

PAR CUM PARI
NOTES ON THE HORIZONTALITY OF PEER TO PEER
RELATIONSHIPS IN THE CONTEXT OF THE
VERTICALITY OF A HIERARCHY OF VALUES

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Introduction

This essay has several aims. Firstly, we aim to offer an ethical evaluation of the emerging mode of peer production, governance and property, and see how it stacks up as an implicit or explicit expression of a number of ethical values. We will also specifically examine whether peer to peer represents an opportunity for a more complete realization of the aims of the social doctrine, in terms of its four key principles (i.e. personhood, common good, solidarity and subsidiarity).

1. DEFINITION AND DESCRIPTION

We define peer to peer as the relational dynamic in distributed networks. Distributed networks are networks where individuals do not need permission to undertake actions and engage in relationships, because they are in control of their own productive resources, and therefore can undertake the production of common value through the self-aggregation of resources.

In our contemporary context, this means access to our own creative capacities, computing power as well as access to the communication networks, so that production of common 'immaterial' value can occur.

As distributed networks, mostly in hybrid formats but nevertheless allowing for an unprecedented level of self-aggregation, are becoming the mainstay of our technical and social organization, our societal organization is in for an unprecedented overhaul.

Some important characteristics are the following:

As long as the self-aggregation occurs on the level of immaterial resources, i.e. resources that are copy-able and capable of being distributed on a massive scale at marginal cost, the creation of social value can occur outside the institutional field of both corporations and the state

Since every physical production nevertheless is based on design as an immaterial process, peer to peer dynamics also have an important influence on how physical production will be organized.

Peer to peer dynamics create three important new social processes and institutional realities:

- *Peer production*, as the generalized ability to create social value through self aggregation
- *Peer governance*, as the generalized ability to manage this self-aggregation outside of market pricing, hierarchical mobilization of resources, or democratic negotiation (all three needed as potential mechanisms allocating scarce resources, but not in a sphere of self-aggregating abundant resources)
- *Peer property*, as the ability to protect the common value creation from private appropriation. This takes the form of new non-exclusionary, shared property formats, such as the Creative Commons and General Public License, which differ both from public/state/collective and from private exclusionary property.

Peer production has already created three emerging but already rather solid economic models:

- The *sharing economy*, where individuals use proprietary platforms to share their creative expression, with the model being funded through the monetization of their attention (YouTube, Google, Flickr, etc...)
- The *commons economy*, where communities are engaged in the self-managed production of common artefacts, aided by for-benefit institutions who manage the infrastructure of cooperation without a for-profit motivation; and surrounded by an ecology of businesses creating 'scarce' and marketable added value around that commons; returning some of the proceeds through benefit-sharing (i.e. generalized support of the infrastructure of cooperation instead of individualized payment and profit-sharing). Examples are Linux and Wikipedia.
- The *crowdsourcing economy*, where businesses create marketplaces for the self-aggregation of freelance labour, and profit from the transaction

fees, or else integrate self-aggregated minpreneurs into their own productive chains. Examples: Cafepress, Threadless, Istockphoto, Lego Factory.

The peer to peer dynamic is also already responsible for the emergence of three related social-political movements:

- The *open/free movements*, which ensure that open and free raw material is available for the cooperation to occur (free software, open access publishing, open content, etc...).
- The *participatory movements*, which are responsible for designing inclusive processes of social cooperation, based on very low thresholds for participation.
- The *commons-oriented movements*, based on the creation of common value that is universally available to all regardless of purchasing power.

These three social movements correspond to the objective necessities for peer production to occur, i.e. open and free input, participatory processes, and commons-oriented output, which in turn guarantees a new layer of open and free input. This process, the circulation of the common, is how peer production guarantees its social reproduction and viral reproduction throughout our social system.

We have to state here a strong and perhaps provocative hypothesis, that we call *the law of asymmetrical competition*:

- Whenever a for-profit entity, based on closed intellectual property, excluding participation, and without any commons oriented output, is faced with a for-benefit institution that can draw on the participation of a passionate community of peer producers, the latter will in the end prove more competitive, productive and efficient.
- The first corollary of this is that institutions (both corporations and public authorities), which integrate open/free, participatory and commons oriented practices, will be more competitive than their counterparts.
- The second corollary is that peer production projects which can rely on a business ecology that practices benefit-sharing and can sustain the infrastructure of cooperation, will have advantages over those that do not do so.

