

P2P IN THE ANTHROPOCENE WITH THE CONVERGENCE GATHERING AS A CASE STUDY

Victor MacGill
8 Cornwall Place
Stoke
Nelson
New Zealand

ABSTRACT

There are many threats as we move deeper into the anthropocene age. The dominance based hierarchies that have become an unquestioned part of 21st century life are a reflection of the linear profit driven paradigm that fails to see the interconnectedness between us, and between us and the world we inhabit. In order to find a pathway out of the looming dystopic futures that appear to be unfolding, a new paradigm that recognises the connectedness within nature and the social world is necessary to generate new social structures that can lead to more sustainable, thriving futures.

One weak signal on the horizon that might foreshadow a change in paradigm towards a more healthy way of seeing the world and interacting in it is the peer to peer movement. The peer to peer movement creates ways for people to interact without intervening controlling hierarchies that build value for those involved. There are a number of forms from digitally based platforms like Wikipedia, Linux, couch surfing and ride sharing through to the Arab Spring and occupy Wall Street. There are also links to the co-operative movement and community initiatives like transition towns and permacultural living.

A case study is presented examining one type of peer to peer group in more detail to reveal practical issues of operating within this new paradigm. The Convergence gathering is a group of people interested in alternative lifestyles that has met for five or six days over the New Year in North Canterbury, New Zealand for almost thirty years. It has developed an organisational style with no ongoing structured leadership.

Keywords:

INTRODUCTION

This paper explores the P2P (peer to peer) movement (Bauwens, 2005a) as a new paradigm within the anthropocene age providing an alternative way for 21st century organisations to operate that takes us away from the dominance-based hierarchies, which have become accepted as normal. First, this paper describes the P2P movement within the concept of the anthropocene age. It then moves on to explain why generating preferred futures (Inayatullah, 2008) needs to occur at the myth/metaphor and worldview levels and explores some potentially useful metaphors. That is followed by a discussion of how systems concepts can shed light on the nature of P2P organisations. The Convergence

P2P in the anthropocene with the Convergence gathering as a case study

gathering held in North Canterbury, New Zealand is discussed as a case study of a P2P organisation before some concluding comments.

P2P IN THE ANTHROPOCENE

In this anthropocene age (Steffen, Grinevald, Crutzen, and McNeill, 2011) we have moved from coping in our environment to changing the environment to suit our purposes. We live within a predominant worldview that sees the earth as something to exploit as we please. The predominant paradigm of our world today is a neo-liberal worldview that has lost sight of the interconnectedness between each other and between us and our environment. It prioritises economic profit to the detriment of our planet (Korten, 2000; Piketty, 2014). The term anthropocene is a geological term formulated to describe our present age following after the Holocene, and is proposed to have begun with the industrial revolution (Steffen et al., 2011) when the human impact on the environment started to become a significant factor in the physical state of the planet. As such, discussions on the anthropocene tend to be focused more on aspects of climate change, but we face many more threats to our existence through the next century such as peak oil, collapse of the banking system, nuclear threat or conventional war, and terrorism (Laszlo, 2006).

Avoiding dystopic futures and governing the anthropocene in more humane, people centred ways (Bertalanffy, 1969) will require a fundamentally different worldview. A systems perspective that recognises the complexity of the issues involved and the importance of working with the interconnectedness between people (Vickers, 1970) is likely to be fruitful in developing alternative, preferred futures (Bussey, 2014).

The principles behind peer production are centred on our connectedness as people and communities and the environment in which we live. Bauwens (2005) defined peer production as:

A form of human network-based organisation that rests upon the free participation of equipotent partners, engaged in the production of common resources, without recourse to monetary compensation as the key motivating factor, and organised 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 pricing mechanisms or managerial commands.

Bauwens (2006) outlines the three main qualities of a P2P group:

1. Free co-operation of equipotent users who have use of distributed capital
2. The users are self-governing. Governing processes are open and transparent
3. Free access to users of what is produced.

Peer production is not just sharing between people, it includes collaboration to produce something of value for those involved. He further notes that each

P2P in the anthropocene with the Convergence gathering as a case study

contributes according to their capacity and willingness and each received according to needs. If a hierarchy does form it is bottom up rather than top down.

