation, creates a surplus of creative labour that wants to invest in meaningful projects associated with the direct creation of use value.

Apart from these cultural and 'subjective' reasons, there is of course the availability of a global technological framework for non-local communication, coordination and cooperation, it is strongly linked to the emergence of the Internet.

There are other good objective reasons that drive the adoption of 'open collaborative processes: the very 'diffuse' nature of contemporary innovation works against individual appropriation, since there are myriads of inputs necessary to produce a given output, and were that output to be frozen through rigid intellectual protection, it would stifle the innovation process, and put these entities at a competitive disadvantage[ci].

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 and has many other flaws[cii]. With FLOSS (=Free Libre Open Sources Software) projects, any user can participate, at least through a bug report, or by offering his comments. This 'flexible degree of involvement'[ciii] is a very important characteristic of commons-based peer production, which usually combine a very motivated core who operate in a onion-like structure surrounded by, a flexible periphery of co-developpers and occasional collaborators, with many degrees in between, and all have the possibility of permanently

'modulating' their contributions for optimal fit in their personal contexts. Indeed, 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 the writing of the code itself, i.e. the making of the software, and the associated 'learning'[civ]. 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. Eric Raymond has summarized the advantages of peer production in his seminal The Cathedral and the Bazaar: 1) programmers motivated by real problems work better than salarymen who do not freely choose their area of work; 2) "good programmers can write, but great programmers can rewrite", the latter is greatly accelerated by the availability of open code; 3) more users can see more bugs, the number of collaborators and available brainpower is several orders of magniture greater; 4) continuous multiple corrections hasten development, while version control permits falling back on earlier versions in case of instability of the new version; 5) the Internet allowed global cooperation to occur.

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[cv] and therefore, open source production methods are cheaper and more efficient. The example of Thinkcycle[cvi], where open source methods are used for a large number of projects, such as fighting cholera, show a wide applicability of the method. Open source methods have already been applied with a certain success in the biotechnogical field [cvii] and is being proposed as an alternative in an increasing number of new areas[cviii] . An interesting twist on the transcaction cost theory of Yochai Benkler is given by Clay Shirky, who explains the role of 'mental transaction costs'[cix] in the 'economy of attention', which to a large degree, explains the phenomenom of 'gratuity' in internet publishing, and why payment schemes, including micropayment, are so ineffective.

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."[cx] 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. The choice between the two models can of course be a contentious issue. In the case of the Wikipedia, the adherents of the owner-centric model, active in the pre-Wikipedia "Nupedia" model, lost out, and presumable, the success of Wikipedia has proven them wrong, since the latter totally open process has been proven a success[cxi]. Similar conflicts are reported in many other projects[cxii]. Collaborative projects are no utopian scheme were everything is better, but subject to intense human conflict[cxiii] as well. A general problem still associated with FLOSS software is their lack of user-friendlyness[cxiv], they are often made from the biases of a development community, and may have less incentive than corporate entities, to make them customer-friendly, which is why a niche has been created for service companies such as Red Hat.

Another important aspect of FLOSS projects is how they handle 'equipotentiality'. While formal degrees have been abandoned, and open participation is in principle encouraged, most projects will over time produce a number of rules in their selection. The important aspect is

that these rules are generated within the community itself, though mostly in the early phases. After a while, they tend to consolidate and they are a given for the new participants who come later[cxv].

Crucial to the success of many collaborative projects is their implementation of the reputation schemes. They differ from previous reputation-based systems, such as academic peer review, because the open process of participation (equipotentiality) precludes a systematic strengthening of reputation so that it could become a factor of conservatism (as it is in science and its dependence on dominant paradigms) and power. In the better P2P systems, reputation is time-sensitive on the degree of recent participation and the possibility of forking and of downgrading reputation grades, introduce an aspect of community control, flexibility and dynamism. See in particular the endnote on this topic, outlining the example of the NoLogo site[cxvi]. Reputation-based schemes are crucial because cooperation is based on trust, and they offer a collaborative scheme to indicate those who are the best contibrutors to the common value, while motivating everybody to use the more cooperative, and less the more baser sides of human nature.[cxvii]

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[cxviii], where the intellectual production and design of any material product, is done through P2P processes. If we take a different aspect of P2P, i.e. the cooperation enabled by its technological infrastructure and software tools, and how this brings down transactional costs, we can see how it can enable an extension of gift economy practices (such as Local Exchange Trading Networks), or what Yochai Benkler calls 'the Sharing Economy' and involves the sharing of physical assets such as cars (car pooling in the U.S. got a great boost from the web, for example). It will also enable many sites that bring together supply and demand, whether it is organized by for-profit companies, or by autonomous collectives. As a form of management, open sources methodologies are being taken up 'inside' companies, especially those joining the Open Source bandwagen, such as IBM (at least their own contributions to OS projects have to be managed in a similar fashion). Given the success and quality delivrance of many FLOSS projects, companies will look at how to emulate such processes in their own environment. In our next section, on the cooperative nature of cognitive capitalism, we also see how corporations are increasingly using user-centric innovation processes.

In any case, there are now a great variety of areas, where open source modeled methodologies are being used, a case in point being Thinkcycle, *" a Web-based industrial-design project that brings together engineers, designers, academics, and professionals from a variety of disciplines*"[cxix]

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. Having said all the above about the 'social construction of scarcity', I think it is however necessary to add a pessimistic note. The continued overuse of biosphere resources, and it seems we annually are consuming 20% than nature's ability to regenerate them, leads to a likely scenario of depletion and scarcity. At some point, it is likely that we will have to switch from a growth economy model, to a 'throughput economy' model, i.e. the steady-state economics described by Herman Daly, where output will not exceed input. Such a no-growth model is incompatible with contemporary capitalism, but might be compatible with 'natural capitalism' models, or gift economy models. Markets by themselves are not predicated on endless growth, only capitalism is.

A further pessimistic argument concerns the abundance of information itself. As McKenzie Wark (Wark, 2004) 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.

P2P is, as we will argue throughout the different sections of this book, always 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 Placing the P2P Era in an evolutionary framework

Is it possible to 'historicise' the emergence of peer to peer, to place it into an examination of different social formations? This is what we attempt to do in the following sections.

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 (Sahlins, 1972), who showed that tribal peoples only needed to work a few hours per day for their physical survival needs), we can see that premodern imperial and feudal forms of human cooperation where based on the use of force (the transition from egalitarian Neolithic villages to class-based Sumerian cities such as Akkad took place in the 4th millennium B.C.). Using Edward Haskell's[cxx] triune categorization of human cooperation (adversarial, neutral, synergetic, Haskell, 1972): 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 (Coulter, 1976), 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[cxxi] 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 (Sagot-Duvauroux, 1995), 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[cxxii]. 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 .

Recent developments concerning the participatory culture on the internet have stimulated the discipline of cooperation studies[cxxiii], 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.

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

3.3.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[cxxiv]. 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-in-progress 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[cxxv], 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[cxxvi], and of market-based societies[cxxvii]. 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 contemporary 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. Instead, swarming is characterized by 'stigmergy', i.e. 'environmental mechanisms used to coordinate activities of independent actors'[cxxviii].

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[cxxix] (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[cxxx].

David Weinberger has recently summarized the history of knowledge exchange for the Release 1.0. newsletter, showing how digitilisation has freed categorization from the shackles it had in the physical world[cxxxi]. He notes how humanity first started to separate things (shoes in shoe boxes, etc..), then, we the advent of the alphabet, it started to separate the information about things, from the things itself, putting the books in library shelves, and the data in card catalogs. The information would inevitably be classified in a hierarchy of knowledge, a tree structure. One way to know the world, one way to access knowledge. In the 1930's, an Indian librarian named Shiyalin Ranganathan, 'decentralised' knowledge categorization. An object has different facets, and the user can determine which facet is the most important for him/her. Thus, the catalog will organize the information hierarchically, but flexible, starting with one facet, then another, following the specifications of the user, as long as the programmer has prefigured these choices. On the web is now emerging a bottom-up approach, which does not necessitate any prior hierarchical categorization. Users will add tags[cxxxii], and different users or user groups will use different groups of tags, each reflecting their personal or group ontologies, thereby illuminating different aspects of the object. This peer to peer categorization methods are called folknomies[cxxxiii]. In the sphere of abundance that is the Internet, it is near impossible to continue using hierarchical and well-designed metadatasystems, due to the sheer volume of data and the large numbers of users who would have to be disciplined, so bottom-up tagging makes a lot of sense[cxxxiv]. In the peer to peer era, knowledge is liberated from preconceived and forced categorizations. Many authors have examined how our categories of classification are also instruments of power, and noted how

different social formations overturned previous forms of categorizing the world[cxxxv]. With the P2P classification schemes we see for the first time a recognition of multiperspectival worldviews. Knowledge is a distributed network, following a peer to peer logic. Notice how computers themselves have followed a logic from linear calculation to parallel and distributed computing, and from the mainframe/dumb terminal (centralization), via the client server (decentralization) model, to the internet filesharing ('the network is the computer') model. In computer programming the shift has been from linear ad procedural software production methods, to object-oriented programming, conceived as autonomous objects.

Another important related shift that is occurring relates to how we are learning and visions about the learning process. Behaviorism, cognitivism and constructivism, the 3 main learning theories, locate learning <within the person>, even as the latter admits that learning is socially constructed. Emerging connectivist learning theory[cxxxvi] on the other hand, acknowledges that learning can take place 'outside' the individual, through his connections. Since reality is ever shifting and changing, the individual ambition to know everything is a lost cause, paucity of knowledge has been replaced by an abundance of knowledge. Crucial skills are know the ability to know 'where', in our field of connections, the actionable knowledge is located, to be able to evaluate 'what' has to be learned in a context of abundance, and to negotiate and integrate a variety of opinions on any given subject.

Finally, theories about how individuals learn, still the focus of connectivist theory, must be coupled with a study of the new peer to peer knowledge dynamics, especially of the communal validation of truth which occurs within peer groups, and which replaces institutional mediation[cxxxvii].

Figure – Pyramidal vs. Collective Intelligence

	Pyramidal Intelligence	**Collective Intelligence**
Type of Collective	Enterprise, institution	Cyber-collective
Informational architecture	Panoptism	Holoptism
Dynamic	Top – down planning	Bottom-up 'emergence'
Power type & distribution	Centralised authority	Distributed 'leadership'
Mode of regulation	Static (printed rules)	Dynamic (*Galloway: 'Protocol')

Economic dynamic	Scarcity	Abundance
Transactional tool	Scarce Money	Sufficient Money
Capital	Material goods & knowledge	Persons

Jean-Francois Noubel in an online book-in-progress at http://www.thetransitioner.org/ic, email: jf@thetransitioner.org

3.3.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 prohibit anyone from participation (unlike academic peer review, where formal degrees are required[cxxxviii]). 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. In the Slashdot online publishing system which serves the open source community, a large group of editors combs through the postings, in other systems every article is rated creating a hierarchy of interest

which pushes the lesser-rated articles down the list. As we explained above, in the context of knowledge classification, there is a move away from institutional categorization using hierarchical trees of knowledge, 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. P2P processes are de-institutionalized, in the sense that it is the collective itself which validates the knowledge.

Please note my semantic difficulty here. Indeed, it can be argued that P2P is just another form of institution, another institutional framework, in the sense of a self-perpetuating organizational format. And that would be correct: P2P processes are not structureless, but most often flexible structures that follow internally generated rules. In previous social forms, institutions got detached from the functions and objectives they had to play, became 'autonomous'. In turn because of the class structure of society, and the need to maintain domination, and because of 'bureaucratisation' and self-interest of the institutional leaderships, those institutions turn 'against society' and even against their own functions and objectives. Such institutions become a factor of alienation. It is this type of institutionalization that is potentially vercome by P2P processes. The mediating layer between participation and the result of that participation, is much thinner, dependent on protocol rather controlled by hierarchy.

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[cxxxix]. 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[cxl].

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 usually only a credible alternative (since it can most often be downloaded for free), if it is associated with a service model. It is in fact mostly around such services that commercial open source companies found their model (example: Red Hat). 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.

The peer to format, as a new organizational model, has been the subject of some study. Below we add a graph outlining the difference between P2P, called 'Edge Organisations' in this context, and Hierarchical Organisations.

Figure – Comparing Hierarchies with P2P Models

	Hierarchies	Edge Organisations
Command	By Directive	Establishing Conditions
Leadership	By Position	By Competence
Control	By Direction	An Emergent Property
Decision Making	Line Function	Everyone's Job
Information	Hoarded	Shared
Predominant Information Flows	Vertical, coupled with chain of command	Horizontal, independent of chain of command
Information Management	Push	Post & Pull
Information Sources	Stovepipe Monopolies	Eclectic, Adaptable Marketplaces
Organisational Process	Prescribed & Sequential	Dynamic and Concurrent
Individuals on the Edge	Constrained	Empowered

From the book "Power to the Edge" by D. Alberts & R. Hayes

For comparison purposes, see the similar description of P2P-like organizational formats by the Chaordic Commons, an organisation and network formed by Dee Hok[cxli].

3.3.D. The Evolution of Temporality: towards an Integral Time

Commons-based peer production and the associated work culture, the hacker ethic, also represent a milestone in the history of temporality. A quick reminder of the history of temporal experience according to our premodern-modern-postmodern scheme will show this. Tribal people and early agricultural civilizations lived in a cyclic time, following the rhythm of nature and of religious rituals. In many aspects it was an experience of an eternal now. Ancestors and mythical creators of the civilizations were deemed not to live in a distant and remote past, but in the same temporarility. If they had long-term cycles, they often came into cycles of progressive degeneration (as in the Hindu time scheme ending with the Kali Yuga, the end time of the Iron Age) that would then bring on a new cycle of cycles: the myth of eternal return. This would change with the advent of the monotheistic religions which prefigured modernity. Temporality became progressive, going from past to future, seen as a apocalyptic liberation. Modernity started viewing time in a calculating fashion, in discrete blocks which could be measured and managed, and the judeo-christian temporal line was transformed into the ideology of Progress. Time was essentially being spatialized. But with modernity came stress: human time became enslaved to the time of capitalist efficiency, to the time of the machines, to the cycles of commerce.

These trends find their apotheosis in our current postmodern times, where competition has become a matter of speed, where the economy becomes a 24/7 affair. We have described this state of hypercompetition, coupled with time-space condensation, and the extension of efficiency thinking to the private sphere, in our section on the hacker ethic, showing also its psychological unsustainability. Many of our contemporaries are now time-sick, imprisoned by very short term thinking, their time horizon collapsing. Another element associated with current time experience is the emergence of a collective world-time, collapsing into a single mass-lived experience through the role of the mass media. Paradigmatic was the first Gulf War incident, where millions of people where watching a missile go down on a Baghdad target.

We have often argued how current trends both exacerbate certain aspects of modernity, while at the same time counter-trends point to alternatives going beyond it. The same thing might be said about peer to peer temporality. If postmodernity brought us the supreme alienation of a permanent now collapsing other temporal necessities and experiences, infiltrating even our private time of intimacy, exhibiting a temporal imperialism, then peer to peer temporarility shows the promise of an 'integral time'.

We argued that CBPP projects offered a number of advantages such as the self-management of time. Classic industrial production described jobs in great detail, calculating every move (Taylorism) and controlled the debit of each worker (volume of production in the shortest possible time). In postmodernity, the focus is on the objectives and results, and on the deadlines in which they have to be achieved.

Cooperative CBPP projects traditionally reject such rigid schemes. While work on such projects can be fairly intense, and can be very 'fast' as well, this intensity emerges from the natural life rhythms of the collaborators. It is not imposed from the outside. The human is no longer enslaved to time. Whereas in modernity, say the Fordist/Taylorist paradigm, the focus is on 'quantity', and in postmodernity the focus is still on embedding qualitative concerns into the straightjacket of high-pressure objectives and deadlines, in peer to peer, the focus is exclusively on quality. 'Work' is about transforming something into a desired use value, and the success is measured in how well the use value has been created. The process follows a

individual and collective self-unfolding in which the various subprojects condition each other, gradually coalescing into both a desired but also unforeseen outcome.

This shift in temporal experience also has political consequences, outlined by John Holloway in his Revolution without Power. Typical for modernity was that transformed judeo-christian underpinnings of socialist ideology had fused with the apocalyptic and utopian time sense, gave rise to the counter-time of the revolution, for the wait for a radical transformation or for the next reform. It was either the reformist time who did not change the 'system as such', or the revolutionary time which did everything for the system's destruction. In both cases there was no integration between the present now and the desired future. Integral time points to another solution. Living in the now, in the refusal of contributing to the self-destruction of our civilization, can be combined by building the alternative as a continuing process[cxlii].

This is a whole new temporal experience. We call it 'integral time' because it represents a autonomous mastery of time, where the different temporal experiences (cyclical, linear, etc…) become transparent and used 'at the right time'. The time for intimacy, the time for rest and relaxation, the time for intellectual and spiritual renewal, all have their different rhythms, which can be acknowledged in CBPP projects, in a way that they cannot in the hypercompetitive for-profit world.

3.4 Placing P2P in an intersubjective typology

3.4.A. P2P, The Gift Economy and 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 (Barbrook, 1995), or Steven Weber (Weber, 2004). 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[cxliii]). 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 (Fiske, 1993). 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 (or the members of such) gives away its surplus, the recipient group or indvidual 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). In the gift economy, "something" is always being exchanged

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, or at least, not in the classical sense. In the concept of Tragedy of the Commons[cxliv], communal holdings are depleted and abused, because they belong to no one and also because physical goods are limited 'rival' goods, they can be taken away. The conflict is between the collective interest for preserving the Commons, and the individual incentive to abuse it for one's own personal benefit. We should note how this theory is based on a 'unregulated' Commons, leaving it without defense against individual predation, and it is therefore misleading as a general theory of the Commons.

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: it is governed, in John Frow's words, by a Comedy of the Commons, or using a similar metaphor, producing a Cornucopia of the Commons. 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. And the goods are immaterial, and thus 'non-rival', which means that they can be replicated without cost, they cannot be monopolized (unless by law and licenses, hence the intellectual property wars). It is when these 'network externalities' are at play, that the Commons form seems to be the most appropriate, functioning better than with individual private property.

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[cxlv]. 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" (see the endnote on how my concept differs from both panoptical surveillance and 'sousveillance'[cxlvi]).

There are of course new social problems arising with P2P, some of which we do not know yet, and some, already occurring, which are related to the quality of social behaviour, but interestingly, these problems are tackled through the collective as well. For example, Clay Shirky, one of the most astute observers of the new social networking sphere, has observed how 'flaming', which can be a serious problem in mailing lists, has been seriously attenuated by blogs and wiki's, through a focus on 'social design'[cxlvii]. Shirky shows how the design, the

protocols in Galloway's view, have to move away from a focus on the personal user facing a box, towards a recognition of the social usage of these technologies.

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'.

All of the above argumentation leads to the conclusion that P2P is not a Equality Matching model (and not a Market Pricing Model), but Communal Shareholding. These arguments have 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. Our aim is not to deny that humans have these characteristics, but only to point out that cooperation and altruism are just as constitutive of who we are, and given the right institutional conditions and moral development, the latter rather than the former can be enhanced. There is no need to 'reduce' the characteristics in a one-sided manner, but rather to recognize the subtle richness and combinations of who we are, and to develop the right kind of institutions and knowledge (such as the new field of cooperation studies) to strengthen the latter's potentialities.

Though the early traditional gift economy was spiritually motivated and experienced as a set of obligations, which created reciprocity and relationships, involving honour and allegiance (as explained by Marcel Mauss in the Gift), since gifts were nevertheless made in a context of obligatory return, it involved a kind of thinking that is quite different from the gratuity that is characteristic of P2P: giving to a P2P project is explicitely not done for an 'certain' and individual return of the gift, but for the use value, for the learning involved, for reputational benefits perhaps, but only indirectly.

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.

But what P2P technologies do is that they enable the creation of information-rich exchanges with dramatically lower transactional costs, thereby enabling gift economy applications, what Yochai Benkler calls a 'sharing economy', as well as numerous P2P-based market exchanges, which were not economical before. P2P is therefore conducive to a support of the growth of a

gift economy based on its technology, while gifting and sharing practices are strengthened by the P2P ethos as well.

3.4.B. P2P and the Market

Quite a few American authors, especially libertarians such as Eric Raymond, but also 'common-ists' such as Lawrence Lessig (Lessig,2004), through his arguments for a Creative Commons, says in effect that P2P processes are market-based. Is this a correct assumption. Perhaps a useful distinction is the one made by Fernand Braudel in the 'Wheels of Commerce' (Braudel, 1992), where he distinguishes the ordinary economic life of exchanges at the local level, the fairly transparent market of towns and cities, and monopolistic capitalism. It is only the latter which has a 'growth' imperative[cxlviii]. Growth is a feature of capitalism, not of markets per se.

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. What Braudel notes is that small markets function as 'meshworks', i.e. distributed networks, but that capitalism was always-already based on large hierarchical companies rigging the market (large relative to their markets, as was already the case in 14th century Venice). Market vendors are price takers, following supply and demand; but capital functions as a price setter, controlling the market and keeping out competitors. Thus the latter -- and in the contemporary era of financially-dominated capitalism these aspects have been exacerbated to an unprecedented degree – can better be called 'anti-markets', as has been suggested by Manuel DeLanda. A market can be a necessary condition for P2P processes to occur, but the anti-markets created by capitalism are anti-thetical to it.

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 producers are free to contribute or not, 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. Since we have shown how P2P is in fact inextricably bound with the idea of a Commons and the intersubjective typology of communal shareholding, the equation of P2P with a market is mostly misleading.

Indeed, note how P2P differs in important aspects from a market, even genuine ones in the typology of Braudel, (Market Pricing in the typology of Fiske):

- Markets do not function according to the criteria of collective intelligence and holoptism, but rather, in the form of insect-like swarming intelligence. Yes, there are autonomous agents in a distributed environment, but each individual only sees his own immediate benefit[cxlix].
- Markets are based on 'neutral' cooperation, and not on synergestic cooperation: no reciprocity is created.
- Markets operate for the exchange value and profit, not directly for the use value.

- Whereas P2P aims at full participation, markets only fulfill the needs of those with purchasing power.

Amongst the disadvantages of markets are:

- They do not function well for common needs that do not assure full payment of the service rendered (national defense, general policing, education and public health), and do not only fail to take into account negative externalities (the environment, social costs, future generations), but actively discourages such behaviour.
- Since open markets tend to lower profit and wages, it always gives rise to anti-markets, where oligopolies and monopoliies use their privileged position to have the state 'rig' the market to their benefit.
- Though market forces (in fact 'antimarket') increasingly adopt P2P-like functioning, as we have demonstrated in chapter 1 (technological base) and chapter 2 (economic usage), and as it own organizational format (as demonstrated in Empire by Negri and Hardt), in this case the distributed meshwork will always be subordinated to hierarchy or market pricing.

P2P in contrast, has a teleology of participation, leading to the opposite characteristic: if centralization or hierarchy or authority models are used, they are in the service of deepening participation. Market forces will apply P2P-like protocols which are proprietary, secret, restricted, and are opposed to this aim of participation.

3.4.C. P2P and the Commons

Eric Raymond's landmark description of the Open Source model, i.e. 'Cathedral and the Bazaar' (Raymond, 2001), 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'[cl], 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[cli]. Thus the paradox is that American libertarians call it a market, while the European digital left calls it a 'really existing anarcho-communist practice' (Gorz, 2003), 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. Since peer to peer involves both an application of freedom and of equality, it has the potential to attract supporters of both the left and the right, to the extent that they are faithful to their repspective ideals.

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. Commonism is in fact a growing movement for the protection and expansion for the existing physical commons; for the creation and expansion of an expanded Information Commons and public domain; and against the deepening of intellectual property restrictions which disable the continued existence of the 'free culture development', which is a condition for the further development of P2P. How does the new 'informational commons' differ from the traditional 'physical' commons. The physical commons is about scarce 'rival' goods, and creates problems of abuse (the 'Tragedy of the Commons') and fair 'entitlements', necessitating regulation, problems which are much less acute in the sphere of overabundant information resources, though of course free and easy access to networks is by no means assured for the totality of the world population. The traditional commons, which still exists in the South amongst the native populations, is essentially 'local' and distinguishes itself by this community focus, which is contrasted from both centralized state property and resource management, and private property. They are 'limited access commons' in the sense that they are reserved for particular local communities (pasture systems or irrigation systems). It is 'territorial' and driven by location-specific actors. However, given the severity of the ecological crises, the local Commons are also moving towards a global context. There are also important 'open access' commons which are open to all and either national (highway systems) or global in scope (air, oceans). They are in the process of becoming more and more dominated by scarcity paradigms however, due to the degradation of the resources of the biosphere. This means that from non-regulated, because of their initial abundance, they are

moving towards being regulated physical commons. In conclusion, traditional physical Commons can be usefully divided around two significant axis: open vs. limited access, and non-regulated vs. regulated. What distinguishes these Commons from markets is the property regime, and they arise mostly in situations where network externalities make them the preferable option (the more they are used, the more value they obtain, and the more useful they become). In technical terms: "they have increasing returns to scale on the demand side". The initial investment may be very high, and not of interest to any private investor, i.e. roads, but once they are build, their value increases by usage and the additional cost by user becomes marginal. The Information Commons is by contrast global in its essence and from the start, organized around affinity groups. These may sometimes have a local aspect (Wikicities) but are always open to worldwide participation. Information Commons projects are driven by cyber-collectives.

I would think it likely that in a future civilisational model, both gift economy and Commons-based models would be 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. As my own preliminary ideal in this research project, I envision the future civilization to have a core of P2P processes, surrounded by a layer of gift and fair trade applications, and with a market that operates based upon the principles of 'natural capitalism', as outlined by authors such as Hazel Henderson, David Korten and Paul Hawken, i.e. a market which has integrated 'externalities' (environmental and social costs) to arrive at true costing. We may also want to look at the now forgotten tradition of 'markets without capitalism', a tradition that was stronger before World War II[clii]. Yochai Benkler has perhaps done the most serious work in delineating the respective optimal usage of 'sharing' vs. market economies.[cliii]

All this moreover with the continued use, and perhaps even strengthening of existing public institutions which intervene whenever the 3 above do not arrive at adequate solutions in terms of the public good.

Figure – The Traditional Commons vs. the Information Commons

	Traditional Commons	**Information Commons**
Type of Good	Rival 'resource' goods	Non-rival 'information' goods
Scope	Local	Non-local
Actor	Territorial groups	Global affinity groups
Governance	Communities	Cyber-collectives

3.4.D. 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 (Wark, 2004). 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, the editor-in-chief of Multitudes magazine, and contributors such as M. Lazzarato (Lazzarato, 2004), C. Vercellone (Vercellone, 2003), 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. The analysis of cognitive capitalism is part of a wider field of Marxist and post-Marxist interpretations of the knowledge economy[cliv].

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.

McKenzieWark, adds a twist, since he insists a new class is now in power[clv]. Unlike capitalists, who based their control on capital assets, a vectoral class[clvi] 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[clvii] 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[clviii], 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 (Bard, 2002). 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 (Himanen, 2001), 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.

3.4.E. The emergence of a netarchy

Above I have summarized the key theses about the new 'class configuration'. In this section I offer my own take on the matter, since I am convinced that both main interpretations miss something important, that the peer to peer era is creating a new type of capitalists, which are not based on the accumulation of knowledge assets or vectors of information, but on the 'exploitation' of the networks of participatory culture.

Recall the following: the thesis of cognitive capitalism says that we have entered a new phase of capitalism based on the accumulation of knowledge assets, rather than physical production tools. The vectoralist thesis says that a new class has arisen which controls the vectors of information, i.e. the means through which information and creative products have to pass, for them to realize their exchange value. They both describe the processes of the last 40 years, say the post-1968 period, which saw a furious competition through knowledge-based competition and for the acquisition of knowledge assets, which led to the extraordinary weakening of the scientific and technical commons. And they do this rather well.

But in my opinion, both thesis fail to account for the newest of the new, i.e. to take into account the emergence of peer to peer as social format. What is happening?

In terms of knowledge creation, a vast new information commons is being created, which is increasingly out of the control of cognitive capitalism. And the new information infrastructure, cannot be said to 'belong' in any real sense to the vectoralist class.

Therefore, my hypothesis is that a new capitalist class is emerging, which I propose to call the netarchists (since netocracy 'is already taken' by Alexander Bard, and I reject his interpretation, see above). These are the forces which both 'enable' and exploit the participatory networks arising in the peer to peer era. Examples abound:

1) Red Hat: it makes a living through associated services around open source and free software which, and this is crucial, it doesn't own, and doesn't need to own. We now have not only the spectacle of firms divesting their physical capital (the famous example of Alcatel divesting itself from any and all manufacturing, Nike not producing any shoe itself), but also of their intellectual capital, witness the recent gift of IBM of many patents to the open source 'patents commons'
2) Amazon: yes, it does sell books, but its force comes from being the intermediary between the publishers and the consumers of books. But crucially, it success comes from enabling knowledge exchange between these customers. Without it, Amazon wouldn't quite be Amazon. It's the key to its success and valuationk otherwise it would just be another bookseller.
3) Google: yes, it does own the search algorhythms and the vast machinery of distributed computers. BUT, just as crucially, its value lies in the vast content created by users on the internet. Without it, Google would be nothing substantial, just another firm selling search engines to corporations. And the ranking algorhythm is crucially dependent on the links towards document, i.e. the 'collective wisdom' of internet users
4) EBay: it sells nothing, it just enables, and exploits, the myriad interactions between users creating markets.
5) Skype mobilizes the processing resources of the computers of its participating clients
6) Yahoo: gets its value for being a portal and intermediary

So we can clearly see that for these firms, accumulating knowledge assets is not crucial, owning patents is not crucial. You could argue that they are 'vectors' in the sense of Wark, but they do not have a monopoly on it, as in the mass media age. Rather they are 'acceptable' intermediaries for the actors of the participatory culture. They exploit the economy of attention of the networks, even as they enable it. They are crucially dependent on the trust of the user communities. Yes, as private for-profit companies they try to rig the game, but they can only get away with so much, because, if they loose the trust, users would leave in droves, as we have seen in the extraordinary volatility of the search engine market before Google's dominance. Such companies reflect a deeper change into the general practices of business, which is increasingly being re-organized around participatory customer cultures, see section 3.1.B about the cooperative nature of cognitive capitalism, where this shift is already discussed. In section five, where we examine the 'physical laws' operating in networks, we see how the linear value growth of individual membership creates a economy of attention where portals and new intermediaries emerge; how the square value growth of interactions creates the transactional web and the associated platforms; and how the exponential growth of the Group-Forming-Networks quality of networks creates infinite autonomous content for ever-shifting 'infinite' affinity groups, thereby transcending the 'economy of attention' characteristics. (Ebay profits from the three properties: as an intermediary to content (i.e. what is available where), from the transactions amongst its members, and from their ability to form auction groups themselves.)

My conclusion is that the emergence of P2P begets a new capitalist sub-class, which accommodates itself with the networks, places itself at crucial nodes and proposes itself as voluntary hubs, rather than living off knowledge assets. In this sense, vectoralists, even as they ascend to the heights of power through restrictive copyright legislation, have already reached the zenith of their power, and they will eventually be replaced by new formats of capitalist exploitation, which accommodate themselves in much more intelligent ways to the peer to peer realities.

At the same time, we might except peer to peer exchanges that fall outside of any for-profit priorities, and businesses from the social economy sector, for whom profit is a subsidiary concern. This new sector may seem marginal today, but is in my opinion, 'the next wave' in terms of new types of corporations[clix].

There is another aspect in which the concept of netarchy is useful. Throughout this essay we always stress the double nature of P2P: a form in which it is the infrastructure (technical, collaborative, etc..) of the current system; and a form in which it transcends the current system pointing towards an alternative economic organisation. In one way, distributed networks and P2P-like processes can be used to re-inforce Empire, in another way, to combat it. Ideologically, there will be those who favor P2P but see capitalism as the endgame of history, who cannot imagine an alternative; while others, including myself, see it as the premise of radical social change. It is easy to see how the first position can be termed netarchical, since it inevitable accepts and glorifies the for-profit appropriation of the participatory networks, while the latter will favor autonomous cooperation.

This is not to say that netarchy does not play a useful role. New classes at first usually play a progressive role, riding on the back of new productive possibilities. And such is the role of netarchy. Compared to the cognitive capitalists and vectoralists, who respectively monopolise knowledge assets and information vectors, netarchists need neither one nor the other. Thus they do not side with the forces trying to rig computers with digital rights management restrictions, nor with the forces putting young people who share music in jail. Rather they will try to both enable and use the new practices, on the one hand 'making them safe for capitalism', but also funding, technologically developing and enabling new P2P processes. Acting as intermediaries between both worlds, they look for 'reformist' solutions as it were.

The netarchical ideology has its expression especially in the international political economy, especially in the form of 'bottom-of-the-pyramid' economic development, as championed by C.H. Prahalad. Prahalad and the movement he inspired recognize that the one billion people at the bottom of the pyramid manage to have a cash flow of $2 per day, even though they do not have the capital. And Hernando de Soto shows how this capital can be partly generated by 'formalising' the informal capital that they often do have, but that the current institutional framework cannot recognize. Thus Prahalad and others try to convince capital and development institutions to develop solutions like micro-banking, creating bottom-up collectives of the most poor and a virtuous cycle. A bottom-up, distributed form of capitalism if you like, which shows an uncanny resemblance to P2P processes, and this is why we consider this position to be netarchical. The problem with these solutions is that they often aim to 'capitalise' everything, and do not have any regard for the surviving forms of the commons which are still very much alive in certain areas of the South, destroying the traditional social fabric. The profit requirement – and one cannot see how the current 15%

profit requirement of financial investors and multinational corporations can lead to any permanent engagement of these forces in B.O.P projects.

Jock Gill of the Greater Democracy weblog has criticized BOP schemes for these reasons, and has offered an alternative approach: namely citizen-to-citizen or 'edge to edge' development partnerships. Whereby collectives of individuals with capital, would directly provide collectives of individuals without capital, with the necessary amounts of small capital, and without imposing the profit requirement. Such practices are already widespread within the U.S. themselves, in the form of Gifting Circles, whereby local groups collate gifting money of its members, study options for giving together, and decide on appropriate local initiatives to support.

4. P2P in the Political Sphere

4.1.A. The Alterglobalisation Movement

The alterglobalisation[clx] 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[clxi], 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[clxii]. 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[clxiii], undertaken by small groups that use buddy-list technologies, sometimes open source programs that have been explicitly designed for political activism such as TextMob[clxiv]. 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[clxv]. Instead of representation, the movement has been experimenting with a wide variety of new organizational formats such as the social forums themselves[clxvi]. These have to navigate the tension between being a space for dialogue and socialization, and retaining efficiency in action, i.e. uniting around common projects. And this double objective had to be attained while respecting three basic horizontal constraints: 1) the continued ability to extend the network and hence maintenance of diversity; 2) the refusal of representation; 3) decision-making by consensus only[clxvii]. Contrary to previous movements in the past, who also started operating in a peer-like manner but then either 'institutionalised' themselves to survive or dissolved, the alterglobalisation movement seems to move in a opposite direction: towards a further consolidation of its radical P2P premises[clxviii].

The appearance of the paradigm of non-representationality is an important social innovation that should not go unnoticed and is at the heart of the philosophical underpinning of the P2P worldview. 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 seems to be absent from the alterglobalisation movement. No one, not even the celebrities, can speak for anyone else, though they can speak in their own name. Again, some movements and people have more influence than others, but none can be said to dominate or direct the movement as such. 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. What we get instead is 'shifting and dynamic structures'.

The adherents of such movements are most often post-ideological in their approach; they stress their difference, refuse 'permanent identification' with any particular movement, but at the same time try to overcome their differences through the common action. We have evolved from a 'stamp it' militancy (from the stamps that party members used to put in a membership booklet as proof of payment) which indicated a lifelong ideological commitment, to a 'post-it' neo-militancy, where these new types of organizations do not even propose membership[clxix].

A commonly heard criticism is that ‘they have no alternative’, i.e. are not offering a precise and integrated alternative political and social program. This in fact may reflect their new approach to politics. The main demand is indeed not always 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. Thus, in that sense, the 'aim' of the alterglobalisation movement is nothing else than a demand for a new 'organisation' of the world, based on the P2Pprinciples.[clxx]

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, 2002).

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[clxxi], which mixes tribal, corporate but also strong network features; another example is the leaderless resistance model advocated by some on the extreme right[clxxii].

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[clxxiii]. 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 (the 'intermittents'), 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 hyper-democratic 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 other. 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.

The coordination format aims to preserve 'difference', does not strive for 'unity' and 'centralisation' of the struggle, but achieves nevertheless 'common' goals and actions. However, in contrast with the earlier forms of 'mass demonstrations' and 'mass strikes', the coordination-led struggles are often organized in a 'just-in-time' fashion of autonomous micro-actions, often geared to the interrupting of the 'machine of the spectacle', i.e. the mass media, transport flows, and the culture industry. It is very similar to the approach of the alterglobalisation movement, which chooses heavily covered summits as focal points of action.

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[clxxiv] with his book "Le Contre-Pouvoir", and John Holloway with 'Revolution Without Power'.

Negri/Hardt have (re-)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[clxxv].

Their concept is derived from the Enlightenment debate between Hobbes and Spinoza. Hobbes, pioneering thinker moving away from conceptions of divine order towards those of natural order, said that society consists of multitudes of equals, marked by different and contradictory desires and interests making them unable to constitute a society by themselves.

In the state of nature, it's war of all against all. Thus, to constitute society, they have to give away their power, to a sovereign to whom they give the power to rule and to create social order. This eventually becomes 'uniting as a people', in order to create a "nation-state", with representative democracy. But the unity comes at a price, not only does inclusion in the nation-state imply exclusion of others, but within, those who partake had to give away their power. Thus, political power is transcendent vs. the immanent power of the multitude, it rules 'over them'. It is this characterist of modernity which is falling away today: taking his clue from the more positive description of the multitude and their desires by Spinoza, which represents a counter-trend and thus a 'alternative modernity', Spinoza and Negri maintain that the multitudes can rule themselves, in a fully immanent way, by themselves, refusing any transcendence of their power. Theirs is a politics without representation, centered around the notion of non-representationality.

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.

John Holloway frames a very similar sensibility it into a new conception of temporality. The traditional left used 'capitalist time-frames' he charges. First waiting, for the next reform, for the revolution, and 'then' all will be different. But instead of taking power, which makes 'us' become like 'them', and creates new asymmetries, we should be 'building power',[clxxvi] combining two temporarilities: first, the temporality of refusal, the 'exodus' if you like, but simultaneously, build the world you desire 'now'. Capitalism exists not because it was once created, but because we are making it every day. He stresses that what is needed is not 'counter-power', but 'anti-power'.