The last corollary means that community-based peer production and business entities are not in an antagonistic, but complementary relationship, while the first one ensures the further spread of peer production into our social system through the adaptation by the owners of capital goods, result-

ing in a new substratum of netarchical capitalists, who enable and empower participation as their main strategy for value capture.

Why should the above law of asymmetrical competition, exemplified by the success of common artefacts such as Linux and Wikipedia, be true?

We attempt to explain this in the second section, where we explain that the increased efficiency is not just objective, but also has ethical elements which make peer to peer processes ethically attractive.

Peer Governance as 3rd modality

	Centralized	Decentralized	Distributed
	Hierarchy	Heterarchy	Autonomy
Economics	Centralized Planning	Market	Peer Production
Politics	Absolute monarchy	Separation of powers	Peer Governance
Property	Collective State	Private Exclusionary	Common Inclusionary Peer Property

♦ **Conclusion: P2P is a *third mode of production, governance, and property***

Figure 1. Summary of P2P production, governance, and property as 3rd modality of value creation.

2. ETHICAL EVALUATION OF P2P DYNAMICS

P2P as a Social Process Based on Equipotentiality

In this section, we would like to attempt an explanation on why peer production is such a strong candidate for a new social model. We are using a graph derived from the work of Pierre Levy on collective intelligence.

Levy: from the molar to the molecular

	Archaic	Molar	Molecular
Life	Natural Selection (natural time)	Artificial Selection (generational time)	Genetic splicing (real-time)
Matter	Mechanical (outside)	Thermo-Dynamic (Warming)	Nanotech (cold)
Information	Somatic (co-presence)	Mediatic (mass)	Digital
Human Groups	Organic	Organizational	Self-organized

Figure 2. Pierre Levy on the evolution of collective intelligence.

What transpires from Levy’s examination¹ of both social control, as well as power over nature is the increasing ability to start from the building blocks themselves. The broad movement is from a limited ability to influence nature and sociality as it is given ‘externally’, in a very broad ‘wholistic’ way (premodernity), to the ability to influence collective ‘molar’ building blocks of such systems, i.e. a mass or group orientation (modernity) and finally to the level of individuality (postmodernity). This

¹ Pierre Levy, *Collective Intelligence*, Basic Books, 1997, 277 p.

is true for the mastery of organic life processes through knowledge of genetics dealing directly at the DNA level; for the control of inorganic matter through material sciences involving an ability to work at the molecular and atomic level with nanotechnology; and for the intellect and cultural/social sphere, which is moving from institutional/organizational intervention to the self-organized peer to peer level. In this context, the evolution of peer to peer dynamics can be seen to be in line with a broad evolution towards direct intervention through self-organized systems. Practices at this level of complexity, which tend to be more efficient and productive than previous models, thereby creating more surplus value and innovation in the societies practicing them. The surplus of peer production tends to occur at this stage at the level of immaterial, cultural, intellectual, relational and spiritual wealth, in a way that can complement but also replace current logics of material accumulation.

It is here that I would like to introduce equipotentiality as the metaphysical basis of peer to peer relationships, as it is even more fine-grained than the individuality and individualism that was developed through modernity. We could say that just as modernity developed all the implications of individuality, peer to peer processes develop all the implications and potentialities of relationality. Indeed, equipotentiality means the capacity of social systems to directly access the various skills of individuals, which can be aggregated selectively by the individuals themselves. Through equipotentiality, individuals allocate partial skills and effort to common value creation, finding identity and recognition through their engagement in such common projects. It's an object-oriented sociality, organized around transcendent objects and goals, that structure the peer to peer social system and the individuals within it.