Peer production is best known through internet based networks that are becoming increasingly widespread. Who would have ever believed that an internet based encyclopaedia that invited anyone to contribute or modify other people's work could be viable? Now with Wikipedia (Ciffolilli, 2003) having been available for nearly fifteen years, the only place you could buy a hard copy encyclopaedia is in a second hand bookshop. Further examples include Project Gutenberg (Hart, 1992), Linux (Lee and Cole, 2014), Bitcoin (Grinberg, 2014), couch surfing (Rosen, Lafontaine, & Hendrickson, 2011) and crowd funding (Ordanini, Miceli, Pizzetti, & Parasuraman, 2011). Political movements like the Arab Spring (Howard & Duffy, 2011) and the Occupy Movement (Caren and Gaby, 2011) used the internet and peer production methods (Castells, 2012). P2P is also unfortunately also effective for groups like Al Qaeda (Sageman, 2008).

Many other organisations use some elements of P2P. Amazon and eBay, for example, include user ratings as a guide to reputation. As well as internet based P2P projects there are other groups like the co-operative movement, where groups of people come together for mutual benefit typically financial, so the owners are also those involved in the work. These can range from a small group of craft workers combining their efforts to run a shop to sell their wares through to an entire city of interlinked co-operatives as in Mondragon in northern Spain (Whyte and Whyte K., 1991), which includes co-operative universities, hospitals and banks. Intentional communities and eco-villages are growing around the world (Christian, 2007), transition towns (Hopkins, 2008) is invigorating local communities, and many transformational festivals embrace P2P principles, including Convergence (MacGill, 2014), which will be discussed in more detail later.

Bauwens describes P2P as post-capitalist and post-democratic, but is careful to point out that P2P organisations are not intended to replace the existing system but rather to augmenting and enhancing capitalist and democratic structures. He points out that many P2P elements are already embedded within the capitalist system to the point that it could not function without them.

P2P in the anthropocene with the Convergence gathering as a case study

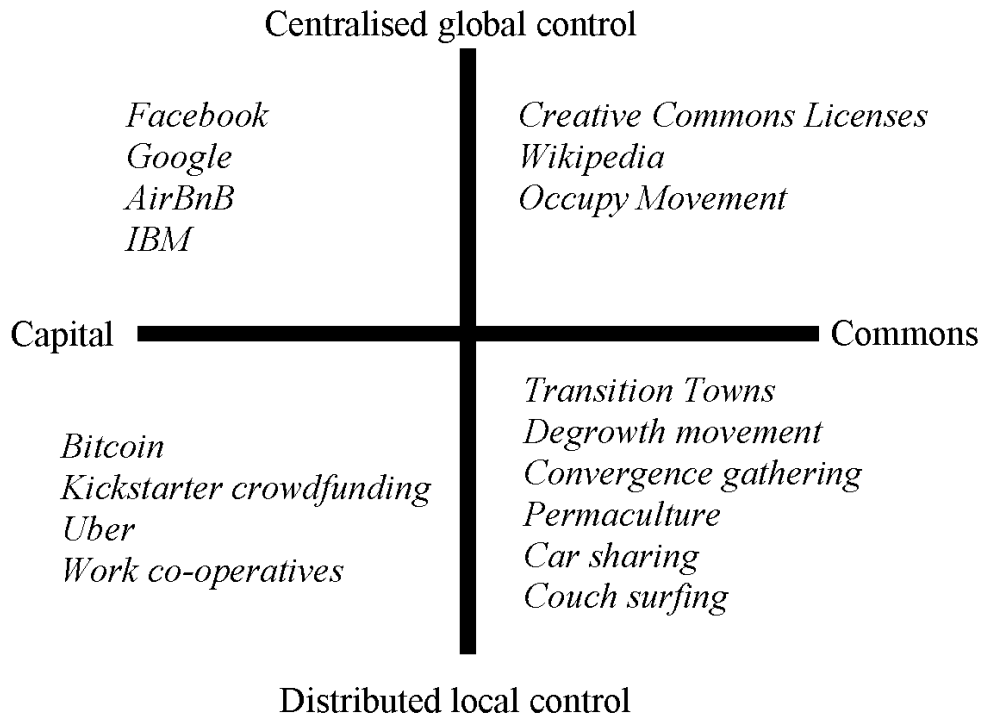


Figure 1 charts centralised control and distributed control on one axis and capital and commons on the other. Adapted from http://p2pfoundation.net/Four_Future_P2P_Scenarios.

Bauwens (2014) uses an informative chart (Figure 1) to demonstrate the ranges of P2P organisational structures. There are two axes, one a continuum from centralised global control to distributed local network and the other from capital to commons. This creates four quadrants.

