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2014

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It has been claimed that historically, anarchism has adopted a 'highly ambivalent' relationship with technology, 'oscillating between a bitter critique driven by the experiences of industrialism, and an almost naive optimism around scientific development' (Gordon, 2008: 111–113). Early influential anarchists, including Malatesta, Goldman and Kropotkin, viewed technology as providing workers with an emancipatory potential from capitalism, while oppositional readings of technology from the likes of Pierre-Joseph Proudhon, however, reinforced the pessimistic view that technology can only have 'the needs of capital encoded into it from the start' (ibid.: 129).

Within such a deterministic reading of technology what space is left for models of anarchist organizing in the twenty-first century? We currently live in a society where technology is ubiquitous and increasingly responsible for mediating most, if not all, aspects of our lives. What space is left for a contemporary, technology-enabled organization of society along anarchist principles, if any?

Rather than seeking answers within these binary positions, this note will suggest a more complex reading of technology through its inculcation with contemporary social practices. Such a view will aim to reveal how any earlier ambivalence between anarchism, organization and technology can be fruitfully explored and potentially resolved through the adoption of contemporary anarchist perspectives, such as postanarchism, as well as recent approaches to technology, such as abstract and critical hacktivism, which permit more open and complex readings of technology's latent, socially progressive and radical potential.

Before we can address such issues, however, it is helpful to first offer a short commentary on some recent anarchist engagements with technology, such as Cybernetics, Web 2.0 and Network Theory. Such debates, while moving closer to more pragmatic accounts of the contemporary technology's radical

potential have also revealed deterministic limitations similar to those experienced by earlier anarchist thinkers.

Cybernetics, Web 2.0 and Self-Organization

One of the earliest anarchist interventions in the history of modern, computer-mediated technology can be seen with the emergence of cybernetics in the mid-twentieth century. Limited space in this note prevents a thorough exploration of cybernetics fascinating and diverse origins within the fields of biology, information sciences and organizational theory, but cybernetics first comes to the attention of anarchists through the work of neurologist, robotician and 'anarchist fellow-traveller', William Grey Walter, who published on the subject in the British anarchist Colin Ward's journal, Anarchy, in 1963 (Duda, 2013: 55).

Cybernetics, understood as technologically-managed systems capable of supporting 'evolving self-organizing' networks within 'complex, unpredictable environment[s]' and characterized by a 'changing structure, modifying itself under continual feedback from the environment' (McEwan, 1963 cited in Ward, 2001: 51), offered anarchists, such as Walter and Ward, a fecund connection between a theoretical model for anarchist organization and its application at a social-scale.

Explaining how cybernetic technology can lead to practical, leaderless forms of social organization, Ward cites the work of management theorist Donald Schön who, he argues:

> like the anarchists sees as an alternative [to the centre-periphery model of government], networks "of elements connecting through one another rather than to each other through a centre," characterised "by their scope, complexity,

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> stability, homogeneity and, flexibility" in which "nuclei of leadership emerge and shift" with "the infrastructure powerful enough for the system to hold itself together… without any central facilitator or supporter…" (Schön, 1971 cited in Ward, 2001: 51–52)

Beyond Ward's bold vision, cybernetics was seen as offering a clear technological solution for the implementation of an 'anarchist conception of complex self-organizing systems' (ibid.: 50). For John McEwan, cybernetic systems were 'not a metaphor to be used to think or imagine the political more clearly; on the contrary [McEwan] genuinely believe[d] in the effective applicability of models and experimental results from management science and computer-aided learning to the anarchist project' (ibid: 64). Similarly, drawing on the cybernetic tradition American anarchist Sam Dolgoff asserted that with cybernetics, '[t]here are […] no insurmountable technical-scientific barriers to the introduction of anarchism' (Dolgoff, 1979: 46).

Despite the initial zeal for cybernetics, subsequent critical examination has taken the edge off its potential. Duda (2013) observes that in approaching cybernetics and anarchist practice we must, unlike early proponents, be careful to ensure 'we avoid reifying self-organization into something distinct from, above or behind, the actual immanent development of a self-organised social movement' (Duda, 2013: 57).

Anarchist evangelists of cybernetic systems, however, seemed to overlook the risks of idealizing the presence of an inherent agency within the technology itself. As a result, the view that cybernetics, in isolation, was capable of implementing a reorientation of organizational practices and social structures came to the fore.

Such technological determinism is present within Ward's more measured approach to cybernetics, which he saw as of-

fering 'a kind of revolution politics without the need to make the revolution' (Ward, 2001: 58). For Ward, cybernetics was responsible for 'valorising and prescribing [...] prefigurative strategies' (ibid.) of anarchist organization where cybernetic systems act 'as a kind of acceleration towards a threshold' at which modern liberal democratic society will transition into a fully functioning anarchist one (Duda, 2013: 67).