This means that everyone can potentially cooperate in a project, that no authority can pre-judge the ability to cooperate, but that the quality of cooperation is then judged by the community of peers, i.e. through Communal Validation. In other words, distributed production is matched with distributed control mechanisms, through collective choice systems that avoid the emergence of 'representative' collective individuals which would crystallize to take control of the social process. *In equipotential projects, participants self-select themselves to the module to which they feel able to contribute.*

Charles Leadbeater, in *We Think* summarizes the explanation of Yochai Benkler, referring to his landmark book on 'The Wealth of Networks':

Benkler's explanation for how open source communities coordinate themselves runs something like this. The raw material of these col-

*laborations is creative talent. But creative talent is highly variable. People are good at different things and in different ways. It is very difficult to tell from the outside, for example by time and motions studies, who is the more effective creative worker. It is very difficult to write detailed job descriptions and contracts for creativity, specifying what new ideas need to be created when. Creativity cannot be delivered just-in-time. Open source communities resolve the difficulties of assessing creativity and quality by decentralising decision making down to individuals and small groups. They decide what to work on, depending on what needs to be done and what their skills are. There is little sense in working on a project that is already well staffed and where your contribution will add very little. It is very difficult to pull the wool over the eyes of your peers: they will soon spot if the contributions that you make do not really come up to scratch. That allows people to work on just their bit of the puzzle. Good central design rules allow the whole thing to add together. Work in open source communities gets done when creative people self-distribute themselves to different tasks, they submit their work to open peer review to maintain quality and the product has a modular design so that individual contributions can be clicked together easily:*²

The ethical implications of equipotentiality are well drawn out by Jorge Ferrer:

An integrative and embodied spirituality would effectively undermine the current model of human relations based on comparison, which easily leads to competition, rivalry, envy, jealousy, conflict, and hatred. When individuals develop in harmony with their most genuine vital potentials, human relationships characterized by mutual exchange and enrichment would naturally emerge because people would not need to project their own needs and lacks onto others. More specifically, the turning off of the comparing mind would dismantle the prevalent hierarchical mode of social interaction – paradoxically so extended in spiritual circles – in which people automatically look upon others as being either superior or inferior, as a whole or in some privileged

² Charles Leadbeater, draft of chapter 8 of his book, *We Think*, at http://wethink.wikia.com/wiki/Chapter_8_part_3

respect. This model – which ultimately leads to inauthentic and unfulfilling relationships, not to mention hubris and spiritual narcissism – would naturally pave the way for an I-Thou mode of encounter in which people would experience others as equals in the sense of their being both superior and inferior to themselves in varying skills and areas of endeavor (intellectually, emotionally, artistically, mechanically, interpersonally, and so forth), but with none of those skills being absolutely higher or better than others. It is important to experience human equality from this perspective to avoid trivializing our encounter with others as being merely equal. It also would bring a renewed sense of significance and excitement to our interactions because we would be genuinely open to the fact that not only can everybody learn something important from us, but we can learn from them as well. In sum, an integral development of the person would lead to a ‘horizontalization of love’. We would see others not as rivals or competitors but as unique embodiments of the Mystery, in both its immanent and transcendent dimension, who could offer us something that no one else could offer and to whom we could give something that no one else could give.³

An additional insight comes from John Heron, who writes about the co-evolution of hierarchy and participation.

The crucial insight is this: until the advent of peer production, individual autonomy in cooperation was limited to small groups, which were unable to scale because the transactional cost of organizing commonality required hierarchical structures. However peer production is the ability to globally coordinate a multitude of cooperating individuals and small groups, and in such a way that small group dynamics, i.e. peer governance as the ability to manage such common projects, remain at the core of the process of value creation, and no longer at the periphery. There may new forms of hierarchy (of merit, engagement, and entanglement within the networks), but they cannot be equated with command and control mechanisms. This means that productive processes can now be autonomous and cooperative, which is a potentially important social advance. Until today, democracy and participation were limited to choosing representatives in the political field, while production itself remained a hierarchical and non-participatory process. We

³ Jorge Ferrer, <http://www.estel.es/EmbodiedParticipationInTheMystery,%201espace.doc>

should further note that peer production is not limited to the business or economic field, but can be applied to every form of value creation. Autonomy-in-cooperation becomes scalable throughout the social field.

There is of course much to say about peer governance itself, where power becomes inter-dependent, since it is based on voluntary contributions and not on wage-dependency, and such power can only be consensual. (however, power can and does hide in the invisible architectures of the design of such social systems, requiring a literacy of cooperation from the cooperating communities, who need to become adept at value-sensitive design, so that diversity and autonomy are stimulated).