The upper left quadrant named netarchical capitalism includes businesses like Facebook and Google which are examples of the centralised control of a distributed infrastructure designed to create profit. Millions of people are linked together in a distributed manner, but only in ways that those in authority in Facebook choose. The lower left quadrant named distributed capital. Control rests with the users, but the prime function is still to generate capital. Bitcoin, Kickstarter crowdfunding, Air BnB accommodation and Uber taxis are all examples. Work co-operatives would also fit in this quadrant.

The bottom right quadrant is the resilient communities' quadrant with initiatives like Transition Towns and the Degrowth movement which focus on building local community networks especially focusing on preparation for future shortages should the predominant economy fail.

P2P in the anthropocene with the Convergence gathering as a case study

In the upper right quadrant of the centralised commons is similar to the resilient communities' quadrant but has a more global scope. The Creative Commons and Wikipedia are in this quadrant. This is the quadrant that Bauwens and the P2P Foundation is most interested in as it is the quadrant that seeks global change and is the east entangled in mainstream capitalism.

For members of older generations P2P networks are a new concept to be understood. For younger generations P2P is not a new concept to learn; it is already embedded in their daily life. They take it for granted that they have virtually free access to information, music and entertainment, immediate connectedness and freely sharing of these benefits with others.

The next section moves on to how the P2P movement could have an increasing influence, shifting the existing paradigm to incorporate a greater understanding and utilisation of the connectedness within the world around us. The importance of the myth/metaphor and worldview layers of any situation are explored.

BRINGING ABOUT CHANGE

Inayatullah's Causal Layered Analysis (Bussey, 2014; Inayatullah, 2004) proposes that any situation can be understood from four nested, interacting and overlapping layers, each providing a different perspective on the situation as depicted in Figure 2. The deepest level is the myth/metaphor layer residing deep within the human psyche. It consists of images, metaphors, stories that are connected together to make meaning. These mythic making structures inform the worldview layer, which is a coherent set of connections from the myth/metaphor layer that create a shared cognitive mapping used for a group of people to communicate and interact with each other and the world in a meaningful way.

The worldview then becomes the basis of the systemic layer of social institutions and rules that constrain and guide the actions of the people. The systemic layer then informs the litany layer of uncritical actions undertaking day to day tasks. Inayatullah notes along with Meadows (2008) that the deeper the layer a change is made the more impact it will have. A change at the deepest layer will necessitate changes for the shallower layers. Changes at the shallower layers will not be sustained unless their impact ripples out to become enshrined in deeper layers. For Inayatullah the deepest layer is the myth/metaphor, whereas the "highest" level for Meadows is the worldview.

P2P in the anthropocene with the Convergence gathering as a case study



Figure 2: The four layers of Causal Layered Analysis from (Inayatullah & Milojevic, 2015)

This suggests that the most effective way to bring about change to the present neo-liberal paradigm is to develop and entrench an alternative myth/metaphor base, which will inform a new worldview and so forth through the layers. As more and more examples of P2P networks are shown to be viable, the stronger the worldview and its metaphors will become embedded. If the new worldview can grow enough it will reach a tipping point (Gladwell, 2001) and then become fully embedded as a new paradigm. The next step then is to identify the metaphors of the old paradigm and the new paradigm.

MYTH/METAPHOR AND THE WORLDVIEW OF P2P

If the deepest layer is that of metaphor then identifying key metaphors of the mainstream, which are the fundamental cornerstones of the predominant paradigm is useful. They would include: dominion over the earth and its creatures, survival of the fittest, battle, competition, chain of command, pyramid, king of the castle, elite, linear, focus, conquering hero.

The new P2P based metaphors stress connectedness, equality and interaction. The type of metaphors that would fit this are: network, rhizome, circle, cycles, spiral, Gaia, playing my part, co-operate, non-linear, complex, community, all is in the one, the one is in the many, all for one and one for all.

Many of these metaphors that fit for the P2P movement resonate with systems metaphors. The new metaphors need to be woven into a new worldview. New stories and narratives shift the focus from the actions of the one hero to ones that demonstrate how people working together can achieve much. The stories will bring our interconnectedness to the fore and suggest wholesome community based ways of working together with each other in harmony with nature.

The focus now shifts to look at how systems concepts help understand the fundamentally different nature of P2P organisations. After a discussion of natural and social systems, the next section examines some of the concepts used in systems theory that might be applicable to P2P networks.