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…).

A recent explicitely participatory political philosophy is being developed by a group of authors such as Mitch Ratcliffe, and is called Extreme Democracy[clxxvii]. It is neither representative nor direct democracy but a proposal to have totally open participation in networks responsible for policymaking. The concept of 'Extreme' in this context, is related to the concept of 'extreme programming', a rapid, small-team like P2P process of producing software.

4.1.D. New lines of contention: Information Commons vs. New Enclosures

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. Just as the industrial mode of relations created the labour movement and the idea that the workers could own the means of production, the new social formation creates a movement that is favouring the common construction of a Information Commons.

The key conflict is about the freedom to construct the Information Commons[clxxviii], vs. the private appropriation of knowledge by for-profit firms[clxxix]. All these different Commons-related struggle share common characteristics, and Philippe Aigrain has examined, in his book 'Cause Commune', how these different forces can unite in common struggle[clxxx].

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.

The last 30 years have indeed seen an enormous extension of Intellectual Property Rights, resulting in a severe weakening of the Scientific Commons, a variety of detrimental social effects, while new developments threaten the development of a free culture. Cognitive capitalism is centered around the accumulation of knowledge assets, and has altered the classic cycle of consumption and production. In the industrial economy this cycle was described as conception-production-distribution- consumption. In this economy, over time, competition would arise, making the products cheaper, forcing corporations to become either more productive or invent new products. In the new economy, the cycle is better described as conception – reproduction of the informational basis – production – distribution – consumption. The informational basis, whether it is software, cultural content, or material products such as seeds in agribusiness, molecules and gene sequences in the pharmaceutical industry, are protected through information property rights. The aspect of production and distribution is no longer central, and can be easily outsourced. This mechanism has now extended to vast sectors of the 'material economy' with companies such as Nike and Alcatel as companies that are essentially divested of material prodution, but are centered around their knowledge and other immaterial assets (essentially 'branding')

Through this mechanism of IP protection, super-profits can be maintained, common pools of knowledge are destroyed and appropriated, and innovation is slowed down. In agribusiness, seeds lose their productive qualities after a generation, rendering farmers completely dependent, while inflated prices created debt cycles. In pharmaceuticals, the inflated prices of medication are one of the key factors of the crisis of the welfare state, while millions of patients are excluded from appropriate care, especially in the South. A 2001 study of Doctors

Without Border showed that only one percent of the molecules being studies, concerned the most prevalent diseases in the South (malaria, TBC, etc..) The most well-known case is of course the controversy around AIDS treatments, where millions of patients are unnecessarily dying because they are not allowed access to generic drugs. The software patenting[clxxxi] which originated in the U.S. and has been copied in Europe makes it now possible to protect ideas and any logical sequence (which includes business processes) and is widely seen as an impediment for further innovation, since it excludes small companies who lack the means of taking the licenses, whileleading to an explosion of litigation. American reforms which have allowed universities to privatize and patent their scientific knowledge and have severely endangered cooperation amongst scientists. Finally, exploding prices of scientific publications have rendered access to scientific knowledge more difficult.

It is this intensive effort at the private appropriation of knowledge that has created different movements of resistance. The free software movement, the movements of farmers against biopiracy in seeds and animal and vegetal types, where Western corporations are privatizing the fruits of thousands of year of communal cooperation; the movement of patients and developmental organizations for access to reasonably priced medicines and medical knowledge; the movement for free access to scientific publications, are all related reactions to these New Enclosures. Slowly, ever larger segments of the public started to realize that the new forms of Intellectual Property were no longer based on a compromise between the interests of consumers, creators and publishing intermediaries, but had been extended to favor information property monopolies, who were also threatening to own and control life itself.

At the same time as the existing Information and Scientific Commons were threatened, the internet has created an enormous bottom-up movement, through peer production and knowledge collectives, through microcontent and generalized knowledge exchange of millions of people, thereby creating a new Information Commons. It is the merger of the concerns of the already existing resistance groups, and the realization of the meaning of the process of peer to peer content creation, which is at the core of a new political movement associated with the peer to peer social formation, inspired by the vision of a re-invigorated Commons. By extension, this realization has led to connections with those forces protecting the already existing physical commons (water, air, transportation systems), and the surviving common property forms in the South, which are still strong amongst some native peoples.

A crucial development to bring all of this to generalized public consciousness, especially amongst the new generations, was the development of filesharing. A process that always existed amongst groups of friends, that of sharing cultural enjoyment and creation, is now extended in scope by technology. This endangers the intellectual property system which favors large monopolies, much less the authors and content creators which are at a disadvantage in the current IP system. Moreover, 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. It is around this development that the regressive nature of cognitive capitalism has been most glaring since it has led to an all-out war against its own consumers.
Indeed, 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. This would have the effect of not stopping so-called illicit usage, but of stopping the general movement of sharing of cultural content, even the autonomously created one. Another strategy is to incorporate control mechanisms either in

software (where it can be hacked and circumvented, but that is made illegal as well), or in the hardware (digital rights management schemes). While the users and producers of free culture[clxxxii] are battling the attempts at the enclosure of culture by large 'vectoralist' corporations[clxxxiii], many are working at offering solutions that both protect the use of culture, and make it possible for creators to make a living[clxxxiv].

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 tiny minority of superstar 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 sometimes seen as an impediment, impeding the free use what should be a common resource. But what the Commons movement aims at is not abolishing IP, but restoring it to its original intention, i.e. a social compromise that combines the interests of user communities, creators of content needing to make a living, and the reasonable retribution of intermediaries which serve in production and distribution. It seeks to undo the landgrab that has taken place in the last thirty years, and to remedy the grave social problems that have been created (such as the lack of access to life-saving medications) by this one-sided appropriation. It seeks to avoid that new steps are taken in that process of appropriation, refusing that life can be controlled by private interests, and that cultural life would be the subject of restrictive licensing and built into the technology itself. Lastly, it aims to create the conditions that foster the healty development of a strong Commons.

In the meantime, while this political struggle continues, 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 private appropriaton 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. And it also expressed in the continous technological development of an infrastructure for cooperation and sharing.

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[clxxxv].

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 algorythms 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? This distribution then inherently creates a conflict with the egalitarian demands that is equally constitutive of politics and society. The distribution itself creates an exclusion and resulting demands of participation[clxxxvi].

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 whatsoever for the consumer. This is indeed a scenario of exclusion for all those who will not be able to afford access to the networks. Just as in the feudal structure, where 'serf'-farmers did not own the land they were working on, we will not own any immaterial product anymore, we'll just have severely restricted usage rights, and certainly not the right to share. 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 and Hierarchy

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's productive capacity is more important than its military might. 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[clxxxvii]. 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, including the early modern classical era of the 18th century, 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. Power has become more democratic, more social, more immanent to the social field, "distributed throughout the brains and bodies of the citizens" (Negri's Empire, p. 23). Philippe Zafirian, in his Temps et Modernite, further re-interprets the work of Deleuze by applying it to the workplace and calls the new power, the power of modulation, 'control by modulation'[clxxxviii]. Instead of tightly describing and dividing jobs, and controlling their debit, as was the case in the 'modern' factory system and in particular in the Fordist/Taylorist period, the focus is now on 'objectives' and 'deadlines'. Both the manager and the work are constantly evaluating and self-evaluating their ability to conform to the high-pressure objectives and deadlines, but are 'free' in how to attain it. Zafirian uses the metaphor of the 'elastic'[clxxxix]: you can pull it in different directions, within it you are free to go about, but there are indeed limits that cannot be crossed.

In any case, Deleuze already prefigured, so many years ahead, the emerging dominance of distributed networks (rhizomes). If Foucault was the philosopher and historian of power of modernity, then Deleuze and Guattari have been the early theorizers of power in the network era. However there is a danger in missing important developments, radical innovations even, if we conflate the post-1968 under the one heading of postmodernity, since that would miss the accelerated growth of peer to peer processes, which started only in the 1990's, after the popularization of the internet. Perhaps future historians will date a new era that began in 1989, with the fall of the Berlin Wall indicating the moment when the free flow of information began to destroy the most authoritarian regimes. In the figures below, I explicitly distinguish the postmodern era, from the emerging peer to peer era.

The P2P era indeed adds a new twist, a new form of power, which we have called Protocollary Power, and has first been clearly identified and analysed by Alexander Galloway in his book Protocol. 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. Galloway suggests that we make a diagram of the networks we participate in, with dots and lines, nodes and edges. Who decides who can participate, or better, what are the implied rules governing participation (since there is no specific 'who' or command in a distributed environment); what kind of linkages are possible. On the example of the internet, Galloway shows how the net has a peer to peer protocol in the form of TCP/IP, but that the Domain Name System is hierarchical, and that an authorative server could block a domain family from operating. This is how power should be analysed. Such power is not per se negative, since protocol is needed to enable participation (no driving without highway code!), but protocol can also be centralized, proprietary, secret, in that case subverting peer to peer processes. However, the stress on protocol, which concerns what Yochai Benkler calls the 'logical layer' of the networks, should not make us forget the power distribution of the physical layer (who owns the networks), and the content layer (who owns and controls the content).

The key question is: do the centralized and hierarchical elements in the protocol, enable or disable participation? This is shown in the following account of the development of the theory and practice of hierarchy, submitted to us by John Heron in a personal communication. In true peer to peer, the role of hierarchy is to enable the spontaneous emergence of 'autonomy in cooperation':

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

Compilation by Michel Bauwens

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

Compiled from a text by John Heron.

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[cxc]. 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[cxci].

An important contribution is the work of Alexander R. Galloway, Protocol, because he clearly makes the important distinction between 'decentralised' and 'distributed' networks.
First we had centralized networks. In this format, all links between nodes must go through the center, which has to authorize or enable them. Think about mainframe computers with dumb terminals, or the central switches in telephone systems. In a second phase, networks are decentralized, which means the center is broken up in several subcenters. Here, linkages and actions between nodes must still pass through one of these subcenters. An example is the

American airport system, organized around hubs such as Atlanta. To go from one regional city to another, you must pass through such a hub. In distributed networks, such as the network of interstate highways or the internet, this requirement no longer applies. Hubs, i.e. nodes that carry more links than others, may exist, but they are optional, and grow organically, they are not obligatory or designed beforehand. Abstract network theory, seeing hubs in both cases, may miss this important point. Peer to peer is the relational dynamic of distributed networks! A distributed network may or may not be a egalitarian network (see just below).

Nexus is a book by Duncan Watts, who summarises network theory investigations for the lay public, focusing 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, and rapidly moving information from one local or affinity group, to another different one. 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 node, such as acreage per square kilometer for a river basin), 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 fact, it seems that whenever we have many choices and many distributed agents making these choices, inequality of choice is created[cxcii]. It seems to be the natural result of any 'economy of attention'. But that is the point, such distribution is not forced, as in a oligopoly or monopoly, but arises naturally from the freedom of choice, and can be considered a 'fair' result, provided no coercion is used. Networks where such a power law operates are called 'scale-free', because at whatever scale, the same relation between variables (i.e. distribution pattern) applies.

In terms of a normative P2P ethos, it is important to note that it is not systematically favoring egalitarian networks. The Internet and the web are both aristocratic networks; the blogosphere is characterized by a power law distribution. The key questions are: 1) is the network efficient; 2) does it enable participation; 3) is the emergence of an aristocratic structure non-coercive and eventually 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.

The power law can possibly mitigated by the development of algorhythms, that can highlight important information and connections from nodes that may not come up 'naturally', but this discipline is still in its infancy at the moment. But the power law is also counteracted by what some network economists have called the 'Long Tail'. This is the phenomena whereby

minority groups are not excluded from the distribution of knowledge and exchange, but are on the contrary enable to organize micro-communities. In the business world, this is shown by how online stores like Amazon and eBay, by using affinity matching schemes, have resulted in the creation of many thousands of previously not existing mini-markets. Books, CD's and films which would be destroyed for lack of interest in the mass media system, now have a second and third lease of life, through the continued attention given to them by self-organising minority interests. This is an important guarantee for a vibrand cultural life, which does not destroy difference and cultural heterogeinity.[cxciii]

One of the keys to avoiding the power law may therefore be to keep sub-networks small. One of the recurring debates within cooperation studies indeed concers a discussion on the optimal size of online groups. Dunbar, an anthropologist at the University College of London, has posited a link between brain size and our maximum number of close social ties[cxciv], a claim supported by many animal, especially primate, and anthropological studies. He predicts that 147.8 is the "mean group size" for humans and this number has also been applied to online cooperation. But such a number would require a large time of social grooming so in reality it is much less. This discussion is important because other researchers, such as Valerie Krebs, have shown that in smaller groups, the power law does not operate and that they function as egalitarian networks[cxcv]. The key therefore is to organize online collaboration in such a way so that it is divided in appropriate subgroups, and this seems pretty much the way software peer production teams seem to operate.

The shift in 'business models' characteristics of the new networks is explained by David Reed, who has summarized the different mathematical laws inherent in the value created by networks. First, we focus on the individuals. If a network has N-members and memberships grows, then one can see a linear growth in audience, i.e. N+1, N+2, etc.. i.e. a proportional growth in value. This formula was already at play in broadcast media and in such an environment, 'content is king', and publisher vie for the attention of the users of the network. This explains the role of portal sites such as Yahoo, who re-intermediate the economy of attention that we discussed before. If we now focus on the 'interaction between individuals', we see that the network enables transactions, but that these grow by a 'square value'. This characteristic is called Metcalfe's Law. A network of 2 allows for 2 transactions (back and forth buying and selling), a network of 3 allows for 8 transactions, a network of 4 allows for 16 transactions. This aspect of the network creates transactional platforms such as eBay. Finally, we focus on community. Networks have the ability to enable the formation of subgroups, they are 'Group Forming Networks'. But value growth here is 'exponential'. It is this characteristic that is called Reed's Law. Every affinity group creates and 'consumes' its own content, and it is here that the true peer to peer processes emerge,characterized by infinite content creation. The economy of attention becomes moot, because what is happening is not limited content competing for the same audience, but infinite content competing for infinite combinations of affinity groups.

The discovery of the theory of networks in the physical sphere, has therefore a corollary in seeing it in social life, and in particular, in the area of organizational life, including business. The finds its expression in the emerging discipline of social network analysis and cooperation studies generally, and in particular, in coordination theory, as pioneered by Thomas Malone[cxcvi].

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, which 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 arises, 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[cxcvii], 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. (In section 3.3.C. , I have tried to show how peer to peer tries to avoid the creation of collective individuals, through the creation of objective algorhythms which express the communal wisdom of a collective.)

This articulation, based on a autonomous self in a society which he himself creates through the social contract, has been changing in postmodernity. Simondon, a French philosopher of technology with an important posthumous following in the French-speaking world, has argued that what was typical for modernity was to 'extract the individual dimension' of every aspect of reality, of things/processes that are also always-already related[cxcviii]. And what is needed to renew thought, he argued, was not to go back to premodern wholism, but to systematically build on the proposition that 'everything is related', while retaining the achievements of modern thought, i.e. the equally important centrality of individuality. Thus individuality then comes to be seen as constituted by relations, from relations.

This proposition, that 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, seems to be one of the main achievements of what could be called 'postmodern thought'. Atomistic individualism is rejected in favour of the view of a relational self[cxcix], a new balance between individual agency and collective communion. For a comprehensive view of the collective, it is now customary to distinguish 1) the totality of relations; 2) the

field in which these relations operate, up to the macro-field of society itself, which establishes the 'protocol' of what is possible and not; 3) the object of the relationship ("object-oriented sociality"), i.e. the pre-formed ideal which inspires the common action. That sociality is 'object-oriented' is an important antidote to flatland network theory, on which many failed social networking experiments are based, i.e. the idea that the field of relations is the only important dimension of reality, while forgetting human intentionality[cc].

In conclusion, this turn to the collective that the emergence of peer to peer represent does not in any way present a loss of individuality, even of individualism. Rather it 'transcends and includes' individualism and collectism in a new unity, which I would like to call 'cooperative individualism'. The cooperativity is not necessarily intentional (i.e. the result of conscious altruism), but constitutive of our being, and the best applications of P2P, are based on this idea. Similar to Adam Smith's theory of the invisible hand, the best designed collaborative systems take advantage of the self-interest of the users, turning it into collective benefit.

This recognition would help in distinguishing transformative P2P conceptions from regressive interpretations harking back to premodern communion. I find this distinction well expressed by Charlene Spretnak, cited by John Heron in a debate with the conception of an 'inclusional self' by Ted Lumley of Goodshare.org:

"The ecological/cosmological sense of uniqueness coupled with intersubjectivity and interbeing…One can accurately speak of the 'autonomy' of an individual only by incorporating a sense of the dynamic web of relationships that are constitutive for that being at a given moment."[cci]

In any case, the balance is again moving towards the collective. But if the new forms of collective recognize individuality and even individualism, they are not merely 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[ccii].

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, including the hard sciences such as physics and biology[cciii].
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.[cciv]

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. 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 Heron.

Heron has given a good summary of the post-WWII evolution of spiritual culture and describes the current moment as follows:

- *(a) The erosion of guru status as a result of sexual and financial abuse and bullying scandals among both Eastern and homegrown Western gurus and spiritual teachers.*
- *(b) The erosion of 'enlightenment' claims by the proliferation of the number of people, especially in the West, making the claim: the more people who make the claim, the more its narcissistic inflation stands revealed. For the 'enlightenment' claim is also an authority-claim to have followers, a recruiting drive; and the more claims that are made, the stronger the competition among claimants in the market-place for attention.*
- *(c) A growing awareness that spiritual authority is within and that to project it outward onto teacher, tradition or text is an early, adolescent phase of spiritual development in the one projecting, and counter-spiritual manipulative abuse in any guru/teacher who seeks to elicit, to appropriate and* to sustain *the projection.*

- *(d)* ***The emergence of peer to peer spirituality, which democratizes charismatic, enlightened leadership, and realizes that it is a role which different persons assume at different times, either in the initiation of a peer group or in the continuous unfolding of its process***.[ccv]

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[ccvi]. 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[ccvii]. 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'[ccviii], 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. J. Kripal, who is very appreciative of Jorge Ferrer's contribution, does conclude that one more lingering illusion about religion and mysticism should be abandoned: that it is somehow quintessentially 'moral' or 'ethical' and essentially emancipatory in character, a claim that he disputes[ccix].

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, i.e. the common is actually the 'object of our cooperation'), 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. What follows is a speculative account of the philosophical and spiritual sources that could be used by our culture to recover such ethos.

Indeed 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. During the annual SEED conferences in Alququerque, New Mexico, Western astrophysicians, and philosophers are undertaking a continued dialogue with native American elders, as one way to mutually enrich their epistemologies, with the explicit aim of recovering participative approaches[ccx]. Jean Gebser, in his masterwork 'The Ever-present Origin', is probably the one that has best described the process of recovery of such participative worldview, starting with the artists of the beginning of the 20th century and continuing with the development of quantum physics, in recent times, calling it 'integral consciousness'.

Instead of considering nature in a Cartesian fashion as 'dead matter' or a collection of objects to be manipulated[ccxi], we recognize that throughout nature there is a scale of consciousness or awareness[ccxii], and that natural agents and collectives have their natural propensities, and that, giving up our need for domination (or rather 'transforming it') 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[ccxiii] 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. While there is undoubtedly a new stress on 'wholism'[ccxiv] in many contemporary thinkers, the stress is on interpretations of interdependence that do not return to pre-individual interpretations, but rather on showing on the individual is fully co-dependent on the whole.

An important question is: how do we recover such a tradition of thought and feeling-being, we who are the children of the Enligthenment? Here are some explorations of 'genealogies of thought' which could be used to recreate such participative ethos.

One of the possible paths is the recovery of the cosmobiological tradition of the Renaissance thinkers, who are close to us since they had one foot in the world of tradition and one in the world of modernity-inducing change. Loren Goldner uncovers, in a very interesting essay[ccxv], this 'third stream of cosmobiological thought', which he says could be used to reconstruct a post-Enlightenment left. He contrasts it with the Aristotelianism of the Church, and with the 'mechanistic' ideas of the Enlightenment (creators of a dead universe and empty space that can be gazed at and manipulated by the autonomous ego). He traces the history of this third stream starts with the Renaissance starting with Bruno and Kepler, and later continued by Baader, Schelling, Oersted, Davy, Faraday, Goethe, W.R. Hamilton, Goerg Cantor, Joseph Needham. For them, the universe is brimming with life, sensuousness, and meaning, and

cannot be approached as dead matter. Marx explicitely refers to this tradition, and was imbued by it through his filiation with German 'idealist' philosophy, but, according to Goldner, that has been forgotten by the two dominant streams of the left, i.e. social democracy and Stalinism, who take over the mechanistic Enlightenment tradition. Both Foucauldian postmodernism, and the defense of the Enlightenment tradition by Habermas, miss and obscure this vital link as well, says Goldner[ccxvi]. . In any case, this cosmobiological tradition is an 'alternative strand of modernity', which lost out but could perhaps be retrieved and redeveloped.

Other important genealogies to recreate a participatory worldview appropriate to our age have been undertaken by Smolinowsky and David Skrbna, in their 'ecophilosophy'[ccxvii]. The focus here is on the concept of the 'participatory mind'[ccxviii].

Recently there have been important attempts to rephrase the participatory tradition by John Heron[ccxix] and Jorge Ferrer as well, arising from within the community of transpersonal psychology. The Nature Institute, inspired by Goethe and others, has been working on developing conceptions of qualitative science that fits this evolution as well.[ccxx] Toni Negri and others, are similarly trying to redeveloped a similar 'alternative modernity' based on the oeuvre of Spinoza, though the relationship with nature does not seem to be a prominent theme in his writings. Rather, they focus on developing a participative relationship with our machines[ccxxi].

In any case, 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. I do not think it is possible to divorce the P2P ethos as it applies to people and humanity, from our wider relationship with nature, and therefore, it will be impossible to fully retain either the modernist objective gaze or postmodern-inspired nihilism. Instead, we have to reconstruct our worldviews and heal our 'split' with nature.

And at some point, we will start to realize that our very realities are 'always-already participative'[ccxxii], that we are not separate from the world, that our being-in-the-world is subjective-objective. When this happens on a more massive scale, a new civilization will in effect have been borne.

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. We have already seen how it is to a great degree the legal and technical sabotage of the enemies of P2P, which have driven forward its development.

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'[ccxxiii]; 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[ccxxiv].

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[ccxxv], John Perry Barlow[ccxxvi] 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[ccxxvii] 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[ccxxviii]. 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[ccxxix]. Creating the new social reality takes precedence over political demands, the latter having to be a consequence of the former. Today to resist is in the first place 'to create'.

Therefore, 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. This is what is being expressed by Toni Negri's concept of Exodus, and what other call 'Desertion'[ccxxx]. These commentators note that it was 'the refusal of work' in the seventies, with bluecollar workers showing increasing dissatisfaction with the Taylorist/Fordist system of work, that lead to the fundamental re-arrangement of work in the first place. 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. Or perhaps an even more correct metaphor: it is about the right to produce altogether different kinds of pie.

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[ccxxxi]. 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 and 'Creative Commons'.

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[ccxxxii], 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[ccxxxiii]. 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.

Appendix 1. 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.

Appendix 2: The P2P Meme Map

(read the table from the bottom up)

Compiled by Michel Bauwens, June 30, 2005

Level one represents the cultural shift in ways of being, feeling and knowing, as well as the new core value constellations that underpin the shift to a peer to peer civilization.

Level two represents the technological distributed computing infrastructure, the P2P media infrastructure which enables many-to-many communication, and the collaborative infrastructure which allows autonomous groups to cooperate on a global scale, outside the bounds of markets and hierarchies.

Level three represents the legal infrastructure. The General Public License (and Open Source initiatives), which creates and expands the P2P technological infrastructure as a public domain Commons; Creative Commons licenses achieve the same effect for content creation. Technological protocols such as TCP/IP insure the participative nature of new technologies, while P2P collectives set their own internally-generated frameworks of cooperation, within the broader framework of Internet-based civility (netiquette). Taking together they create a common property regime of public goods outside the market and the state.

Level 4 represents new social practices that are thoroughly characterized by P2P principles (as distinguished from non-P2P formats enabled by P2P infrastructures). The first strand is represented by 'non-representational politics', politics which refuses representation, as

exemplified by the alterglobalisation movement and Social Forums, the coordination format adopted by social movements. Peer production creates collective use value in the form of a Commons, and is exemplified by free software, knowledge collectives such as Wikipedia, collaborative publishing such as Indymedia. Participative spirituality represents a new way of relating to religions, the cosmos, and nature and its beings, refusing authoritarian truths and methods, sometimes practiced in the form of peer circles.

Level 5 are practices that are not full P2P themselves, but are enabled and strengthened by P2P infrastructures: examples are P2P marketplaces which do not create a commons and are run by for-profit enterprises, or who derive substantial value from user-created content ('netarchical' enterprises who enable and exploit participative networks); gift economies or sharing economies (the latter defined by Yochai Benkler), such as local exchange trading systems and local currencies;

1. Empire/cognitive capitalism rests on distributed networking but instrumentalises it for domination

2. P2P-based marketplaces and Long Tail economics: eBay, Zopa, self-publishing; supply and demand meat each other through the internet; creating millions of sustainable micro-markets

3. Netarchical value creation / for-profit enablement and exploitation of participative networks: positive externalities of P2P create value for new type of businesses: Amazon customer evaluations, Google page ranking based on user linking; user-centric innovation; users create substantial content for the portals

4. Bottom of the pyramid development schemes (Prahalad); microcredit (collective credit applications); citizen to citizen (edge to edge) development schemes (Jock Gill)

5. Gift and sharing economy practices are enabled by P2P infrastructures: open money and local currency schemes, local exchange trading systems (LETS); carpooling becomes economical with distributed infrastructures; nonprofit organizations and social entrepreneurships are enabled. Lower transactional costs strengthen enable fairer trade and economics

Level 5: **P2P-ENABLED PRACTICES**

1.A. Non-representational politics: networked alterglobalism, coordination formats for social struggles, conceptual innovation of multitudes (Negri), creation as resistance (Benasayag), revolution without power (Holloway)

=> CREATION OF ABSOLUTE DEMOCRACY MODELS

1.B. Autonomous social and cultural practices: internet-based affinity groups, self-help and mutual support groups, non-expert dominated knowledge creation, validation, and exchange, filesharing; open science projects and open access to scientific publications

=> CREATION OF THE INFORMATION COMMONS

2. Peer production (also called, Commons-Based Peer Production CBPP): Free software and open source software (also called Free/Libre Open Source Software FLOSS): GNU/Linux; Knowledge collectives: Wikipedia, Collaborative Media: Indymedia

=> THIRD MODE OF PRODUCTION CREATES FOR-BENEFIT SECTOR

3. Participatory spirituality: non-representational dialogue of religion, contributory theology, cooperative inquiry practices (John Heron), plural mysticism (Jorge Ferrer), peer circles

=> PLURALISTIC CONTRIBUTORY SPIRITUALITY

NON-REPRESENTATIONAL POLITICS & AUTONOMOUS SOCIAL ORGANISATION // PEER PRODUCTION // PARTICIPATORY SPIRITUALITY

Level 4**: DIRECT P2P PRACTICES**

1. New Common Property Regime: General Public License, Open Source Initiative, Creative Commons, Art libre License allow for creation that cannot be privately appropriated

2. Participative Technological Protocols: TCP/IP protocol for P2P communication, Writeable Web protocols allow self-publishing by everyone, Viral Communicator Meshwork protocols enable network building without infrastructures and backbones: Open Spectrum proposal would create Wireless Commons

3. Participative Social Protocols: netiquette, project constitutions, social accounting and reputation-based schemes create transparency, participation capture turns self-interest into common resources

NEW COMMON PROPERTY REGIME // PARTICIPATIVE TECHNOLOGICAL PROTOCOLS // PARTICIPATIVE SOCIAL PROTOCOLS

Level 3: **P2P LEGAL INFRASTRUCTURE**

1.A. Distributed computing infrastructure (hardware): Internet, Grid Computing, Filesharing, Wireless Meshwork, Viral Communicators

1.B. Free Software / Open source software infrastructure: GNU/Linux, OS Desktop applications, OS content management software, OS communication tools

2. Distributed media infrastructure: Blogging (Writeable Web), Podcasting (audio), Webcasting (broadband audiovisual) 3. Distributed collaboration infrastructure: Wiki's, social software, groupware
DISTRIBUTED COMPUTING // DISTRIBUTED MEDIA // DISTRIBUTED COLLOBARATION
Level two: **P2P TECHNOLOGICAL INFRASTRUCTURE**
1. New ways of feeling and being: participative cosmologies, the relational self, cooperative individualism 2. New ways of knowing: connectivist learning, communal (not institutional) validation of knowledge, transparency (not objectivity) 3. Primacy of Equality/freedom, the hacker ethic of self-unfolding 'passion-based' cooperation, abundance over scarcity, participation over exclusion, meritocratic servant leadership by example, coordination instead of command and control 4. Desire for P2P Civilisation to be defined by: 1) Absolute Democracy: participation of all extended to all areas of social life, not just politics; a Pluralist Economy with a strong Commons sector along with a reformed market and state; a Participative Universe based on partnership with nature and its beings
P2P ONTOLOGY // P2P EPISTEMOLOGY // P2P AXIOLOGY (New ways of feeling and being // New ways of knowing // New core value constellation and aspirations)
Level one: **P2P CULTURAL FOUNDATIONS AND VALUE FIELD**

Appendix 3: Reactions to the Essay: Kudo's

A compilation of positive reactions on this essay and its expression of the P2P 'meme':

- **George Dafermos, at** http://radio.weblogs.com/0117128/

"Michel Bauwens is the author of the most visionary piece on peer-to-peer I've ever read, published his much-awaited new essay on P2P, entitled P2P and Human Evolution: *p2p as*

the premise of a new mode of civilization. As expected, his excellent and path-breaking treatise is all-encompassing, critically exploring P2P in all its possible manifestations and linkages, that is, with respect to its political, social, economic, spiritual, cultural, and technological implications. It is at the intersections of all these spheres and their interactions that P2P holds the potential to emerge as the basis of *the new civilisation premised on self-realisation, autonomy, creation, eros, and sharing*. It's either that or a return to barbarism, writes Bauwens. Read on and marvel at the mental syntheses that this essay invokes."

- **Peer to Peer weblog / Unmediated at** http://p2p.weblogsinc.com/entry/1234000653037158/

"Michel Bauwens has written a phenomenal essay entitled P2P and Human Evolution: Placing Peer to Peer Theory in an Integral Framework. It's long and much of it goes far over my head, but reads like a P2P manifesto" Bauwens even concludes by calling it a guide to an active participation in the transformation of our world, into something better, more participative, more free, more creative. Really quite fascinating."

- **Integral Foresight Institute, Chris Stewart**

"What Michael Bauwens has achieved in a very short space fullfills the same function as the Communist Manifesto once did: a call for a worldwide movement for social and political change, firmly rooted in the objective and subjective changes of contempary society, and articulated as a practical and insightful model of human value and power relations that is ahead of its time. If we listen more carefully to Bauwens than we ever did Marx, however, it just might lead to a smooth evolution for humanity rather than revolution, or at worst, destruction. Bauwens has traced out real contours of hope for Western civilization. His presentation of a P2P perspective includes a clear theory of human power and value relations, a practical appreciation of its relationship to the current orthodoxy, and an inspiring vision for viable, sustainable, and desirable futures. Just as Bauwens notes the limited social acceptance of Marx at the time of his writing, it may well be that in years to come Bauwens's articulate and deeply considered insights will not only be as profoundly influential and valuable but, crucially, a lot more workable."

- **P2P and Integral Theory – Generation Sit weblog**

"I rarely encounter essays addressing Integral Theory in the context of emerging technology. But if there's one thing out there worth reading, this essay is one of them -- P2P and Human Evolution: Placing Peer to Peer Theory in an Integral Framework (via IntegralWorld). This very long essay describes P2P in detail, covering the interior and exterior aspects, and its incompatibilities with Spiral Dynamics and Integral Theory. There are a lot of heady stuff for me to digest in this essay. And I'm still not done reading it."

- **John Heron, Participatory Spirituality pioneer, author of Sacred Science**

"What I appreciate is your clarity with regard to the following: your basic definition of p2p; the way you trace this definition, and any compromises and departures from it, within its many manifestations; and toward the end of your account, forms co-existence and of possible political strategies. All of this is very valuable food for thought and action. You make a most effective and persuasive case for the widespread significance of the p2p phenomenon, in diverse fields, and with due regard for the underlying epistemological shifts involved. This

work is indeed a major achievement of scholarship, insight, moral vision and political imagination."

- Victor Lewis-Hansom, by email:

"At first skim reading, I think that the spark you have created in our historical times, will be historically significant and remembered. Thank you for putting so much of yourself into your essay."

- Yves Simon at http://www.social-computing.com/showitem.php?ID=137

"Michel Bauwens est un personnage connu du monde de la nouvelle économie. Il a rendu public une dernière mouture de son essai courant mars 2005 : P2P and Human Evolution : Peer to peer as the premise of a new mode of civilization
Un article dans la revue belge Imagine Magazine présente les conclusions de cette étude. Michel Bauwens estime que les technologies peer to peer ne sont que **les prémisses de la constitution d'une nouvelle civilisation de pairs** qui doit bouleverser les modèles établis. Je cite ci-après qq passages remarquables de l'interview conduit par David Leloup :

"Il s'agit donc d'une grande transformation culturelle qui conduit à un paradigme participatif.

Le P2P est d'abord un concept descriptif. Il permet d'analyser des nouvelles formes d'organisation. Là où le concept de peer-to-peer devient encore plus puissant, c'est quand il passe du statut d'outil descriptif à une utilisation normative. Comment le monde changerait-il, comment ma vie et mon éthique changent-elles, quand ***je commence à exiger des relations de pairs dans la totalité de mes actes ?*** *Le peer-to-peer acquiert alors une véritable puissance révolutionnaire. C'est par exemple ce que le mouvement féministe a voulu et en partie réalisé : un refus d'accepter encore plus longtemps l'inégalité avec les hommes. Il y a aujourd'hui un véritable exode vers les interstices du système : non seulement il y a les «downshifters» comme moi-même, mais également* ***des pans entiers de la jeunesse qui refusent la féodalité intrinsèque de la structure des entreprises.***

Le peer-to-peer est en effet ***la structure même du troisième capitalisme : le capitalisme cognitif****, qui remplace le capitalisme industriel lui-même ayant remplacé le capitalisme marchand.*

...liée à la notion de «noosphère» de Teilhard de Chardin, c'est-à-dire la sphère spécifiquement culturelle, humaine. ***Le peer-to-peer permet une interconnexion de tous les cerveaux au niveau planétaire, et permet donc une action globale afin de répondre aux énormes défis écologiques et autres****. Avant l'avènement d'Internet, ce genre de coordination globale était exclusivement réservée aux grandes multinationales.*

le P2P permet de créer un contre-pouvoir qui combine l'échange égalitaire et la création d'une nouvelle sphère cognitive commune – ce que Lawrence Lessig appelle les «Creative Commons».

- Marc Dangeard in http://casailor.blogspot.com/2005/04/p2p-et-societe.html

"Je viens de lire l'essai de Michel Bauwens sur le Peer-to-Peer, et c'est extrememement interessant. Ca se lit vite, et ca en vaut l'effort: http://noosphere.cc/P2P2bi.htm
La conclusion est qu'il y a dans l'avenement du peer to peer une vraie opportunite de changer le systeme dans lequel nous vivons.

En relation avec cette analyse sur l'evolution des modes de communication vers un modele peer to peer, et sur les modeles de societe qui peuvent en decouler, je suis convaincu que la facon dont on peut ameliorer les choses en matiere de business, d'enrichissement spirituel de l'individu au sein d'une entreprise, et de repartission des richesses en general est de passer par la creation d'entreprises qui seront construites sur des modeles nouveaux, ou les employes pourront participer activement et volontairement aux process et ou la distribution du revenu se fera de facon plus large, un peu sur le modele des stocks options qui sont distribuees aujourd'hui dans les start-ups de la Silicon Valley (mais avec un twist). Rien de radical, pas de revolution, plutot une evolution des modes de fonctionnement existants mais pour des resultats qui seront eux radicalement differents; l'entreprise de demain dont je parle dans un post precedent."

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to add and check:

Gunderson and Holling, Panarchy: Understanding Transformations in Systems of Humans and Nature .

i

French-language books on cognitive capitalism, regularly mentioned in the magazine are: 1) Andre Gozr. L'immaterial. 2003; 2) La place des chaussettes. Christian Marazzi. L'eclat, 2001, on the linguistic turn of capitalism; 3) Corsani et al. Vers un capitalisme cognitif. L'harmattan, 2001; 4) Sommes-nous sortis du capitalisme industriel? (sous la direction de Carlo Vercellone). Ed. La Dispute; 5) Vercellone C. (ed), Transformations de la division du travail et nouvelles regulations. Le crepuscule du capitalisme industriel ?, Paris, l'Harmattan; 6) Maurizio Lazzarato. Les Revolutions du Capitalisme.Les Empecheurs de Penser en Rond, 2004.

ii

- Not an utopia, but an existing social practice

Related to my concept of peer to peer, is the concept of panarchy. The author of the panarchy website Paul Hartzog has a very similar positioning. However, where I differ is that it is in my view also a normative model, it represents a new ethos. And it is not just an automatic development, but is sustained and promoted by a sociopolitical movement, and is and will be fought by others.

"Panarchy, and by extension this website, is not a normative model; it is a descriptive one. Panarchy is not a utopian vision, or an attempt to describe a rational or just world order. Panarchy may not be good or bad, but it *is* coherent and consistent. Like the Industrial Era, Panarchy demonstrates certain ways of perceiving and interacting with the world throughout its breadth and depth. Panarchy emerges from the analysis of broad patterns of change in the world, which leads to an understanding the dynamics of systems and holarchies. By applying those understandings across all strata of society, we arrive at a description of where civilization is heading -- thus, Panarchy.