As John Heron says in concluding his examination:

*the sole role of hierarchy is in the spontaneous emergence in the initiation and continous flowering of autonomy-in-cooperation, in all spheres of human endeavour.*⁴

The Evolution of Hierarchy (1)

	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 endeavor

by John Heron

Figure 3. John Heron on the evolution of hierarchical models.

⁴ Derived from: Heron, John, *Sacred Science*, PCCS Books, 1998.

Passionate Production as a Superior Modality of Value Creation

The following figure, partially inspired by the work of Timothy Wilken on the evolution of synergistic approaches to human cooperation, shows the basis of the efficiency of peer production as compared to other modes of value creation, and why the law of asymmetric competition is a valid hypothesis.

Let's start with motivation. Pre-capitalist models, i.e. slavery and feudalism, were based on coercive cooperation, whereby the real producers of wealth had to respectively give away the totality (slaves) or a part (serfs) of their production. While the motivation of serfs would be obviously superior to that of slaves, neither group would be motivated to produce beyond subsistence without coercive pressure, and while slavery-based societies are notorious for their lack of technical innovation regarding human work, medieval feudal societies fare better, but are still characterized by very slow productivity growth, with the majority of the population not moving substantially beyond subsistence levels. Both systems are of course determined by 'extrinsic negative' motivation, i.e. ultimately fear, the lowest possible form of human motivation in terms of efficiency.

One could argue that the great social advance of the capitalist mode is to change the extrinsic negative motivation into a positive one, i.e. mutual self-interest. Ideally, all parties exchange equivalent value with each other. The result has been an unprecedented rise in productivity and efficiency, but with a high social and natural cost. Indeed, while coercive modes can be characterized (in game theory format) as win-lose dynamics, capitalism's win-win is still very limited (and of course, in reality, that ideal is rarely attained): parties in a market exchange cannot and do not take into account any externalities, whether it be social or natural.

This is why a for-profit enterprise can only innovate relatively, i.e. strive for relative quality, while a for-benefit community cum institution can and does strive for absolute quality.

Peer production therefore, is characterized by the filtering out of both negative and positive extrinsic motivation, leaving only intrinsic positive motivation, as the sole motivator. In other words, this system of voluntary contributions thrives on human passion and the search for creative expression, social recognition, and the need for meaning in the process of common value creation.

Peer production is therefore highly efficient, based on a quest for absolute quality, and wherever this mode becomes economically feasible because of the drop in coordination and transaction costs, will generally tend to drown out competing modes.

However, in the transition period where peer production is a seed form, it will give rise to many different hybrid formats, involving cooperation with both state and private forms of production and governance.

Evolution of Cooperation
 "it's no longer about incentives, but about removing impediments"

<i>Time frame Typology =></i>	Cooperation & Motivation Formats	Game Typology	Quality of Cooperation
<i>Pre-modern (feudal, imperial)</i>	Adversarial Extrinsic negative	Zero Sum: Win-Lose "Power Game"	Low, 1+1<2
<i>Modern (market, industrial)</i>	Neutral Extrinsic positive	Zero Sum: Win-win: Draw "Money Game"	Average, 1+1=2
<i>P2P era</i>	Synergistic Intrinsic positive	The 4 wins "Wisdom Game"	High, 1+1>2

Figure 4. The hyper-efficiency of passionate production.

The Non-Reciprocal Logic of Peer Production

Historically, we have seen a succession of a tribal economy, primarily based on symmetrical reciprocal gift-giving, tributary economies based on a-symmetrical hierarchical allocation of goods according to social rank, and finally the dominance of market pricing mechanisms according to a logic of equivalent exchange.

What kind of social logic is behind peer to peer? As we will see, it is definitely not a gift economy based on reciprocity!

We are using the definitions of anthropologist Alan Page Fiske, who uses a fourfold typology of possible intersubjective relationships⁵ based on

⁵ Overview of the relational typology by Alan Page Fiske, at <http://www.sscnet.ucla.edu/anthro/faculty/fiske/re/modov.htm>

his research in his book, *The Structures of Social Life*, which he says are a valid 'relational grammar', for all cultures and temporalities.