P2P in the anthropocene with the Convergence gathering as a case study

P2P AND SYSTEMS THEORY

Natural and social systems

The systems movement has always had a strong emphasis on using the understandings of the operations of systems in our world in a way that is humane and supportive of positive human endeavour (Boulding, 1968; Davidson, 1983; Vickers, 1968b). Isomorphisms that link the natural world and the social world are also central to systems thinking (Bertalanffy, 1969). For example, Beer's Viable Systems Model (Beer, 1984) accurately describes a company business, but is equally valid for describing biological systems at differing scales.

Nature abounds with non-hierarchical networks or bottom up hierarchies (Ahl and Allen, 1996) that are not command and control based and have much in common with P2P networks. An ecology is a perfect example of a system without a structured hierarchy or command and control centre (Levin, 1998). Ecological systems are replete with creatures living by devouring other creatures and yet they can maintain their coherence over millennia. Food chains are not simple top-down chains; they have complex interconnections between all the levels.

The advantage and the curse of being human is our awareness of ourselves in our environment. It enables us to consciously intervene in a system to adapt it to our needs or desires (Vickers, 1968a, 1984). Any effective complex adaptive system (Stacey, 2011), such as any social system, needs effective autonomy and connectivity. The neo-liberal agenda has swung too far towards autonomy and has lost sight of our connectedness. We can thus intervene for the good or the bad of the whole system and the conventional system is generating unintended consequences that threaten our very existence. P2P is an attempt to create systems that are more harmonious and people centred. Peer to peer networks are very flat.

Small world networks: hubs and clusters

Bauwens (2007) describes three types of network: A centralised network where all decisions are made through a central control point. A decentred network where there are hubs and sub-hubs that have the authority to decide and a distributed network, which may or may not have hubs.

The centralised network is the dominance hierarchy written about above. The decentred network describes small world networks (Watts and Strogatz, 1998). A small world network is a network of nodes joined by links. Nodes are linked so the least number of links is required to connect the greatest number of nodes. This results in the formation of hubs and clusters. There are small local clusters that contain a hub linking it to other clusters. Clusters are nested in each other to create a tree like pattern. The internet, neurons in the brain, power grids, social influence networks and transcription networks in genes are all real world examples. Small world networks are very effective means for keeping a network connected that does not require a centralised control mechanism.

P2P in the anthropocene with the Convergence gathering as a case study

Hubs, by virtue of their position in the network can be used to control others. P2P networks generally prefer direct contact between those in the network.

Swarms

There are similarities between P2P networks and swarm dynamics (Rolling, 2013), there is no hierarchy in swarm dynamics. Each agent is autonomous and makes decisions based on local conditions and yet that is sufficient for complex collective behaviours that achieve what could not be achieved by a group of unconnected agents. In a P2P network, there is similarly not a hierarchy and each agent is autonomous, but each agent has access to a vast pool of commons based information, not only what is happening locally.

Rhizome

What is perhaps the best description of a P2P network is Deleuze's (Deleuze & Guattari, 2005) concept of a rhizome. It is an intensely interconnected network without a hierarchy. As a hierarchy grows (as in a tree) the branching makes distinctions (Bateson, 2000) and excludes possibilities. Lines of flight emerge in a rhizome to enable novel connections and reconnect lost possibilities that can activate some surprising meaning making emergent connections.

In a P2P network anyone can connect to anyone else and share value and digital means make this an easy task. There are no gate keepers of power or controllers of the information. There is free movement.

Viable systems model

The Viable Systems Model (Beer, 1984) posits that every viable system is comprised of five interacting viable sub-systems. Even though it is a hierarchical model, it is still a useful model for P2P organisations. A work co-operative has the five sub-systems, but they all operate at the same level of hierarchy. All are necessary for the effective operation of the whole organisation and none is valued over the other.

In a digitally based P2P system one is the place where participants interact. The power of the computer to reduce the infrastructural needs often means systems 2-5 can be undertaken by an individual or a small group. Systems two provides the infrastructural computer support. The supervisory systems three is on the lookout for any problems in the system to be rectified. System four looks to the outside advertising and marketing the system to the outside world and taking care of issues such as legal or accounting requirements and system five decides policy and overview.

Having explored the wider issues of peer production the case study of one organisation can enable us to explore the practical realities of making a P2P organisation functional and viable. The Convergence gathering has minimal digital infrastructure and therefore focuses on the human resolution of difference that is ultimately necessary in any

P2P in the anthropocene with the Convergence gathering as a case study

organisation. While there is a fast growing literature on the P2P movement itself, there is not an established literature for groups like Convergence which are acephalous (operate without an ongoing, structured leadership).