Panarchy is the pattern of relations that characterizes and defines the next era in human civilization. The totality of these relations - political, economic, social - is what constitutes global governance in the next cycle of civilization. Mark Salter offers this definition: "Panarchy means an inclusive, universal system of governance in which all may participate meaningfully".
(http://www.panarchy.com)

Related Book: Gunderson and Holling, **Panarchy: Understanding Transformations in Systems of Humans and Nature** .

iii

- Two ways of knowing:

"In this realm of the history of ideas, just as in linguistics, words have meaning only insofar as they participate in a system of distinctions with other words. Relativity (or diversity, or pluralism) and its linguistic complementary opposite, universality, have been used together as a set, a system, for hundreds of years in Euro-thought. Some people prefer to explore their own truth by studying the diversity of things, and some people like to explore their own truth by studying similarities between things -- and both are okay, although they lead in different directions. If, at some point, the two camps come back together and respectfully compare notes, much can be accomplished in dialogue. And nobody has to do just one kind of research to the exclusion of the other."
(personal communication by **Dan 'Moonhawk' Alford** , Native American scholar and participant at the SEED conferences in Albuquerque; see also http://www.enformy.com/dma-Chap7.htm)

iv

- 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.

v

I.e. the 'current economic system'. See section 3.1.B for a discussion of the concept of 'cognitive capitalism'. In general, we use this term for the current form of 'informational capitalism', i.e. a form of capitalism where the immaterial processes are of more importance than the material.

vi

- 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."

The practicalities of Equipotential selection are explored, at http://www.vecam.org/article.php3?id_article=346 . Here the process is investigated amongst young chatters when they move from a closed environment to an open public environment, and are subject to two processes: 1) la prise en charge; 2) la mise a l'epreuve

vii

See http://www.theyrule.net/ for examples.

viii

- Such as the virtual gaming marketplaces studied by Dr. Castronova at Indiana University. See http://www.itconversations.com/shows/detail377.html

ix

- Summary of Internet Governance bodies by ACM's Ubiquity magazine

Certain protocols, and the parameters required for their usage, are essential in order to operate on the Internet. A number of bodies have become responsible for those protocol standards and parameters. It can be fairly said that those bodies steer the Internet in a significant sense. This document is a summary of those bodies and their most important characteristics.

Almost all Internet technological standards are developed and set by the group consisting of the Internet Society (ISOC) and the units operating under the auspices of ISOC: the Internet Architecture Board (IAB), the Internet Engineering Steering Group (IESG), the Internet Engineering Task Force (IETF), the Internet Research Steering Group (IRSG), the Internet Research Task Force (IRTF), and the RFC Editor. It is important to note that, while these units are responsible to ISOC, ISOC allows them a large degree of independence in their technical work.

Internet domain names and IP addresses are the province of the Internet Corporation for Assigned Names and Numbers (ICANN) and its Internet Assigned Numbers Authority (IANA).

World Wide Web standards are developed by the World Wide Web Consortium (W3C).

It should be noted that the direction of the Internet's physical network structure is not addressed in this document. That structure is essentially determined by a large number of mainly commercial network operators, ranging from small to intercontinental, that build and join their infrastructures in response to market forces, in order to provide them to subscribers on a paid basis. These networks that form the Internet are linked in a topology similar to that of a large, well-developed highway system.
(http://www.acm.org/ubiquity/views/v6i5_simoneli.html)

x

P2P Weblog monitors filesharing developments, including its political and economic aspects, at http://www.p2p-weblog.com/

xi

- the struggle for free access to free culture through the sharing of files:

"From the second generation on, you had distributed servers. You could run your own server and tie them into others. Searches took longer, were less accurate and there was no guarantee you would be searching a single other machine, much less the entire network. It was however, unstoppable. For every node you took the time and money to blast out of existence, there were several thousand others springing up. Clearly, the old tactics would not work. To make matters worse, these new networks were aware of the tactics being used against them, and actively tried to nullify them. As the network programmers were adding features, they were also adding security, both for them, and for their users. Things started out simple, like support for file types other than MP3, and quickly became more sophisticated. Military grade encryption? No problem. Licence restrictions that beat the pigopolists with the very sticks they created? Sure, pick any of five. Random user names, obfuscated IP addresses, changing ports and just about everything else you could think of has been done by now.

The real stake in the heart of the RIAA and friends came with the complete removal of servers, in a true peer to peer sense. Instead of having many little servers, you had every node doing dual purpose client and server jobs. Searches were completely decentralised, and the RIAA was finished, period. The recent string of stinging court losses for the Greediest Monopoly on Earth in the US courts assured any chance the RIAA had was gone. Its worst nightmare was confirmed, as everyone else just knew, the services were completely legal. The Grokster decision affirmed the right of the companies to provide the services they always have, and to do so with impunity. People using it may be guilty of crimes, but the services themselves are not illegal. In the old days, there was one provider, and one repository, one throat to strangle. It was manageable technically if it came down to a technical solution. Instead of allowing that technical solution to blossom, they went the legal route, and lost. In the intervening years, the tech went around them, and they sat still, and possibly regressed.

The problem with forced evolution is that it tends to work. The RIAA made the networks evolve technically, from a relatively incocous MP3 network to the file sharing network from hell. There is nothing you can't get anymore, and there is no one to stop it. If they came up with a tool, unlikely as that may be, there is no place to implement it."
(http://www.theinquirer.net/?article=18206)

Some online music resources:

An article explaining how to find legal online music, at :
http://www.nytimes.com/2004/09/10/a...sic/10INTE.html ; Grouper is a software tool that lets you share music amongst friends only, to ensure the fair use principle, at http://www.grouper.com/ ; user-enriched evaluations of filesharing programs at http://www.slyck.com/programs.php

xii

- the ascent of a third generation of peer-to-peer networking technology

"Each successive generation has decentralized more functions, making the networks harder to shut down and helping to expand the power of searches. The first first generation of file-swapping services, led by Napster, were built around big centralized indexes that would keep track of what was available everywhere on the network. These would serve as matchmakers, linking a person searching for a file with the computer where it was stored. That was efficient, allowing access to a huge range of material--but it also proved to be illegal. Courts said that Napster was responsible for a network where a vast amount of copyright infringement was happening and ultimately shut the company down. The second generation of decentralized services, led by Gnutella and the FastTrack technology underlying Kazaa, soon emerged to take its place. Neither of these had central servers. They relied instead on passing search requests from computer to computer until a file was found, and then passed that information back to the original searcher. That technology proved initially unwieldy, as millions of search requests passed through every computer on the network, creating traffic jams at low-bandwidth bottleneck points. That improved over time as programmers figured out ways to hand off these search requests more efficiently, but usually resulted in searches that included only part of a network--say 100,000 people instead of 2 million. A U.S Appeals Court recently ruled that this kind of decentralized network was legal, unlike Napster, in part because the software distributors did not have direct control over what was happening on the networks. "The (record labels and movie studios) urge a re-examination of the law in the light of what they believe to be proper public policy," the court wrote in that decision. "Doubtless, taking that step would satisfy the copyright owners' immediate economic aims. However, it would also alter general copyright law in profound ways with unknown ultimate consequences outside the present context." The third generation of networks, represented by eDonkey and now Morpheus, as well as a host of smaller independent developers, makes the tools even more decentralized than before. Distributed hash tables are essentially a way of taking a snapshot of where every file on the network is at a given moment and scattering bits of that information around the entire network. To find a given file, a search request goes first to any computer on the network. That computer will point to a different computer that has a little more information on how to find the file. The third computer might have information on the file itself--or it might take a few more hops to find the computer with the right information. The process is analogous to asking a succession of increasingly informed tour guides for directions, rather than accosting random people on the street. The information about the network in each place is constantly being updated as new files or computers are added."
(http://news.com.com/Super-powered+peer+to+peer/2100-1032_3-5397784.html?)

xiii

- Consciously working for a participatory culture: Interview of Nicholas Reville of Downhill Battle

The following quote shows that developers of filesharing programs are aware of the social and political import of their work. See the previous quotes on how the whole development of filesharing is driven by a political and social struggle. It's not technology causing change (technological determinism), it is technology in turn determined by the dynamics of struggle.

Question by Greplaw editors: Is there anything about Bit Torrent that helps foster a participatory culture?

Reply: “It can definitely be a part of big step forward. 'Participatory culture' is how we've started thinking about the intersection of all these phenomenons like blogs, filesharing networks, wikis, and just the web in general. They all make it easier for people to create and distribute art/ideas and also let people act as filters and editors. But we're really at the very, very beginning of all this. The shift that we're going to see from the current top-down culture model will be absolutely revolutionary. As overused as that term is, there's really no other word that captures the magnitude of what's going on here.

As for BitTorrent specifically, searching for content on napster-style search and download clients really sucks and, on its own, creates a huge bias towards corporate content that people already know about. On the other hand, websites and blogs organize and present content so that you can discover things you didn't even know you were looking for. Since BitTorrent uses web-based links, it has the potential to fit very well with blogs and content management systems while making it possible for anyone to offer very large files without worrying about bandwidth.”
(http://grep.law.harvard.edu/features/04/08/26/0236209.shtml)

DownHill Battle, at http://www.downhillbattle.org/ , is “a non-profit organization working to end the major label monopoly and build a better, fairer music industry”

Grey Tuesday as an example of online music activism in action, at
http://www.firstmonday.org/issues/issue9_10/howard/index.html

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Writeable Web tools are reviewed at http://www.oreillynet.com/pub/t/84

A directory of open source content management systems at http://www.la-grange.net/cms

xv

Fortune magazine on the growing importance and effect s of blogging for the business community, at
http://www.fortune.com/fortune/technology/articles/0,15114,1011763,00.html

Amongst the recommended do-it-yourself blogging programs are http://movabletype.org/ and
https://www.typepad.com/

xvi

- Podcasting described, by the Washington Post

" The word "podcasting" is a mash-up, a contraction of broadcasting and iPod, the popular music player from Apple Computer. The big idea is to let people save Internet audio so they can listen whenever they want from a computer or handheld device. Receiving software lets people pick podcasts from online directories, clicking a button to tell their computers to find and download new versions of those selected programs. Files automatically get copied to iPods. "
(http://www.washingtonpost.com/wp-dyn/articles/A20235-2005Mar9.html?)

Amongst the directories to find podcasting programs: http://audio.weblogs.com/ ;
http://www.thepodcastnetwork.com/

xvii

- Mobcasting

MotorFM allows MP3 downloads and songs streamed directly to mobile phones, at
http://www.wired.com/news/print/0,1294,66597,00.html

xviii

- Skype, using P2P filesharing principles for telephony:

Zennström and Friis, the creators of KaZaa, one of the early and popular P2P filesharing systems, came up with the idea of using P2P to enable free phone calls on the internet, and Skype was born, poised for an extraordinary rapid update. Beyond phone calls, users have been creatively tinkering with it to enable audio and video broadcasts (i.e. Skypecasting). Excerpts from an interview in Business Week:

"Q: Where else could this go, beyond files and people?

A: It could be other resources -- you know, storage, video streams. But this really works on two levels. First there's the peer network, and I've been stressing that because it's the enabler for everything. But then there are the applications. We could not have foreseen -- wow! -- all the things that could be developed on top of P2P. For instance, when we first used peer-to-peer technology, we didn't foresee that we could do voice. It became obvious to us after some time, but when we started we didn't know what the applications would be. But when we

applied the technology to various industries, we realized we could create a sustainable competitive advantage. That's because, in the normal system you have a marginal cost for every unit you add. If your network is client/server-based, you have to add a new network card for each new Web server, central switch, and so on. But in a peer-to-peer network, you're reusing the system resources in the network, so the marginal cost of producing a phone call or a file transfer or something else is zero. "
(http://www.businessweek.com/magazine/content/04_44/b3906091_mz063.htm;
http://www.businessweek.com/magazine/content/04_44/b3906087_mz063.htm)

An article explaining the rapid diffusion of Skype, at
http://www.nytimes.com/2004/09/05/business/yourmoney/05tech.html?th

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Following the suggestion of http://blog.commonbits.org/2005/06/be_the_media_th.html?, which offers an overview of webcasting developments (June 2005)

xx

On Vlogging: http://www.seriousmagic.com/products/vlogit/ ; http://www.vlog.com/

xxi

- How Bittorrent works

"Let's say you want to download a copy of this week's episode of *Desperate Housewives*. Rather than downloading the actual digital file that contains the show, instead you would download a small file called a "torrent" onto your computer. When you open that file on your computer, BitTorrent searches for other users that have downloaded the same "torrent." BitTorrent's "file-swarming" software breaks the original digital file into fragments, then shares those fragments between all the users that have downloaded the "torrent." Then the software stitches together those fragments into a single file that a user can view on their PC. Sites like Slovenia-based Suprnova offer up thousands of different torrents without storing the shows themselves. Meanwhile, BitTorrent is rapidly emerging as the preferred means of distributing large amounts of legitimate content such as versions of the free computer operating system Linux."
(http://www.wired.com/news/digiwood/0,1412,65625,00.html?)

A profile of Bram Cohen, designer of Bittorrent, in Wired at
http://www.wired.com/wired/archive/13.01/bittorrent.html

- Sources for Bittorrent downloads:

Note that they may disappear due to legal action.

"• Legal Torrents, which includes a wide selection of electronic music. It also has the *Wired* magazine Creative Commons CD, which has songs from artists like the Beastie Boys who agreed to release some of their songs under a more permissive copyright that allows free distribution and remixing.
• Torrentocracy has videos of the U.S. presidential debates and other political materials.
• File Soup offers open-source software and freeware, music from artists whose labels don't belong to the Recording Industry Association of America trade group, and programs from public television stations like PBS or the BBC.
• Etree is for devotees of "trade-friendly" bands like Phish and the Dead, who encourage fans to share live recordings, usually in the form of large files that have been minimally compressed to maintain sound quality."
(http://www.wired.com/news/digiwood/0,1412,65625,00.html?)

- Blog Torrent, an improvement of BitTorrent specially designed for TV-like channels (later renamed the Broadcast Machine):

"Blog Torrent adds features to BitTorrent that make it much easier for people to 'publish' files. We've made a simple, web-based way to create a 'torrent' and upload it in a one step. We've also made it easier to install a 'tracker' which is necessary on the server side to connect everyone who's sharing the files. This makes it much easier for video artists, documentarians, or anyone with a camcorder and iMovie, to share their video content on a blog or website. To this point, BitTorrent has been complicated enough that it hasn't been adopted by artists, which means that most of the content people are sharing is being posted by people who didn't make it themselves, mostly Hollywood movies and TV shows. But what's exciting about peer-to-peer is that it's a free distribution method for people who could never afford distribution. With Blog Torrent, anyone can share what they make and that means totally new alternatives to mainstream media, in this case, television. We ultimately want to see internet "TV Channels" that download video in the background and let you watch at your convenience (a TiVo for the internet).

I know we're probably talking intuition rather than hard data here, but what is your sense of the potential audience for Blog Torrent (I mean content creators), and why? Is there any particular experience you've had which made you think "We have to do this and it is going to be huge."

I think the audience is very, very broad and varied. I have friends, for example, that make artistically serious video work but have never considered offering it online, because it was never practical for them. I hope Blog Torrent will let them jump in. I also expect documentary filmmakers will love this technology– they can make a name for themselves if they're new, or they can share extra footage and full-length interviews, they can offer old content that they aren't selling anymore, and I bet they'll even start to share first-run material for everyone who doesn't live near an independent cinema. People who make videos and movies always want people to see it and there's hundreds or thousands of times more content being created than gets out through mainstream channels. Not only that, but the number of content producers is set to explode: video has finally become practical on the desktop and small, hard-drive camcorders are right around the corner. We called it "Blog Torrent" – forgoing our original, and much cooler name "Battle Torrent" – because it makes sharing video as easy as blogging text or photos and, in doing so, might be able to do in the video world what blogs have done in the news world (or more). And whether it's our software or someone else's, I think TV is about to face more serious competition than they would ever imagine. There are too many talented people out there that have no space on the dial. And access to television channels is much narrower in terms of access than music, books, newspapers, or magazines– that means new pressures on the system could be even greater when things open up."
(http://broadbanddaily.gigaom.com/archives/2004/12/06/seeds-of-change-nicholas-reville-on-downhill-battles-blog-torrent-initiative/)

Good French-language summary of P2P TV, in particular the distribution of TV series through Blog Torrent, at http://www.futura-sciences.com/sinformer/n/news5076.php

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- Exeem

"Tom Mennecke, news editor of the popular file sharing news site Slyck, claimed on 1 December (2004) that: "EXeem will marry the best features of a decentralised network, the easy searchability of an indexing server and the swarming powers of the BitTorrent network into one program." He told **New Scientist**: "Decentralising BitTorrent holds the potential to revolutionise the P2P community." Screenshots posted on another site by a self-proclaimed eXeem beta tester show a client that incorporates a search function and the ability to monitor downloading files. Theodore Hong, a P2P programmer in the UK, says that whether eXeem materialises or not, someone will find a way to decentralise BitTorrent searching and tracking. "Something like it is bound to come eventually," Hong told **New Scientist**. "It will be a big problem for the major media companies because they will have to confront the underlying fact that millions of people want to share files."
(New Scientist, http://www.newscientist.com/article.ns?id=dn6830)

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- Internet traffic geared to audiovisual content

"Researchers singled out peer-to-peer file trading as the single fastest-growing consumer of network capacity. Currently, Mauldin said, the amount of traffic from peer-to-peer trading rivals that generated by regular web surfing. Growing demand for data-rich files, such as movies, is further boosting bandwidth consumption. "From mid-2004, we saw a significant shift away from music and on to video," said Andrew Parker, chief technical officer at CacheLogic, a firm based in England that monitors global peer-to-peer traffic. "Before that it was mainly music." While P2P activity accounts for the lion's share of rising bandwidth consumption, internet traffic analysts said the growing popularity of voice over internet protocol, or VOIP, is a factor, too." (http://www.wired.com/news/print/0,1294,67202,00.html)

Cory Doctorow: On Chris Anderson's Long Tail blog, some stats **on the meltdown of mainstream media**:
"* Music: sales last year were down 21% from their peak in 1999
* Television: network TV's audience share has fallen by a third since 1985
* Radio: listenership is at a 27-year low
* Newspapers: circulation peaked in 1987, and the decline is accelerating
* Magazines: total circulation peaked in 2000 and is now back to 1994 levels (but a few premier titles are bucking the trend!)
* Books: sales growth is lagging the economy as whole
He follows up with the fact that movies, videogames, and the Web are all growing."

xxiv

- Tools and services that enable Webcasting

The better known civil society initiatives are Common Bits (http://www.commonbits.org) and the Broadcast Machine (http://www.particpatoryculture.org/bm). They are associated with sites that enable sharing of such material through online communities, such as Common Tunes (http://www.commontunes.org) for music and CommonFlix (http://www.commonflix.org) for videos. Vimeo (http://www.vimeo.com/) allows users to share small clips.

Many new sites are also acting as repositories such as Our Media (http://www.ourmedia.org) and the Archive (http://www.archive.org). One World TV is at http://tv.oneworld.net . Alternative TV stations are build around such open source content. For example UK Nova (http://www.uknova.com) is webcasting BBC programs which have been put in the public domain. Movies for the masses is a peer to peer financing scheme for producing movies and videos, at http://www.moviesforthemasses.ibiny.com/ . Search engines have been developed to identify this kind of content, see http://video.google.com/ and http://www.omn.org/

In the corporate world, examples are Audiolink (http://www.audiolink.com/home.html) and ODEO (http://www.odeo.com) which assist users in their broadcasting efforts. Prodigem (http://www.prodigem.com) allows any audiovisual creator to sell their content. Current TV (http://www.current.tv) is a similar attempt to commercialise citizen webcasting.

Companies are building software that allows users to manage time-shifted radio and television, as well as self-created content into their playing devices such as iPods. Griffin Technologies recently announced iFill., while El Gato's (http://www.elgato.com) EveHome software enables viewers to watch internet-downloaded content on their TV.

Most of the above material was reviewed at http://blog.commonbits.org/2005/06/be_the_media_th.html?

xxv

- Customer-build network infrastructures, by Clay Shirky

“According to Metcalfe's Law, the value of an internet connection rises with the number of users on the network. However, the phone companies do not get to raise their prices in return for that increase in value. This is a matter of considerable frustration to them. The economic logic of the market suggests that capital should be invested by

whoever captures the value of the investment. The telephone companies are using that argument to suggest that they should either be given monopoly pricing power over the last mile, or that they should be allowed to vertically integrate content with conduit. Either strategy would allow them to raise prices by locking out the competition, thus restoring their coercive power over the customer and helping them extract new revenues from their internet subscribers. However, a second possibility has appeared. If the economics of internet connectivity lets the user rather than the network operator capture the residual value of the network, the economics likewise suggest that the user should be the builder and owner of the network infrastructure.
The creation of the fax network was the first time this happened, but it won't be the last. WiFi hubs and VoIP adapters allow the users to build out the edges of the network without needing to ask the phone companies for either help or permission. Thanks to the move from analog to digital networks, the telephone companies' most significant competition is now their customers, because if the customer can buy a simple device that makes wireless connectivity or IP phone calls possible, then anything the phone companies offer by way of competition is nothing more than the latest version of ZapMail. “
(http://shirky.com/writings/zapmail.html)

xxvi

- Definition of Collaborative Citizen Journalism

" It's called collaborative citizen journalism (CCJ), where ordinary citizens band together on the Web to write original stories and critique mainstream media stories, using the Internet to connect with each other and to make sure their thoughts reach the public. This new form of journalism differs from its more popular blogging cousin in that, unlike blogging, which eschews (in many cases) the more rigorous elements of journalism, collaborative media efforts tap into a particular community to make sure a story is as complete as possible."
(http://technologyreview.com/articles/05/05/wo/wo_052005hellweg.asp)

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The concept of a self-informing public is mentioned in
http://journalism.nyu.edu/pubzone/weblogs/pressthink/2004/12/28/tptn04_opsc.html

Backfence is based on the concept that local news was just a neighbour's fence away, and is now possible again on a global scale, see http://www.backfence.com/what_we_re_doing.html

xxviii

- An example of a video-broadcasting experiment, by IndyMedia, an Internet-based independent media network, related to the alterglobalisation movement

"GENEVA03 is a temporary broadcasting studio during the g8-summit transmitting video and audio streams live from the cultural center l'usine in geneva from may 29 to june 3. The livecast will be streamed on the internet and picked up and redistributed by local and international broadcasters as well as projected in the streets and theatres of Geneva. In order to cover the protests between Geneva, Lausanne and Anmasse in real time, media activists will work from the "everyone-is-an-expert" mobile studio van, which - with a self-adjusting bi-directional satellite dish - will provide a mobile internet connection and transmit live-footage from the roaming protests. The GENEVA03 project is a joint effort of a growing number of video activists and independent filmmakers together with dozens of indymedia reporters, to organize and broadcast independent news coverage from the G8 events. We are currently programming a stream, that, besides the live coverage of the mass-protests, will include movies, concerts, talk-shows, vj sessions, subvertisements and other radically innovative formats."
(http://v2v.indymedia.de/)

- Towards a worldwide video syndicate:

“A Call to Join and Contribute to the Establishment of a Video-Sharing Syndicate/Network

Project Description: For some time now the idea of utilising peer2peer structures to assemble a user-built distribution platform has been circulating. Recently, in the run-up to the G8 meeting in Evian, a concrete proposal has been made to establish a system for the sharing of video. Long-term we believe that we can assemble a sustainable and scalable platform for audio-visual materials of a critical and independent nature. This

is an appeal to groups/individuals to get involved, dedicate some resources, support and expand the project generally. Works to be distributed over the system will vary from somewhat edited footage suitable for use as a stock archive to finished documentaries/films. Each file will be accompanied by metadata in an xml .info file and produced as an searchable RSS feed for people to integrate into their own sites and published on its own website (where there will also be a manifesto, how-to's. contact info for participating groups etc.) Amongst the metadata fields will be a specification for the nature of the license under which the materials may be used (e.g. Creative Commons share-alike)"
(http://v2v.indymedia.de/)

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Citizen-based journalism initiatives are not just citizen blogs, but rather more sophisiticated attempts to create an alternative form of journalism. There are 3 main types: local news ventures, based on local communities, such as backfence.com; broadly-focused sites such as OhMyNews; and collaborative vetting services where groups of people check articles from the mainstream press.

- OhMyNews!

"OhmyNews is a kind of 'fantastic mix' of the citizen reporters and professional reporters," Oh told the audience. "It has 35,000 citizen reporters and 40 staff reporters whose reporting style is very similar to professional journalists. So they are in charge of the straight news and investigations."
(http://english.ohmynews.com/articleview/article_view.asp?article_class=8&no=201599&rel_no=1)

Similar initiatives are WikiNews, which is based on a collective 'vetting' of news articles, at http://en.wikinews.org/wiki/Main_Page ; also see News Trust as another vetting cooperative, at http://en.wikinews.org/wiki/Main_Page ; Indymedia: http://indymedia.org ; Take Back the News, http://www.takebackthenews.com/

xxx

- Book on citizen-based journalism:

We the Media: Grassroots Journalism By the People For the People by Dan Gillmor 299pp, O'Reilly

From a review

"He tells us of OhMyNews.com in South Korea, which has 15,000 "citizen reporters" filing news and comment; and of wikipedia, the online encyclopedia where anyone can write or edit an article, which now has more than one million articles in more than 100 languages. He tells us about bloggers who have bigger audiences than many newspapers, and who have become just as influential as any specialist journalist in their sector. How Russ Kirk of the alternative news site The Memory Hole used the freedom of information act to get photos of dead US soldiers being brought back from Iraq in flag-draped caskets into the public domain; and how bloggers swarmed together to claim the scalp of Trent Lott, the majority leader in the US Senate, after he appeared to wax nostalgic for a racist past at a fellow senator's birthday dinner. Gillmor tells of his own experience as a columnist on the San Jose Mercury, starting to write a blog and dealing with comments and criticisms from his readers, who, he claims, "have made me a better journalist, because they find my mistakes, tell me what I'm missing and help me understand nuances".
(http://books.guardian.co.uk/reviews/politicsphilosophyandsociety/0,6121,1344544,00.html)

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Weblogs as a process of mass-amateurisation, not mass-professionalistion, at
http://shirky.com/writings/weblogs_publishing.html

xxxii

- Blogs defined as 'the self in conversation', by David Weinberger

"And it seems to me that one of the reasons why weblogs are being maintained by people who have a handful of readers, as well as by people who have many readers, is that the weblogs are doing something for that person, and for the groups that form around the weblogs. So, for example, a big part of it is that weblogs are a way that we have a voice on the Web. And, in fact, not simply voice, because we had that before. We could have posted a Web page or joined a discussion group or whatever. Weblogs are persistent. That space stays there, and every day or five times a week or whatever it is, you update that page. And people come back to that page, and that page becomes sort of your proxy self on the Web. The promise of the homepage was that we would have a persistent place that would be our Web presence. Well, now we do. And they're called weblogs, so weblogs are self, and they're self in conversation with others. So much of weblogging involves responding to other people or getting comments or linking to other people. So that's a big deal to have now a place that is a Web self that's created by writing and is created in conversation with other people. Of course that's a big deal. It doesn't have much to do with the media."
(http://www.itworld.com/Tech/2987/transcript_weinberger1_050201/pfindex.html)

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- RSS Feeds

The Washington Post explains: “RSS lets Web sites publish free "feeds" of their content, which a program called a newsreader collects on a set schedule, displaying new headlines and links for you to read within the newsreader or, with one click, in your Web browser"
(http://www.washingtonpost.com/ac2/wp-dyn?pagename=article&contentId=A55027-2004Mar13&notFound=true)

Some sites offer the same functions as an RSS reader, i.e. the possibility to combine various blogs in folders and to monitor them all from the same place, see http://www.bloglines.com/

xxxiv

- Self-publishing

"For the first time, print-on-demand companies are successfully positioning themselves as respectable alternatives to mainstream publishing and erasing the stigma of the old-fashioned vanity press. Some even make a case that they give authors an advantage -- from total control over the design, editing and publicity to a bigger share of the profits."
(http://www.nytimes.com/2005/04/24/books/review/24GLAZERL.html?)

The article mentions such examples as iUniverse and Booksurge. See also lulu.com.

xxxv

- Nodeb.com

“On Nodeb.com, people list their open nodes, essentially inviting strangers to join a worldwide community of users. This site has more than 11,000 registered access points in the United States. Even if service providers can make it more difficult for users to share Internet access, techies will eventually find a way around them.”
(http://www.nytimes.com/2004/03/19/opinion/19CONL.html?th)

An article about the advances of the "Personal Telco" movement in the U.S., at http://www.csmonitor.com/2005/0615/p01s03-ussc.html ; home page at http://www.personaltelco.net/static/index.html

xxxvi

- Wireless Commons in Hawaii

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)

- The Wireless Commons reading list:

Additional Reading
• "Radio Revolution: The Coming Age of Unlicensed Wireless" by Kevin Werbach, published by the New America Foundation. [http://www.newamerica.net/Download_Docs/pdfs/Pub_File_1427_1.pdf]
• Building Wireless Community Networks. 2001. by Rob Flickenger. O'Reilly.
• Wired/Unwired: The Urban Geography of Digital Networks. 2003. by Anthony Townsend. Unpublished PhD dissertation. [http://urban.blogs.com/research/2004/03/dissertation.html]
(http://www.wirelesscommons.org/)

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- Municipal and local wireless networks

- Reports by Business Week, on wireless and WiFi developments:
  http://www.businessweek.com/magazine/content/04_40/b3902057_mz011.htm
  http://www.businessweek.com/technology/tc_special/03wireless2.htm,
  http://www.businessweek.com/technology/tc_special/tc_04wifi.htm
- Cities like Philadelphia are developing free wireless broadband systems for their citizens, see http://www.washingtonpost.com/wp-dyn/articles/A54754-2004Sep1.html?
- Muniwireless.com – best site for news on developments in unlicensed wireless at the municipal level worldwide.

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- 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)

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- Mark Pesce on building the alternative media network

Pesce proposal is specifically for a network which could also distribute similar programming, not all nodes doing different things.

"So how do you turn these little stations into a network? Well, there are two answers to this question. The first is fairly obvious: you put the transmitters close enough together that each station is a paired receiver/transmitter,

and in so doing you create a mesh network of transmitters. The receiver picks up the signal and passes it along to the transmitter, which rebroadcasts it on the same frequency. This is somewhat analogous to how mobile networks work - you move from cell to cell and the signal follows you seamlessly - and is very well suited to densely populated urban districts, college campuses, public events, and so forth. The costs for each node in such a system are very low - probably less than fifty dollars for both the AM receiver and the transmitter….) Now it isn't possible to blanket an sparsely populated entire country…. In situations like this, Internet streaming comes to the rescue. Any signal which can be delivered via AM radio can also be delivered via the internet at dial-up speeds. The streaming signal output can put plugged into the AM transmitter, and, once again, you've got your network. In this way you can cover both the densely populated areas and the spaces in between them with one network.Now both of these proposals are more than just idle ideas - they're the heart of a new network - RADIO RHIZOME - which launched in Los Angeles."
(http://www.hyperreal.org/~mpesce/fbm.html)

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- Mark Pesce on the internet TV tuner and its disruptive effects on traditional broadcasting:

"I do believe that it is appropriate to examine the politics of scarcity with respect to television broadcasting, and engineer a solution which effectively routes around the problem (to steal a phrase from John Gilmore), recapitulating the Britannica to Wikipedia process. As media consumers, we need to liberate ourselves from the anti-market forces of the free-to-air commercial networks, and, as creators and purveyors of audiovisual content, we need to free ourselves from the anti-market forces of commercial networks as programme distributors. In other words, we need to develop a comprehensive computational and emergent strategy to disintermediate the distributors of audiovisual media, directly connecting producers to consumers, and further, erasing the hard definition between producer and consumer, so that a producer's product will only be identifiable by its inherent quality, in the eyes of the viewer, and not by the imprimatur of the distributor.., the pieces are in place for a radical reconfiguration of the technology of programme delivery to the TV viewer. Digital television, thought to be the endpoint of this revolution, was actually only its beginning, and while digital televisions are very useful as display monitors, their broadcast tuners with their sophisticated analog electronics will be completely obsolete once broadband supplants broadcast as the delivery medium. The digital TV is a great output device, but a lousy tuner, because the design of the device reinforces the psychology of spectrum scarcity. What we need, therefore, is a new device, which sits between the Internet, on one hand, and the digital television set, on the other, and acts as a new kind of tuner, thereby enabling a new, disintermediated distribution mechanism. The basic specification for this device is quite simple: it would be capable of locating, downloading and displaying audiovisual content, in any common format, on the viewer's chosen display device. That display device doesn't even need to be a digital television - it could be a PC. Or the soon-to-be-released PSP, the PlayStation Portable. Or a 3G cell phone. This intermediary device – the "Internet tuner," if you will – could be a hardware-based set-top box, or a piece of software running on a more general-purpose computing device – it doesn't really matter…When the idea for the Internet tuner popped into my head… I presumed that I'd stumbled onto a completely novel idea. InI've discovered how wrong I was. Projects like the BBC Internet Media Player, MythTV on LINUX, Media Portal for Xbox and Windows, Video LAN Controller for Mac OS X, Windows and LINUX – the list goes on and on. Just four weeks ago TiVO announced that they're going to release a software upgrade which will make their PVRs Internet-aware, so that they can locate and download Internet audiovisual content. These ideas are floating around the commercial software community, too, in products like Microsoft IPTV, and SnapStream's Beyond TV. Many people are working toward the features of the Internet tuner, but none of them – to my knowledge – have brought these pieces together with an emphasis on the emergent qualities of the tuner as a tool for communication…the Internet tuner or something very much like it will do for audiovisual media what the Web did for print – make it immediately accessible from anywhere, at any time, for any reason. Because of the Web, libraries are transforming from repositories of knowledge into centers where people come to be pointed toward online repositories. The library is evolving into a physically constituted Google."
(http://www.disinfo.com/site/displayarticle4565.html; see also http://www.hyperreal.org/~mpesce/fbm.html)

xli

- Voice over Wi-Fi

"Today people take laptops to wireless hot spots in coffee bars and airports to check their e-mail messages and to explore the Internet. Soon they may pack a new type of telephone and take it along, too, to make inexpensive calls using those wireless connections. The phones are called voice over Internet protocol over Wi-Fi (or, simply, voice over Wi-Fi) handsets. Like conventional voice over Internet protocol, or VoIP, services, they digitize the voice and send it as data packets over the Internet. But they do it wirelessly, over an 802.11, or Wi-Fi, network. And also like conventional VoIP, the technology may become popular with people who want to economize on their long-distance bills by using Wi-Fi connections when possible."
(http://www.nytimes.com/2005/02/03/technology/circuits/03next.html?8cir)

xlii

- The economics of netcasting, by Mark Pesce

"A broadcaster spends the same amount of money whether 10 people or 10 million are watching a broadcast, because the broadcast tower reaches all who want to tune into it. The economics for netcasting are quite different. Anyone can set up a server to send out ten simultaneous program streams - but it requires a million times the infrastructure and bandwidth to serve the same program to 10 million people. Or it used to. The BBC doesn't have the bandwidth to netcast its programming to all 66 million of its viewers. Fortunately it doesn't that kind of capability, because the BBC has cleverly designed the Flexible TV application to act as a node in a Peer-to-Peer network. Anyone using Flexible TV has access to the programs which have been downloaded by any other Flexible TV client, and can get those programs directly from them. All BBC need do is provide a single copy of a program into the network of P2P clients, and they handle the work themselves. More than this, because of the P2P technology used by the BBC (more on this in a moment) a Flexible TV user can get a little bit of the program from any number of other peers; rather than going through the process of downloading an entire program from one other peer, the Flexible TV client can ask a hundred other clients for small sections of the program, and download these hundred sections simultaneously. Not only does this decrease the amount of traffic that any clients has to handle, it also means that it produces a virtuous cycle: the more popular a program is, the more copies of it will exist in the network of peers, and therefore the more easily a peer can download it. In other words, the BBC has cracked the big problem which has prevented netcasting from taking off. In this system of "peercasting" the network is actually more efficient than a broadcast network, because more than one program can be provided simultaneously, and failure in any one point in the network doesn't bring the network down.
(http://www.hyperreal.org/~mpesce/fbm.html)

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- 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)

"The new TiVo technology, which will become a standard feature in its video recorders, will allow users to download movies and music from the Internet to the hard drive on their video recorder. Although the current TiVo service allows users to watch broadcast, cable or satellite programs at any time, the new technology will make it possible for them to mix content from the Internet with those programs."
(personal communication)

xliv

- Review of U.S.-based TV-IP developments, in The Washington Post:

“Now comes a fresh group of contenders for the Internet TV throne, all trying new twists on sending video over the global computer network. They carry funky names, too, like Akimbo, DaveTV, RipeTV and TimeshifTV. All are trying to exploit the increasing number of high-speed Internet links in homes and the declining costs for transmitting and storing digital video Some offer personalized entertainment networks, ones you or I create by mixing and matching niche programs that appeal to our inner couch-potato. Like TiVo, the digital recorder company, these services are trying to break away from the static program lineups that dominate today's TV. Unlike earlier Web video networks -- flops such as Pseudo.com and Digital Entertainment Network -- today's contenders collect content from other companies rather than producing their own. Most of the new players are operating on the fringes of the Internet video free-for-all. That's because virtually all the leading cable and satellite companies, along with the movie studios, are rushing to develop their own video-on-demand services. “ (http://www.washingtonpost.com/wp-dyn/articles/A2165-2004Oct27.html?)

- European TVIP plans reviewed by Wired

“The BBC is quietly preparing a challenge to Microsoft and other companies jostling to reap revenues from video streams. It is developing code-decode (codec) software called Dirac in an open-source project aimed at providing a royalty-free way to distribute video. The sums at stake are potentially huge because the software industry insists on payment per viewer, per hour of encoded content. This contrasts with TV technology, for which viewers and broadcasters alike make a one-off royalties payment when they buy their equipment. Tim Borer, manager of the Dirac project at the BBC's Kingswood Warren R&D lab, pointed out: 'Coding standards for video were always free and open. We have been broadcasting PAL TV in this country for decades. The standard has been available for anyone to use... If the BBC had to pay per hour of coding in PAL we would be in trouble.'
(http://www.wired.com/news/technology/0,1282,65105,00.html?)

xlv

Overview of some digital radio developments and recording and management tools

- Radio Your Way

“It's bizarre that five years into the digital video-recorder era, you still can't buy a digital VCR for radio. Why has the electronics industry developed so many machines that let us time-shift Dr. Phil and "Saturday Night Live," but so few that do so for Dr. Joy Browne and "Science Friday"?Actually, there is one such device. Radio YourWay (pogoproducts.com) looks at first glance like a pocket-size (2.2 by 3.9 by 0.7 inches) AM-FM transistor radio, which, in part, it is. But it also contains a built-in timer, so that you can set up a schedule for recording radio broadcasts. Programming it is exactly as easy - or as difficult - as programming a VCR, except that it uses a military-style 24-hour clock instead of AM and PM designations. At the specified time, the radio turns itself on. It tunes in the station, records for the requested interval and then turns off.Once you've captured a show, you can play it back at a more convenient time (or in an area with no reception), pause it while you take a shower or a meeting, fast-forward through the ads, or even archive it to a Windows PC using a U.S.B. cable." (http://www.nytimes.com/2004/02/26/technology/circuits/26stat.html?th)

- Audiofeast

"AudioFeast**:** Radio listeners looking for on-demand access to talk and music programs might want to consider a new Internet service that records radio shows. Like a kind of TiVo for Internet radio, AudioFeast can be set to save hundreds of shows, from "Washington Journal" to "Stamp Talk," and manage their transfer onto certain audio players. AudioFeast carries news, weather, business and entertainment programs from dozens of media partners, including National Public Radio, the Arts and Entertainment Network, and The Wall Street Journal. Operating until recently as Serenade Systems, AudioFeast also offers 100 music channels in 16 genres, including blues, jazz and electronica. AudioFeast costs $49.95 a year; a free 15-day trial is available at www.audiofeast.com"

(quote from http://www.nytimes.com/2004/09/16/t...?pagewanted=all)

- TimeTrax.