According to Fiske, this would give the following:

Dominant in the tribal gift-economy:

In Equality Matching (EM) 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.

Dominant in the tributary economies:

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).

Dominant in capitalist economies:

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 Market Pricing relationships need not be selfish, competitive, maximizing, or materialistic – any of the four models may exhibit any of these features. Market Pricing relationships are not necessarily individualistic.

However, it is clear that the peer to peer dynamic is not covered by any of the first three definitions. As a reminder: peer to peer is based on voluntary contributions on the input side, but not to another individual, but rather to the whole collective project; and by universal availability on the output side. One can take without giving, and one can give without receiving anything back, though one has access, as have the non-givers, to the totality of the commons that has been created through this self-aggregation of effort.

Clearly, we are talking here about non-reciprocal, 'generalized' exchange, which do not fit the previous models. We therefore turn to Fiske's fourth model, which does give a correct definition of the intersubjective logic of peer to peer:

He calls it 'Communal Sharing' and it is dominant in the emerging peer to peer modes:

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).

We therefore would like to present an alternative account of social evolution, formulated by the Dutch author Wim Nusselder, which beautifully summarizes the point we are trying to make:

The primary economy is based on reciprocity, which derives from common ancestry or lineage. It is based on families, clans, tribes and exchange mostly operates through gifts which create further obligation. The division of labor is minimal and most often related to gender and age. The key question is 'to belong or not to belong'. Social groups are based and bounded by real or symbolic lineage. Wants are defined by the community. Leadership is in the hands of the lineage leadership.

The secondary economy arises together with power monopolies which engender coercion as a means to force cooperation. We enter the domain of class societies, and production is organized by the elite in power, which holds together through the symbolic power which transforms power into allegiance. Respect for power, in the form of tribute, taxes, etc. is normative. Distribution depends on your place in this chain of symbolic power. Wants are defined by the symbolic power with symbolic markers monopolized. The key question is: 'to deserve power or to deserve subjection'. Social groups are bound by allegiance to power. Leadership is political and religious. Relationships, i.e. allegiance, is highly personal.

The tertiary economy arises with the entrepreneur and capitalism. It is based on 'equivalent', i.e. 'fair' exchange, which is normative. Power arises from relative productivity, relative monopoly over a needed good, and from the wage relationship which creates dependence. Social groups are loose, and wants are determined by advertising and mimetic desire. Cooperation is no longer correlated to belonging. Relationships are impersonal.

The quaternary economy, based on peer to peer processes, is based on 'ideological leaders' which can frame common goals and common belonging and is based on membership and contribution. Contributing to the best of one's ability to common goals is normative and the key question becomes: to follow an existing group or to create one's own, i.e. to convince or be convinced. Contributions to many groups can overlap. Power is dependent on the power to convince.

From all of the above we are tempted to formulate a temporary conclusion: that peer production based on the intersubjective logic of 'communal shareholding', i.e. characterized by non-reciprocal generalized exchange between the individual and the collective, now a seed form present in a transitional economic regime, may well be the emerging logic of social and economic organization of a new political economy and civilization yet to arise.

What we arrived at as a preliminary conclusion is that peer to peer modes are highly efficient, are based on advanced modes of motivation and cooperation, and on an ethic of non-reciprocal giving and sharing.

What does this mean for the social doctrine of the Church? What challenge does non-reciprocity represent?

Updating the Social Doctrine in the Light of Non-Reciprocity

Let us briefly review the four pillars of the social doctrine, and make a preliminary examination of how the emergence of peer to peer modes may affect it.

Regarding personhood, there is no doubt that peer to peer modes respect personhood, and represent a 'relational augmentation' of individuality. Equipotentiality as the ethical and metaphysical principle underlying peer to peer, does not endanger any concept of personhood. We would argue that it represents a deepening of personhood and the possibilities of self-realization and autonomy-in-cooperation.