CONVERGENCE

Convergence is an acephalous group of people interested in alternative lifestyles based in the South Island of New Zealand, which has been meeting together over the New Year for five or six days every year for almost 30 years (MacGill, 2014). From 300-500 people gather in a camping ground with nobody in charge. Leadership is distributed, transient and self-selecting (MacGill, 2015). There are workshops, massage tents, saunas, sharing circles, concerts and meals are communally prepared. As well health and safety, maintenance, preparation and pack down all happen without centralised control.

The group is too big to discuss issues as a group so decision making occurs in a variety of ways. Self-responsibility is an important value, so there is an imperative for anyone who sees something that needs to be dealt with to either take control of the situation themselves, recruit help or find someone with the skills and abilities to cope. There is no “they” in charge who will resolve the issue. There is also nobody whose permission must be gained before acting.

Some tasks are well known and routine. Experienced participants in particular just undertake the tasks. For example, there is no budget because what needs to be bought and the costs are well known and the pre-gathering preparations are simply carried out. Sometimes issues are more important. In that case a group of experienced participants and others who may be helpful, such as support people for those involved meet together to resolve the issue. Sharing circles began as a venue for personal sharing, but have become a place for bringing up Convergence issues. Finally, the Convergence Facebook page is also available for posting issues.

Acephalous group skills

The virtual digital world only has meaning when it is an integral part of the wider social interaction. The two are deeply embedded in each other, so as well as developing the digital world within a new paradigm, it is necessary to restructure social interaction through the new paradigm, which means learning a new skills set. Those used to leading or following need to operate differently in an acephalous environment. Convergence’s main contribution to the P2P movement is in the development those acephalous inter-personal skills over the last 30 years.

Many qualities that are critical in more conventional organisations are especially critical in Convergence and in acephalous/P2P organisations. Reputation (Aberer, Despotovic, Galuba, and Kellerer, 2006; Granovetter, 2012) is an important behavioural regulator ensuring people’s behaviour remains within the attractors (Abraham, 2002) that maintain the cohesion of the whole organisation. In digitally based P2P groups a rating scale is

P2P in the anthropocene with the Convergence gathering as a case study

used. In Convergence reputation is maintained by individual's assessments of each other's behaviour. With over 300 participants not everyone is known to everyone else, but with one degree of separation (Watts, 2004) (i.e. asking someone who is likely to know the individual in question) it is highly likely that some assessment of their reputation can be made.

Trust (discussed below), tolerance and self-responsibility are also critical. Self-responsibility includes being honest about how one feels about what has happened. Each person has the responsibility to stand up for themselves and name what they do not like in other's behaviour rather than not acting and feeling resentful. This must be balanced against the need for tolerance and the knowledge that other people's behaviour will never meet our personal perception of how they should be and that difference is inevitable and must be accepted. Self-responsibility is also acknowledging weakness and strength in ourselves and others. An ability for critical self-reflection and the acceptance of imperfection is critical for long term maintenance of group cohesion.

Leadership is still necessary in acephalous groups, but occurs very differently. It is about encouraging and empowering from inside rather than from the top (Uhl-Bien, Marion, and McKelvey, 2007). It is also about recognising that leadership is not just a quality of the leader, but a relational dynamic including the person leading at the time and those choosing to follow the lead (Uhl-Bien and Ospina, 2012). People accustomed to traditional leadership need to step back to create a space for those who have been followers to step forward. There is a tension between valuing and utilising the greater skills and abilities more capable participants without it hindering the empowerment of the other participants.

FACTORS THAT HELP OR HINDER THE OPERATION OF CONVERGENCE

Convergence is unusual in its ability to maintain an acephalous structure with 300-500 participants. Most organisations have defaulted to a hierarchical authority structure to reduce the level of complexity. There are a number of factors that help Convergence maintain coherence in spite of the complexity.

The fact that Convergence convenes for only five or six days a year means many problems that exist in permanently operating organisations do not emerge. People can generally cope with personality differences for a few days that cannot be left in a permanent community.

Convergence has been operating an open structure as for almost thirty years, although only formally adopting an acephalous structure in 2009. This means it has a substantial history of trust among participants (even though about a third are new each year), try many different ways to undertake all the functions, continually fine tune processes and develop acephalous interpersonal skills. The high level of trust reduces the effort needed to supervise and control activities reducing the complexity of operating.