"Created by 35-year-old Canadian programmer Scott MacLean, TimeTrax allows subscribers of XM Radio's satellite radio service to record music off the radio, appending track title and artist information to each song. Fans of indie rock could, for example, cue their satellite radio receivers to an indie rock station, click on Record in the TimeTrax software, go to sleep, and wake up the next day with eight hours' worth of music by the likes of The Fiery Furnaces and Spoon. What's more, users can schedule the software to record a certain channel at a certain time, much the same way people can program a VCR or a TiVo to record a TV show while they're on vacation or at work. Right now the service only works with XM Radio on a device called the PCR, which the company sold so users could listen to satellite radio in their homes instead of just in their cars. Since TimeTrax came out, XM Radio discontinued the device, creating a lucrative market on eBay where the $49 retail units are selling for more than $350. MacLean says that the program has been downloaded about 7,000 times in the two weeks that it has been available. TimeTrax is on the forefront of what will likely be the music and technology industry's next world war: the recording of broadcast digital audio. "We're at the beginning of the next P2P," says Jim Griffin, CEO of Cherry Lane Digital, a music and technology consultancy. "Peer-to-peer is small by comparison." What has Griffin and others interested is the concept that when radios all broadcast digital music signals, programs such as TimeTrax will allow users to search for and capture songs similar to how they do it today with programs such as Kazaa. Instead of grabbing a song from someone's hard drive, users will pluck it from the air via a digital radio signal. It's a new situation, which in part is what makes TimeTrax such an interesting case."
(quote from http://www.nytimes.com/2004/09/16/t...?pagewanted=all)

- Audio Xtract

"connects you to a database of Internet radio stations that can be sorted by genre or bandwidth. Once you've found one that appeals to you, just click on Record. The software enables the computer to record the material in the form of individual MP3 files and stores them in a folder. The files are named according to their content, making it easy to delete those - like commercials - you don't want. Because the contents are recorded as MP3 files, they can be played on computers and portable media players and burned onto CD's. Audio Xtract is $50 at www.audioxtract.com"
(quote from http://www.nytimes.com/2004/09/16/t...?pagewanted=all)

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Shoutcast aims to enable the setting up of streaming radio broadcasts on the internet, see http://www.shoutcast.com/

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Business Week, on the future of internet telephony, at http://www.businessweek.com/technology/tc_special/04voip.htm

The new generation of VoIP telephones, reviewed at http://www.nytimes.com/2005/05/05/technology/circuits/05basics.html?

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See http://en.wikipedia.org/wiki/LAMP

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The history of social software and related earlier concepts (groupware, etc..) is narrated in this excellent overview, at http://www.lifewithalacrity.com/2004/10/tracing_the_evo.html

The development of 'gifting technologies' is described here at http://www.firstmonday.org/issues/issue9_12/mcgee/index.html

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- Examples of MoSoSo, mobile social software

"Typically, users set up a profile listing interests, hobbies and romantic availability. They also state what kind of people they'd like to meet. Because the service is tied to a mobile device, it knows when people with similar interests are near each other. Not surprisingly, MoSoSos are ideal for hooking up young, active professionals tied to their mobile phones or laptops, and they're starting to take off. Here are some of the leading players:

Dodgeball: Currently rolled out in 22 U.S. cities, and with about 15,000 users, dodgeball is the American MoSoSo standard-bearer. It works, explained founder Dennis Crowley, by having users check in with text messages announcing where they are. Then, because dodgeball maintains a database of hundreds of nightspots in each city, anyone on a user's friends list who is within 10 blocks gets a message that his or her pal is nearby. The service also has a "crush" feature. Users view profiles of other members and designate ones they'd like to meet. If the object of a crush is nearby, he or she gets a message to that effect. The system maintains privacy by identifying users only by screen names. "I can't tell you how many people I've met through this," said McGunigle. "It has not only simplified my socializing habits, but has allowed me to meet people I would not have met otherwise."

Playtxt: Playtxt's 6,000 members key in the postal code where they want to be found when they're on the go. Then, like dodgeball, anyone can see which friends, or friends of friends, are within that postal code." (http://www.wired.com/news/culture/0,1284,66813,00.html?)

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Shinkuro, at http://www.shinkuro.com/

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- How P2P unblocks information gluts in centralized servers, by programmer Stephane Champallier

"Prenons un exemple, je crée un logiciel de "groupware" (par ex, Exchange). Dans une situation standard, j'ai un serveur et une ribambelle de clients qui s'y connectent. Si un client A veut envoyer un mail à un client B, alors A envoit le mail au serveur. Ce dernier transmet ensuite le mail au client B. A présent, imagine qu'il y a 10 clients et que chacun envoit un mail à tous les autres. Un petit calcul te dira que le serveur recevra 45 messages et en enverra 45. Imaginons maintenant qu'il y a 100 clients. Le même scénario impliquera 2x4950 messages. En gros, en multipliant le nombre de client par 10, j'ai multiplié le nombre de messages qui transitent par le serveur par 100. Si j'avais multiplié par 100, j'aurais multiplié les messages côté
serveur par 10000. Ce que ce petit calcul nous dit c'est que si tout passe par le serveur, celui-ci va rapidement être engorgé. Une autre analogie c'est le rond point. Si tu ajoutes des rues(clients) et des voitures(messages) qui aboutissent au rond point, celui-ci va rapidement s'engorger.

Pour solutionner ça, le P2P fait en sorte que chaque clients puissent s'adresser directement à son destinataire, sans passer par un serveur. Dans notre premier scénario, chaque client reçoit et envois 9 messages, le serveur 45. En P2P, chaque client reçoit et envois 9 messages, le serveur "rien". Je
mets "rien" entre guillemets car les choses ne sont pas aussi simple. On a donc réparti la charge de travail de manière plus uniforme et éliminer un goulot. C'est ça l'intérêt technique : une meilleur répartition de la charge." (personal communication, March 2005)

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In the following website, Andrew Feenberg discusses technological determinism, a critical theory of technology, the technical code as the locus of social struggle, and places all that and more in the context of earlier thinkers such as Heidegger, Habermas, Baudrillard, Virilio and others, which he explains with great clarity.Click on the essays at the bottom of the webpage under the heading, 'Some Background Texts and Applications'.
(URL = http://www.sfu.ca/~andrewf/)

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- Cornelis Castoriadis on the mutual imbrication of the techno-social:

"Organisation sociale et technique sont deux termes qui expriment la creation et l'autoposition d'une societe donnee: dans l'organisation sociale d'ensemble, fins et moyens, significations et instruments, efficacite et valeur ne sont pas separable. Toute societe cree son monde, interne et externe, et cette creation n'est ni instrument ni cause, mais 'dimension' partout presente. (p. 307)

"Le monde moderne est sans doute determine, a une foule de niveaux, par sa technologie; mais cette technologie n'est rien d'autre qu'une des expressions essentielles de ce monde, son 'langage', a l'egard de la nature exterieure et interieure." (p. 311)

Source: Cornelis Castoriadis. L'institution imaginaire de la societe. Seuil (Points /Essais), 1975

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

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

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

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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)

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- The GPL license explained:

"The GPL governs the programming instructions called source code that developers write and then convert into the binary files that computers understand. At its heart, the GPL permits anyone to see, modify and redistribute that source code, as long as they make changes available publicly and license them under the GPL. That contrasts with some licenses used in open-source projects that permit source code to be made proprietary. Another requirement is that GPL software may be tightly integrated only with other software that also is governed by the GPL. That provision helps to create a growing pool of GPL software, but it's also spurred some to label the license "viral," raising the specter that the inadvertent or surreptitious inclusion of GPL code in a proprietary product would require the release of all source code under the GPL." (http://news.com.com/Sprucing+up+open+sources+GPL+foundation/2100-7344_3-5501561.html?tag=nefd.lede)

An article about the 'copyleft attitude' and the emergence of the free art license, at http://infos.samizdat.net/article301.html

- 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)

French-language interview with Stallman: http://multitudes.samizdat.net/article.php3?id_article=214

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- Richard Stallman on why it is okay to charge 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)

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- The Consensus of the Open Sources Initiative

Open Source projects are fundamentally similar to Free Software in that they both forbid any restriction on the free distribution of the software and on the availability of the source code. The following principles are accepted to define an Open Source project:

- no restriction on the free distribution is allowed (but payment is allowed)\
- the source must be freely available to all at no cost
- changes must be accepted and distributed
- the author can request a protected version number
- no discrimination in usage is allowed, for every activity, including commercial usage
- the rights attached to any program are for all the users all of the time
- the license cannot be program specific (to avoid commercial restrictions)
- the license cannot be applied to other code (such as proprietary additions)
- the license must be technologically neutral (not restricted to certain devices or operating systems)

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- 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)

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- Overview of the commercial uptake of Open Source software, June 2005 update

"And so Linux entered commercial use. Its first, and still most successful, niche was Web servers; for at least five years, the majority of the world's Web servers have used open-source software. Then, several years ago, IBM started to contribute money and programmers to open-source efforts. IBM, Intel, and Dell invested in Red Hat Software, the leading commercial Linux vendor, and Oracle modified its database products to work with Linux. In late 2003, Novell announced its purchase of SuSE, a small German Linux vendor, for more than $200 million. IBM invested $50 million in Novell. IBM, Hewlett-Packard, and Dell began to sell hardware with Linux preinstalled. IBM also supports the Mozilla Foundation, developer of the open-source Firefox browser, and with Intel, HP, and other companies recently created the Open Source Development Labs (OSDL), a consortium promoting the business use of Linux, which has hired Torvalds and other open-source developers.
Now, Linux is running on everything from $80 routers to cell phones to IBM mainframes, and is much more common on desktop PCs. Red Hat is a highly profitable $200 million company growing 50 percent per year, and commercial open-source vendors serve many important software markets. For instance, in databases, there is MySQL, which now has annual revenues of about $20 million, doubling every year. In application servers, there is JBoss, and in Web servers, Covalent. In the server market, the eventual dominance of Linux seems a foregone conclusion. Michael Tiemann, Red Hat's vice president for open-source affairs, told me, "Unix is already defeated, and there's really nothing Microsoft can do either. It's ours to lose." Of course, Microsoft, which refused all interview requests for this article, sees things differently. But surveys from IDC indicate that in the server market, Linux revenues are growing at more than 40 percent per year, versus less than 20 percent per year for Windows. Unix, meanwhile, is declining."
(Charles Ferguson, Technology Review, June 2005, at
http://technologyreview.com/articles/05/06/issue/feature_linux.asp?p=2)

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- The Professionalization of Linux

The following article by Business Week is the result of an in-depth investigation regarding the actual production of Linux:

“Little understood by the outside world, the community of Linux programmers has evolved in recent years into something much more mature, organized, and efficient. Put bluntly, Linux has turned pro. Torvalds now has a team of lieutenants, nearly all of them employed by tech companies, that oversees development of top-priority projects. Tech giants such as IBM (IBM), Hewlett-Packard (HPQ), and Intel (INTC) are clustered around the Finn, contributing technology, marketing muscle, and thousands of professional programmers. IBM alone has 600 programmers dedicated to Linux, up from two in 1999. There's even a board of directors that helps set the priorities for Linux development. Not that this Inc. operates like a traditional corporation. Hardly. There's no headquarters, no CEO, and no annual report. And it's not a single company. Rather, it's a cooperative venture in which employees at about two dozen companies, along with thousands of individuals, work together to improve Linux software. The tech companies contribute sweat equity to the project, largely by paying programmers' salaries, and then make money by selling products and services around the Linux operating system. They don't charge for Linux itself, since under the cooperative's rules the software is available to all comers for free."
(http://www.businessweek.com/magazine/content/05_05/b3918001_mz001.htm?)

Richard Stallman in a recent interview on where Free Software and the GPL are heading, at
http://www.ofb.biz/modules.php?name=News&file=article&sid=353

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- Personal characteristics of FLOSS developers, an Asian survey and study:

"1) Development time is short (less than 5 hours par week); 2) Main targets of development are networks and Web services. 3) The number of projects are few, but about half of the developers have leadership experience; 4) More then 40 percent acts globally in Japan and Asia; 5) Many developers are not engaged in programming work; 6) Most developers learn their skill by themselves and do not have an interest in formal qualifications; 7)

Main purpose is to obtain and share skills and knowledge; 8) About 60 percent of the developers regard their signature as important; 9) Main sources of assistance are government agencies and public foundations in Japan, educational institutions in Asia, and various organizations and individuals in US
(http://www.firstmonday.org/issues/issue9_11/shimizu/index.html)

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- Research into Open Source as a collaborative social process

FLOSS-POLS, a EU-funded research project, claims it is "the single largest knowledge base on open source usage and development worldwide" and its 'third track' examines " the efficiency of open source as a system for collaborative problem-solving", see at http://www.flosspols.org/ . The peer-reviewed journal First Monday dedicated a special issue to 'open source as a social process', at
http://www.firstmonday.org/issues/issue9_11/index.html

See in particular: Item1, http://www.firstmonday.org/issues/issue9_11/lehmann/index.html
" This paper takes a closer look at FLOSS developers and their projects to find out how they work, what holds them together and how they interact."; Item 2, on accountability in Open Source projects, at
http://www.firstmonday.org/issues/issue9_11/david/index.html

What these various studies suggest is that FLOSS projects have a onion-like structure:

"The focus of these studies has largely been on the contribution of code and they therefore have largely discussed development centralization. At the center of the onion are the core developers, who contribute most of the code and oversee the design and evolution of the project. In the next ring out are the co–developers who submit patches (*e.g.,* bug fixes) which are reviewed and checked in by core developers. Further out are the active users who do not contribute code but provide use–cases and bug–reports as well as testing new releases. Further out still, and with a virtually unknowable boundary, are the passive users of the software who do not speak on the project's lists or forums."
(http://www.firstmonday.org/issues/issue10_2/crowston/index.html)

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- Production without a manufacturer, an example from the field of music:

"Record companies, schmecord companies – who needs 'em? That's not where the money is. The business is with the real customers – the fans. That's who we're trying to connect with," band member Frank Black, AKA Black Francis, told the Associated Press this week. "I never really was much of a believer in the album anyway," Black said. "Singles are what people relate to." Apparently, the band doesn"t feel it needs a record label any more and, while their plans are still unformed at the moment, the idea generally is to combine selling live CDs made and then sold at concerts, producing music for movies and commercials and distributing singles via the internet.."
(email communication from Christophe Lestavel, original source DM Europe at http://www.dmeurope.com/)

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- Production without a manufacturer, or the supply-side supplying itself:

"Few people in mainstream world even recognize that a radically new kind of economics is emerging – the "demand-side" supplying itself! Searls said that open source is the victory of ST – "social technology" -- over IT – information technology. This stems directly from the commons principles that lie at the heart of the Internet – "No one owns it. Everybody can use it. Anyone can improve it. One comment by Searls really reverberated with me. He said that the word "authority" means that we grant certain people the right to "author" who we are. Now that hierarchical authority is being supplanted by decentralized, networked authority, in effect, "We are all the authors of each other."
(copy from unknown blog, received by personal communication)

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See also an analysis of the relation between free software and capitalism, at
http://www.oekonux.org/texts/marketrelations.html

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- Structural use of interactive consumers to externalize costs, by Johan Soderbergh:

"The shifting of time-consuming tasks from paid employees to unpaid customers when accessing banking services, is one example of enhanced interactivity. Another example would be the 15.000 volunteer maintainers of AOL's chat-rooms. Or the attempt by the Open Source initiative to co-opt the labour power of free software engineers.These are highpoints in a broader pattern, according to Tiziana Terranova. Free labour has become structural to late capitalist cultural economy. It is therefore totally inadequate to apply the leftist favourite narrative of authentic subcultures that are hijacked by commercialism. Authentic subcultures at this point of time is a delusion, she charges. 'Independent' cultural production takes place within a broader capitalist framework which has already anticipated and therefore modified the 'active consumer'. *Interactivity* counts to nothing else than intensified exploitation of the audience power of the user/consumer. It is not different to the intensification of exploitation of wage labourers."
(http://journal.hyperdrome.net/issues/issue1/soderberg.html)

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How the use of FLOSS methods leads to lower transaction costs in business, at
http://www.firstmonday.org/issues/issue9_11/soares/index.html

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- The history of Linux

"This paper will establish the development of Linux, complexity theory and its relationship to Linux, the Linux business model, rules governing Linux and the possible lessons that future managers can learn. Comprehensive ranges of secondary sources have been used to compile a detailed but accurate picture of this fascinating story of Linux."
(http://journal.hyperdrome.net/issues/issue1/wright.html)

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- FS/OS development in Asia:

Linux making great strides in China, at
http://www.businessweek.com/technology/content/nov2004/tc20041115_4873_tc057.htm?

Characteristics of Asian open source development,
http://www.firstmonday.org/issues/issue9_11/shimizu/index.html

Home page for Asian OSS, at http://www.asia-oss.org

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- Firefox, the alternative browser

"Tuesday, the answer to IE arrived: a safe, free, fast, simple and compatible browser called Mozilla Firefox. Firefox (available for Win 98 or newer, Mac OS X and Linux at www.mozilla.org) is an unlikely rival, developed by a small nonprofit group with extensive volunteer help. Its code dates to Netscape and its open-source successor, Mozilla, but in the two years since Firefox debuted as a minimal, browser-only offshoot of

those sprawling suites, it has grown into a remarkable product. Firefox displays an elegant simplicity within and without."
(http://www.nytimes.com/2004/12/19/business/yourmoney/19digi.html?th)

- The Linux desktop:

"as DESKTOP OPERATING SYSTEM, replace MS Windows with **Linspire Lindows, Gnome, or BeOS Max'** as INSTANT MESSAGING SERVICE, replace AOL AIM with **Jabber;** as OFFICE SUITE, replace MS Office with **OpenOffice or Gnome Office** ; as ACCOUNTING PROGRAM, replace Inuit with **Compiere**; for PROJECT MANAGEMENT, replace IBM Lotus Notes, with **Horde Project, or Net Office Project;** as DATABASE PROGRAM, replace MS Access with **Twiki, Druid, Gnome DB ;** for FAX MGT., replace Esher VSI Fax, with **HylaFax or Mgetty+Sendfax**; for BROWSING, replace Internet Explorer with **Firefox."** (personal communication, inspired by a Wired article)

Mono is an open source alternative to the Microsoft .Net specifications, at http://www.mono-project.com/about/index.html

Five fundamental reasons why Open Source projects do not make great inroads amongst ordinary users, at http://www.firstmonday.org/issues/issue9_4/levesque/index.html#l5

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- The Windows ecosystem is in danger

"The software ecosystem consists of every program written for a particular piece of software or hardware. These include operating system ports and reference designs in the case of hardware, and most often applications in the case of software. It is very very hard for any company to carry a platform on its own. The more other companies contribute to that platform, by writing software that works on the platform, the more that weight is lifted off the creator's shoulders and shared by others. Linux has a very robust software ecosystem. My point last week was that the Windows software ecosystem is weakening. The evolution of technology indicates that a weakening ecosystem presages a dying ecosystem, and then a dying product line. IBM saw this first-hand in its mainframe and minicomputer product lines. Now IBM is attached to a large, vibrant growing ecosystem while, as I noted, that of Microsoft Windows is weakening — becoming ever-more dependent on Microsoft itself for growth."
(http://blogs.zdnet.com/open-source/index.php?p=261)

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An in-depth series of reports on the usage of FLOSS methodologies and their institutionalization, http://www.infonomics.nl/FLOSS/report/, June 2002

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- Co-founder Jimmy Wales on the ambitious aims of Wikipedia

"One of the most important things to know about Wikipedia is that it is free to license and that the free license enables other people to freely copy, redistribute, modify our work both commercially and non-commercially. We are licensed under the GNU Free Documentation License and we've been around since January 2001, so that's about four years ago. The Wikimedia Foundation is our non-profit organization that I founded about a year and a half ago and transferred all the assets into the foundation, so the foundation actually manages the website and runs everything. The mission statement of the foundation is to distribute a free encyclopedia to every single person on the planet in their own language. And we really mean that because every single person on the planet, this includes a lot more than just a cool website."
(Jimmy Wales lecture at Stanford University, 2-9-2005, quoted by Howard Rheingold on the SmartMob blog)

Wikipedia.org: The pro's and cons of Wikipedia (vs. traditional encyclopedia production) are discussed in this article: http://soufron.free.fr/soufron-spip/article.php3?id_article=57

This paper explores the character of "mutual aid" and interdependent decision making within the Wikipedia at http://reagle.org/joseph/2004/agree/wikip-agree.html

A profile of the most prolific contributors and the values driving them, at http://www.wired.com/news/culture/0,1284,66814,00.html?

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- Example of innovation as a diffuse process, from a report by Business Week:

" To get an idea of how diffuse the innovation process has become, try dissecting your new PDA, digital cameraphone, notebook PC, or cable set-top box. You will probably find a virtual U.N. of intellectual-property suppliers. The central processor may have come from Texas Instruments (TXN) or Intel, and the operating system from BlackBerry (RIMM), Symbian, or Microsoft. The circuit board may have been designed by Chinese engineers. The dozens of specialty chips and blocks of embedded software responsible for the dazzling video or crystal-clear audio may have come from chip designers in Taiwan, Austria, Ireland, or India. The color display likely came from South Korea, the high-grade lens from Japan or Germany. The cellular links may be of Nordic or French origin. If the device has Bluetooth technology, which lets digital appliances talk to each other, it may have been licensed from IXI Mobile Inc., one of dozens of Israeli wireless-telecom companies spun off from the defense industry."
(http://www.businessweek.com/magazine/content/04_41/b3903409.htm?)

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- The socialization of innovation 'outside' of the enterprise

"Only a fraction of the aesthetic innovations made in society occurs within the wage labour relation. That is, in the space conceptualised by Tessa Morris-Suzuki as 'before' production, in laboratories and in ad agencies. Most aesthetic innovation takes place 'after' production. It happens 'after' the wage labour relation, in consumption, in communities, on the street, and on the school yard. It is here the social factory casts its long shadow. The social factory is a place with no walls, no gates, no boss, – and yet rift with antagonism."
(Jan Soderbergh in http://info.interactivist.net/article.pl?sid=04/09/29/1411223)

The contribution byTessa Morris-Suzuki mentioned above was written in: **Jim Davis, Thomas A. Hirschl & Michael Stack, eds. Cutting edge: technology, information capitalism and social revolution, 1997**

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- Von Hippel on 'lead users'

"Eric von Hippel's new book, *Democratizing Innovation*, documents how breakthrough innovations are developed by "lead users," -- users with a high incentive to solve problem, and that often develop solutions that the market will want in the future. Von Hippel argues that a user-centered innovation process -- one that harnesses lead users -- offers great advantages over the manufacturer-centric innovation model that has been the mainstay of commerce for hundreds of years. To this end, he has developed a systematic model for companies to tap into the innovation potential of their lead user communities."
(quote from the Smart Mobs weblog)

An interview with the author where he explains the concept of "lead users", at http://www.thefeature.com/article?articleid=101525&ref=6647666

More essays by the author at http://web.mit.edu/evhippel/www/papers.htm

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- User-centered innovation practices vs. manufacturer-centric innovation

"When I say that innovation is being democratized, I mean that users of products and services—both firms and individual consumers—are increasingly able to innovate for themselves. User-centered innovation processes offer great advantages over the manufacturer-centric innovation development systems that have been the mainstay of commerce for hundreds of years. Users that innovate can develop exactly what they want, rather than relying on manufacturers to act as their (often very imperfect) agents. Moreover, individual users do not have to develop everything they need on their own: they can benefit from innovations developed and freely shared by others. The trend toward democratization of innovation applies to information products such as software and also to physical products.

The user-centered innovation process just illustrated is in sharp contrast to the traditional model, in which products and services are developed by manufacturers in a closed way, the manufacturers using patents, copyrights, and other protections to prevent imitators from free riding on their innovation investments. In this traditional model, a user's only role is to have needs, which manufacturers then identify and fill by designing and producing new products. The manufacturer-centric model does fit some fields and conditions. However, a growing body of empirical work shows that users are the first to develop many and perhaps most new industrial and consumer products. Further, the contribution of users is growing steadily larger as a result of continuing advances in computer and communications capabilities. In this book I explain in detail how the emerging process of user-centric, democratized innovation works. I also explain how innovation by users provides a very necessary complement to and feedstock for manufacturer innovation. The ongoing shift of innovation to users has some very attractive qualities. It is becoming progressively easier for many users to get precisely what they want by designing it for themselves. And innovation by users appears to increase social welfare. At the same time, the ongoing shift of product-development activities from manufacturers to users is painful and difficult for many manufacturers. Open, distributed innovation is "attacking" a major structure of the social division of labor. Many firms and industries must make fundamental changes to long-held business models in order to adapt. Further, governmental policy and legislation sometimes preferentially supports innovation by manufacturers. Considerations of social welfare suggest that this must change. The workings of the intellectual property system are of special concern. But despite the difficulties, a democratized and user-centric system of innovation appears well worth striving for.
(http://web.mit.edu/evhippel/www/books/DI/Chapter1.pdf)

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- Examples of user innovation communities at work

The music identification technology of Gracenotes, was almost entirely produced by music fans, at http://www.wired.com/news/digiwood/0,1412,64033,00.html?. But because it has turned private MusicBrainz has been created as a true open source alternative ; iPodLounge contains more than 220 creative designs of future iPods, at http://www.wired.com/news/mac/0,2125,63903,00.html?

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'Customer-made' production and marketing, special issue of Trendwatching newsletter, May 2005, at http://www.trendwatching.com/newsletter/newsletter.html . Its June 2005 issue covers twinsumers, how collaborative software is bringing consumers of similar taste together.

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- Personal Fabrication technology

"What if you could design and produce your own products, in your own home, with a machine that can be used to make almost anything? Imagine if you didn't have to wait for a company to sell the product you wanted but could use your own personal fabricator to create it instead.
Neil Gershenfeld, Director of MIT's Center for Bits and Atoms, believes that personal fabricators will allow us to do just that and revolutionize our world.

His most recent book, FAB: The Coming Revolution on Your Desktop—From Personal Computers to Personal Fabrication, explores the ability to design and produce your own products, in your own home, with a machine that combines consumer electronics with industrial tools. Such machines, Personal fabricators, offer the promise of making almost anything-including new personal fabricators and as a result revolutionize the world just as personal computers did a generation ago."
(http://www.itconversations.com/shows/detail460.html)

See also at iFabricate.com and the Fab Labs at MIT, at http://cba.mit.edu/projects/fablab

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Collab.net helps corporations implement open source methodologies, at http://www.collab.net/

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- A successful corporate adoption of the participatory model, the SEMCO case

In the book,The Seven-Day Weekend: Changing the Way Work Works, CEO Ricardo Semler explains the counter-intuitive m measures he took to make his company succesfull, by relying on the self-organisation skills of his workers. A paradoxical top-down implementation of the hacker culture:

" * *Give up control (e.g., no organization charts, dress code, fixed offices or policies; complete flex-time for all workers, including those on assembly lines).*
* *Share information (e.g., make all salaries public and invite everyone to attend board meetings; Semler even shares profit calculations with customers).*
* *Encourage self-management (i.e., force people to think independently, question everything, and solve their own problems; manage by doing nothing yourself when problems arise).*
* *Discourage uniformity (e.g., rotate jobs, allow extreme flexibility in work and pay)."*
(source: from the review: http://www.opensourcetutorials.com/tutorials/Server-Side-Coding/Book-Reviews/the-seven-day-weekend/page1.html)

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- User-driven advertising

Increasingly, users are themselves distributing information about products and services that they appreciate, see the Wired article on a famous user-made iPod ad, at http://www.wired.com/news/mac/0,2125,66001,00.html? ; Companies are also learning to use (and abuse) these communities of 'passionate consumers', according to this report in Le Monde, at http://www.lemonde.fr/web/article/0,1-0@2-3230,36-396272,0.html

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- Coordination Theory

“Thomas Malone: What I mean by coordination theory is that body of theory and principles that help explain the phenomena of coordination in whatever systems they arise. Now what do I mean by coordination? We define coordination as the management of dependencies among activities. Now how do we proceed on the path of developing coordination theory? The work we've done so far says that if coordination is the managing of dependencies among activities, a very useful next step is to say: what kinds of dependencies among activities are possible? We've identified three types of dependencies that we call atomic or elementary dependency types. Our hypothesis is that all the dependencies, all the relationships in the world, can be analyzed as either combinations of or more specialized types of these three elementary types. The three are: *flow, sharing,* and *fit*. Flow occurs whenever one activity produces some resource used by another activity. Sharing occurs when a single resource is used by multiple activities. And fit occurs when multiple activities collectively produce a single resource. So those are the three topological possibilities for how two activities and one resource can be arranged. And each of them has a clear analog in the world of business or any of the other kinds of systems we talked about.

Flow is probably the most obvious. It happens all over the place, and in some ways is *the* most elementary of all. Sharing also happens a lot whenever you've got one resource shared by multiple people or activities, whether that resource is a machine on a factory floor, a budget of money, or a room, or whatever needs to be used potentially by multiple activities. The least obvious is the last one called fit. A good example of where that occurs would be if you have engineers designing a car. One engineer is designing the engine, another engineer

designing the body, and so forth. There's a dependency between the activities of those engineers that arises from the fact that all of the pieces have to fit together in the same car. So the idea is that, for each of these types of dependencies, there's a family of possible coordination processes that can be used to manage it. For instance, with a sharing dependency, one way of managing that is by *first come, first served*. Another way of managing that is by *priorities*: the [people with the] highest-priority activity get to use the resource as long as they need it, as long as there's no other higher-priority activity there. And for each of the other types of dependencies you can have a similar kind of family of coordination processes for managing them, some of which are centralized, some of which are decentralized."
(http://www.dialogonleadership.org/Malone2001.html)

Book by the author: Thomas Malone: Coordination Theory and Collaboration Technology

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- Open Business Process Initiative

OPHI is a group of organizations and individuals dedicated to developing an on-line collection of knowledge about business processes that is freely available to the general public under an innovative form of "open source" licensing. More info at: http://ccs.mit.edu/ophi/index.htm

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See for an overview of designing corporations around customer cultures, at
http://www.businessweek.com/bwdaily/dnflash/mar2005/nf2005037_4086.htm

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An explanation of the concept of the general intellect, at
http://multitudes.samizdat.net/article.php3?id_article=476

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- Cognitive capitalism

« La thèse défendue ici sera celle d'une nouvelle “grande transformation” (pour reprendre l'expression de Karl Polanyi) de l'économie et donc de l'économie politique (…) Certes, ce n'est pas une rupture dans le mode de production car nous sommes toujours dans le capitalisme, mais les composantes de ce dernier sont aussi renouvelées que celles du capitalisme industriel ont pu l'être par rapport au capitalisme marchand (en particulier dans le statut du travail dépendant qui passe du second servage et esclavage au salariat libre). Pour désigner la métamorphose en cours nous recourrons à la notion de *capitalisme cognitif* comme troisième espèce de capitalisme. »
Yann-Moulier Boutang in http://multitudes.samizdat.net/article.php3?id_article=1656 ; See also http://www.ish-lyon.cnrs.fr/labo/walras/Objets/New/20021214/YMB.pdf

Self-organisation and cooperation in cognitive capitalism, special issue of Solaris magazine, at http://biblio-fr.info.unicaen.fr/bnum/jelec/Solaris/d05/5introduction.html , http://biblio-fr.info.unicaen.fr/bnum/jelec/Solaris/d05/5link-pezet.html

Critique from the FrenchTrotskyist Michel Husson, in: : Sommes nous entrés dans le capitalisme cognitif ?Critique communiste n°169-170, été-automne 2003

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- The Regulation School: some documentation

Some recent articles and essays from a newsletter associated with the Regulation school, will give you an idea of the high quality and level of interest of their production:

On the concept of 'worldwide public goods', at http://www.upmf grenoble.fr/irepd/regulation/Lettre_regulation/lettrepdf/LR48.pdf ;the current phase of American hegemony is unsustainable, at http://www.upmf-grenoble.fr/irepd/regulation/Lettre_regulation/lettrepdf/LR46.pdf ;
on the need to reconsider our outdated notions of productivity, which have no bearing on the current situation, at http://www.upmf-grenoble.fr/irepd/regulation/Lettre_regulation/lettrepdf/LR43.pdf ; an overview of intellectual property regimes and their evolution, at http://www.upmfgrenoble.fr/irepd/regulation/Lettre_regulation/index.html

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- 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/)

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- "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****."*

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- 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)

xcvi

- 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. »
(Zafirian personal website: http://perso.wanadoo.fr/philippe.zarifian/)

See also these **two important contributions on 'the new nature of work'**, 3 theses from Philippe Zafirian, based on seven years of study in large institutions and companies, at http://seminaire.samizdat.net/article.php3?id_article=22 3 thesis on work and cognitive capitalism, by Patrick Dieuaide, at http://seminaire.samizdat.net/article.php3?id_article=12

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- 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.

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- The dissatisfaction of the workforce, a report from France:

"La prise de distance d'un nombre croissant de salariés vis-à-vis du monde de l'entreprise …[est] un mouvement qui concerne l'ensemble des pays développés, bien au-delà d'un éventuel "effet 35 heures" franco-français. "L'adhésion des quadras n'a plus rien à voir avec celle des baby boomers *de 55 ou 60 ans, qui ont pourtant connu ou fait Mai 68, mais qui n'ont pas, pour autant, remis en cause l'entreprise"*, reconnaît Jean-René Buisson, ancien directeur général des ressources humaines de Danone, désormais président de l'Association nationale des industries agroalimentaires (ANIA). Un constat quantifié par un récent sondage de la société Chronopost : désormais seul un salarié de moins de 35 ans sur cinq déclare "s'Impliquer beaucoup ou essentiellement dans -sa- *vie professionnelle"*. Toutes générations confondues, sept personnes sondées sur dix affirment avoir "un rapport au travail qui connaît une barrière : la vie privée". Un basculement des mentalités que M. Buisson date d'il y a "un peu moins de dix ans, quand les entreprises ont mis en œuvre des phases lourdes de restructuration". Des phases d'autant plus mal vécues qu'elles ont touché des salariés qui avaient beaucoup donné à l'entreprise. "Dans les années 1970 et 1980, les sociétés ont demandé aux salariés non seulement de faire mais d'aimer leur travail, analyse Patrick Légeron, psychiatre et dirigeant du cabinet Stimulus. *Puis est venu le temps des plans sociaux, dont même les salariés les plus dévoués ont été victimes. Les jeunes qui prennent de la distance, ce sont les enfants de ceux qui ont vécu ces bouleversements."* Pour M. Légeron, auteur du livre Le stress au travail (Odile Jacob Poches, 2003), *"nous assistons à un mouvement de balancier : après le surinvestissement, c'est le temps du recul, voire celui du désinvestissement"*. Un nouvel état d'esprit que résume Gilles Moutel, PDG de Chronopost : "Avant, l'équation était simple : si un salarié donnait beaucoup à une entreprise, elle le lui rendait. Maintenant, du fait de l'instabilité économique, les salariés doutent de la pérennité d'une telle équation." Les entreprises, qui continuent à utiliser des outils de management imaginés dans la seconde moitié du XX^{e} siècle, se retrouvent dans une situation paradoxale. Elles doivent employer des personnes "qui ont du mal à croire dans les mots de l'entreprise" explique le docteur Marc Banet, médecin du travail chez Alcan-Pechiney. "Les sociétés ont beau afficher des chartes et des valeurs, les salariés y croient de moins en moins", renchérit le psychiatre Laurent Chneiweiss co-auteur de L'anxiété (Odile Jacob, 2004). "Les salariés restent pour la majorité d'excellents petits soldats, ajoute le Dr Banet. *Mais les liens avec leur employeur se sont distendus. Ils se disent que s'ils ont une opportunité, ils s'en vont."* (http://www.lemonde.fr/web/article/0,1-0@2-3234,36-377014,0.html)

xcix

- Andreas Wittel on network sociality

" The term network sociality can be understood in contrast to 'community'. Community entails stability, coherence, embeddedness, and belonging. It involves strong and long-lasting ties, proximity and a common history or narrative of the collective. Network sociality stands counterposed to *Gemeinschaft*. It does not represent belonging but integration and disintegration… In network sociality social relations are not 'narrational' but informational; they are not based on mutual experience or common history, but primarily on an exchange of data and on 'catching up'. Narratives are characterised by duration, whereas information is defined by ephemerality. Network sociality consists of fleeting and transient, yet iterative social relations; of ephemeral but intense encounters. Narrative sociality often take place in bureaucratic organisations. In network sociality the social bond at work is not bureaucratic but informational; it is created on a project by project basis, by the movement of ideas, the establishment of solely temporary standards and protocols, and the creation and protection of proprietory information. Network sociality is not characterised by a separation but by a combination of both work and play. It is constructed on the grounds of communication and transport technology. Network…, I suggest a shift away from regimes of sociality in closed social systems and towards regimes of sociality in open social systems. Both communities and organisations are social systems with clear boundaries, with a highly defined inside and outside. Networks however are open social systems."
(source: work-in-progress)

c

- 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)

ci

- On the necessity of open collaboration:

" The free sharing of information - in this case code as opposed to software development - has nothing to do with altruism or a specific anti-authoritarian social vision. It is motivated by the fact that in a complex collaborative process, it is effectively impossible to differentiate between the "raw material" that goes into a creative process and the "product" that comes out. Even the greatest innovators stand on the shoulders of giants. All new creations are built on previous creations and themselves provide inspiration for future ones. The ability to freely use and refine those previous creations increases the possibilities for future creativity."
(http://news.openflows.org/article.pl?sid=02/04/23/1518208)

cii

- Proprietary vs. Open Source approaches

"This because for all its flaws, the open-source model has powerful advantages. The deepest and also most interesting of these advantages is that, to put it grossly, open source takes the bullshit out of software. It severely limits the possibility of proprietary "lock-in"--where users become hostage to the software vendors whose products they buy--and therefore eliminates incentives for vendors to employ the many tricks they traditionally use on each other and on their customers. The transparency inherent in the open-source model also limits secrecy and makes it harder to avoid accountability for shoddy work. People write code differently when they know the world is looking at it. Similarly, software companies behave differently when they know that customers who don"t like a product can fix it themselves or switch to another provider. On the available evidence, it appears that the secrecy and maneuvering associated with the traditional proprietary software business generate enormous costs, inefficiencies, and resentment. Presented with an alternative, many people will leap at it."
Charles Ferguson, Technology Review, June 2005, at
http://technologyreview.com/articles/05/06/issue/feature_linux.asp

ciii

- Flexible involvement

"an often overlooked characteristic of open source collaboration is the flexible degree of involvement in and responsibility for the process that can be accommodated. The hurdle to participating in a project is extremely low. Valuable contributions can be as small as a single, one-time effort - a bug report, a penetrating comment in a discussion. Equally important, though, is the fact that contributions are not limited to just that. Many projects also have dedicated, full-time, often paid contributors who maintain core aspects of the system - such as maintainers of the kernel, editors of a slash site. Between these two extremes - one-time contribution and full-

time dedication - all degrees of involvement are possible and useful. It is also easy to slide up or down the scale of commitment. Consequently, dedicated people assume responsibility when they invest time in the project, and lose it when they cease to be fully immersed. Hierarchies are fluid and merit-based, whatever merit means to the peers. This also makes it difficult for established members to continue to hold onto their positions when they stop making valuable contributions."
(http://news.openflows.org/article.pl?sid=02/04/23/1518208)

civ

- 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

Why do people participate in open source projects, especially the less exciting 'mundane' tasks?, at http://web.mit.edu/evhippel/www/papers/opensource.PDF

cv

- Eben Moglen on the marginal cost of reproducing information:

"The conversion to digital technology means that every work of utility or beauty, every computer program, every piece of music, every piece of visual or literary art, every piece of video, every useful piece of information--train schedule, university curriculum, map, chart--every piece of useful or beautiful information can be distributed to everybody at the same cost that it can be distributed to anybody. For the first time in human history, we face an economy in which the most important goods have zero marginal cost."
(http://moglen.law.columbia.edu/publications/maine-speech.html)

cvi

- 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)

cvii

- Open Source Biology

"open-source approaches have emerged in biotechnology already. The international effort to sequence the human genome, for instance, resembled an open-source initiative. It placed all the resulting data into the public domain rather than allow any participant to patent any of the results. Open source is also flourishing in bioinformatics, the field in which biology meets information technology. This involves performing biological research using supercomputers rather than test-tubes. Within the bioinformatics community, software code and databases are often swapped on "you share, I share" terms, for the greater good of all. Evidently the open-source approach works in biological-research tools and pre-competitive platform technologies. The question now is whether it will work further downstream, closer to the patient, where the development costs are greater and the potential benefits more direct. Open-source research could indeed, it seems, open up two areas in particular. The first is that of non-patentable compounds and drugs whose patents have expired. These receive very little attention from researchers, because there would be no way to protect (and so profit from) any discovery that was made about their effectiveness. To give an oft-quoted example, if aspirin cured cancer, no company would bother to do the trials to prove it, or go through the rigmarole of regulatory approval, since it could not patent the discovery. (In fact, it might be possible to apply for a process patent that covers a new method of treatment, but the broader point still stands.) Lots of potentially useful drugs could be sitting under researchers' noses.