Regarding the common good, the peer production of common value is more respectful of the common good than market relations, which are genetically unable to take into account the necessary social externalities. Constitutively, peer to peer includes the convergence of individual and collective interest, so that individual effort strengthens the commons, which is universally available to all who need it. Some would suggest that forms of giving and sharing that do not require reciprocity would be ethically inferior to reciprocal giving, but I would suggest that the kind of giving and receiving that occurs in peer to peer, is related to the common, and represents an extension of the circle of care. But rather than rely on altruism, it relies on designing social systems so that individual and collective interests are aligned. Peer to peer dynamics do create strong personalized relationships amongst the core producers, but also allow for impersonal collaboration, while crucially enabling cooperation amongst strangers.

Peer to peer modes strengthen subsidiarity, in the sense that civil society organizations, in the new more 'informal' form that it takes in the P2P

context, increase their ability to create common value, and decrease the necessity for both the market and the state to intervene. Both market and state remain complementary, and can play a substantial role in enabling and empowering the direct production of social value, through open business models that include benefit-sharing practices, and Partner State policies which strengthen the infrastructure of social cooperation. However, we would argue that peer production truly 'realizes' subsidiarity, as it enables all types of value creation which were hitherto monopolized by private entities and subject to commodification and market relations.

The challenge of peer to peer lies in the fourth pillar of the social doctrine: solidarity. It's an issue which peer production cannot solve on its own.

Peer to peer modes, because they rely on voluntary contributions are sustainable collectively, but not on the individual level. Projects can sustain themselves if they maintain the level of volunteering, but no individual can permanently maintain him or herself outside of the monetary system. P2P projects are essentially 'agnostic' as to the individual situation of the volunteers, as they rely on the surplus and abundance that they are able to mobilize through self-aggregation. It has no answer to the individual who cannot mobilize such resources (though it does create vast wealth in a commons mode which is universally available); and it has no mechanisms to monetarily sustain the volunteers, beyond the creation of satellite economies around the commons.

This poses not just a problem for the individual, but for society, as *it creates a 'crisis of value' for present market society*. Indeed, as increasing numbers of individuals choose passionate production, and the infrastructure for peer production continues to improve, the ability to directly create use value increases exponentially, but the ability of the market to monetize such social utility only rises linearly, creating a huge gap between the desire and potential for peer production, and the ability of individuals to sustain such choices. This is, in our opinion, one of the constitutive causes of precarity and precariousness amongst the new generations.

Society therefore needs a new mechanism of solidarity, but which cannot be a monetization based on profit-sharing, as this would simply 'crowd out' the willingness for non-reciprocal contributions. The solution then, would seem to be very similar to the one familiar to the Catholic Church in the Middle Ages, when nearly one quarter of the male population was supported in their spiritual production, through gifts to the Church. In contemporary terms this would mean a unconditional form of support in the form of a basic income.

Such a basic income should not be seen as welfare, but as recognition by society and the market that social innovation has become the primary vehicle for value creation, and it would, in a transitory period, allow citizens to move more easily in and out of the market sphere, and manage their careers over the longer term, so that periods of peer production could be more easily inserted. Europe is already moving in that direction, through transitional labour market policies being developed in various countries, but it is still based on the premise that transitional periods are less productive than formal labour, while the new emerging realities point to the opposite, namely that value creation is highest through peer production, and not in the market sphere, which is becoming increasingly derivate vis-à-vis social innovation in the P2P sphere.

Before such basic income becomes a reality, open business models based on benefit sharing, and partner state policies should be supported.

In the longer term we have to ask the question about moving from a political economy where peer to peer is a subset of market relations in a context of infinite-growth capitalism, to a political economy where the market for scarce goods is a subset of a peer to peer economy and a civilization centered around the notions of the commons and direct value creation through civil society.

If infinite growth is indeed a logical and physical impossibility in the context of finite natural resources; and when the artificial scarcities currently impeding social cooperation and innovation will be increasingly seen as counterproductive, then such a shift might be seen as a conditional inevitability.

If we find a solution for the solidarity issue, and the right interface and combination between non-reciprocal peer production in the immaterial field; and cost-recovery mechanisms for the production of scarce rival goods, then the resulting society would be seen to be a more adequate expression of the value system expressed by the social doctrine.

For extensive documentation on the emergence of peer to peer formats throughout the social field, see <http://p2pfoundation.net>