There is a lack of critical tasks undertaken. Organisations such as hospitals and airlines need to respond quickly and effectively or people die. They do not have the time to reach

P2P in the anthropocene with the Convergence gathering as a case study

a consensus. On rare occasions life threatening situations could occur at Convergence, such as a serious accident or natural disaster, but normal health and safety precautions are usually sufficient. Hospitals and airlines also have significant skill level differentials. A surgeon must be able to tell a nurse what to do and pilot to make decisions regarding flying the aircraft. In Convergence there are people with specialised skills, such as plumbers, carpenters, counsellors and doctors, but their skills are need locked into a social hierarchy. All freely offer their skills for no payment.

Individuals do choose to take on responsibilities for specific areas and offer to pass on their wisdom to others so there is an ongoing institutional knowledge. There are many tasks though that responsibility sits on the whole gathering. An irony of having the responsibility sitting on everyone attending the gathering is that people can fall into the trap of thinking someone else will step forward and fix the situation and not act.

Participants contribute by self-selection. Entry is easy (The entry cost of around \$200, which covers all costs). Convergence is attractive to people who might be seen as “misfits” in conventional society. Kohlberg (1984) notes that there are two categories of such people; the pre conventional and the post conventional . The post conventional could act conventionally but choose not to, while the pre conventional struggle to cope in conventional society. Such people often find Convergence is one of the few places the feel heard and accepted. The openness of the group to all who come can leave it vulnerable to some of the difficult behaviours that arise from time to time.

With around a third of the participants at each gathering being new there is a significant number of people who are not familiar with the underlying philosophy of Convergence who are confused as they seek out someone in authority and do not know of or are familiar with the need to take personal responsibility.

Convergence and peer production

Convergence fits into the resilient community quadrant of figure 1. It does not have a global aim, but the lessons learned about acephalous operation over the years could be applicable to groups around the globe.

One of the difficulties Bauwens (2006) realises with peer production is that it is rarely able to produce sufficient income for a person to only live through P2P means without shifting to the left hand column of Figure 1. Convergence has a policy of no money changing hands once people have bought their ticket and entered the campsite. All meals are provided and all the massages, saunas, workshops and other activities are included in the price.

Bauwens also notes that often a P2P network is established by one person or a small group which remain. That is also true with Convergence and there has always been an influential group of experienced participants. Convergence has a history of people joining who became influential and then went beyond to feel as those the gathering was

P2P in the anthropocene with the Convergence gathering as a case study

theirs. Such people have been consistently challenged and pulled back to maintain the ethos of the organisation, or as has been more typical, they choose to leave. Convergence began as a reaction to the perceived dysfunction of conventional mainstream society. It was a return to building genuine and honest equal relationships and a deep caring for the earth. For many technology was, and still is, seen as a part of the conventional dysfunction. Participants talk for example, about the gathering as a time of “digital detox”. There is no internet connection and the nearest mobile phone reception is about a kilometre from the campsite. Some are seen regularly walking the kilometre to connect to the world.

More importantly, the Facebook page has become an important means of maintaining communication during the year, particularly because participants now come from the whole South Island and some even from the North Island. Ironically the page was set up when a member trying to sort their posts into folders accidentally set up a Facebook page. Within a week it had 300 members. The focus of Convergence is clearly about building authentic face to face relationship and resolving all the issues that inevitable arise from within a new paradigm.

Bauwens (2007a) writes of the spiritual dimension within the P2P movement. He notes that throughout history the structure of the society has been reflected in the conception of the spiritual realm. Highly hierarchical societies will typically develop an elaborate spiritual hierarchy with a ‘God’ or some form controlling a hierarchy of spiritual beings down to mankind and then beyond to hell realms. If a new paradigm is sought in terms of social organisation our spiritual conception and expression of ourselves will also change. Convergence does not have a particular spiritual belief or philosophy of its own, but encourages a diversity of beliefs. Beliefs that are non-dogmatic, non-hierarchical, encourage personal exploration, foster the development of relationships and care for the earth are more likely to be supported in the gathering.

CONCLUSIONS

There is a great need for a new paradigm to take our world from a dystopic future of environmental, social and economic collapse that is more embracing of our connectedness to each other and the world and recognises the need to find more wholesome and fulfilling ways for us to interact with each other and organise our social institutions. P2P process provides a possible paradigm that fits with these needs. P2P is growing fast and with increased computer technology is expected to play an increasingly important role in our future development. P2P processes tend to have a strong digital and internet basis, but developing peer based human interactions is equally vital for the movement to have traction. The Convergence gathering is an example of a robust enduring P2P organisation that is heavily grounded in human interactions that has something to offer the development of vibrant, new social structures more fit to take us effectively into the 21st century.