The second area where open source might be able to help would be in developing treatments for diseases that afflict small numbers of people, such as Parkinson's disease, or are found mainly in poor countries, such as malaria. In such cases, there simply is not a large enough market of paying customers to justify the enormous expense of developing a new drug. America's Orphan Drug Act, which provides financial incentives to develop drugs for small numbers of patients, is one approach. But there is still plenty of room for improvement—which is where the open-source approach might have a valuable role to play."(http://www.economist.com/displaystory.cfm?story_id=2724420)

- Open Source Biotechnology in Agriculture

"Researchers in Australia have devised a method of creating genetically modified crops that does not infringe on patents held by big biotechnology companies. The technique will be made available free to others to use and improve, as long as any improvements are also available free."
(http://business-times.asia1.com.sg/sub/views/story/0,4574,144880,00.html)

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- Open Source Architecture

"This weblog has been created as a result of the article A communism of ideas, towards an architectural open source practice. It proposes a reorganization of architectural practice in order to deal with the diminshing role of the architect in spatial planning issues. Instead of continuing the battle of egos this weblog sets out to explore new models of cooperation that can reinvent architectural practice and develop innovative spatial models at the same time."

More in the article, 'towards an architectural open source practice, at http://www.archis.org/archis_old/english/archis_art_e_2003/art_3b_2003e.html and see also the blog **http://www.suite75.net/blog/maze/**. In the New York Times Magazine, David Brooks has written an interesting article describing the development of exurbia, a move beyond the suburbs that seems to exhibit P2P principles, see http://www.nytimes.com/2004/04/04/magazine/04EXURBAN.html?th .

- The Open Source Metaverse

"Because he knows something about being at the whim of faceless decision-makers at profit-minded gaming companies, Ludlow is a big fan of an emerging concept in massively multiplayer online game circles: the open-source metaverse. Built by independent contributors, the open-source metaverse is an infinitely extensible virtual world with few rules and no oversight from corporate overlords. "Instead of the game being developed by a game corporation, it would be developed by multiple users donating time in sort of a wiki style," said Ludlow, a philosophy professor at the University of Michigan. "This is a different picture, one in which the games would emerge in a bottom-up kind of way. The structure wouldn't be dictated, but would emerge from numerous people

trying to extend the game space." Ludlow acknowledges that his vision of a fully open-source virtual world is a couple of years off. But it's not total fantasy. There are already at least three groups implementing some form of open, metaverse-like platform: The Open Source Metaverse Project, or OSMP, the Croquet Project and MUPPETS. MUPPETS, or Multi-User Programming Pedagogy for Enhancing Traditional Study, is the brainchild of Andy Phelps, an assistant information technology professor at the Rochester Institute of Technology. He uses the project to immerse new students in their coursework even before they develop sophisticated programming skills."
(http://www.wired.com/news/games/0,2101,65865,00.html?)

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- Mental Transaction Costs, comment by Clay Shirky:

"The people pushing micropayments believe that the dollar cost of goods is the thing most responsible for deflecting readers from buying content, and that a reduction in price to micropayment levels will allow creators to begin charging for their work without deflecting readers. This strategy doesn't work, because the act of buying anything, even if the price is very small, creates what Nick Szabo calls mental transaction costs, the energy required to decide whether something is worth buying or not, regardless of price. The only business model that delivers money from sender to receiver with no mental transaction costs is theft, and in many ways, theft is the unspoken inspiration for micropayment systems. Like the salami slicing exploit in computer crime, micropayment believers imagine that such tiny amounts of money can be extracted from the user that they will not notice, while the overall volume will cause these payments to add up to something significant for the recipient. But of course the users do notice, because they are being asked to buy something. Mental transaction costs create a minimum level of inconvenience that cannot be removed simply by lowering the dollar cost of goods.
(http://shirky.com/writings/fame_vs_fortune.html)

- Additional quote from Clay Shirky, on the 'fame vs. fortune' dilemma

The fact that digital content can be distributed for no additional cost does not explain the huge number of creative people who make their work available for free. After all, they are still investing their time without being paid back. Why? The answer is simple: creators are not publishers, and putting the power to publish directly into their hands does not make them publishers. It makes them artists with printing presses. This matters because creative people crave attention in a way publishers do not. Prior to the internet, this didn't make much difference. The expense of publishing and distributing printed material is too great for it to be given away freely and in unlimited quantities -- even vanity press books come with a price tag. Now, however, a single individual can serve an audience in the hundreds of thousands, as a hobby, with nary a publisher in sight. This disrupts the old equation of "fame and fortune." For an author to be famous, many people had to have read, and therefore paid for, his or her books. Fortune was a side-effect of attaining fame. Now, with the power to publish directly in their hands, many creative people face a dilemma they've never had before: fame vs fortune."
(http://shirky.com/writings/fame_vs_fortune.html)

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- Aaron Krowne on CBPP 'authority models'

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

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The arguments by the owner-centric model advocates for Wikipedia are summarized here at http://www.kuro5hin.org/story/2004/12/30/142458/25 .The article is very informative about the kinds of problems that arise within P2P communities.

"Second problem: the dominance of difficult people, trolls, and their enablers. I stopped participating in Wikipedia when funding for my position ran out. That does not mean that I am merely mercenary; I might have

continued to participate, were it not for a certain poisonous social or political atmosphere in the project. There are many ways to explain this problem, and I will start with just one. Far too much credence and respect accorded to people who in other Internet contexts would be labelled "trolls." There is a certain mindset associated with unmoderated Usenet groups and mailing lists that infects the collectively-managed Wikipedia project: if you react strongly to trolling, that reflects poorly on you, not (necessarily) on the troll. If you attempt to take trolls to task or demand that something be done about constant disruption by trollish behavior, the other listmembers will cry "censorship," attack you, and even come to the defense of the troll. This drama has played out thousands of times over the years on unmoderated Internet groups, and since about the fall of 2001 on the unmoderated Wikipedia. Wikipedia has, to its credit, done something about the most serious trolling and other kinds of abuse: there is an Arbitration Committee that provides a process whereby the most disruptive users of Wikipedia can be ejected from the project. But there are myriad abuses and problems that never make it to mediation, let alone arbitration. A few of the project's participants can be, not to put a nice word on it, pretty nasty. And this is tolerated. So, for any person who can and wants to work politely with well-meaning, rational, reasonably well-informed people--which is to say, to be sure, *most* people working on Wikipedia--the constant fighting can be so off-putting as to drive them away from the project. This explains why I am gone; it also explains why many others, including some extremely knowledgeable and helpful people, have left the project… **The root problem: anti-elitism, or lack of respect for expertise.** There is a deeper problem--or I, at least, regard it as a problem--which explains both of the above-elaborated problems. Namely, as a community, Wikipedia lacks the habit or tradition of respect for expertise. As a community, far from being elitist (which would, in this context, mean *excluding* the unwashed masses), it is *anti*-elitist (which, in this context, means that expertise is not accorded any special respect, and snubs and disrespect of expertise is tolerated)… Consequently, nearly everyone with much expertise but little patience will avoid editing Wikipedia, because they will--at least if they are editing articles on articles that are subject to any sort of controversy--be forced to defend their edits on article discussion pages against attacks by nonexperts."

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- Town council vs. clique, a conflict in the early phases of Linux

"Alan Cox, a senior Linux developer, introduces two more organizational metaphors, the "town council" and the "clique," in an essay published on *Slashdot* in 1998. Cox provides a "guide to how to completely screw–up a free software development project" by describing the early days of the Linux on 8086 project, "one of the world's most pointless exercises" and therefore one that has great "Hack Value." Cox writes that this obscurity meant that there were really only two or three people with both the skill and interest required, but also many "dangerously half–clued people with opinions — not code, opinions." These "half–clued" participants acted like a "town council" which created so much ineffectual noise that the core developers were lead to abandon the "bazaar model" and, using kill files, formed a "core team" which, Cox writes, "is a polite word for a clique." Cox argues that ignoring the "half–clued" was understandable but badly mistaken and ultimately caused the project to stall, not least because the real programmers were unable to help the wannabe programmers to learn to contribute usefully and thus change the unproductive "town council" into a productive project." (http://www.firstmonday.org/issues/issue10_2/crowston/index.html)

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- Types of conflict

"Four types of conflicts can be identified in the FLOSS field: ideological, technical, personal and cultural conflicts. Of course, most actually existing conflicts are a mixture of these types.
Ideological conflicts are usually about differing ideas about and approaches to the meaning of freedom of software. The Gnome project, for example, was founded as a result of a conflict with KDE who used the then proprietary Qt library from Trolltech. It could be argued that the term Open Source also emerged as the result of such a conflict. A group of key people in the field — such as Eric Raymond — introduced the term to give the phenomenon a new name. They wanted to distance themselves from the FSF and its allegedly anti–commercial attitude. They hoped to popularise Open Source Software, as they now called Free Software, among wider groups of users, who, they felt, might have been alienated by the FSF's value–conscious approach.
Technical conflicts are, evidently, about different views on the best solution for a given technical problem. Bearing in mind the strong role of technological perfection and code elegance, they have a huge conflict potential. Like the famous debate about macro– vs. micro–kernels, these conflicts are disputes about the best way to achieve a specified target.

Personal conflicts usually result from the behaviour of individuals who commit a breach of (social) norms. All discussions about how people should behave towards each other fall into this category. Also in this category was a case when a developer unjustifiedly claimed authorship.
The fourth and final type of conflict is best described as cultural. These are less about breaches of norms, and have more to do with the non–acceptance of norms. One such conflict has developed over the past few years following the wider spread of FLOSS; today, there are many users with only a very limited knowledge of computers. But it is not only their level of skills (which is lower), their attitude to computers is also quite different. They take a consumer's view of FLOSS and have very different expectations *vis-à-vis* developers. They wait (or ask impatiently) for a specific feature instead of contributing to its development. They ask questions clearly answered in the documentation — both demands which are very similar to those made by purchasers of commercial products. This results in many conflicts between developers and users who are not part of the FLOSS (sub) culture, and to mutual alienation."
(http://www.firstmonday.org/issues/issue9_11/lehmann/index.html)

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The five most common problems associated with using FLOSS software are described here at
http://www.firstmonday.org/issues/issue9_4/levesque/index.html

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- Some epuipotentiality practices

Projects also differ in whom they consider members, and the degree of membership within a given project can vary as well. Apart from officially assigned functions, such as being a member of the coreteam or a maintainer, writing access to Source Code Management Systems (SCM) is a distinguishing feature, as it allows contributors to work autonomously. Projects handle the granting of such rights very differently. Debian demands the successful completion of a series of tests to prove technical ability but also to show adherence to the Debian Social Contract — a kind of constitutional charter of the project which has a lot to say about freedom of software. Only when these tests have been passed satisfactorily — which can take a month or more than a year — is one assigned the official status of a Debian Developer. This form of admission — which is bordering on a formal initiation process — seems to be rather unique... It is widely assumed that the allocation and distribution of positions is based on reputation. Such reputation, though, is not only acquired meritocratically by writing good code; the idea of elders (where the project founder is assigned in some fashion the role of leader) is also quite important. The organisational structures of FLOSS projects are not designed at the drawing board; they are the result of happenstance, conventions ("that's what is done in FLOSS projects"), and negotiation. "
(http://www.firstmonday.org/issues/issue9_11/lehmann/index.html)

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- Reputation-based management schemes and the 'karma' systems

"NoLogo.org is perhaps the most prominent second-generation slash site. This makes it a good example of how the OSI experience, embodied by a specific code, is now at a stage where it can be replicated across different contexts with relative ease. NoLogo.org is based on the current, stable release of Slashcode, an open source software platform released under the GPL, and developed for and by the Slashdot community. Slashdot is the most well-known and obvious example of OSI, since it is one of the main news and discussion sites for the open source movement (www.slashdot.org).

Of particular importance for OSI is the collaborative moderation process supported by the code. Users who contribute good stories or comments on stories are rewarded with "karma," which is essentially a point system that enables people to build up their reputation. Once a user has accumulated a certain number of points, she can assume more responsibilities, and is even trusted to moderate other people's comments. Karma points have a half-life of about 72 hours. If a user stops contributing, their privileges expire. Each comment can be assigned points by several different moderators, and the final grade (from -1 to +5) is an average of all the moderators' judgments. A good contribution is one that receives high grades from multiple moderators. This creates a kind of double peer-review process. The first is the content of the discussion itself where people respond to one another, and the second is the unique ranking of each contribution. This approach to moderation addresses several

problems that bedevil e-mail lists very elegantly. First, the moderation process is collaborative. No individual moderator can impose his or her preferences. Second, moderation means ranking, rather than deleting. Even comments ranked -1 can still be read. Third, users set their preferences individually, rather than allowing a moderator to set them for everyone. Some might enjoy the strange worlds of -1 comments, whereas others might only want to read the select few that garnered +5 rankings. Finally, involvement is reputation- (i.e. karma-) based and flexible. Since moderation is collaborative, it's possible to give out moderation privileges automatically. Moderators have very limited control over the system. As an additional layer of feedback, moderators who have accumulated even more points through consistently good work can "meta-moderate," or rank the other moderators."
(http://news.openflows.org/article.pl?sid=02/04/23/1518208)

Down and Out in the Magic Kingdom is a novel about a future society organized around such principles, and was written by Cory Doctorow in 2003.

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- The importance of reputation-based systems

" suggest the potential utility of reputation services is far greater, touching nearly every aspect of society. By leveraging our limited and local human judgement power with collective networked filtering, it is possible to promote an interconnected ecology of socially beneficial reputation systems — to restrain the baser side of human nature, while unleashing positive social changes and enabling the realization of ever higher goals."
(http://www.firstmonday.org/issues/issue9_7/masum/index.html)

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- 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. "

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- ThinkCycle

“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." (http://www.wired.com/wired/archive/11.11/opensource.html)

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- Resources on Edward Haskell:

Haskell's ideas are very well summarized by Timothy Wilken, see especially chapter five, in http://www.synearth.net/UCS2-Science-Order.pdf ; http://www.synearth.net/Order/UCS2-Science-Order.html

The full text of the book of Haskell's book Full Circle, can be read at http://www.kheper.net/topics/Unified_Science/index.html ; other relevant texts are:

The evolution of humanity, at http://www.synearth.net/Haskell/FC/FCCh4.htm

The basics explained, at http://futurepositive.synearth.net/2002/07/02

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- 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)

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- 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*)

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- Cooperation Studies and Cooperative Intelligence

Cooperation studies are well monitored by by Howard Rheingold and and a whole team of collaborators at the Smartmobs.com weblog.

Here's a summary of cooperation theories maintained by Paul Pivcevic of the http://www.cooperativeintelligence.org/ website.Below is a summary of some well-researched theories about how groups of people can evolve, true for any kind of organisation.

Key attributes in the stages of team/ group development

Tuckman (1965)	**Forming** Attempt at establishing primary purpose, structure, roles, leader, task & process relationships, and boundaries of the team.	**Storming** Arising and dealing of conflicts surrounding key questions from Forming stage	**Norming** Settling down of team dynamic and stepping into team norms and agreed ways of working	**Performing** Team is now ready & enabled to focus primarily on its task whilst attending to individual & team maintenance needs
Schutz (1982)	**In or Out** Members decide whether they are part of the team or not	**Top or Bottom** Focus on who has power and authority within the team	**Near or Far** Finding levels of commitment and engagement within their roles	
Whittaker (1970)	**Preaffiliation** Sense of unease, unsure of team engagement, which is superficial	**Power and Control** Focus on who has power and authority within the team Attempt to define roles	**Intimacy** Team begins to commit to task and engage with one another	**Differentiation** Ability to be clear about individual roles and interactions become workmanlike
Hill & Gruner (1973)	**Orientation** Structure sought	**Exploration** Exploration around team roles and relations	**Production** Clarity of team roles & team cohesion	

Bion (1961)	**Dependency** Team members invest the leaders with all the power and authority	**Fight or Flight** Team members challenge the leaders or other members. Team members withdraw	**Pairing** Team members form pairings in an attempt to resolve their anxieties	
Scott Peck (1990)	**Pseudo community** Members try and fake teamliness	**Chaos** Attempt to establish pecking order and team norms	**Emptiness** Giving up of expectations, assumptions and hope of achieving anything	**Community** Acceptance of each other and focus on the task

Adapted from *Making Sense of Change Management, a Complete Guide to the Models, Tools, and Techniques of Organisational Change*, Cameron, E and Green, M, Kogan Page, London. 2004

cxxiv

- Definitions: Collective intelligence, co-intelligence, groupthink, cognitive bias

"Tom Atlee is founder of The Co-Intelligence Institute coined the term co-intelligence, which he usually defines as meaning what intelligence looks like when we take seriously the wholeness, co-creativity and interconnectedness of life. Collective intelligence is only one manifestation of co-intelligence. Others include multi-modal intelligence, collaborative intelligence, wisdom, resonant intelligence and universal intelligence."

Groupthink is a term coined by psychologist Irving Janis in 1972 to describe one process by which a group can make bad or irrational decisions. In a groupthink situation, each member of the group attempts to conform his or her opinions to what they believe to be the consensus of the group. This results in a situation in which the group ultimately agrees on an action which each member might normally consider to be unwise.

..... " and individual cognitive bias **Cognitive bias** is any of a wide range of observer effects identified in cognitive science, including very basic statistical and memory errors that are common to all human beings (first identified by Amos Tversky and Daniel Kahneman) and drastically skew the reliability of anecdotal and legal evidence. They also significantly affect the scientific method which is deliberately designed to minimize such bias from any one observer.

(http://www.co-intelligence.org)

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- Holoptism defined, Jean-Francois Noubel

"Un espace "***holoptique***" : la proximité spatiale offre à chaque participant une perception complète et sans cesse réactualisée de ce Tout. Chacun, grâce à son expérience et expertise, s'y réfère pour anticiper ses actions, les ajuster et les coordonner avec celles les autres. Il existe donc un aller-retour incessant, qui fonctionne comme un miroir, entre les niveaux individuel et collectif. Nous nommerons ***holoptisme*** l'ensemble de ces propriétés, à savoir la transparence "horizontale" (perception des autres participants) à laquelle s'ajoute la communication "verticale" avec le Tout émergeant du collectif. Dans les exemples évoqués plus haut, les conditions de l'holoptisme sont fournies par l'espace 3D ; ce sont nos sens et organes naturels qui servent directement d'interfaces. Notons que le rôle d'un coach, ou d'un observateur, consiste à favoriser la condition de l'holoptisme."
(http://www.thetransitioner.org/ic)

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- Distinguishing insect swarming from human collective intelligence:

“Les sociétés d'insectes nous proposent un modèle de fonctionnement bien différent du modèle humain: un modèle décentralisé, fondé sur la coopération d'unités autonomes au comportement relativement simple et probabiliste, qui sont distribuées dans l'environnement et ne disposent que d'informations locales (je veux dire par là qu'elles ne disposent d'aucune représentation ou connaissance explicite de la structure globale qu'elles ont à produire ou dans laquelle elles évoluent, bref, qu'elles n'ont pas de plan). Les insectes possèdent un équipement sensoriel qui leur permet de répondre aux stimulations : celles qui sont émises par leurs congénères et celles qui proviennent de leur environnement. Ces stimulations n'équivalent évidemment pas à des mots ou à des signes ayant valeur symbolique. Leur signification dépend de leur intensité et du contexte dans lequel elles sont émises ; elles sont simplement attractives ou répulsives, inhibitrices ou activatrices. Dans les sociétés d'insectes, le "projet" global n’est donc pas programmé explicitement chez les individus, mais émerge de l’enchaînement d’un grand nombre d’interactions élémentaires entre individus, ou entre individus et environnement. Il y a en fait intelligence collective construite à partir de nombreuses simplicités individuelles.

L'intelligence en essaim est "aveugle" du fait de son absence d'**holoptisme** ; aucun des individus n'a une quelconque idée de ce qu'est l'**entité émergente**. Ce qui "stabilise" et dirige les sociétés d'insectes sociaux, ce sont en grande partie les conditions extérieures (température, météo, dangers, nourriture…), qui servent de contenant naturel et indiquent la voie à suivre. Il a fallu des millions d'années d'évolution pour que s'affine la panoplie comportementale des individus ("programmée" génétiquement), et que ces sociétés atteignent la stabilité et la robustesse que nous leur connaissons."
From Jean-Francois Noubel, quoting from Jean-Louis Deneubourg, biology professor of the Brussels-based ULB university, an expert on social insects, at http://www.thetransitioner.org/ic

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- Swarming, the market, collective intelligence and P2P, note by Jean-Francois Noubel

The following citation helps distinguishing between bottom-up processes in general, such as the market, and true collective intelligence and P2P processes, which require holoptim. This citation can also be read in conjunction with the section outlining the differences between the market and P2P.

"Il semblerait que, chez l'humain, une forme d'intelligence en essaim se manifeste également dans le domaine de l'économie. A chaque fois que nous effectuons un paiement, nous engageons un geste assez similaire, dans sa simplicité et sa dynamique, à celui d'un échange entre deux insectes sociaux. De la multitude de transactions simples et probabilistes d'individu à individu émerge un système collectif très élaboré, pourvu de propriétés adaptatives et réactives à l'environnement. C'est ainsi que la société humaine depuis longtemps gère et équilibre ses ressources au niveau macroscopique (alors qu'au niveau local d'une organisation, c'est l'intelligence pyramidale qui en organise la circulation, comme nous l'avons évoqué plus haut).

Limites de l'intelligence en essaim: L'intelligence en essaim fonctionne à cette condition qu'il y a uniformité et désindividuation de ses agents. Ces derniers, anonymes parmi la foultitude des d'autres agents anonymes, y sont facilement sacrifiés – même à grande échelle – au nom de l'équilibre global du système. Si ce fait semble acceptable pour les insectes sociaux dont chaque individu est indifférencié, il ne l'est évidemment pas pour les espèces animales dont l'équilibre repose précisément sur la différentiation des individus, en particulier chez l'Homme. Cette distinction fondamentale semble pourtant ignorée par les nombreuses théories économiques, qui fondent leurs modèles et doctrines sur des interactions d'agents indifférenciés (le consommateur, le citoyen). L'approche libérale postule que le système doit trouver tout seul son équilibre au niveau macroscopique, grâce au jeu des contraintes internes et externes (d'aucuns se réfèrent à la fameuse expression d'**Adam Smith** de la *main invisible*). Modéliser la société humaine comme une somme d'agents indifférenciés – même avec des variations aléatoires de comportements – constitue au mieux une erreur épistémologique, au pire une doctrine fort dangereuse."
(http://www.thetransitioner.org/ic)

cxxviii

- Stigmergy defined

"Stigmergy is a term used in biology (from the work of french biologist Pierre-Paul Grasse) to describe environmental mechanisms for coordinating the work of independent actors (for example, ants use pheromones to create trails and people use weblog links to establish information paths, for others to follow). The term is derived from the greek words *stigma* ("sign") and *ergon* ("to act"). Stigmergy can be used as a mechanism to understand underlying patterns in swarming activity."
(Global Guerilla weblog)

cxxix

- Towards 'sufficient' and 'repersonalised' money systems, quote by Keith Hart

Clearly, a radical monetary reform is going to be at the heart of the problematic for creating a P2P-based society. Instead of the present situation where only 10% of the financial supply reaches those who need it, with the larger parts of the world excluded from its circuits, we need a monetary format that empowers bottom-up development. Today, we have the paradoxical situation of a financial system which is overabundant for those who don't need it, and scarce in those parts of the world really needing it. Reading **Money in an Unequal World**. New York and London: Texere, 2001 by Keith Hart is a good place to start explorations in monetary reform.

"Money is the problem, but it is also the solution. We have to find ways of organising markets as equal exchange and that means detaching the forms of money from the capitalist institutions which currently define them. I believe that, instead of taking money to be something scarce beyond our control, we could begin to make it ourselves as a means of accounting for those exchanges whose outcomes we wish to calculate. Money would then become multiple sources of personal credit, building on the technology which has already given us plastic cards. The key to repersonalisation of the economy is cheap information. Money was previously impersonal because objects exchanged at distance needed to be detached from the parties involved. Now growing amounts of information can be attached to transactions involving people anywhere in the world. **This provides the opportunity for us to make circuits of exchange employing money forms which reflect our individuality, so that money may be more meaningful to each of us as a means of participating in the multiple associations we choose to enter**. All of this stands in stark contrast to state-made money in the 20th century, where citizens belonged to one national economy whose currency was monopolised by a political class claiming the authority of representation to manage its volume, price and allocation."
(http://www.thememorybank.co.uk/)

- The Open Money project

"Open money is a means of exchange freely available to all. Any community, any association - indeed, any body - can have their own money. Open money is synonymous with LETS - an invitation to come inside and play, as in open door and open house; collaboration as in open hand and open for all; attitude as in open mind. The purpose of the open money project is to bring together and organize the people and resources necessary for the development and propagation of open money everywhere. The open money project is a work in progress - a continuation of almost 20 years of LETSystem development all over the world, two community way projects in Canada using smart cards, the Japan open money project, and, most recently, a community currencies server program, cybercredits. The intent is to develop an open money kernel - a core set of text files, administration tools and software systems that are sufficiently coherent and clear that further elaboration of the set derives from the core concepts themselves, rather than from the particular agendas of the originating writers and contributors. The open money kernel is to have a life of its own. '
(http://www.openmoney.org/

- Some other complementary currency initiatives

LIBRA project (Milan, Italy), http://www.aequilibra.it/; Banca Etica (Padova, Italy), http://www.bancaetica.com/; Chiemgauer (Bavaria, Germany), http://www.chiemgauer.info/ ; WIR Bank (Switzerland), http://www.wir.ch/

- Learning about monetary reform:

Dr. Margrit Kennedy at http://www.margritkennedy.de/ . one of the leading figures in this field as she published "Interest and Inflation-free Money"(the whole text is available in English at: http://userpage.fu-berlin.de/~roehrigw/kennedy/english/)

A page devoted to 'alternative economy' topics, also listing the alternative currencies in Japan, at http://www3.plala.or.jp/mig/econ-uk.html, and on Argentina's RGT, the world's biggest non-money barter network

cxxx

A listing of technologically-supported collaborative methodologies can be found at http://www.thataway.org/resources/practice/hightech/intro.html

cxxxi

- David Weinberger, on why classification can be different in digital environments:

"In the physical world, a fruit can hang from only one branch. In the digital world, objects can easily be classified in dozens or even hundreds of different categories; In the real world, multiple people use any one tree. In the digital world, there can be a different tree for each person. In the real world, the person who owns the information generally also owns and controls the tree that organizes that information. In the digital world, users can control the organization of information owned by others." (David Weinberger in Release 1.0.: http://www.release1-0.com/, reproduced in JOHO blogf)

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Some of the sites that pioneered tagging are del.icio.us. <http://del.icio.us/> ; Flickr. <http://www.flickr.com/> ; Furl, <http://www.furl.net/>

cxxxiii

- Broad vs. narrow folksonomies

"Vander Wal [argues that], there are broad folksonomies and narrow folksonomies, and they are entirely distinct. "Delicious is a broad folksonomy, where a lot of people are describing one object," Vander Wal said. "You might have 200 people giving a set of tags to one object, which really gives a lot of depth.... No matter what you call something, you probably will be able to get back to that object." In a broad folksonomy, Vander Wal continued, there is the benefit of the network effect and the power curve because so many people are involved. An example is the website of contemporary design magazine Moco Loco, to which 166 Delicious users had applied the tag "design." Conversely, Vander Wal explained, Flickr's system is a narrow folksonomy, because rather than many people tagging the same communal items, as with Delicious, small numbers of users tag individual items. Thus many users tag items, but of those, only a small number will tag a particular item. " (http://www.wired.com/news/technology/0,1282,66456,00.html?)

Explaining and showing broad and narrow folksonomies / Thomas Vander Wal -- <http://www.personalinfocloud.com/2005/02/explaining_and_.html> : February 21, 2005

cxxxiv

- Clay Shirky on tagging vs. metadata

"This is something the 'well-designed metadata' crowd has never understood -- just because it's better to have well-designed metadata along one axis does not mean that it is better along all axes, and the axis of cost, in

particular, will trump any other advantage as it grows larger. And the cost of tagging large systems rigorously is crippling, so fantasies of using controlled metadata in environments like Flickr are really fantasies of users suddenly deciding to become disciples of information architecture."
(cited by Cory Doctorow in theBoing Boing blog, January 2005)

- When Folknomies make sense

"Taxonomies are suitable for classifying corpora of homogeneous, stable, restricted entities with a central authority and expert or trained users, but are also expensive to build and maintain.
Faceted systems (a sort of polyhierarchy) are useful with a wide range of users with different mental models and vocabularies. They are also more scalable because new items (for users) and new concepts (for cataloguers) can be added with a limited impact and with no need to start a new classification from scratch.
Folksonomies require people to do the work by themselves for personal or social reasons. They are flat and ambiguous and cannot support a targeted search approach. However, they are also inexpensive, scalable and near to the language and mental model of users."
(http://www.iskoi.org/doc/folksonomies.htm)

- Some sources on Folksonomies

Folksonomy / Alex Wright -- <http://www.agwright.com/blog/archives/000900.html> : January 5, 2005
Folksonomy (Wikipedia) -- <http://en.wikipedia.org/wiki/Folksonomy>
Social bookmarking tools / T Hammond, T Hannay, B Lund, J Scott --
<http://www.dlib.org/dlib/april05/hammond/04hammond.html/> : April 2005

Tagging explained by Business Week at
http://www.businessweek.com/magazine/content/05_15/b3928112_mz063.htm

cxxxv

- The power of categorization

Sorting Things Out, by communications theorists Geoffrey C. Bowker and Susan Leigh Star (The MIT Press, 2000), covers a lot of conceptual ground in this context: *" After arguing that categorization is both strongly influenced by and a powerful reinforcer of ideology, it follows that revolutions (political or scientific) must change the way things are sorted in order to throw over the old system. Who knew that such simple, basic elements of thought could have such far-reaching consequences*?"
(Rob Lightner in a Amazon.com review)

cxxxvi

- Connectivist learning theory, by George Siemens

"A central tenet of most learning theories is that learning occurs inside a person. Even social constructivist views, which hold that learning is a socially enacted process, promotes the principality of the individual (and her/his physical presence – i.e. brain-based) in learning. These theories do not address learning that occurs outside of people (i.e. learning that is stored and manipulated by technology)… In a networked world, the very manner of information that we acquire is worth exploring. The need to evaluate the worthiness of learning something is a meta-skill that is applied before learning itself begins. When knowledge is subject to paucity, the process of assessing worthiness is assumed to be intrinsic to learning. When knowledge is abundant, the rapid evaluation of knowledge is important. The ability to synthesize and recognize connections and patterns is a valuable skill. Including technology and connection making as learning activities begins to move learning theories into a digital age. We can no longer personally experience and acquire learning that we need to act. We derive our competence from forming connections. Karen Stephenson states: *"Experience has long been considered the best teacher of knowledge. Since we cannot experience everything, other people's experiences,*

and hence other people, become the surrogate for knowledge. 'I store my knowledge in my friends' is an axiom for collecting knowledge through collecting people.

Connectivism is the integration of principles explored by chaos, network, and complexity and self-organization theories…

Principles of connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.
- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

(http://www.itdl.org/Journal/Jan_05/article01.htm)

cxxxvii

- Communal learning: some preliminary sources to explore this topic:.

I believe Pierre Levy has done some valuable work into recognizing the processes of communal validation but have not yet located the precise works.

Jack Whitehead, who explores "Living Education Theories" says that he's "*been using a peer-to-peer process of social validation (modifiedfrom Habermas' views in his work on communication and the evolution of society) in assisting individuals to create their own living educational theories as they account to themselves and others for the lives they are living and their learning as they seen to live their values as fully as they can*."
(see http://www.actionresearch.net and http://www.bath.ac.uk/~edsajw/living.shtml)

Alan Rayner has investigated 'inclusional' or 'empathic' learning, at
http://www.bath.ac.uk/~bssadmr/inclusionality/rehumanizing.htm

cxxxviii

- the difference between peer to peer processes and academic peer review:

"One of the early precedents of open source intelligence is the process of academic peer review. As academia established a long time ago, in the absence of fixed and absolute authorities, knowledge has to be established through the tentative process of consensus building. At the core of this process is peer review, the practice of peers evaluating each other's work, rather than relying on external judges. The specifics of the reviewing process are variable, depending on the discipline, but the basic principle is universal. Consensus cannot be imposed, it has to be reached. Dissenting voices cannot be silenced, except through the arduous process of social stigmatization. Of course, not all peers are really equal, not all voices carry the same weight. The opinions of those people to whom high reputation has been assigned by their peers carry more weight. Since reputation must be accumulated over time, these authoritative voices tend to come from established members of the group. This gives the practice of peer review an inherently conservative tendency, particularly when access to the peer group is strictly policed, as it is the case in academia, where diplomas and appointments are necessary to enter the elite circle. The point is that the authority held by some members of the group- which can, at times, distort the consensus-building process - is attributed to them by the group, therefore it cannot be maintained against the will of the other group members."
(http://news.openflows.org/article.pl?sid=02/04/23/1518208)

cxxxix

- The University of Openness' distributed library project

"“Unfortunately, the traditional library system doesn't do much to foster community. Patrons come and go, but there is very little opportunity to establish relationships with people or groups of people. In fact, if you try to talk with someone holding a book you like – you'll probably get shushed. The Distributed Library Project works in exactly the opposite way, where the very function of the library depends on interaction.
How it Works: Users create accounts complete with bios and interest enumerations, then list the books and videos that they own. Those users are then free to browse the books that others have listed – sorted by proximity, interest, and book commonality. If a book or video is available, a user can check it out directly from the owner. There is an ebay-style feedback system for managing trust – users who return books on time get positive feedback, while users who damage books or return them late get negative feedback. These points create an overall “score” that lenders can use to judge the trustworthiness of a borrower.

Moxie, a Californian hacker and anarchist wrote a piece of software to catalogue and share books in his community. Since 2003 many small libraries have started using this (and related) pieces of software to catalogue their books and provide their communities with a system for sharing, lending and reviewing their collections of books, videos and music. There are now over 20 Distributed Library Project servers around the world. Using this as a starting point, the Antisystemic Library is starting to develop this software to allow people to archive and provide access to their collections of zines, maps, books, media and other resources. The next stage of development will be the publication of these archives on the Semantic Web, along with their interconnected cataloguing systems."
(http://dlpdev.theps.net/)

cxl

- The Anti-systemic Library project of the University of Openness

"The principals of an anti-systemic library is that it does not have a catalogue, i.e. a hierarchical organisation of knowledge, instead it allows each library, each archivist and each researcher to use their own archiving and searching systems, based on their own bibliographies, languages, interests, politics and codes. The libraries that use these principles considered as a whole can be called 'The Anti-systemic Library'.

The Semantic Web initiative is attempting to produce an information network with 'enriched' semantic coherence, while at the same time allowing local information to be described and enhanced locally. For example, describing my book collection, I use the category 'fascist propaganda' and someone else uses 'nazi counter-propaganda', or a word in a non-english language that means something similar. If we both use a computer readable syntax to describe our collections, we can programme a robot to link our libraries together. This robot would be able to read all our catalogues and infer that since we all have a number of identical books in these categories, that there is a semantic connection between fascist propaganda, nazi propaganda and the non-english word - and that the collections might be usefully grouped together."
(http://dlpdev.theps.net/)

cxli

- The characteristics of chaordic organizations

The chaordic commons is a network infrastructure created to support P2P-like initiatives, created by Dee Hok, the former chairman of Visa International and author of The Chaordic Age. Here are the principles behind the movement.

- **Are based on clarity of shared purpose and principles.**
- **Are self-organizing and self-governing in whole and in part.**
- **Exist primarily to enable their constituent parts.**
- **Are powered from the periphery, unified from the core.**

- **Are durable in purpose and principle, malleable in form and function.**
- **Equitably distribute power, rights, responsibility and rewards.**
- **Harmoniously combine cooperation and competition.**
- **Learn, adapt and innovate in ever expanding cycles.**
- **Are compatible with the human spirit and the biosphere.**
- **Liberate and amplify ingenuity, initiative and judgment.**
- **Are compatible with and foster diversity, complexity and change.**
- **Constructively utilize and harmonize conflict and paradox.**
- **Restrain and appropriately embed command and control methods.**

cxlii

- John Holloway on the new temporality of change

"Time is central to any consideration of power and counter power or anti-power. The traditional left is centred on waiting, on patience. The social democratic parties tell us "Wait until the next election, then we will come to power and things will be different" The Leninist parties say "wait for the revolution, then we'll take power and life will begin". But we cannot wait. Capitalism is destroying the world and we cannot be patient. We cannot wait for the next long wave or the next revolutionary opportunity. We cannot wait until the time is right. We must revolt now, we must live now.

The traditional left operates with a capitalist concept of time. In this concept, capitalism is a continuum, it has a duration, it will be there until the day of revolution comes. It is this duration, this continuum that we have to break. How? By refusing. By understanding that capitalism does not have any duration independent of us. If capitalism exists today, it is not because it was created one hundred or two hundred years ago, but because we (the workers of the world, in the broadest sense) created it today. If we do not create it tomorrow, it will not exist. Capital depends on us for its existence, from one moment to the next. Capital depends on converting our doing into alienated work, on converting our life into survival. We make capitalism. The problem of revolution is not to abolish capitalism but to stop making it.

But there is also a second temporality. To give force to our refusal, we have to back it up with the construction of an alternative world. If we refuse to submit to capital, we must have some alternative way of living and this means the patient creation of other ways of organising our activity, our doing.

If the first temporality is that of innocence, this is the temporality of experience. This is the temporality of building our own power, our power-to, our power to do things in a different way. Building our own power-to is a very different thing from taking power or seizing power. If we organise ourselves to take power, to try to win state power, then inevitably we put ourselves into the logic of capitalist power, we adopt capitalist forms of organisation which impose separations, separations between leaders and masses, between citizens and foreigners, between public and private. If we focus on the state and the winning of state power, then inevitably we reproduce within our own struggles the power of capital. Building our own power-to involves different forms of organisation, forms which are not symmetrical to capital's forms, forms which do not separate and exclude. Our power, then, is not just a counter-power, it is not a mirror-image of capitalist power, but an anti-power, a power with a completely different logic — and a different temporality.

The traditional temporality, the temporality of taking power, is in two steps: first wait and build the party, then there will be the revolution and suddenly everything will be different. The second temporality comes after the first one. The taking of power operates as a pivot, a breaking point in the temporality of the revolutionary process. Our temporality, the temporality of building our own anti-power is also in two steps, but the steps are

exactly the opposite, and they are simultaneous. First: do not wait, refuse now, tear a hole, a fissure in the texture of capitalist domination now, today. And secondly, starting from these refusals, these fissures, and simultaneously with them, build an alternative world, a different way of doing things, a different sort of social relations between people. Here it cannot be a sudden change, but a long and patient struggle in which hope lies not in the next election or in the storming of the Winter Palace but in overcoming our isolation and coming together with other projects, other refusals pushing in the same direction. This means not just living despite capitalism, but living in-against-and-beyond capitalism. It means an interstitial conception of revolution, (http://info.interactivist.net/article.pl?sid=05/03/25/1319243&mode=nested&tid=9)

cxliii

- 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 Internet, 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 2005)

- John Frow on the gift economy, citing Gregory:

"a gift economy depends upon the creation of debt, where what is at stake is not the things themselves or the possibility of material profit but the personal relationships that are formed and perpetuated by ongoing indebtedness. Things in the gift economy are the vehicles, the effective mediators and generators, of social bonds: putting this in terms derived from Marx's theory of commodity fetishism, Gregory writes that `things and people assume the social form of objects in a commodity economy while they assume the social form of persons in a gift economy'."

Recall the schematic opposition that Gregory sets up between two modes of exchange:

commodity exchange	gift exchange
alienable objects	inalienable objects
reciprocal independence	reciprocal dependence
quantitative relationship between objects	qualitative relationship between subjects

(source: personal communication, Word manuscript of chapter 2 of xxx)

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The original Tragedy of the Commons essay, at http://dieoff.org/page95.htm

cxlv

- Participation Capture in Bittorrent

"BitTorrent is a radical advance over the peer-to-peer systems which preceded it. Cohen realized that popularity is a *good* thing, and designed BitTorrent to take advantage of it. When a file (movie, music, computer program, it's all just bits) is published on BitTorrent, everyone who wants the file is required to share what they have with everyone else. As you're downloading the file, those parts you've already downloaded are available to other people looking to download the file. This means that you're not just "leeching" the file, taking without giving

back; you're also sharing the file with anyone else who wants it. As more people download the file, they offer up what they've downloaded, and so on. As this process rolls on, there are always more and more computers to download the file from. If a file gets very popular, you might be getting bits of it from hundreds of different computers, all over the Internet – *simultaneously*. This is a very important point, because it means that as BitTorrent files grow in popularity, they become progressively faster to download. Popularity isn't a scourge in BitTorrent – it's a blessing.'
(http://www.disinfo.com/site/displayarticle8198.html)

cxlvi

- Participation Capture, Sousveillance, Panoptical surveillance

Sousveillance is the conscious capture of processes from below, by individual participants; surveillance is from the top down, while participation capture is inscribed in the very protocols of cooperation and is therefore automatic:

"Surveiller veut dire *veiller* par au-dessus. On fait ici référence à l'oeuvre de Michel Foucault**?** *Surveiller et Punir*, où est relaté le principe du *panoptisme*, architecture des prisons modernes qui permettent à une seule personne de tout voir depuis un point central. C'est donc un concept à la fois physique, hiérarchique et spirituelle. *Souveillance* indique implicitement le contraire, c'est-à-dire veiller par en-dessous (voir **article smartmobs** (anglais)). La *sousveillance* est l'art, la science et la technologie de la capture (mise en mémoire) de l'expérience personnelle. Elle implique le processing, l'archivage, l'indexation, la transmission d'enregistrements audiovisuels par le moyen de prothèses cybernétiques telles que des assistants à la vision, à la mémoire visuelle, etc. Les problématiques légales, éthiques, réglementaires impliquées dans la sousveillance sont encore à explorer. Considérons cependant un exemple tel que celui de l'enregistrement d'une conversation téléphonique. Lorsqu'une ou plusieurs des parties concernées enregistrent la conversation, on appelle cela la sousveillance alors que lorsque la même conversation est enregistrée par une entité externe (ex : les renseignements généraux enregistrant une conversation confidentielle entre un avocat et son client), on appelle cela de la « surveillance ». La surveillance audio est autorisée dans la plupart des Etats alors que la sousveillance ne l'est pas."
(http://www.thetransitioner.org/ic)

cxlvii

- Clay Shirky on Flaming as a Tragedy of theCommons

"Flaming is one of a class of economic problems known as The Tragedy of the Commons. Briefly stated, the tragedy of the commons occurs when a group holds a resource, but each of the individual members has an incentive to overuse it. (The original essay used the illustration of shepherds with common pasture. The group as a whole has an incentive to maintain the long-term viability of the commons, but with each individual having an incentive to overgraze, to maximize the value they can extract from the communal resource.) In the case of mailing lists (and, again, other shared conversational spaces), the commonly held resource is communal attention. The group as a whole has an incentive to keep the signal-to-noise ratio low and the conversation informative, even when contentious. Individual users, though, have an incentive to maximize expression of their point of view, as well as maximizing the amount of communal attention they receive. It is a deep curiosity of the human condition that people often find negative attention more satisfying than inattention, and the larger the group, the likelier someone is to act out to get that sort of attention."
(http://shirky.com/writings/group_user.html)

More by Shirky on the group 'as its own worst enemy', at http://shirky.com/writings/group_enemy.html; the highly recommended Shirky archive is at http://shirky.com

cxlviii

A local mom and pop store did not need to grow, it merely needs to provide sustenance for the family. But financial capital must grow, and a company must grow 'faster' or at least the average of its sector, otherwise it collapses.

cxlix

- How the market's swarm intelligence differs from P2P processes, Jean Francois Noubel:

Limites de l'intelligence en essaim: L'intelligence en essaim fonctionne à cette condition qu'il y a uniformité et désindividuation de ses agents. Ces derniers, anonymes parmi la foultitude des d'autres agents anonymes, y sont facilement sacrifiés – même à grande échelle – au nom de l'équilibre global du système. Si ce fait semble acceptable pour les insectes sociaux dont chaque individu est indifférencié, il ne l'est évidemment pas pour les espèces animales dont l'équilibre repose précisément sur la différentiation des individus, en particulier chez l'Homme. Cette distinction fondamentale semble pourtant ignorée par les nombreuses théories économiques, qui fondent leurs modèles et doctrines sur des interactions d'agents indifférenciés (le consommateur, le citoyen). L'approche libérale postule que le système doit trouver tout seul son équilibre au niveau macroscopique, grâce au jeu des contraintes internes et externes (d'aucuns se réfèrent à la fameuse expression d'**Adam Smith** de la *main invisible*). Modéliser la société humaine comme une somme d'agents indifférenciés – même avec des variations aléatoires de comportements – constitue au mieux une erreur épistémologique, au pire une doctrine fort dangereuse."
(http://www.thetransitioner.org/ic)

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- Bill Gates on the copyright 'communists', in C:Net:

"C:Net: In recent years, there's been a lot of people clamoring to reform and restrict intellectual-property rights. It started out with just a few people, but now there are a bunch of advocates saying, "We've got to look at patents, we've got to look at copyrights." What's driving this, and do you think intellectual-property laws need to be reformed?

No, I'd say that of the world's economies, there's more that believe in intellectual property today than ever. There are fewer communists in the world today than there were. There are some new modern-day sort of communists who want to get rid of the incentive for musicians and moviemakers and software makers under various guises. They don't think that those incentives should exist. And this debate will always be there. I'd be the first to say that the patent system can always be tuned--including the U.S. patent system. There are some goals to cap some reform elements. But the idea that the United States has led in creating companies, creating jobs, because we've had the best intellectual-property system--there's no doubt about that in my mind, and when people say they want to be the most competitive economy, they've got to have the incentive system. Intellectual property is the incentive system for the products of the future."
(http://news.com.com/Gates+taking+a+seat+in+your+den/2008-1041_3-5514121.html?tag=nefd.ac ; Liberation summarises the furor at http://www.liberation.fr/page.php?Article=267076)

cli

- 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)

clii

- Markets without Capitalism?

Silvio Gesell is one of the main thinkers of this tradition. Gesell was briefly finance minister in Karl Liebknecht's German-soviet republic and was greatly appreciated in his time by figures as Keynes and Martin Buber.

"In 1891 Silvio Gesell (1862-1930) a German-born entrepreneur living in Buenos Aires published a short booklet entitled *Die Reformation im Münzwesen als Brücke zum sozialen Staat* (*Currency Reform as a Bridge to the Social State*), the first of a series of pamphlets presenting a critical examination of the monetary system. It laid the foundation for an extensive body of writing inquiring into the causes of social problems and suggesting practical reform measures. His experiences during an economic crisis at that time in Argentina led Gesell to a viewpoint substantially at odds with the Marxist analysis of the social question: the exploitation of human labour does not have its origins in the private ownership of the means of production, but rather occurs primarily in the sphere of distribution due to structural defects in the monetary system. Like the ancient Greek philosopher Aristoteles, Gesell recognised money's contradictory dual role as a medium of exchange for facilitating economic activity on the one hand and as an instrument of power capable of dominating the market on the other hand. The starting point for Gesell's investigations was the following question: How could money's characteristics as a usurious instrument of power be overcome, without eliminating its positive qualities as a neutral medium of exchange ? He attributed this market-dominating power to two fundamental characteristics of conventional money: Firstly, money as a medium of demand is capable of being hoarded in contrast to human labor or goods and services on the supply side of the economic equation. It can be temporarily withheld from the market for speculative purposes without its holder being exposed to significant losses. Secondly, money enjoys the advantage of superior liquidity to goods and services. In other words, it can be put into use at almost any time or place and so enjoys a flexibility of deployment similar to that of a joker in a card game.

Gesell's theory of a Free Economy based on land and monetary reform may be understood a reaction both to the *laissez-faire* principle of classical liberalism as well as to Marxist visions of a centrally planned economy. It should not be thought of as a third way *between* capitalism or communism in the sense of subsequent "convergence theories" or so-called "mixed economy" models, i.e. capitalist market economies with global state supervision, but rather as an alternative *beyond* hitherto realized economic systems. In political terms it may be characterised as "a market economy without capitalism"…Gesell's alternative economic model is related to the liberal socialism of the cultural philosopher Gustav Landauer (1870-1919) who was also influenced by Proudhon and who for his part strongly influenced Martin Buber (1878-1965). There are intellectual parallels to the liberal socialism of the physician and sociologist Franz Oppenheimer (1861-1943) and to the social philosophy of Rudolf Steiner (1861-1925), the founder of the anthroposophic movement…An association called *Christen für gerechte Wirtschaftsordnung* (*Christians for a Just Economic Order*) promotes the study of land and monetary reform theories in the light of Jewish, Christian and Islamic religious doctrines critical of land speculation and the taking of interest. Margrit Kennedy, Helmut Creutz and other authors have examined the contemporary relevance of Gesell's economic model and tried to bring his ideas up to date."
(http://userpage.fu-berlin.de/~roehrigw/onken/engl.htm)

- Books to explore this tradition:

Silvio Gesell, The Natural Economic Order (translation by Philip Pye). London: Peter Owen Ltd., 1958.
Dudley Dillard, Proudhon, Gesell and Keynes - An Investigation of some „Anti-Marxian-Socialist" Antecedents of Keynes' General Theory, University of California: Dr.-Thesis, 1949. Hackbarth Verlag St.Georgen/Germany 1997. ISBN 3-929741-14-8.
Leonard Wise, Great Money Reformers - Silvio Gesell, Arthur Kitson, Frederic Soddy. London: Holborn Publishing, 1949.
International Association for a Natural Economic Order, The Future of Economy – A Memoir for Economists. Lütjenburg: Fachverlag für Sozialökonomie, 1984/1989. (P.O. Box 1320, D-24319 Lütjenburg)
Margrit Kennedy, Interest and Inflation Free Money - Creating an Exchange Medium That Works for Everybody and Protects the Earth. Okemos/Michigan, 1995.

cliii

- Optimal usage of sharing principles vs. market economies, by Yochai Benkler

"The paper offers a framework to explain large scale effective practices of sharing private, excludable goods. It starts with case studies of distributed computing and carpooling as motivating problems. It then suggests a definition for "shareable goods" as goods that are lumpy and mid-grained in size, and explains why goods with these characteristics will have systematic overcapacity relative to the requirements of their owners. The paper then uses comparative transaction costs analysis, focused on information characteristics in particular, combined

with an analysis of diversity of motivations, to suggest when social sharing will be better than secondary markets to reallocate this overcapacity to non-owners who require the functionality. The paper concludes with broader observations about the role of sharing as a modality of economic production as compared to markets and hierarchies (whether states or firms), with a particular emphasis on sharing practices among individuals who are strangers or weakly related, its relationship to technological change, and some implications for contemporary policy choices regarding wireless regulation, intellectual property, and communications network design." (http://www.yalelawjournal.org/pdf/114-2/Benkler_FINAL_YLJ114-2.pdf)

A commentary on the Benkler essay by The Economist, at http://www.economist.com/finance/displayStory.cfm?story_id=3623762)

cliv

- Quote on digitalization as 'total automation', by Jan Soderbergh

"The state of total automation hinted at by Ernest Mandel would be reached when fixed capital, without any injection of living labour, spit out an infinite volume of goods at instant speed. It is hard to imagine a machine with such dimensions, less than visualising futurist gadgets or (just slightly more down-to-earth) nanotechnology fancies. And yet, it is reality in most forms of cultural and immaterial production. That is what is meant by saying, that information can be copied infinitely without injecting additional living labour.Digitalisation of immaterial labour has leapfrogged capitalism to the endpoint of total automation. There is hardly any value-adding labour taking place in this form of production. One click is all labour it takes to duplicate immaterial goods. The main input of living labour is instead at the start-up of the production process. In other words, in the innovation of it. This is where we find immaterial labour. All forms of labour that can be objectified in digits are subject to infinite reproducibility. It is the Pyrrhic victory of capital. The end destination of capital's long quest to disband living labour by perfecting the techniques of separating and storing human creativity in systematised, codified knowledge. However, like Phoenix, living labour returns with a vengeance." (http://info.interactivist.net/article.pl?sid=04/09/29/1411223)

clv

An interview with the McKenzie Wark, at http://frontwheeldrive.com/mckenzie_wark.html

clvi

- Definition and comment on the vectoral class, by Mackenzie Wark

"Information, like land or capital, becomes a form of property monopolised by a class of vectoralists, so named because they control the vectors along which information is abstracted, just as capitalists control the material means with which goods are produced, and pastoralists the land with which food is produced. Information circulated within working class culture as a social property belonging to all. But when information in turn becomes a form of private property, workers are dispossessed of it, and must buy their own culture back from its owners, the vectoralist class. The whole of time, time itself, becomes a commodified experience. Vectoralists try to break capital's monopoly on the production process, and subordinate the production of goods to the circulation of information. The leading corporations divest themselves of their productive capacity, as this is no longer a source of power. Their power lies in monopolising intellectual property - patents and brands - and the means of reproducing their value - the vectors of communication. The privatisation of information becomes the dominant, rather than a subsidiary, aspect of commodified life. As private property advances from land to capital to information, property itself becomes more abstract. As capital frees land from its spatial fixity, information as property frees capital from its fixity in a particular object. … Information, once it becomes a form of property, develops beyond a mere support for capital - it becomes the basis of a form of accumulation in its own right… The vectoral class comes into its own once it is in possession of powerful technologies for vectoralising information. The vectoral class may commodify information stocks, flows, or vectors themselves. A stock of information is an archive, a body of information maintained through time that has enduring value. A flow of information is the capacity to extract information of temporary value out of events and to distribute it widely and quickly. A vector is the means of achieving either the temporal distribution of a stock, or the spatial distribution of a flow of information. Vectoral power is generally sought through the ownership of all three aspects." (http://subsol.c3.hu/subsol_2/contributors0/warktext.html)

clvii

- Definition and comment on the vector, by Mackenzie Wark

"In epidemiology, a vector is the particular means by which a given pathogen travels from one population to another. Water is a vector for cholera, bodily fluids for HIV. By extension, a vector may be any means by which information moves. Telegraph, telephone, television, telecommunications: these terms name not just particular vectors, but a general abstract capacity that they bring into the world and expand. All are forms of telesthesia, or perception at a distance. A given media vector has certain fixed properties of speed, bandwidth, scope and scale, but may be deployed anywhere, at least in principle. The uneven development of the vector is political and economic, not technical… With the commodification of information comes its vectoralisation. Extracting a surplus from information requires technologies capable of transporting information through space, but also through time. The archive is a vector through time just as communication is a vector that crosses space... The vectoral class may commodify information stocks, flows, or vectors themselves. A stock of information is an archive, a body of information maintained through time that has enduring value. A flow of information is the capacity to extract information of temporary value out of events and to distribute it widely and quickly. A vector is the means of achieving either the temporal distribution of a stock, or the spatial distribution of a flow of information. "
(http://subsol.c3.hu/subsol_2/contributors0/warktext.html)

clviii

- Definition and comment on the hacker class, by Mackenzie Wark

"The hacker class, producer of new abstractions, becomes more important to each successive ruling class, as each depends more and more on information as a resource. The hacker class arises out of the transformation of information into property, in the form of intellectual property, including patents, trademarks, copyright and the moral right of authors. The hacker class is the class with the capacity to create not only new kinds of object and subject in the world, not only new kinds of property form in which they may be represented, but new kinds of relation beyond the property form. The formation of the hacker class as a class comes at just this moment when freedom from necessity and from class domination appears on the horizon as a possibility…. Hackers must calculate their interests not as owners, but as producers, for this is what distinguishes them from the vectoralist class. Hackers do not merely own, and profit by owning information. They produce new information, and as producers need access to it free from the absolute domination of the commodity form. Hacking as a pure, free experimental activity must be free from any constraint that is not self imposed. Only out of its liberty will it produce the means of producing a surplus of liberty and liberty as a surplus. "
(http://subsol.c3.hu/subsol_2/contributors0/warktext.html)

clix

- The emergence of Peer to Peer exchanges, such as ZopaWeb

Zopa (Zone of Possible Agreement): the new company is an amalgam of a number of business philosophies. It is where eBay meets credit unions by way of easyJet, the peer-to-peer movement and Betfair. You can lend up to £25,000 through Zopa and your money is divided among 50 borrowers (who have already been screened to ensure they have good credit ratings) to minimise risks of default.
(http://www.guardian.co.uk/economicdispatch/story/0,12498,1435623,00.html}

Zopa is at http://www.zopa.com/ZopaWeb/

A successful German lending and borrowing experiment, dieborger.de, at
http://theage.com.au/articles/2005/03/17/11109137266676.html?oneclick=true

Other peer-based exchanges, are described here at http://www.wired.com/news/culture/0,1284,66800,00.html

clx

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.

clxi

- 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)

clxii

- 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)

clxiii

- 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****."*

clxiv

- TextMob

"Protestors at last week's Democratic National Convention had a new tool in their arsenal - a text messaging service designed just for them. "TXTMob," as the service is called, allows users to quickly and easily broadcast text messages to groups of cellphones. The system works much like an electronic b-board: users subscribe to various lists, and receive messages directly on their phones. During the DNC, protest organizers used TXTMob to provide activists with up-to-the minute information about police movements and direct actions. Medical and legal support groups also used TXTMob to dispatch personnel and resources as the situation demanded. According to TXTMob developer John Henry, over 200 protestors used the service during the DNC. TXTMob was produced by the Institute for Applied Autonomy (IAA), an art and engineering collective that develops technologies for political dissent. The IAA worked closely with the Black Tea Society, an ad-hoc coalition that organized much of the protest activity during the DNC, to design the system. According to a Black Tea member who chose to remain anonymous, "TXTMob was great! When the cops tried to arrest one of our people, we were able to get hundreds of folks to the scene within minutes."
(http://amsterdam.nettime.org/Lists-Archives/nettime-l-0408/msg00003.html ; see also appliedautonomy.com for the makers of the program)

clxv

- The refusal of representation as inscribed in the Porto Alegre social forum charter:

« Les rencontres du Forum social mondial n'ont pas un caractère délibératif en tant que Forum social mondial. Personne ne sera donc autorisé à exprimer au nom du Forum, dans quelque édition que ce soit, des prises de position prétendant être celles de tous les participants. Les participants ne doivent pas être appelés à prendre des décisions, par vote ou par acclamation, en tant que rassemblement de ceux qui participent au Forum, sur des déclarations ou propositions d'action qui les engagent tous ou leur majorité et qui se voudraient être celles du Forum en tant que Forum. Il ne constitue donc pas d'instance de pouvoir que peuvent se disputer ceux qui participent à ces rencontres, ni ne prétend constituer l'unique alternative d'articulation et d'action des instances et mouvements qui en font partie » (art. 6).
(http://www.euromovements.info/html/aguiton-cardon.htm)

clxvi

- Representation can occasionally be used, but only as a temporary technique amongst others:

"There are different sorts of groups. Spokescouncils, for example, are large assemblies that coordinate between smaller 'affinity groups'. They are most often held before, and during, large-scale direct actions like Seattle or Quebec. Each affinity group (which might have between 4 and 20 people) selects a 'spoke', who is empowered to speak for them in the larger group. Only the spokes can take part in the actual process of finding consensus at the council, but before major decisions they break out into affinity groups again and each group comes to consensus on what position they want their spoke to take (not as unwieldy as it might sound). Break-outs, on the other hand, are when a large meeting temporarily splits up into smaller ones that will focus on making decisions or generating proposals, which can then be presented for approval before the whole group when it reassembles. Facilitation tools are used to resolve problems or move things along if they seem to be bogging dow!n. You can ask for a brainstorming session, in which people are only allowed to present ideas but not to criticize other people's; or for a non-binding straw poll, where people raise their hands just to see how everyone feels about a proposal, rather than to make a decision. A fishbowl would only be used if there is a profound difference of opinion: you can take two representatives for each side—one man and one woman—and have the four of them sit in the middle, everyone else surrounding them silently, and see if the four can't work out a synthesis or compromise together, which they can then present as a proposal to the whole group."
(http://www.newleftreview.net/NLR24704.shtml)

clxvii

- Decision-making by consensus

"Le consensus s'est imposé dès le début comme la seule procédure de décision envisageable au sein des instances de décision d'un espace de coordination regroupant des organisations hétérogènes dans leurs fonctions, leurs procédures de décisions internes, leurs origines sociales et géographiques et le nombre de leurs membres. En l'absence de référentiel, aucun critère ne peut s'imposer pour périmètrer l'espace des participants ni leur conférer des grandeurs différenciées. De sorte que chaque organisation, qu'elle que soit sa taille, son origine géographique, son objet social, son positionnement politique, dispose potentiellement d'un même poids. Cependant, l'expression du consensus ne signifie pas unanimité."
(http://www.euromovements.info/html/aguiton-cardon.htm)

clxviii

- Radicalisation of P2P principles within the alterglobalisation movement

"Il est cependant possible de dégager un mouvement d'ensemble dans les multiples aménagements institutionnels qui ont été apportés aux structures de gouvernement des forums. C'est en effet vers une

radicalisation des principes de fonctionnement en réseau que s'oriente actuellement la plupart des choix d'organisation effectués par les promoteurs des forums mondiaux et européens : auto-organisation des événements, procéduralisation des règles de coordination, pluralité des stratégies d'action issues des différents espaces des forums et transformation des forums en lieux d'expérimentation des alternatives sociales et politiques."
(http://www.euromovements.info/html/aguiton-cardon.htm)

clxix

- Profile of the neo-militants of the alterglobalisation movements

"Ce que je voudrais d'abord préciser c'est que les néo-militants ne sont pas particulièrement attachés aux structures associatives au sein desquelles ils évoluent. Des organisations comme AC!, ou la plupart des collectifs de sans-papiers ne proposent aucune procédure d'adhésion à leurs militants. Le néo-militantisme remet en fait sur le devant de la scène, l'individu en tant qu'acteur autonome et singulier et s'écarte des anciens modèles d'organisation fondés sur des principes d'adhésion totale. Je ne sais pas si on peut véritablement dire qu'Internet sert au recrutement... En tout cas, l'une des spécificités de la communication sur réseau est de mettre en lien des personnes qui appartiennent à des espaces sociaux (et géographiques) dissemblables. Internet créé une espèce de solidarité technique et offre de nouvelles potentialités relationnelles à partir desquelles peuvent se tisser ponctuellement des alliances inédites. Le point commun des néo-militants est leur capacité à se mouvoir sans se laisser arrêter par les frontières. Les liens les plus recherchés sont à cet égard ceux qui autorisent le franchissement d'espaces au sein desquels les connexions étaient peu développées… Le recours aux réseaux télématiques rentre quand même en résonance avec certaines caractéristiques des nouvelles formes de militantisme que sont l'individuation des formes d'engagement et la volonté de s'associer en toute indépendance. Internet permet une implication personnelle limitée, souple, facilement maîtrisable et circonstanciée, dont la suspension momentanée ou définitive n'engendre qu'un faible coût de sortie. Il autorise surtout l'enrôlement de personnes qui n'auraient pu trouver leur place dans le fonctionnement des groupements militants traditionnels fortement structurés. Les rapports entre les militants s'effectuent de moins en moins à partir d'un sens hérité, c'est-à-dire en fonction d'un enracinement en rapport à une identité ou à un territoire, mais selon un mode électif fondé sur une modalité de partage communautaire non-territoriale ou a-territoriale susceptible de s'exprimer, il est vrai, via l'Internet."
(Fabien Granjon, interview in NetPolitique.net newsletter)

Book: **L'Internet militant. Fabien Granjon. Apogee, 2001**

I believe the 'stamp it' vs. 'post it' comparison comes from Michel Maffesioli, but have not been able to locate it.

clxx

- the P2P principles of the alterglobalisation movement

": in North America especially**, this is a movement about reinventing democracy. It is not opposed to organization. It is about creating new forms of organization. It is not lacking in ideology. Those new forms of organization are its ideology. It is about creating and enacting horizontal networks instead of top-down structures like states, parties or corporations; networks based on principles of decentralized, non-hierarchical consensus democracy. Ultimately, it aspires to be much more than that, because ultimately it aspires to reinvent daily life as whole. But unlike many other forms of radicalism, it has first organized itself in the political sphere—mainly because this was a territory that the powers that be (who have shifted all their heavy artillery into the economic) have largely abandoned**.

Over the past decade, activists in North America have been putting enormous creative energy into reinventing their groups' own internal processes, to create viable models of what functioning direct democracy could actually look like. In this we've drawn particularly, as I've noted, on examples from outside the Western tradition, which almost invariably rely on some process of consensus finding, rather than majority vote. The result is a rich and growing panoply of organizational instruments—spokescouncils, affinity groups, facilitation tools, break-outs, fishbowls, blocking concerns, vibe-watchers and so on—all aimed at creating forms of democratic process that allow initiatives to rise from below and attain maximum effective solidarity, without

stifling dissenting voices, creating leadership positions or compelling anyone to do anything which they have not freely agreed to do. The basic idea of consensus process is that, rather than voting, you try to come up with proposals acceptable to everyone—or at least, not highly objectionable to anyone: first state the proposal, then ask for 'concerns' and try to address them."
(http://www.newleftreview.net/NLR24704.shtml)

clxxi

- Al Qaeda as global networked guerilla's, by David Ronfeldt

"As many analysts have noted, the new information media are enabling terrorists and insurgents to augment their own communication and coordination, as well as reach outside audiences. The online media also suit the oral traditions that tribal peoples prefer. What merits pointing out here is that the jihadis are using the Internet and the Web to inspire the creation of a virtual global tribe of Islamic radicals — an online umma with kinship segments around the world. This can help a member keep in touch with a segment, or re–attach to a new segment in another part of the world as he or she moves around. Thus the information revolution, not to mention broader aspects of globalization, can facilitate a resurgence of intractable tribalism around the world. Al Qaeda and its ilk are a leading example of this."
(http://www.firstmonday.org/issues/issue10_3/ronfeldt/index.html)

See the Global Guerilla blog for the most thorough continuing analysis of globalised networked terrorism, at http://globalguerrillas.typepad.com/globalguerrillas/ ;

Martin Shubik, in his paper "Terrorism, Technology, and the Socioeconomics of Death" conludes that "rapid technological improvement and global information transfer (part of a larger context of interconnectivity) has produced a spike in the ability of small groups to produce mass casualties." See at http://cowles.econ.yale.edu/P/cp/p09b/p0952.pdf

clxxii

- 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)

clxxiii

An analysis of the coordination format in France by Maurizio Lazzarato in Multitudes, at http://multitudes.samizdat.net/article.php3?id_article=1446; Futur Anterieur magazine, the predecessor of Multitudes magazine, has dedicated a special issue to analyzing this format, at http://multitudes.samizdat.net/rubrique.php3?id_rubrique=338

clxxiv

- 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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- Documentation on the concept of the Multitudes

Editorial, on the 'theory of the multitude', at http://www.ephemeraweb.org/journal/4-3/4-3editorial.pdf ; From Capital-labour to Capital-life, by Maurizio Lazzarato, at http://www.ephemeraweb.org/journal/4-3/4-3lazzarato.pdf ; The Entrance of the Multitude in Production, at http://www.ephemeraweb.org/journal/4-3/4-3virtanen.pdf ; Controlling the Multitude, at http://www.ephemeraweb.org/journal/4-3/4-3vahamaki.pdf; On the valorisation of informatic labour, at http://www.ephemeraweb.org/journal/4-3/4-3vann.pdf

- the concept of the multitude summarized:

" we can summarize the contemporary concept of the multitude as follows:

The multitude is positioned between the individual and the group; it is a "multiplicity of singularities"
The multitude operates through relationality and cooperation, which establishes "the common" or a set of partially-overlapping common affects, issues, and experiences. The multitude positions itself against the social contract tradition, and therefore against the inevitability of modern sovereignty and the "state of exception"
The central problematic of the multitude is the "problem of the political decision," or how the common can be constituted while fostering difference. The question the multitude asks of itself is "can the multitude self-govern?" rather than the question asked of the multitude -- "is the multitude governable?""

(http://www.ctheory.net/text_file.asp?pick=423)

- 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.”

- Toni Negri on the Multitudes, Difference, and the Common:

“Cet ennemi de l’Empire, que nous avons appelé *« multitude »*, est un ennemi qui, sur tous les terrains, cultive ses différences. Or, ces différences ont une base commune, qui est d’abord le refus du commandement et de l’exploitation par le capital collectif au niveau impérial. Ce contenu de rébellions, de révoltes, d’essais de réappropriation du pouvoir vient de différents côtés, et surtout des travailleurs. La véritable opposition reste les travailleurs : le concept de multitude reste donc un concept de classe, même s’il est beaucoup plus étendu que le concept de classe ouvrière. C’est une chose que le pouvoir n’arrive pas à appréhender, car elle se transforme constamment selon les singularités qui la composent, et qu’on ne peut définir ni comme classe, ni comme masse, ni comme peuple : elle se renouvelle sans cesse..."
(original article, not full available online, at http://www.politis.fr/article1115.html)

- Elicio, on the political philosophy of the multitudes

«Cette complexité sociale, nous l’appelons la « multitude « , car nous essayons d’utiliser une expression capable d’indiquer une complexité non synthétisable de la structure de la société post moderne et ses acteurs multiples. La multitude, que nous définissons comme l’expression de l’ensemble de toutes les figures de l’assujettissement de la société post moderne, a bouleversé la théorie politique et la théorie de l’organisation sociale. En effet, la multitude a comme caractéristique de ne s’identifier à aucun programme commun, à aucune « synthèse stratégique « politique. Le concept de « synthèse « est plus vécu comme une réduction de la complexité de ses expressions sociales et culturelles, comme une certaine hybridation politique, un processus de réduction de sa **force**de subjectivité. Le concept de « synthèse « est vécu aussi comme un acte politique de la « perte d’identité « . La perte d’identité est considérée par la multitude, comme le commencement de l’introduction des mécanismes des modifications de ses besoins réels. Dans ce cadre conceptuel, la multitude fonctionne dans la construction des processus d’organisations autonomes. Cette forme d’organisation a comme caractéristique de se déployer autour et par des micro-actions au quotidien et cherche à répondre aux besoins de la vie de tous les jours. C’est dans cette démarche que la multitude produit ses revendications et ses négociations. Pour la multitude, le quotidien est considéré comme le lieu privilégié de lutte, le lieu de vérification de l’efficacité de son action politique, le lieu du changement. L’action politique ou sociale a un sens pour la multitude si elle est capable de modifier « le quotidien« , « le présent « . La lutte et l’engagement sont considérés comme des **instruments pratiques**pour essayer de réaliser des modifications concrètes dans la vie de tous les jours, dans un souci permanent d’élargissement de sa superficie sociale, d’hégémonie sur les pratiques socioculturelles de la vie de tous les jours. Approfondissons ce thème pour mieux comprendre l’idée de ce qu’est le « changement dans le quotidien « . Commençons avec la définition de ce que sont unrapportsocial ou un acte politique.