P2P in the anthropocene with the Convergence gathering as a case study

REFERENCES

- Aberer, K., Despotovic, Z., Galuba, W., and Kellerer, W. (2006). *The complex facets of trust and reputation*. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.94.4496&rep=rep1&type=pdf>. Accessed April 2015
- Abraham, R. H. (2002). The Genesis of Complexity, 1–17. Retrieved from <http://www.ralph-abraham.org/articles/MS%23108.Complex/complex.pdf>. Accessed April 2015
- Ahl, V., and Allen, T. (1996). *Hierarchy theory: A vision, vocabulary, and epistemology*. New York: Columbia University Press.
- Bateson, G. (2000). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. Chicago: University Of Chicago Press.
- Bauwens, M. (2005a). P2P and Human Evolution : Peer to peer as the premise of a new mode of civilization. Retrieved from http://www.networkcultures.org/weblog/archives/P2P_essay.pdf. Accessed April 2015
- Bauwens, M. (2005b). *Peer to peer and human evolution. Integral Visioning*. Retrieved from <http://62.210.98.10/IMG/P2PandHumanEvolV2.pdf>. Accessed April 2015
- Bauwens, M. (2006). The political economy of peer production. *Post-Autistic Economics Review*, (37), 33–44.
- Bauwens, M. (2007a). The next Buddha will be a collective: Spiritual expression in the peer to peer era. *Revision*, 29(4), 34–45.
- Bauwens, M. (2007b). The peer to peer revolution. *Renewal*, 15(4), 25–37.
- Bauwens, M. (2014). The transition to a sustainable commons. Retrieved March 1, 2015, from https://www.youtube.com/watch?v=kOIP_GmpY84. Accessed April 2015
- Beer, S. (1984). The Viable System Model: Its provenance, development, methodology and pathology. *Journal of the Operational Research Society*, 35(1), 7–25.
- Bertalanffy, L. Von. (1969). *General system theory: Foundations, development, applications* (revised edition.). New York: George Braziller, Inc.
- Boulding, K. E. (1968). *The organizational revolution: A study in the ethics of economic organization*. Chicago: Quadrangle Books, Inc.
- Bussey, M. (2014). CLA as Process : Mapping the Theory and Practice of the Multiple. *Journal of Future Studies*, 18(June), 45–58.
- Caren, N., and Gaby, S. (2011). Occupy online: Facebook and the spread of Occupy Wall Street. Retrieved from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1943168. Accessed April 2015
- Castells, M. (2012). *Networks of Outrage and Hope: Social Movements in the Internet Age: Manuel Castells: 9780745662855: Amazon.com: Books*. Cambridge, UK: Polity Press.
- Christian, D. L. (2007). *Finding Community: How to Join an Ecovillage or Intentional Community [Kindle Edition]*. Gabriola Island, British Columbia: New Society Publishers.
- Ciffolilli, A. (2003). The case of Wikipedia. *First Monday*, 8(12). Retrieved from <http://firstmonday.org/ojs/index.php/fm/article/view/1108/1028>. Accessed April 2015