Pour la multitude, il n’y a pas d’acte politiquesans modification du **présent.** Donc, l’acte politique, devient la forme collective et personnelle de définition d’un espace social à conquérir et la définition d’une démarche à adopter pour la modification du présent. Le présent est considéré comme**une fraction**de la vie. Dans cette démarche le programme politique devient la construction d’un projet concret de transformation d’une fraction de la vie, c’est-à-dire de la modification du présent.
Pour la multitude le processus de transition d’un rapport social à un autre est le « remplacement « d’un acte de vie (vie économique et sociale) par des gestes de liberté au quotidien. Ces gestes représentent des espaces de

liberté**.**Des**gestes**et des**espaces**pour la construction d'un micro projet personnel : la réalisation de ses rêves. Rêves en tant que réalisation d'un désir personnel et /ou avec d'autres pour un rêve collectif (projets de transition) pour affirmer sa liberté de vivre comme on le désire. Ces actes, « la construction d'un rêve « , sont des premiers filaments (de vie autonome) qui se super posent et étouffent une fraction des micro pouvoirs de la représentation impériale. Dans cette démarche, le concept de lutte est conjugué au présent sans « futur « , « l'idée de futur « est vécue comme un concept dépassé, obsolète. Concept assimilé dans un sens de défaite.....de l'auto exploitation : l'histoire du socialisme réel ! Pour la multitude, il n'y a pas de victoire si la vie de tous les jours n'a pas été modifiée, élargie, enrichie. Si cette condition n'est pas réalisée « le rapport social « restera le même. C'est dans cette définition que la multitude considère les « partis politiques « comme des institutions de la négociation sociale, les conçoit plutôt comme les représentants des « courants d'un pouvoir unique « et en aucun cas comme une expression populaire de souveraineté. La multitude est la représentation de l'expression philosophique et sociale de la complexité du monde réel qui produit richesse et sens. Elle ne croit pas aux mécanismes de la représentation, à la délégation de ses volontés, à une représentation nationale d'élus professionnels, elle croit fermement au concept de participation. La **participation** est considérée comme l'antithèse de la représentation classique et s'il devait avoir une délégation de pouvoir elle serait plutôt sous la forme d'une démarche d'application d'une volonté déjà prise, donc non modifiable. Ici, le concept de délégation ou de représentation n'est pas seulement traduit sous forme négative vers les formes traditionnelles de la démocratie (député-fonctionnaire-professionnel) mais aussi sous la forme de la « délégation de la pensée « aux intellectuels. En effet, pour la multitude, un des pièges le plus redoutable est la « perte « d'autonomie dans les processus de construction de sa « pensée « . Il s'agit de contrôler « sa production de sens « , sa philosophie, car une des formes les plus redoutables du pouvoir en place est la **stérilisation** de ses expressions culturelles. Paradoxalement, si dans le passé, pour le prolétariat révolutionnaire, l'appropriation des moyens de production était un des objectifs fondamentaux, aujourd'hui pour la multitude, l'objectif fondamental est l'appropriation de « sa production de sens et de valeur « .Cet objectif se traduit par la nécessité de s'approprier des moyens de la communication sociale.
See also: Philosophie politique des Multitudes- Revu Multitudes N°9 mai/juin 2002, Exils, Paris .
http://listes.samizdat.net/wws/info/multitudes-infos

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- John Holloway on the building of anti-power networks

Building our own power-to is a very different thing from taking power or seizing power. If we organise ourselves to take power, to try to win state power, then inevitably we put ourselves into the logic of capitalist power, we adopt capitalist forms of organisation which impose separations, separations between leaders and masses, between citizens and foreigners, between public and private. If we focus on the state and the winning of state power, then inevitably we reproduce within our own struggles the power of capital. Building our own power-to involves different forms of organisation, forms which are not symmetrical to capital's forms, forms which do not separate and exclude. Our power, then, is not just a counter-power, it is not a mirror-image of capitalist power, but an anti-power, a power with a completely different logic — and a different temporality…

This means not just living despite capitalism, but living in-against-and-beyond capitalism. It means an interstitial conception of revolution, in which a new world, a new communism, commun-ism, grows in the interstices of and in opposition to capitalism — a conception of revolution as the active disintegration of capitalism in which an alternative society is constructed in the process of disintegration. There are no rules on how to build a new world, no model we can follow. Here there are no certainties. It is inevitably a question of experimentation and invention. Behind the NO of our refusal of neo-liberal capitalism stand many YESes. The force behind these YESes is a drive towards self-determination. Self-determination can only be a social process, a global knitting together of collective processes of self-determination, a weaving together of councils or communes or assemblies. But it is not just a question of deliberations (of how we take decisions), it is also and above all a question of how we can organise our doing, our activity, in a way that goes against-and-beyond capital. And not just against-and-beyond capital, but against-and-beyond the law of value, against-and-beyond the market and the times and the disciplines which it imposes.
(http://info.interactivist.net/article.pl?sid=05/03/25/1319243&mode=nested&tid=9)

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- Extreme Democracy:

"Extreme democracy" is a political philosophy of the information era that puts people in charge of the entire political process. It suggests a deliberative process that places total confidence in the people, opening the policy-making process to many centers of power through deeply networked coalitions that can be organized around local, national and international issues. The choice of the word "extreme" reflects the lessons of the extreme programming movement in technology that has allowed small teams to make rapid progress on complex projects through concentrated projects that yield results far greater than previous labor-intensive programming practices. Extreme democracy emphasizes the importance of tools designed to break down barriers to collaboration and access to power, acknowledging that political realities can be altered by building on rapidly advancing generations of technology and that human organizations are transformed by new political expectations and practices made possible by technology. Extreme democracy is not direct democracy, which assumes all people must be involved in every decision in order for the process to be just and democratic. Direct democracy is inefficient, regardless of the tools available to voters, because it creates as many, if not more, opportunities for obstruction of social decisions as a representative democracy. Rather, we assume that every debate one feels is important will be open to participation; that governance is not the realm of specialists and that activism is a critical popular element in making a just society. Extreme democracy can exist alongside and through co-evolution with the representative systems in place today; it changes the nature of representation, as the introduction of sophisticated networked applications have reinvented the corporate decision-making process. Rather than debate how involved a citizen should be or fret over the lack of involvement among citizens of advanced democracies, the extreme democracy model focuses on the act of participation and assumes that anyone in a democracy is free to act politically. If individuals are constrained from action, they are not free, not citizens but subjects."
(http://www.extremedemocracy.com/about.html)

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- Overview of Information Commons Developments

The construction of the Information Commons takes many forms, the most important being the automatic process of knowledge exchange and cooperative production on the internet/web itself. But there are many specialized inititiaves to construct specialized areas, such as initiatives around access to scientific journals, the creation of specialized Intellectual Property licenses to promote it, such as the General Public License and the Creative Commons License, and a massive effort to put the world's literary and scientific book production online.

The concept of Information Commons is defined by Yochai Benchler in "The Political Economy of Commons", in Upgrade, juin 2003, vol. IV, n° 3www.upgrade-cepis.org/issues/2003/3/up4-3Benkler.pdf

The Free Art License, a 'Creative Commons' for the art world?, at http://antomoro.free.fr/c/lalgb.html; and at http://infos.samizdat.net/article301.html

- The Book Commons, overview

The following excerpt is from an article putting the Google project in context. Google aims to digitize the massive collections of the main American academic and public libraries.

"Placing full text book material is not a new idea on the web. Many services, both free and fee-based, allow you to access books online. The longest running such service is Project Gutenberg, founded by Michael Hart in 1971, with over 13,000 books available. I wrote about The Online Books Page forSearchDay last year. This wonderful collection has been online for more than 10 years, and currently provides searchable access to over 20,000 free full text books. The OBP is edited by John Mark Ockerbloom, a digital library planner at the University of Pennsylvania. The Internet Archive is also digitizing books. The goal of the Million Book Project is to "create a free-to-read, searchable digital library the approximate size of the combined libraries at Carnegie Mellon University, and one much bigger than the holdings of any high school library." One publisher that offers a large portion of their new and old material available online, free, searchable, and full image is The National Academy Press. The currently offer access to more than 3000 publications. Two fee-based services include NetLibrary offers access to about 76,000 books with about 1300 new titles added each month. You can access NetLibray books through your local public or university library, often at no charge. ebrary provides access to

more than 50,000 titles (books, maps, sheet music, etc). Like NetLibrary, ebrary licenses their service to libraries and educational organizations and users can login and access via any computer with web access, in most cases for free."

More information at: The Online Books page, http://digital.library.upenn.edu/books/ ; Netlibrary, http://legacy.netlibrary.com/about_us/company_info/index.asp; Million Book Project, http://www.archive.org/texts/collection.php?collection=millionbooks&PHPSESSID=45464c8f5c3a66d010a78ff7efe0c5c8; Project Gutenberg, http://www.gutenberg.org/; Open Source Books, http://www.archive.org/texts/collection.php?collection=opensource

- Political Commons projects:

The Participatory Politics Foundation, building software tools for a 'continuing engagement with government', at http://participatorypolitics.org/ ; Open source government projects centered around access to public information, are discussed at http://www.wired.com/news/privacy/0,1848,65800,00.html?

- Scienfitic Commons

The Budapest Open Access Initiative aims to guarantee access to scienfitic materials, at : http://www.earlham.edu/~peters/fos/boaifaq.htm ; : Global Access to Health, at www.healthgap.org/press_releases/03/: Biological Innovation for Open Society, at http://www.bios.net/daisy/bios/15 ; overview of 'Open Biology' developments, at http://www.wired.com/news/medtech/0,1286,66545,00.html; the Science Commons initiative by Lawrence Lessig et al, at http://science.creativecommons.org/

"BIOS will soon launch an open-source platform that promises to free up rights to patented DNA sequences and the methods needed to manipulate biological material. Users must only follow BIOS' "rules of engagement," which are similar to those used by the open-source software community." (http://www.wired.com/news/medtech/0,1286,66289,00.html?)

A number of large companies are started to put their patents in a 'patent commons', as recently advocated by IBM:

"The IBM (IBM) move is meant to encourage other patent holders to donate their own intellectual property in order to form what the company refers to as a **"patent commons,"** a modern twist on shared public lands set aside under traditional laws." (http://www.wired.com/news/business/0,1367,66237,00.html?)

Open Access scientific journalis are thriving, but also have their problems, nl. it is now the authors who have to pay, at http://www.wired.com/news/medtech/0,1286,67174,00.html?tw=wn_tophead_3

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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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- On the commonality of Commons-related struggles:

Philippe Aigrain in Cause Commune: " Les médias coopératifs, les logiciels libres, les publications scientifiques ouvertes et les autres biens communs réinventent la démocratie. Comment les acteurs de ces nouveaux domaines peuvent-ils faire cause commune par-delà ce qui sépare les logiciels des ressources biologiques, ou l'art des sciences ? Comment l'information peut-elle servir les biens publics sociaux de la santé, de l'éducation ou de la solidarité au lieu de contribuer à les détruire ? Quelles alliances peut-on envisager entre les sociétés et les États, gardiens irremplaçables des biens communs épuisables que sont l'eau ou l'air ? Dans cet ouvrage, Philippe Aigrain analyse les causes et les origines d'une situation paradoxale et les tensions qu'elle suscite. Il propose une politique qui remette les êtres humains aux commandes de ces transformations."
(http://grit-transversales.org/article.php3?id_article=54)

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- Open Democracy on why patents are a bad thing

" Software programming has a relatively low financial barrier to entry. It relies on the manipulation of mathematical algorithms between one man and his machine. Progress in the sector takes place in swift but discrete steps. Each step contributes something to the art of programming: each software programme builds on the last. It is this environment – accretive, open-ended and egalitarian – that has allowed rapid progress in the software industry to enhance the utility and connectivity of the computers people use in their daily lives. In the patent-free environment, contributions to the common pool of programming knowledge come from all corners of the world, from the amateur hacker working until 4am in his bedroom to corporations leasing the most expensive real estate in Silicon Valley. Richard Stallman, founder of the Free Software Foundation, likens reading a piece of software code to walking around a city – the expert eye will recognise "architectural periods", little stylistic ticks that identify a piece of recycled code with a particular time, even place. Software patents take chunks of code out of this vast pool of shared knowledge and lock them down using IP law. United States case law already shows how companies can use such patents to claim ownership of code that had previously been regarded as an open standard. The effect is not simply to appropriate and centralise a shared knowledge resource, but to make it impossible to create a new programme without infringing the patent. Where software is concerned, patents obliterate progress… In effect, corporations use software patenting to secure a monopoly and discourage the entrepreneurial activity of start-ups. The result is to freeze, not foster, innovation – the very opposite of patent law's original intention. Moreover, as intellectual property law combines with the global shift towards a "knowledge economy", the regressive effect of such lockdowns acquires a more explicitly political dimension. The application of strong IP law is a game only the big boys, with their dedicated legal teams, can play. Knowledge, once viewed as a commons, becomes a commodity – just like land or labour in an agricultural or industrial economy – whose owners ordain themselves the new economy's ruling class."

Some leading architects of the software sector are quite explicit about this. Bill Gates set his stall out as early as 1991:

"The solution is patenting as much as we can. A future startup with no patents of its own will be forced to pay whatever price the giants choose to impose... Established companies have an interest in excluding future competitors."
(http://www.opendemocracy.net/debates/article-8-40-2370.jsp)

Yann-Moulier Boutang, in French, on Intellectual Property Rights and the South, at
http://multitudes.samizdat.net/article.php3?id_article=1931

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- The Free Culture student movement, an initiative of students of Lawrence Lessig:

"The (Electronic Frontier Foundation) and Creative Commons are doing really good work, but people our age don't seem to know about it," he said. "If we could show (students) how this is relevant to their lives, they would be really excited and involved in the movement." So, Pavlosky and other Free Culture leaders are finding clever ways to illustrate the importance of copyright in their daily lives with projects like Undead Art, which challenges students to remix the cult classic *Night of the Living Dead*, now in the public domain, and turn it into something new -- like a zombie techno video or comic short. Participants can then mark their work with a flexible copyright

license from Creative Commons so people can share the work freely and easily. These licenses allow other people to take a work and modify it however they like, as long as they don't try to make money from the new work without permission. The students also encourage their peers to get involved with legislative issues. They created Save the iPod, a site that encourages students to write their congressional representatives to stop the Induce Act."
(http://www.wired.com/news/culture/0,1284,65616,00.html?)

Lessig on the 'war against innovation', at http://blogs.zdnet.com/BTL/index.php?p=1247 ; see also freeculture.org and the group Downhill Battle)

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- Open source as a defense mechanism against private appropriation

OS initiatives are often a reaction against enclosures, as was already the case with Richard Stallman who created free software when his hacker community was being destroyed at MIT. It sometimes appears in unexpected fields, here in Yoga for example:

"It's hard to imagine that yoga, the 5,000-year-old discipline of exercise, diet and meditation, would have anything in common with the modern software industry. But a group of loosely affiliated yoga instructors based in California have embraced the philosophy of the open-source software movement in fighting a campaign by a richly successful yoga master to use copyright law to bar competitors from practicing any part of his exercise routines without authorization."
(http://www.cioinsight.com/article2/0,1397,1780046,00.asp)

"A constellation of interests is now seeking to increase its ownership and control of creativity. We are told that these interests require new laws and rights that will allow them to control concepts and ideas and protect them from exploitation. They say that this will enrich our lives, create new products and safeguard the possibility of future prosperity. But this is a disaster for creativity, whose health depends on an ongoing, free and open conversation between ideas from the past and the present."
(from the Libre Society Manifesto, at http://journal.hyperdrome.net/issues/issue1/libresociety.html)

Open source Yoga, at http://www.yogaunity.org/

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- the Berlin Declaration on Collectively Managed Online Rights

An example of a proposed solution that defends both free culture usage and author's rights:

DRM and mass-prosecution of filesharers are not solutions acceptable to an open and equitable society.
*** Primary goal of copyright lawmaking must be a balance between the rights of creators and those of the public.**
*** Collecting societies need to become more democratic, transparent and flexible, allowing their members to release their works under open-access, non-commercial licenses.**
*** With the collecting societies suitably reformed, the successful European experience with exceptions and limitations compensated by levies should be reviewed for possible application to the on-line realm.**
*** We urge the European Commission to consider a content flatrate to ensure compensation of rightsholders without control over users.**

"Under the proposed system, rights holders would license their on-line rights to a collecting society for collective representation, as they already do for many off-line uses today. This on-line collecting society would oversee the measurement of transfers of protected works over the Internet and then compensate the rights holders based on the actual use of their files by end users. The funds from which the rights-holders are compensated could be raised through any of a number of sources: voluntary subscription payments by end-users or proxies for

them or levies on relevant associated goods and services, such as broadband Internet connections, MP3 players and others, in addition to the levies on blank media, photo copiers, and so on which are already collected today." (http://wizards-of-os.org/index.php?id=1699)

An appeal for a new approach to intellectual property, by Greg London, at http://www.greglondon.com/bountyhunters/BountyHunters.htm

- Other proposals for a P2P compatible Open Music model:

Any open music business proposal should adhere to the following five principles, if it wants to be viable against the free filesharing systems:

"1. **Open File Sharing:** users must be free to share files on their hard drives with each other.
2. **Open File Formats:** content must be distributed in MP3 and other formats with NO digital rights management protection.
3. **Open Membership:** content owners must able to freely register to receive compensation.
4. **Open Payment:** users must be able to access the system using either credit cards or access cards purchasable anonymously in cash from retail stores.
5. **Open Competition:** there must be multiple such systems which can tie into each other's file sharing databases. It must not be a monopoly through legal design."
(http://shumans.com/articles/000033.php; see also: http://shumans.com/p2p-business-models.pdf)

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- Eric Raymond: Are P2P processes 'benevolent dictatorships'?

"Eric Raymond had the same limitations in mind when he noted that open source projects are often run as "benevolent dictatorships." They are not benevolent because the people are somehow better, but because the dictatorship is based almost exclusively on the people's ability to convince others to follow their lead. This means that coercion is almost non-existent. Hence, a dictator who is no longer benevolent and alienates his or her followers loses the ability to dictate. The ability to coerce is limited, not only because authority is reputation-based, but also because the products that are built through a collaborative process are available to all members of the group. Resources do not accumulate with the elite. Therefore, abandoning the dictator and developing in a different direction - known as "forking" in the Open Source Software movement - is relatively easy and always a threat to the established players."
(http://news.openflows.org/article.pl?sid=02/04/23/1518208)

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- Jacques Ranciere:

"Au « tumulte économique de la différence qui s'appelle indifféremment capital ou démocratie », il oppose la division comme pratique de toutes les « catégories » qui sont « victimes » de la politique, qui subissent le «tort» de l'exclusion de l'égalité. Rancière définit le politique comme la rencontre litigieuse de deux processus hétérogènes. Le premier, appelé police ou gouvernement, « consiste à organiser le rassemblement des hommes en communauté et leur consentement repose sur la distribution hiérarchique des places et des fonctions1». Le second est celui de l'égalité ou de l'émancipation qui consiste dans le jeu des «pratiques guidées par la présupposition de l'égalité de n'importe qui avec n'importe qui et par le souci de la vérifier2». La rencontre entre le processus égalitaire et la police se fait dans «le traitement d'un tort», car toute police, en distribuant les places et les fonctions, fait tort à l'égalité. Le processus d'émancipation est toujours mis en mouvement au nom d'une « catégorie» à laquelle on refuse l'égalité, «travailleurs, femmes, Noirs ou autres3». La mise en œuvre de l'égalité n'est pas pour autant la simple manifestation de ce qui est propre à la catégorie en question. L'émancipation est un processus de subjectivation qui est à la fois processus de « désidentification ou de déclassification4 », puisque la logique des sujets qui portent le conflit et veulent démontrer l'égalité est double : d'une part, ils posent la question : Sommes-nous ou non des citoyens ? », et d'autre part ils affirment : « Nous le sommes et nous ne le sommes pas. »Au fond, il s'agit d'une variation fidèle à la conception la plus révolutionnaire de la politique et du conflit chez Marx : la classe comme dissolution de toutes les classes. La classe ouvrière en même temps qu'elle travaille à sa

constitution contre la police qui fait tort à l'égalité œuvre aussi à sa propre destruction en tant que classe. Mais pourquoi la désidentification n'a jamais abouti dans la tradition du mouvement ouvrier ?"… S'émanciper, c'est affirmer l'appartenance à un même monde, «rassemblement qui ne peut se faire que dans le combat». La démonstration de l'égalité consiste à «prouver à l'autre qu'il n'y a qu'un seul monde». Pour Rancière, le politique est la constitution d'un «lieu commun».
(http://multitudes.samizdat.net/article.php3?id_article=1266)

clxxxvii

- The Wisdom Game defined

"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)

clxxxviii

- Control by modulation, Philippe Zafirian

"Gilles Deleuze, commentant Foucault, a développé une formidable intuition : nous basculons, disait-il, de la société disciplinaire dans la société de contrôle. Ou, pour dire les choses de manière légèrement différente, de la société de contrôle disciplinaire à la société de contrôle d'engagement . Sous une première face, on pourra interpréter ce contrôle comme une forme d'exercice d'un pouvoir de domination, d'un pouvoir structurellement inégalitaire, agissant de manière instrumentale sur l'action des autres. Ce contrôle d'engagement se distingue, en profondeur, du contrôle disciplinaire en ce qu'il n'impose plus le moule des "tâches", de l'assignation à un poste de travail, de l'enfermement dans la discipline d'usine. Il n'enferme plus, ni dans l'espace, ni dans le temps. Il cesse de se présenter comme clôture dans la cellule d'une prison, elle-même placée sous constante surveillance. Selon l'intuition de Deleuze, on passe du moule à la modulation, de l'enfermement à la circulation à l'air libre, de l'usine à la mobilité inter-entreprises. Tout devient modulable : le temps de travail, l'espace professionnel, le lien à l'entreprise, les résultats à atteindre, la rémunération… La contractualisation entre le salarié et l'employeur cesse elle-même d'être rigide et stable. Elle devient perpétuellement renégociable. Tout est en permanence susceptible d'être remis en cause, modifié, altéré."
(http://perso.wanadoo.fr/philippe.zarifian/page109.htm)

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- Elasticity of the control by modulation

"C'est la modulation de l'engagement subjectif qui me semble être au cœur du basculement. J'ai proposé une image simple : celui du contrôle par élastique. Le salarié peut, librement, tirer sur l'élastique : il n'est pas enfermé, il peut se mouvoir, se déplacer au gré de ses initiatives et de son savoir-faire, de ses facultés propre de jugement. Mais voici que l'élastique se tend, une pression s'exerce sur lui : une force périodique de rappel s'exprime avec intensité. Il doit rendre des comptes à son supérieur hiérarchique, qui lui-même doit, en cascade, en rendre compte à la direction de l'entreprise, qui, le cas échéant, devra en rendre compte aux principaux actionnaires. Rendre des comptes sur des résultats de performance. La force de rappel sera d'autant plus forte et violente que les résultats attendus ont été fixés à un niveau élevé, lui-même périodiquement modulable."
(http://perso.wanadoo.fr/philippe.zarifian/page109.htm)

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Connectionist theories of mind and brain, at http://www.artsci.wustl.edu/~philos/MindDict/connectionism.html

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- Bruce Sterling on the 'coming of age' of social network analysis: http://www.wired.com/wired/archive/12.11/view.html?pg=4?tw=wn_tophead_7

cxcii

- Consequences of the power law in scale-free networks

"A scale-free network is one that obeys a power law distribution in the number of connections between nodes on the network. Some few nodes exhibit extremely high connectivity (essentially scale-free) while the vast majority are relatively poorly connected. The reason that scale-free networks emerge, as opposed to evenly distributed random networks, is due to these factors.

1) Rapid growth confers preference to early entrants. The longer a node has been in place the greater the number of links to it. First mover advantage is very important.

2) In an environment of too much information people link to nodes that are easier to find. This preferential linking reinforces itself by making the easier to find nodes even more easy to find.

3) The greater the capacity of the hub (bandwidth, work ethic, etc.) the faster its growth"

(http://globalguerrillas.typepad.com/globalguerrillas/complex_networks/index.html)

cxciii

- The Long Tail in Marketing:

"People are going deep into the catalog, down the long, long list of available titles, far past what's available at Blockbuster Video, Tower Records, and Barnes & Noble. And the more they find, the more they like. As they wander further from the beaten path, they discover their taste is not as mainstream as they thought (or as they had been led to believe by marketing, a lack of alternatives, and a hit-driven culture). An analysis of the sales data and trends from these services and others like them shows that the emerging digital entertainment economy is going to be radically different from today's mass market. If the 20th- century entertainment industry was about hits, the 21st will be equally about misses. For too long we've been suffering the tyranny of lowest-common-denominator fare, subjected to brain-dead summer blockbusters and manufactured pop. Why? Economics. Many of our assumptions about popular taste are actually artifacts of poor supply-and-demand matching - a market response to inefficient distribution."
(http://www.wired.com/wired/archive/12.10/tail.html)

cxciv

- The Dunbar number and the limits to cooperation

... there is a cognitive limit to the number of individuals with whom any one person can maintain stable relationships, that this limit is a direct function of relative neocortex size, and that this in turn limits group size ... the limit imposed by neocortical processing capacity is simply on the number of individuals with whom a stable inter- personal relationship can be maintained.
(http://www.bbsonline.org/documents/a/00/00/05/65/bbs00000565-00/bbs.dunbar.html)

cxcv

- Cooperation without Power Law?

The following table by Ross Mayfield summarises recent research, showing that small groups can maintain egalitarian networks:

Network	Size	Description	Distribution
Political Network	~1000s	Blogs as mass media	Power-law (scale-free)
Social Network	~150	Blogging Classic	Bell-curve (random)
Creative Network	~12	Blogs as dinner conversation	Dense (equal)

After reviewing data of work relationships, information flows and knowledge exchanges from hundreds of consulting assignments inside Fortune 2000 organizations Valdis Krebs did not see much evidence of power laws in this data. His data is of confirmed ties [both persons agreed/recognized their mutual interactions/flows/relationships] from a worldwide pool of clients dating back to 1988. Of course he found some people were better connected than others, but the extreme hubs found in power law networks just were not evident. Adapting a famous line from the movie "Blazing Saddles" Valdis concluded: ***"Power Law? There ain't no stinkin' power law in this data!"***
(http://radio.weblogs.com/0114726/2003/02/12.html#a284)
The whole discussion above was inspired by a entry from the Life with Alacrity blog.
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- the general principles of Coordination Theory

"Thomas Malone: What I mean by coordination theory is that body of theory and principles that help explain the phenomena of coordination in whatever systems they arise. Now what do I mean by coordination? We define coordination as the management of dependencies among activities. Now how do we proceed on the path of developing coordination theory? The work we've done so far says that if coordination is the managing of dependencies among activities, a very useful next step is to say: what kinds of dependencies among activities are possible? We've identified three types of dependencies that we call atomic or elementary dependency types. Our hypothesis is that all the dependencies, all the relationships in the world, can be analyzed as either combinations of or more specialized types of these three elementary types. The three are: *flow, sharing,* and *fit*. Flow occurs whenever one activity produces some resource used by another activity. Sharing occurs when a single resource is used by multiple activities. And fit occurs when multiple activities collectively produce a single resource. So those are the three topological possibilities for how two activities and one resource can be arranged. And each of them has a clear analog in the world of business or any of the other kinds of systems we talked about."
(http://www.dialogonleadership.org/Malone2001.html)

Book: Thomas Malone. Coordination Theory and Collaboration Technology.

- The Open Process Handbook Initiative (OPHI)

"a group of organizations and individuals dedicated to developing an on-line collection of knowledge about business processes that is freely available to the general public under an innovative form of "open source" licensing."
(http://ccs.mit.edu/ophi/index.htm)

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The history of individualism, a series of lectures, available as audio files, of seminars at the Universite of Lyon, at http://uplyon.free.fr/

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- The relationality of everything: Simondon

The French journal Multitudes has dedicated a special section of its 18th issue to an examination of these aspects of the thought of Simondon. An excerpt from the introduction:

"La modernité se constitue, selon Simondon, à partir d'un paradigme qui traverse tous les domaines de l'expérience : l'être-individuel. Elle se définirait comme un ensemble d'opérations, de techniques, de connaissances visant à extraire les dimensions individuelles de ce qui, dans la réalité, se présente comme essentiellement attaché, relié et changeant. Dès lors, une des possibilités pour sortir de certains problèmes (liés à la connaissance, à l'expérience, au social) qui ont accompagné la pensée moderne pourrait se situer dans ce que nous avons appelé une « pensée relationnelle », dans laquelle la relation occuperait une place centrale.

Whitehead écrit que « la philosophie ne revient jamais à une position antérieure après les ébranlements que lui ont fait subir un grand philosophe ». L'histoire de la philosophie serait faite de chocs, de ruptures sous l'apparence d'une continuité de problèmes. Dès lors, interroger la « nouveauté » d'une pensée revient à demander quel « ébranlement » elle a suscité, quelle *irréversibilité* elle a introduit dans un champ.

On peut dire que Simondon produit quelque chose de proche d'un ébranlement lorsqu'il place comme une proposition centrale que *« l'être est relation »* ou encore que « *toute réalité est relationnelle »*. Cette proposition n'est pas neuve ; on la retrouve, chaque fois différemment, avec Spinoza, Nietzsche, Bergson et Tarde si bien que d'une certaine manière Simondon ne fait que prolonger un mouvement qui le précède et duquel il hérite l'essentiel de la construction qu'il opère.

Mais ce qui est inédit, c'est la mise en place d'une véritable systématisation de la proposition « l'être est relation », la prise en compte explicite de ce qu'elle requiert pour pouvoir être posée et de ces conséquences dans différents domaines - physique, biologique, social et technique. Et c'est un nouveau type de questions qui en émerge et qui s'oppose aux questions mal posées qui ont traversé la modernité : il ne s'agit plus par exemple de demander « quelles sont les conditions pour que deux individus donnés puissent être en relation », mais « *comment* des individus se constituent-ils par les relations qui se tissent préalablement à leur existence ? » ; de la même manière, au niveau social, il ne s'agit plus de demander qu'est-ce qui fonde l'espace social (les individus ou la société), mais comment s'opèrent des communications multiples qui forment de véritables êtres-collectifs ?"
(http://multitudes.samizdat.net/rubrique.php3?id_rubrique=500)

Issue 18 is located at http://multitudes.samizdat.net/article.php3?id_article=1571

cxcix

- Kenneth Gergen: a view of the relational self and bottom-up social processes

The following view stresses relationships as constitutive of social reality. On a superficial reading, this definition seems not to include the distinct existence of a social field, nor any object-centeredness, but the last paragraph shows a P2P-like understanding of social processes.

Traditional theory of the civil society is built upon an ontology of bounded units or entities - specifically "the individual," "the community," "the state," and so on. Such a theory not only creates a world of fundamental separation, but invites the use of traditional cause and effect models to comprehend relations. One is either an actor, directing the course of events, or is reduced to an effect. How can we comprehend the social world in such a way that it is not composed of entities, but constituted by processes of relationship? This is no easy task for we at once confront the implications of Wittgenstein's pronouncement that "The limits of our language are the limits of our world." Our common language of description and explanation virtually commits us to understanding the world in terms of units (nouns) that act upon each other (transitive verbs). Even the concept of relationship, as commonly understood, is based on the assumption of independent units. If and when such units act upon each other we speak of them being related. Thus, for example, we say, "A relationship developed between them," or "They no longer have a relationship." If we turn to relevant social theory, we find that perhaps the most significant candidate for relational understanding, namely systems analysis, is lodged in the view of systems as a collective array of entities linked through processes of cause and effect. Thus, systems diagrams, flow-charts, feedback loops and the like… There is much to be gained by commencing our analysis with a focus on relational processes from which ontologies and ethics emerge, and from which certain actions become favored while others are forbidden. Such processes of creating and carrying out meaning/full worlds are at all times and everywhere under way. In this sense, civil movements are always in the making. As any two or more persons

negotiate about the nature of their lives, what is worth doing or not, they are establishing rudimentary grounds for civil life in their terms"
(source: Kenneth Gergen website)

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- Object-oriented sociality

"[There is a] profound confusion about the nature of sociality, which was partly brought about by recent use of the term 'social network' by Albert Laszlo-Barabasi and Mark Buchanan in the popular science world, and Clay Shirky and others in the social software world. These authors build on the definition of the social network as 'a map of the relationships between individuals.' Basically I'm defending an alternative approach to social networks here, which I call 'object centered sociality' following the sociologist Karin Knorr Cetina. I'll try to articulate the conceptual difference between the two approaches and briefly demonstrate that object-centered sociality helps us to understand better why some social networking services succeed while others don't.

Russell's disappointment in LinkedIn implies that the term 'social networking' makes little sense if we leave out the objects that mediate the ties between people. Think about the object as the reason why people affiliate with each specific other and not just anyone. For instance, if the object is a job, it will connect me to one set of people whereas a date will link me to a radically different group. This is common sense but unfortunately it's not included in the image of the network diagram that most people imagine when they hear the term 'social network.' The fallacy is to think that social networks are just made up of people. They're not; *social networks consist of people who are connected by a shared object*. That's why many sociologists, especially activity theorists, actor-network theorists and post-ANT people prefer to talk about 'socio-material networks', or just 'activities' or 'practices' (as I do) instead of social networks.

In my experience, their developers intuitively 'get' the object-centered sociality way of thinking about social life. Flickr, for example, has turned photos into objects of sociality. On del.icio.us the objects are the URLs. EVDB, Upcoming.org, and evnt focus on events as objects.

For a much more elaborate academic argument about object-centered sociality, see the chapter on 'Objectual Practice' by Karin Knorr Cetina in The practice turn in contemporary theory, edited by Theodor R. Schatzki, Karin Knorr Cetina, and Eike von Savigny (London 2001: Routledge.)
(http://zengestrom.com/blog/)

cci

- Cooperative Individualism and the 'P2P Self', a debate between John Heron and Ted Lumley:

Lumley quote 1: "We are each unique, and each have a unique and authentic role to play because we are each uniquely situated within and included in, a common hostspace dynamic. When we move, the shape of the hostspace dynamic we are included in transforms... Our individual movement = transformation of the common hostspace dynamic."

Lumley quote 2: "Rather than having an absolute center of self, our center of self is defined by where our inside-outward asserting meets the outside-inward accommodating of the dynamical hostspace....Our assertive movement is relative to the (simultaneous mutually influencing) assertings of our fellows, together constituting a community hostspace dynamic from which our individual actions push off (rather than pushing off from the 'absolute center of our self')."

JH comment: Lumley has two definitions of the self. Quite rightly, because I think both are necessary and interdependent. In quote 1, the self is defined in term of its unique situation within a hostspace, prior to any assertive movement within it. In quote 2, the self is defined in terms of this assertive movement. In my worldview, the first definition relates to the *autonomy* of the self in terms of its idiosyncratic appraisal of and response to its unique situation within a hostspace; and the second definition relates to the *co-operative mutuality*

of the self in terms of its interactions with the others in a hostspace. The autonomous and the co-operative accounts are correlative and interdependent.

Lumley quote 3: "A 'peer' is usually thought of as an abstract entity that is capable of behaviour in-its-own-right, and particularly of peer-to-peer collaboration, ...none of which alludes to the common hostspace dynamic as the prime influence in the evolution of the peer-to-peer dynamics."

Not by me and others, e.g. Spretnak. Here's a quote from my book Sacred Science, pp 10-11

"The distinctness of a person is to do with him or her being one unique focus, among many, of the whole web of interbeing relations. Personal autonomy is grounded in this unique presence, participating resonantly in an unitive field of interconnected beings, within the presence of Being, and in the individual perspective necessarily involved in imaging a world. It is manifest as the individual judgement inalienably required for a person to appraise what is valid and valuable; and as individual responsibility in choosing to act. This is not the personal autonomy of the Cartesian ego, an isolated, self-reflexive consciousness independent of any context - what Charlene Spretnak calls the Lone Cowboy sense of autonomy. It is, rather,

The ecological/cosmological sense of uniqueness coupled with intersubjectivity and interbeing…One can accurately speak of the 'autonomy' of an individual only by incorporating a sense of the dynamic web of relationships that are constitutive for that being at a given moment. (Spretnak, 1995: 5)
(Pluralities/Integration newsletter, issue 65, archived at http://integralvisioning.org/index.php?topic=p2p)

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- Are the new P2P collectives 'collective individuals' or not

In the main text I express the view that the new P2P collectives differ from the collective individuals as described by Louis Dumont. He argued that 'nation' and 'corporation' transcend the individual, having their own autonomous and oppressive agenda. I argue that the new P2P collectives are different since there is no transcendence and representation, and other algorhythmic means are being found to filter value. This interpretation is challenged by my friend Remi Sussan, whose contribution I'm reprinting in extenso. I sense that we are both 'right' but am not able yet to formulate a position that honours both truths. In any case, even if P2P collectives are in themselves a form of institution, in many ways molding the individuals who participate and setting limits on possibility, they are to be clearly differentiated from the earlier forms of institutionalization. What R. Sussan invites us to, is to remain aware and vigilant vis a vis these new types of Commons-based institutions.

Remi Sussan:

"Je ne suis pas forcément d'accord. Si l'on suit les recherches sur la " vie artificielle " ou " l'émergence " il me semble logique de penser que les "superorganismes " les " entités collectives " vont forcément émerger de l'interaction entre agents. Ces entités collectives, si elles sont assez
complexes peuvent effectivement poursuivre des agendas non reconnus par les agents qui les constituent, et même s'avérer dangereux pour eux. Je en suis pas du tout persuadé que la " blogosphere " ne va pas donner avec le temps, de telles entités collectives. Je suis même persuadé que, vu la façon dont les blogs tournent en " circuits " chacun reproduisant l'autre en fonction des goûts et opinions des auteurs, on ne tardera pas, si ce n'est déjà fait, à voir apparaître des " voix collectives " porteuse d'un message spécifique. A mon avis, c'est déjà ce qui s'est passé avec les pages web. Leurs connexions ont créé des " clusters " culturels bien définis, avec leur limites et leur conformisme propre.. En ce sens , l'émergence des " meilleurs " blogs pourrait être considérée de manière inverse : les "meilleurs " sont ceux qui expriment au mieux cette voix collective constituée par la communication de centaines de blogs analogues.

De même, il me semble que Linux en tant que tel est bel et bien un superorganisme, dont la structure et les contraintes techniques déterminent le mode de participation des membres de la communauté, et susceptible, par un mécanisme sélectif, d'approuver ou rejeter les contributions de untel ou untel. Linux est certes plus avancé qu'un Windows, mais il n'en impose pas moins un mode de pensée, il n'en constitue pas moins un système de limites. En d'autres mots, je pense que les véritables entités collectives ne se trouvent pas dans les catégorisations de l'époque moderne, mais bien dans

les sociétés holistes que Dumont décrit dans homo hierarchicus. Mais je pense que la tendance a générer ces systèmes holistes est toujours demeurée, y compris à l'époque moderne (l'individualisme étant une nouveauté en ce monde) , même s'ils ont cessé d'être reconnus. Je pense également que ces "entités collectives " s'avèrent d'autant plus dangereuses qu'elles passent inaperçues.

Ma position est celle des gnostiques. On ne peut éviter l'émergence des superorganismes, des " Dieux ", des "archontes", mais on peut les reconnaître en tant que tels et les utiliser au mieux, en évitant leur influence létale. Le changement introduit aujourd'hui par le P2P et les nouvelles méthodes de pensée n'est pas la disparition des superorganismes en tant que tel que la capacité qui nous est offerte aujourd'hui de les penser. En effet, des catégories comme la " nation ", la " corporation " ne sont pas forcément des " individus collectifs " : ce sont des représentations de ces individus,
représentations souvent naïves. La " corporation " n'est qu'un artefact qui peut ou non représenter un véritable entité collective : il peut exister plusieurs superorganismes au sein d'une même entreprise, sans pour autant qu 'il en existe une " reconnaissance officielle ". Par exemple, j'ai souvent
remarqué dans les entreprises des conflits existant entre les étages, chaque étage peut bien souvent être considéré comme une " entité collective", avec ses coutumes, ses spécialités, son style, etc..

De même, la chute des pays de l'est ont montré que bon nombre de " nations" etaient de pures fictions, tandis que des entités collectives jusque là négligées (ex les communautés religieuses, d'anciennes ethnies) s'avéraient tout à fait réelles et actives. Je pense donc que les nouvelles pensées telle la vie artificielle, et les technologies émergentes comme le P2P nous permettent de faire accéder à la conscience de chacun l'existence de ces " entités collectives, " de comprendre leurs lois, leur dangers et leur limites, et de les voir tels qu'elles sont, et non imaginées sous la forme de représentations naives.. Elles ne nous libèrent pas de l'existence de ces " individus collectifs " qui sont là pour rester, pour le meilleur ou le pire."

cciii

- Relationality

The following comes from a description of the concept of Panarchy, a form of governance that is strongly related to the peer to peer concept. In it, the author Paul Hartzog describes the importance of relationality in the new world views.

"The most fundamental principle of Panarchy is relationality. In contrast to the deterministic, atomistic, mechanistic ontology underlying the Industrial Era, Panarchy is characterized by **network effects**. Network effects are typically summed up by using the example of the fax machine. Any one fax machine is useless. The second fax machine on a network increases the value of the first. Furthermore, all future additions to a network increase the value of the existing members of that network. The underlying reason that network effects exist is that the network itself is a communicative structure. As each new member enters, the number of communicative links increases exponentially, thus creating the added value. Communicative, i.e. network, effects occur in any relational system where communication is the overriding purpose of the system -- political, judicial, social, economic, technological, et al. A second core principle is that of **relational identity**. In traditional atomistic/mechanistic ontologies, things are construed as having an independent existence apart from their relationships. Things have properties, and some of those properties may be relational. By contrast, the newer relational ontologies that pervade many disciplines from physics to biology, view relationships as part of what a thing *is*. In this light, a thing not only enters into relationships, but is in fact *constituted* by them. Relationships are fundamental to a thing's identity, or self. For an example consider a person's height vs. his identity as a father. His height is a property of his body, but his "fatherness" is not. "Father" is a linguistic way of describing an emergent property that is shared between two members of a communicative structure, i.e. a family." (http://www.panarchy.com/Members/PaulBHartzog/Writings/Principles)

Here's a recent book that claims to examine the neurological bases of the changes in subjectivity: A Whole New Mind: Moving from the Information Age to the Conceptual Age. *Daniel H. Pink. Riverhead Books, 2004*

cciv

This example is taken from an extraordinary pioneering work written in 1918, by Mary Parker Follett, i.e. The New State, available online at at http://sunsite.utk.edu/FINS/Mary_Parker_Follett/Fins-MPF-01.html . Tom

Attlee says about his book: "This 1918 classic explains the first vision of holistic democracy and has a greater density of quotable material on this subject than anything we know of."

Collective Intelligence is in the process of being enabled by the rapid growth of participatory practices being developed in the last decades, see the following Wiki gives an extended listing of Participatory Practices, at http://www.wiki-thataway.org/index.php?page=ParticipatoryPractices

ccv

- John Heron, describing the earlier phases in the evolution of spiritual culture as related to the guru phenomenom:

"There seem to be four phases in the guru phenomenon in the West. (the fourth phase is described in the running text)

(1) In the late decades of the nineteenth century and early decades of the twentieth century, there was just a small guru-invasion from the East with key players like VivekanaNda and the spread of the Vedanta movement in the West.

(2) Then post-war from 1945 with the publication of Huxley's The Perennial Philosophy, *there started a major guru-invasion from the East including the dramatic spread through the 60s and the 70s of Zen and Tibetan Buddhism in the USA and Europe.*

(3) In the third phase, over the last thirty years or so, alongside the guru-invasion from the East there has been the growing phenomenon of homegrown Western gurus and spiritual teachers claiming the special status of 'enlightenment'."
(personal communication, March 2005)

ccvi

- The Participatory Turn in Spirituality:

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)

- Reading Jorge Ferrer:

Revisioning Transpersonal Theory: A Participatory Vision of Human Spirituality (SUNY Press, 2002).

"Some shorter introductions can be found in the following sources:

Ferrer, J. N. (2003). Participatory Spirituality: An Introduction. Network: The Scientific and Medical Network Review 83 (Winter), 3-7.
_____. (2002). An Ocean with Many Shores. Tikkun: A Bimonthly Jewish Critique of Politics, Culture & Society, 17(5), 60-64.
_____. (2001). Towards a Participatory Vision of Human Spirituality. ReVision 24(2), 15-26.

A further elaboration and application of my participatory perspective can be found in the following articles:

Ferrer, J. N. (2003). Integral Transformative Practices: A Participatory Perspective. The Journal of Transpersonal Psychology, 35(1), 21-42. (This article may be especially relevant for your inquiry into peer-to-peer spirituality)
Ferrer, J. N., Albareda, R. V. & Romero, M. T. (2004). Embodied Participation in the Mystery: Implications for the Individual, Interpersonal Relationships, and Society. ReVision 27(1), 10-17.
Ferrer, J. N., Romero, M. T. & Albareda, R. V. (forthcoming). The Four Seasons of Integral Education: A Participatory Proposal for the New Millennium. ReVision.
(this bibliography was provided by the author himself0

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- J. Kripal summarises Ferrer's vision:

“Ferrer's participatory vision and its turn from subjective "experience" to processual "event" possesses some fairly radical political implications. Within it, a perennialist hierarchical monarchy (the "rule of the One" through the "great chain of Being") that locates all real truth in the feudal past (or, at the very least, in some present hierarchical culture) has been superseded by a quite radical participatory democracy in which the Real reveals itself not in the Great Man, Perfect Saint or God-King (or the Perennialist Scholar) but in radical relation and the sacred present. Consequently, the religious life is not about returning to some golden age of scripture or metaphysical absolute; it is about co-creating new revelations in the present, always, of course, in critical interaction with the past. Such a practice is dynamic, uncertain, and yet hopeful—a *tikkun*-like theurgical healing of the world and of God."
(http://www.tikkun.org/magazine/index.cfm/action/tikkun/issue/tik0303/article/030352.html)

ccviii

- see the article at http://207.44.196.94/~wilber/ferrer.html

ccix

- J. Kripal on the necessity to reject the emancipatory illusions in religion and mysticism:

"Ferrer … ultimately adopts a very positive assessment of the traditions' ethical status, suggesting in effect that the religions have been more successful in finding common moral ground than doctrinal or metaphysical agreement, and that most traditions have called for (if never faithfully or fully enacted) a transcendence of dualistic self-centeredness or narcissism. It is here that I must become suspicious. Though Ferrer himself is refreshingly free of this particular logic (it is really more of a rhetoric), it is quite easy and quite common in the transpersonal literature to argue for the essential moral nature of mystical experience by being very careful about whom one bestows the (quite modern) title "mystic." It is an entirely circular argument, of course: One simply declares (because one believes) that mysticism is moral, then one lists from literally tens of thousands (millions?) of possible recorded cases a few, maybe a few dozen, exemplars who happen to fit one's moral standards (or better, whose historical description is sketchy enough to hide any and all evidence that would frustrate those standards), and, voilà, one has "proven" that mysticism is indeed moral. Any charismatic figure or saint that violates one's norms—and there will always be a very large, loudly screaming crowd here—one simply labels "not really a mystic" or conveniently ignores altogether. Put differently, it is the constructed category of "mysticism" itself that mutually constructs a "moral mysticism," not the historical evidence, which is always and everywhere immeasurably more ambivalent. Ferrer, as is evident in such moments as his thought experiment with the Theravada retreat, sees right through most of this. He knows perfectly well that perennialism simply does not correspond to the historical data. What he does not perhaps see so clearly is that a moral perennialism sneaks through the back door of his own conclusions. Thus, whereas he rightly rejects all talk of a "common core," he can nevertheless speak of a common "Ocean of Emancipation" that all the contemplative traditions approach from their different ontological shores."

Ferrer argues that we must realize that our goal can never be simply the recovery or reproduction of some past sense of the sacred, for "we cannot ignore that most religious traditions are still beset not only by intolerant exclusivist and absolutist tendencies, but also by patriarchy, authoritarianism, dogmatism, conservatism, transcendentalism, body-denial, sexual repression, and hierarchical institutions." Put simply, the contemplative

traditions of the past have too often functioned as elaborate and sacralized techniques for dissociating consciousness.
Once again, I think this is exactly where we need to be, with a privileging of the ethical over the mystical and an insistence on human wholeness as human holiness. I would only want to further radicalize Ferrer's vision by underscoring how hermeneutical it is, that is, how it functions as a creative re-visioning and reforming of the past instead of as a simple reproduction of or fundamentalist fantasy about some nonexistent golden age. Put differently, in my view, *there is no shared Ocean of Emancipation in the history of religions*. Indeed, from many of our own modern perspectives, the waters of the past are barely potable, as what most of the contemplative traditions have meant by "emancipation" or "salvation" is not at all what we would like to imply by those terms today. It is, after all, frightfully easy to be emancipated from "the world" or to become one with a deity or ontological absolute and leave all the world's grossly unjust social structures and practices (racism, gender injustice, homophobia, religious bigotry, colonialism, caste, class division, environmental degradation, etc.) comfortably in place.""
(http://www.tikkun.org/magazine/index.cfm/action/tikkun/issue/tik0303/article/030352.html)

ccx

Information on the SEED Dialogues, at http://www.seedopenu.org . Similar work has been done by David Peat, a student of the astrophysicist David Bohm, in his book on 'Blackfoot Physics', at http://www.fdavidpeat.com/bibliography/bibliography.htm. See also http://www.fdavidpeat.com/bibliography/essays/black.htm

ccxi

- David Peat on the monological gaze of the West:

"Time was abstracted from space and painting was left with the single viewpoint, a frozen world seen though a window. With the device of perspective one longer enters into to painting but views it with an objective eye. Mirroring the metaphysics of the period, nature has been projected away from us and the world is experienced as something external.The mathematical basis of perspective is called Projective Geometry. This term says it all. One no longer engages directly with an object in its natural, essential form, as something that can be explored and touched, instead it becomes a surface that must be distorted to fit the global logic of mathematical perspective. The rich individualistic inscape of the natural world had given way to a uniform perspectival grid of logic and reason. How well perspective parallels a science in which nature obeys laws that are, in some metaphysical sense, external to matter's essence. As Bacon argued, these laws are to be discovered by placing nature on the rack, another sort of grid, and tormenting her to reveal her secrets."
(http://www.fdavidpeat.com/bibliography/essays/black.htm)

ccxii

Find background reading in this ‘Anthropology of Consciousness’ bibliography, at http://sacaaa.org/bibliography_of_consciousness_studies.htm

The truth of animistic forms of consciousness, despite their 'anthropomorphising' of nature, may well be their intuitive grasp of 'there is consciousness all the way down'.

ccxiii

- Michel Maffesioli

“Nous sommes dans une ere de hedonisme generalise, pour lequel ce sur quoi on ne peut rien, devient indifferent… Ce qui engender une certaine forme de serenite, a la base meme de nombreuses manifestations de generosite et d’entraide, car l’acceptation de ce qui est peut aller de pair avec le souci de participer a ce qui est: non pas maitriser, mais accompagner un etat de fait pour qu’il donne le meilleur de lui-meme. La realization de soi se fait dans une interaction ecologique et festive. On tend a la “propension des choses” Il n’y a pas lieu de

projeter sur elles des desires, des convictions, etc.. de quelque ordre qu'ils soient, mais bien de s'accorder a leur evolution, et a la necessite qui est la leur. La encore, l'initiative n'est plus propre a l'individu isole, ou d'un ensemble forme a partir d'un contrat social, mais elle est conjointe, partage entre le monde et l'homme. Ainsi, au moralisme et a son <devoir etre>, succeed une deontologie prenant au serieux les <situations> et agissant en consequence, qui est attentive a la disposition du moment, qui s'accorde aux opportunites du moment. Il n'y a nulle indifference a un tel immanentisme, mais une conscience constante, une presence a ce qui est: le monde, les autres. C'est une co-presence a l'alterite. Cela nous oblige a considere l'insertion au groupe, non uniquement regi par la raison (comme dans la modernite) mais mu egalement par les sentiments et les affects."
(personal communication, source to be verified)

ccxiv

- Wholism and individuality, by Ted Lumley o f Goodshare.org

"Bohm cautions that this [undividedness of the whole] does not mean the universe is a giant, undifferentiated mass. Things can be part of an undivided whole and still possess their own unique qualities. To illustrate what he means he points to the little eddies and whirlpools that often form in a river. At a glance such eddies appear to be separate things and possess many individual characteristics such as size, rate, and the direction of rotation, et cetera. But careful scrutiny reveals that it is impossible to determine where any given whirlpool ends and the river begins. Thus Bohm is not suggesting that the difference between 'things' is meaningless. He merely wants us to be aware constantly that dividing various aspects of the holomovement into 'things' is always an abstraction, a way of making those aspects stand out in our perception by our way of thinking. In attempts to correct this, instead of calling different aspects of the holomovement' things', he prefer to call them 'relatively independent subtotalities'."

Indeed , Bohm believes that our almost universal tendency to fragment the world and ignore the dynamical interconnectedness of things is responsible for many of our problems, not only in science but in our lives and society as well. For example, we believe we can extract the valuable parts of the earth without affecting the whole. We believe it is possible to treat parts of the body and not be concerned with the whole. We believe we can deal with various problems in our society, such as crime, poverty, and drug addiction, without addressing the problems in our society as a whole, and so on. In his writings Bohm argues passionately that our current way of fragmenting the world into parts not only doesn't work, but may even lead to our extinction."
(personal communication, March 2005)

ccxv

- Recovering the cosmobiological tradition

Loren Goldner on the cosmobiological tradition of the Renaissance. See URL = http://home.earthlink.net/~lrgoldner/renaissance.html.

Here is how he explains his strategy to recover this tradition:

"Our starting-point must be the direct opposition between the body of doctrine which came to be known as 'Marxism', codified in the First, Second, Third and Fourth Internationals, and the ideas of Karl Marx. After separating these two, I want look at the relation between 'Marxism' and the body of ideas known as the Enlightenment, chiefly those of the French eighteenth century thinkers. Then I should turn to the earlier tradition sometimes called 'Hermetic', which includes magic, astrology and alchemy. I want to show how, when modern rational science defeated this outlook, it also lost something of value: its attitudes to humanity and nature. Following the work of Magee, I would then point out the deep immersion of Hegel in that old mystical tradition, and his direct opposition to the ideas and methods of Enlightenment thinking. Finally, I should return to Marx to see how his demystification of the mystics preserved the core of their profound insights."
(http://www.marxists.org/reference/archive/smith-cyril/works/articles/magic.htm)

Books: 1) Loren Goldner. 'Vanguard of Retrogression: Postmodern Fictions as Ideology in the Era of Fictitious Capital', (Queequeg Publications, PO Box 672355, New York, NY 10467) ; 2) Glenn Magee. 'Hegel and the

Hermetic Tradition'. Cornell University Press, 2001; 3) online version of a book on Marx and the future of humanity, by Cyril Smith, at http://www.cix.co.uk/~cyrilsmith/

See also : Karl Marx and the fourfold vision of William Blake, at
http://www.marxists.org/reference/archive/smith-cyril/works/articles/blake.htm

ccxvi

- Goldner on the 'forgetting' of the cosmobiological tradition:

"The Foucaultian and Frankfurt School critics of the Enlightenment live off the impoverishment of the left by its extended romance with a one-sided appropriation of the Enlightenment, by the left's century-long confusion of the completion of the bourgeois revolution by state civil servants with socialism, and by the worldwide crackup of that project. The pre-Enlightenment, Renaissance-Reformation cosmobiology which passed through German idealism into Marx's species-being means even less to them than it does to figures such as Habermas. Yet the usual critique of them is undermined by the tacit agreement across the board that "nature is boring", i.e. the realm of mechanism, as Hegel, articulating the ultimate state civil servant view, cut off from practice in nature, said. Both sides of this debate still inhabit the separation of culture and nature, Geist and Natur, which came into existence through the Enlightenment's deflation of cosmobiology. It is the rehabilitation, in suitably contemporary form, of the outlook of Paracelsus and Kepler, not of Voltaire and Newton, which the left requires today for a (necessarily simultaneous) regeneration of nature, culture and society, out of Blake's fallen world of Urizen and what he called "single vision and Newton's sleep".
(http://home.earthlink.net/~lrgoldner/renaissance.html)

ccxvii

- Towards an Ecocracy/Cosmocracy, the point of view of Ecophilosophy

"We are beginning to accept the idea of designing with nature rather than against nature. The acceptance of this idea leads to reverence for natural systems. Now the idea of reverence for natural systems, translated into the language of political science means ECO-CRACY. Ecocracy means recognizing the power of nature and of life itself, means observing the limits of nature, designing with nature, not against it, creating ecologically sustainable systems, reverence for the planet — not its continuous plundering. Let us put it succinctly. Technocracy and Ecocracy aim at fundamentally different goals. Technocracy aims at efficiency, control, manipulation and (so often) 'profit now'. Ecocracy aims at sustainable systems which can support and bring well being to human species and other species in the millennia to come. In this interconnected and co-dependent world of ours, the notion of Democracy must take on a new meaning. Democracy can no longer be limited to the city-state (the polis); it can no longer be limited to one nation. Democracy must be so conceived that its execution in one nation does not harm (if only indirectly) other nations and does not harm Nature itself.
Let us put it in positive terms: Democracy in our times must be conceived as such a form of government that benefits all nations in the long run, and which at the same time, respects and enhances natural systems. This inter-nation and inter-species Democracy, I call Ecocracy or Eco-democracy. When we think how global and interconnected our problems are nowadays, this notion of Democracy impresses itself on us as almost obvious. Moreover, a system which I describe as Ecodemocracy, or a very similar one, is a necessity for our survival.
(http://epc.eco-tea.com/articles/cosmocracy.html)

ccxviii

- The Participatory Mind, as defined by David Skrbina in his PhD thesis:

"As I conceive it, the concept of 'participation' is fundamentally a mental phenomenon, and therefore a key aspect of the Participatory Worldview is the idea of 'participatory mind'. In the Mechanistic Worldview mind is a mysterious entity, attributed only to humans and perhaps higher mammals. In the Participatory Worldview mind is a naturalistic, holistic, and universal phenomenon. Human mind is then seen as a particular manifestation of this universal nature. Philosophical systems in which mind is present in all things are considered versions of *panpsychism*, and hence I argue for a system that I call 'participatory panpsychism'. My particular articulation of participatory panpsychism is based on ideas from chaos theory and nonlinear dynamics, and is called 'hylonoism'. In support of my theory I draw from an extensive historical analysis, both philosophical and scientific. I explore the notion of participation in its historical context, from its beginnings in Platonic philosophy

through modern-day usages. I also show that panpsychism has deep intellectual roots, and I demonstrate that many notable philosophers and scientists either endorsed or were sympathetic to it. Significantly, these panpsychist views often coexist and correspond quite closely to various aspects of participatory philosophy. Human society is viewed as an important instance of a dynamic physical system exhibiting properties of mind. These properties, based on the idea of participatory exchange of matter and energy, are argued to be universal properties of physical systems. They provide an articulation of the universal presence of participatory mind. Therefore I conclude that participation is the central ontological fact, and may be seen as the core of a new conception of nature and reality."
(http://www.bath.ac.uk/carpp/davidskrbina/summarycontents.htm)

Thesis Title: Participation, Organization, and Mind: Toward a Participatory Worldview.

Book: David Skrbina. Panpsychism in the West. MIT Press, 2005

- Henryk Skolimowsky on the Participatory Mind

"The astrophysicist John Archibald Wheeler may have been the first to announce, in an articulate way (in the early 1970s), the idea of the Participatory Universe. He wrote, "The universe does not exist 'out there' independent of us. We are inescapably involved in bringing about that which appears to be happening. We are participators. In some strange sense this is a Participatory Universe."

In the early 1980s, drawing from the insights of Wheeler, on the one hand ("In some strange sense this is a participatory universe"), and building on the insights of Teilhard de Chardin ("We are evolution conscious of itself"), I have developed the theory of the Participatory Mind. This theory, on the one hand, attempts to vindicate the claims of the New Physics about the participatory nature of the universe; and, on the other hand, attempts to fill the missing dimension in Teilhard's opus — which wonderfully describes the unfoldment of evolution but misses the role of the mind in the whole process. Consciousness is one of the key terms in Teilhard's story. But strangely, it is consciousness as if there were no minds. The theory of the Participatory mind provides an epistemological foundation to Teilhard's cosmology. The participatory theory of mind maintains that our world is the creation of our mind. But not in a solipsistic manner a la Berkeley (esse-percipi), but in a participatory manner: we have become aware that we can elicit from reality only that much as our mind is capable of conceiving. This is precisely the sense in which we say that we dwell in a participatory universe. We elicit what is potentially 'out there' in continuous acts of participation. Participation is of the essence not only in our cognitive acts but also in our social activities and political endeavors. Tell me what you participate in and I will tell you who you are; and what the meaning of your life is.
We become that in which we participate. As we participate so we become. If we participate all the time in trivial matters, we become trivial persons."
(http://epc.eco-tea.com/articles/cosmocracy.html)

ccxix

- John Heron on 'Participatory Reality'

"Co-operative inquiry rests on an inquiry paradigm of participative reality. This holds that there is a given cosmos in which the mind creatively participates, and which it can only know in terms of its constructs, whether affective, imaginal, conceptual or practical. We know through this active *participation* of mind that we are in touch with what is other, but only as articulated by all our mental sensibilities. Reality is always subjective-objective: our own constructs clothe a felt participation in what is present. Worlds and people are what we *meet,* but the meeting is shaped by our own terms of reference. In meeting people, there is the possibility of reciprocal participative knowing, and unless this is truly mutual, we don't properly know the other. The reality of the other is found in the fulness of our open relation when we each engage in our mutual participation. Hence the importance of co-operative inquiry *with* other persons involving dialogue, parity and reciprocity in all its phases. This participative paradigm has two wings, the epistemic introduced above, and the political.

The epistemic wing, concerned with truth-values, is formed by:

- An ontology that affirms a mind-shaped reality which is subjective-objective: it is subjective because it is only known through the form the mind gives it; and it is objective because the mind interpenetrates the given cosmos which it shapes.
- An epistemology that asserts the participative relation between the knower and the known, and, where the known is also a knower, between knower and knower. Knower and known are not separate in this interactive relation. They also transcend it, the degree of participation being partial and open to change. Participative knowing is bipolar: empathic communion with the inward experience of a being; and enactment of its form of appearing through the imaging and shaping process of perceiving it
- A methodology that commends the validation of outcomes through the congruence of practical, conceptual, imaginal and empathic forms of knowing among co-operative knowers, and the cultivation of skills that deepen these forms. It sees inquiry as an intersubjective space, a common culture, in which the use of language is grounded in a deep context of nonlinguistic meanings, the lifeworld of shared experience, necessarily presupposed by agreement about the use of language itself

The political wing of the participative paradigm, concerned with being-values, is formed by an axiology, a theory of value which holds that:

- Human flourishing is intrinsically worthwhile: it is valuable as an end in itself. It is construed as a process of social participation in which there is a mutually enabling balance, within and between people, of autonomy, co-operation and hierarchy. It is conceived as interdependent with the flourishing of the planetary ecosystem.
- What is valuable as a means to this end is participative decision-making, which enables people to be involved in the making of decisions, in every social context, which affect their flourishing in any way. And through which people speak on behalf of the wider ecosystem of which they are part.

Co-operative inquiry seeks to integrate these two wings by using participative decision-making to implement the methodology. Also by acknowledging that the quest for validity in terms of well-grounded truth-values, is interdependent with another process which transcends it. This is the celebration of being-values in terms of flourishing human practice."

Source: from a personal communication and attachment by John Heron, April 2005. "Copied from *Chapter 1 of Heron's book* Co-operative Inquiry *(1996). The key sections on Foundations are* ***The fifth paradigm*** *and especially* ***Precursors of the participative paradigm. S****ome parts of this Chapter - but* not *the all-important* ***Precursors*** *section - are online at www.human-inquiry.com/doculist.htm , click on Exploring the context."*

ccxx

- The Nature Institute on 'qualitative science'

"We develop ways of thinking and perception that integrate self-reflective and critical thought, imagination, and careful, detailed observation of the phenomena. The Nature Institute promotes a truly ecological understanding of the living world. We study the internal ecology of plants and animals, elucidating how structures and functions interrelate in forming the creature as a whole. Our interdisciplinary approach integrates anatomy, physiology, behavior, development, genetics, and evolution. We investigate the whole organism as part of the larger web of life. By creating life history stories of plants and animals, we open up a new understanding of our fellow creatures as dynamic and integrated beings.

Through this approach, the organism teaches us about itself, revealing its characteristics and its interconnectedness with the world that sustains it. This way of doing science enhances our sense of responsibility for nature. No one who has read, for example, Craig Holdrege's paper on the sloth, thereby coming to appreciate this animal as a unique, focused expression of its entire forest habitat, will be able to tolerate the thought of losing either the sloth or its habitat. As Goethe so beautifully expresses it, all of nature's individual aspects are interconnected and interdependent: We conceive of the individual animal as a small world, existing for its own sake, by its own means. Every creature is its own reason to be. All its parts have a direct effect on one another, a relationship to one another, thereby constantly renewing the circle of life; thus we are justified in considering every animal physiologically perfect."
(http://natureinstitute.org/)

- The Nature Institute on the limitations of reductionism:

“We can discover the coherence of our five reductionist propositions by recognizing in them the operation of a single gesture of the cognizing mind. The gesture itself is not pathological; rather, its singleness -- its operation in conjunction with a *suppression* of the necessary counterbalancing gesture -- is alone what renders it and its reductionist results pathological. Reductionism, at root, is not so much a body of concepts as it is a way of exercising (and not exercising) our cognitive faculties.

The cognitive gesture I'm alluding to here is the inner act of isolating something so as to grasp it more easily and precisely and gain power overit. We want to be able to say, "I have exactly this -- not that and not the other thing, but *this*". The ideal of truth at work here is a yes-or-no ideal. No ambiguity, no fuzziness, no uncertainty, no essential penetration of one thing by another, but rather precisely defined interactions between separate and precisely defined things. We wantthings we can isolate, immobilize, nail down and hold onto.

How do we avoid ambiguity and approach nailed-down, yes-or-no certainty? Part of the answer is: by drawing on one of our highest achievements, which is our ever finer power of distinguishing and cleaving. Whatever looks complex and of diverse nature must be analyzed into distinct,
Simple parts with clearly spelled-out relations. Such analysis and clarification is the function of logic, a discipline we have carried to extraordinary levels of sophistication.

Materialism, mechanism, and reductionism: their presuppositions and tendencies are all of a piece, because they are all expressions of a single cognitive gesture. The aim of this gesture is to lay hold of a simple, fixed, precise, unambiguous, manipulable reality divested of the inner life and qualities that might make uncomfortable demands on us. We anesthetize the world in order to possess and control it like a thing. But despite this singleness of purpose -- or, rather, because such a single-minded gesture becomes sterile without the life and movement of a counterbalancing gesture -- the presuppositions of the Reduction Complexbetray a striking incoherence. They offer us:

** Materialism without any recognizable material.

** Mechanism that must ignore actual machines, occupying itself instead with the determinate and immaterial clarity of machine algorithms.

** Reductionism that produces ever more precise formulations about an evermore impoverished reality.

** A one-sided method of analysis that never stops to tell us about anything in its own terms, but forever diverts our attention to something else.

** A refusal to reckon with qualities despite the fact that we have no shred of a world to talk about or understand except by grace of qualities.

** Cause wrenched apart from effect; all becoming -- that is, all active be-ing -- frozen into stasis.

** Bottom-up explanation that tries to explain a fuller reality by means of a less substantial reality, ignores the bi-directional flow of causation between all contexts, and naively takes the smallest parts
of the world-mechanism as most fundamental for explaining it.

** Finally, a denial of mind as an irreducible and fundamental aspect of the universe -- this while scientists increasingly describe the world as driven by, and consisting essentially of, little more than collections of mental abstractions -- mathematical formulae, rules,information, and algorithms.

This entire body of dogma defines the reductionist ideology, not science itself. However, the dogma has tremendous power to distort the practice of science, a distortion evident on all sides. At the same time, there is reason to hope that in our day the dogma will finally collapse in upon its own absurdities. If this happens, it will not be because particular discoveries "disprove" the reductionist position, but rather because --much like during the earlier break with medieval thought -- more and more people simply find it impossible to look upon the world in the old way.”
(http://www.natureinstitute.org/txt/st/mqual/)

ccxxi

- Negri on the human-machine relationship:

It has been generally noted, by McLuhan and others, that technology is an extension, an exteriorization of faculties of the human body, brain and nervous system. In the current era, as we are completing this process of emulating the nervous system and brain into our networks and computers, we see a start of a new process, which is the integration of the externalized technologies back into our bodies. This is generally discussed under the theme of the cyborg. Today, matter, life and mind are in the process of being understood on the basis of a reduction to their informational basis, giving rise to nanotechnology, biotechnology and artificial intelligence. On the basis of a continued dominnce of a mechanistic and manipulative framework, the results could be seen as an extension, to an unprecedented scale, our our alienation. Negri notes in a similar fashion, that the productive machines have entered us, in particular now that the brain itself, i.e. creative innovation, is seen as the most important productive factor, and now that we have access to increasingly cheap computers and a worldwide internet network that is outside of full corporate dominance. Yet this creative work is still generally under the command of financial capital. Negri attempts to go beyond the human-machine dichotomy, and to see the emancipatory potential in this state of affairs:

"The Multitude not only uses machines to produce, but also becomes increasingly machinic itself, as the means of production are increasingly integrated into their minds and bodies. The productive machines have been integrated into the multitude, but it has no control over them, making more vicious their alienation. This suggests that the actual subversion of the productive system into an autonomous plane could be possible in a flash, by disconnecting it from capital command"
(personal communication, from http://www.ephemeraweb.org/journal/4-3/4-3editorial.pdf)

ccxxii

- On Participation, excerpts from Owen Barfield

"Participation is the extra-sensory relation between man and the phenomena."
The world as immediately given to us is a mixture of sense perception and thought. While the two may not be separable in our experience, we can nevertheless *distinguish* the two. When we do, we find that the perceptual alone gives us no coherence, no unities, no "things" at all. We could not even note a patch of red, or distinguish it from a neighboring patch of green, without aid of the concepts given by thinking. In the absence of the conceptual, we would experience (in William James' words) only "a blooming, buzzing confusion." (*Poetic Diction*; *Saving the Appearances*)

"The familiar world -- as opposed to the largely notional world of "particles" which the physicist aspires to describe -- is the product of a perceptual given (which is meaningless by itself) *and an activity of our own*, which we might call "figuration." Figuration is a largely subconscious, imaginative activity through which we participate in producing ("figuring") the phenomena of the familiar world. (A simple analogy -- but *only* an analogy -- is found in the way a rainbow is produced by the cooperation of sun, raindrops, and observer.) How we choose to regard the particles is one thing, but when we refer to the workaday world -- the world of "things" -- we must accept that our thinking is as much *out there in the world* as in our heads. In actual fact, we find it nearly impossible to hold onto this truth. In our critical thinking as physicists or philosophers, we imagine ourselves set over against an objective world consisting of particles, in which we do not participate at all. In contrast, the phenomenal, or familiar, world is said to be riddled with our subjectivity. In our daily, uncritical thinking, on the other hand, we take for granted the solid, objective reality of the familiar world, assume an objective, lawful manifestation of its qualities such as color, sound, and solidity, and even write natural scientific treatises about the history of its phenomena -- all while ignoring the human consciousness that (by our own, critical account) determines these phenomena from the inside in a continually changing way". (*Worlds Apart*; *Saving the Appearances*)

"Our language and meanings today put the idea of participation almost out of reach, whereas the reality of participation (if not the idea) was simply given in earlier eras. For example, we cannot conceive of thoughts except as things in our heads, "rather like cigarettes inside a cigarette box called the brain." By contrast, during the medieval era it would have been impossible to think of mental activity, or intelligence, as the product of a

physical organ. Then, as now, the prevailing view was supported by the unexamined meanings of the only words with which one could talk about the matter."
(Excerpts collated at http://www.praxagora.com/~stevet/fdnc/appa.html; More about Barfield at http://owenbarfield.com/)

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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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- George Modelski on the temporality of change:

Someone who has studied the temporality of human civilisational change is George Modelski with his theories on 'evolutionary' politics', with some of his conclusions, that 'the rate of change is tapering off' being counter-intuitive. He foresees a period where technological change would co-exist with a stabilized social structure. His conclusions are based on combining various observable trends in one integrated interpretation:

Phase Changes and Saturation: **Power Law Behavior and World Systems Evolution, Tessaleno Dvezas and George Modelski, *Technological Forecasting and Social Change*, V70 N9, Nov 2003**

"An excellent article modeling world social organization as a multilevel, self-similar, nested power-law process, following self-organized criticality. They suggest social change involves a range of processes that range in "size" (time duration) from 250 (or rarely, longer) down to 1 (very common) human generation, with few of the long duration developmental processes (e.g., world democracy, globalization), and a very large number of single generation processes (e.g., typical cultural and legal emergences). Assuming a human generational/cultural learning time of 30 years, they describe "K-waves" of 60 years encompassing developments such as the rise of leading sectors in global economy (e.g., the emergence of automobiles, or electricity), and "long waves" of 120 years, such as the rise of world powers to a position of global leadership. All of this has been observed by other cycle scholars and seems quite reasonable. One of the more helpful insights from their model is that the time duration of developmental innovations is inversely related to their importance to the developmental process (e.g., irreversible processes that take a long time to occur are both much rarer and more necessary to advance the system as a whole). Another very interesting insight is their observation that world system change, while still upsloped, has been slowing for 1,000 years, with the inflection point at roughly 1000AD. Using a logistic growth curve ("S curve") their model of world system emergence proposes that human social development (the Y axis) is in a decelerating phase and is about "80% complete", and therefore that the major features of human social organization are now in place. In other words, they propose that social change is rapidly saturing, and will be significantly less dramatic and novel every year forward. A plausible scenario here: We all end up living in increasingly standardized individual empowering, fine grained, and fair social democracies, with conflict a highly regulated affair, and the only unregulated innovation occurring at the chaotic edge of human understanding and social need. The authors delineate four phases of social change for the model, beginning with the Ancient Period (3000BC to 1,000BC), then Classical Period (1,000BC to 1,000AD) then the Modern Period (1,000-3,000AD) of "world system consolidation", and a presumed Postmodern Period (3,000-5,000AD) with little social change (though we can presume much change in the technological sphere). Each 2,000 year period corresponds well to the four phases in logistic growth: initiation, acceleration, deceleration, and saturation."
(http://accelerating.org/tech_tidbits/2005/18jan05.html#socialsaturation)

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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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- Some documentation on the universal wage

One of the best resources is the Basic Income European Network which in fact now covers most parts of the world, at: http://www.bien.org

the Greens on the universal wage, with many resources at
http://perso.wanadoo.fr/marxiens/politic/revenus/index.htm

Very clear explanation on the universal wage, and why it is so necessary, by Philippe Van Parijs, at
http://atheles.org/editeur.php?ref_livre=&main=lyber&ref_lyber=318

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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

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- Paolo Virno on the new political strategy

Virno is one of the new generation of 'Italian radical thinkers' that seems to have replaced the earlier dominance of 'French thought', and he is often associated with the group of people, who are, together with Negri and Hardt, putting forward the strategy of the 'multitudes'. In this article, he argues that for the contemporary social movement, social and political aims change places. First, new social realities have to be established, after political structures will have to be adapted. The last thing to be wished for, he says, is the establishment of a hyperstate, a world government for a world people.

"la lutte contre le travail salarié, à la différence de celui contre la tyrannie ou contre l'indigence, n'est plus corellée à l'emphatique perspective de la « prise du pouvoir ». Précisément en vertu de ses caractères très avancés, se profile comme une transformation entièrement sociale, qui se confronte de près au pouvoir, mais sans rêver une organisation alternative de l'Etat, visant au contraire à réduire et à éteindre toute forme de dirigisme sur l'activité des femmes et des hommes et donc sur l'Etat tout court. On pourrait dire : alors que la « révolution politique » était considérée comme un préalable inévitable pour changer les rapports sociaux, maintenant, c'est ce butin à venir qui devient le passage préliminaire. La lutte peut développer son caractère destructif, seulement si elle porte haut une autre façon de vivre, de communiquer, et même de produire. En bref, seulement s'il y a autre chose à perdre que ses propres chaînes. Que se passe-t-il lorsque l'on considère la forme actuelle de l'Etat comme l'ultime possible, méritant de se corroder et de tomber en ruine, mais certainement pas d'être remplacé par un hyper Etat « de tout le peuple »
*(*http://multitudes.samizdat.net/article.php3?id_article=1806)

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- Desertion

"Desertion brings down empires. Consider the Soviet Union, and the Eastern bloc more generally: there was no aspect of daily life that was not under strict surveillance, it was next to impossible to organize resistance, but these regimes were toppled by desertion. People left in droves, and those who stayed simply stopped working. Sloth, too, can be a good thing. It may be that the only course for altering the world lies not in revolutionary parties but in desertion."
(From: Politics without the state. Ed. By Diana George and Charles T. Mudede. Seatlle Research Institute, 2002)

The above work is described as follows:

" They focus on how the current world order works *affectively*, rather than just economically and ideologically or cognitively. Against "the communication of terror by a private corporate media oligopoly that functions in tandem with a state apparatus", they advocate "a universal communication" of invention, of joy, and of bodies. The goal that they envision is "gaining collective, participatory control over the imaginary processes through which our identities and desires are instituted." This means inventing new forms of sociality, imagining alternatives to global capitalism precisely at the moment when we are endlessly being told that no alternative is conceivable."
(source: Seattle Research Institute website, http://www.seattleresearchinstitute.org)

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- Antonio Negri on the knowledge worker:

"À présent, on observe un autre type de fonction socia1e productive, et un autre type d'ouvrier apparaît, celui qui travaiIIe devant un ordinateur. CeIa suppose un élargissement du concept de producteur et, de plus, une réappropriation des moyens de production. Quand le cerveau devient I' outil fondamental, il n'y a plus de séparation entre moyens de production et force productive, c'est ceIa Ia potentialité révolutionnaire."
(from a communication in the Multitudes mailing list in December, 2004, from an interview in the French newspaper L'Humanite)

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Information about the struggle against the adoption of software patents in the EU, see at http://www.nosoftwarepatents.com/fr/m/intro/index.html

The following is an educational book explaining why these issues are important:

La bataille du logiciel libre. 10 clefs pour comprendre . Thierry Noisette et Perline
La Découverte 2004

Book site located at http://www.labataille dulogiciellibre.info/; author site of Perline located at http://www.perline.org/

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- On the universal wage as a form of 'rent', for what the population is bringing to society:

"Pour l'économiste écologiste Bernard Guibert il faut trouver la justification du revenu social garanti qu'il place au centre du programme social des écologistes, dans une réhabilitation du rapport de rente. Non pas une rente parasitaire mais une rente sur ses propres qualités, sociales et productives, sur son propre corps. La régulation de cette rente comme celle du développent durable est un acte de nature politique Le but de cet article est de tenter de fonder théoriquement la revendication qui est au coeur du projet de l'écologie politique, celle d'un revenu social d'existence qui soit inconditionnel, universel et de niveau suffisant pour permettre à chacun de vivre d'une manière autonome et décente. Il s'agit de transformer tout citoyen de notre pays en rentier : il faut donc rappeler ce qu'est le concept de rente, réfuter les préjugés idéologiques dont ce il est victime et en énoncer le contenu positif et même révolutionnaire comme condition de la réalisation du projet politique du développement durable."
(http://multitudes.samizdat.net/article.php3?id_article=12)