P2P in the anthropocene with the Convergence gathering as a case study

- Davidson, M. (1983). *Uncommon sense: The life and thought of Ludwig von Bertalanffy, Father of General Systems Theory*. Los Angeles: J. P. Tarcher, Inc.
- Deleuze, G., and Guattari, F. (2005). *A thousand plateaus; Capitalism and schizophrenia. SubStance* (Vol. 20). Minneapolis: University of Minnesota Press.
- Gladwell, M. (2001). *The Tipping Point* (2nd Edition.). London: Abacus.
- Granovetter, M. S. (2012). The strength of weak ties. *American Journal of Sociology*, 78(6), 1360–1380.
- Grinberg, R. (2014). Bitcoin : An innovative alterntive digital currency. *Hastings Science and Technology Law Journal*, 4(1), 159–208.
- Hart, M. (1992). Project Gutenberg. *Project Gutenberg*. Retrieved March 4, 2015, from http://www.gutenberg.org/wiki/Gutenberg:The_History_and_Philosophy_of_Project_Gutenberg_by_Michael_Hart
- Hopkins, R. (2008). *The transition handbook: From oil dependency to local resilience*. White River Jnct, Vermont: Chelsea Green Publishing Company.
- Howard, P. N., and Duffy, A. (2011). What Was the Role of Social Media During the Arab Spring ? , 1–30. Retrieved from <http://www.scribd.com/doc/66443833/Opening-Closed-Regimes-What-Was-the-Role-of-Social-Media-During-the-Arab-Spring>
- Inayatullah, S. (Ed.). (2004). *The causal layered analysis (CLA) reader*. Tamkang: Tamkang University.
- Inayatullah, S. (2008). Six pillars: futures thinking for transforming. *Foresight*, 10(1), 4–21.
- Inayatullah, S., and Milojevic, I. (Eds.). (2015). *CLA 2.0: Transformative research in theory and practice*. Taipei: Tamkang University Press.
- Kohlberg, L. (1984). *The psychology of moral development: The nature and validity of moral stages*. London: Harper & Row.
- Korten, D. C. (2000). *The post-corporate world: Life after capitalism*. Annandale, NSW, Asutralia: Pluto Press Australia Ltd.
- Laszlo, E. (2006). *The Chaos Point: The World at Crossroads*. Charlottesville, VA: Hampton Roads Publishing Company Inc.
- Lee, G. K., & Cole, R. E. (2014). From a firm-based to a community based model: The case of the Linux kernel development. *Organization Science*, 14(6), 633–649.
- Levin, S. a. (1998). Ecosystems and the Biosphere as Complex Adaptive Systems. *Ecosystems*, (1), 431–436.
- MacGill, V. R. D. (2014). Convergence Gathering as an Example of a Medium-Scale Acephalous Group. *Systems Research and Behavioral Science*, 31(5), 606–613.
- MacGill, V. R. D. (2015). Leadership issues in medium scale acephalous groups. *Proceedings of the 58th Annual Meeting of the ISSS*. Retrieved from <http://journals.iss.org/index.php/proceedings58th/article/view/2272>. Accessed April 2015
- Meadows, D. H. (2008). *Thinking in Systems*. White River Junction, VT: Chelsea Green Publishing Company.
- Ordanini, A., Miceli, L., Pizzetti, M., and Parasuraman, A. (2011). Crowd-funding: transforming customers into investors through innovative service platforms. *Journal of Service Management*, 22(4), 443–470.

P2P in the anthropocene with the Convergence gathering as a case study

- Piketty, T. (2014). *Capital in the twenty-first century*. Cambridge, Massachusetts: Belknap Press.
- Rolling, J. H. (2013). *Swarm intelligence: What nature teaches us about shaping creative leadership*. New York: Palgrave Macmillan.
- Rosen, D., Lafontaine, P. R., & Hendrickson, B. (2011). CouchSurfing: Belonging and trust in a globally cooperative online social network. *New Media & Society*, 13,
- Sageman, M. (2008). *Leaderless Jihad. Terror networks in the twentyfirst century* Philadelphia. University of Pennsylvania Press.
- Stacey, R. (2011). *Strategic management and organisational dynamics: The challenge of complexity*. Harlow, Essex, UK: Prentice Hall.
- Steffen, W., Grinevald, J., Crutzen, P., and McNeill, J. (2011). The Anthropocene: conceptual and historical perspectives. *Philosophical Transactions of the Royal Society A*, 369, 842–867.
- Uhl-Bien, M., Marion, R., and McKelvey, B. (2007). Complexity Leadership Theory: Shifting leadership from the industrial age to the knowledge era. *The Leadership Quarterly*, 18(4), 298–318.
- Uhl-Bien, M., & Ospina, S. (2012). *Advancing relational leadership research: A dialogue among perspectives*. Charlotte, North Carolina: Information Age Publishing, Inc.
- Vickers, G. (1968a). Science and the appreciative system. *Human Relations*, 21(2), 99–119.
- Vickers, G. (1968b). *Value systems and social processes*. London: Tavistock Publications.
- Vickers, G. (1970). *Freedom in a rocking boat; Changing values in an unstable society*. Hammondsworth, Middlesex England: Penguin Books.
- Vickers, G. (1984). *Human Systems Are Different*. London: Paul Chapman Pub.
- Watts, D. J. (2004). *Six degrees: The science of a connected age*. New York: W.W Norton and Company.
- Watts, D. J., and Strogatz, S. H. (1998). Collective dynamics of “small-world” networks. *Nature*, 393(6684), 440–2. Whyte, W., & Whyte K. (1991). *Making Mondragón: The growth and dynamics of the worker cooperative complex* (2nd Edition.). Ithaca, New York: ILR Press.