While recognizing the necessity of an incremental change, such a reading retains a technological determinism that continues to overlook the distribution of cybernetic systems in wider society and thus hold up any transition. As Duda notes, following such a reading, 'the progress of the new society will depend greatly upon the extent to which its self-governing units will be able to speed up direct communication [enabled by cybernetic systems] – to understand each others problems and better coordinate activities' (ibid.: 69).

While such critiques focus on the limited distribution and up-take of cybernetic technology, the broader forces structuring such activities also feature in critiques.

Kleiner (in Wilson and Kleiner, 2013), observes that just because decentralized forms of technological organization are technologically possible it doesn't necessarily mean they can exist at scale. Ward's and others' excitement is tempered by the fact that '[i]t cannot be a free network that leads to a free society, [...] rather only a free society can produce and sustain a free network' (Wilson and Kleiner, 2013: 78).

More problematically, capitalism's normative drive for profit means that the self-regulating logic of cybernetic systems risks direct appropriation by capitalism itself. In Tiqqun's excoriating critique of cybernetics it asserts that Ward's prefigurative strategies for anarchist organization have been turned on their head: 'whereas after the 1929 crisis, PEOPLE [sic] built a system of information concerning economic activity in order to serve the needs of regulation [...] for the economy after the 1973 crisis, the social self-regulation

sive principles or Anonymous activists destroying corporate property and sabotaging unjust practices can be understood as operating within a conventionally defined anarchist politics is hard to determine. As Coleman and Ralph (2011) assert, the postanarchist rejection of essentialist political ideologies means that all we can be clear about is that the politics of abstract hacktivist assemblages is radical in as much as it operates at 'the boundaries of, transgress[es] and even question[s] the law' (Coleman and Ralph, 2011).

Yet perhaps such tensions merely reinforce the need for contemporary anarchism to experiment with radically dynamic and adaptive forms of theory and practice that addresses the real and urgent twenty-first century concerns of 'a world that is already toxic and in various stages of collapse' (Truscello and Gordon 2013: 17). Abstract hacktivism arguably rises to such a challenge by offering up the potential for human activists and nonhuman technology to fuse together and act on the 'prefigurative refusal to leave the construction of alternatives until "after the revolution"' (ibid.: 10).

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reducible to universal identities, concepts and practices thus resisting any dominant forms of political, economic, technological, social or other 'striation' (McQuillan, 2012b).

As such, abstract hacktivism offers a potent and powerful model of anarchist organizing and arguably moves us beyond the dichotomous and deterministic limitations of previous debates. By destabilizing and challenging traditional anarchist organizational practices and theories abstract hacktivism brings us closer to the prefigurative notion of anarchist organizing outlined by Truscello and Gordon (2013). These authors argue that 'as we build techno-social assemblages for life beyond capitalism, we cannot project their proliferation in society as a blueprint onto a blank canvas' (Truscello and Gordon, 2013: 17). Instead, a 'more generative anarchist approach to technology might therefore emphasise experimentation with new conjunctions of humans and nonhuman actors … [to] aid reconstruction, destruction, and sabotage.' (ibid.). Abstract hacktivism's compatibility with the productive assemblages of disaster relief outlined by McQuillan (2012b; 2012c; 2013) and disruptive assemblages of Anonymous (Coleman 2010; 2011; Coleman and Ralph 2011) highlight such organizational experimentation.

Conversely, however, the complex human/non-human properties and emergent logic of such organizational structures present challenges for those seeking to sustain such or initiate abstract hacktivist experiments. While at least one scholar has documented attempts by grassroots activists to generate a more conventional, sustainable and regulated social movement on top of a hacktivist assemblage, (McQuillan 2012c) critics could argue that such a project – necessarily designed to maintain a level of stability, control and replicability – neatly demonstrates the limits of such dynamic, fluid organizational forms.

Politically, too, the adaptive and elusive identities of hacktivist assemblages can be read problematically. Whether the 'hopeful hybrids' reconstructing societies along progres-

process came to be based on the valorization of information' (Tiqqun, 2001).

Rather than freeing individuals from capitalist, market democracies, information – created, distributed and managed through cybernetic systems – instead entraps, commodifies and leverages individuals as consumers exploiting their productive capacity to further ensure capitalism's dominance. Beradi (2009) extends this logic to argue that cybernetic networks – as a normative model for contemporary society – creates technologically-enabled flows of endless 'semio-capital' (ibid.: 193) producing not a self-organizing society, but rather an inescapable 'social factory' (Negri, 2005).

Such critiques of cybernetics are, to an extent, a precursor to more recent debates concerning a second wave of technology emerging primarily from capitalism's drive for global production, trade and organizational coordination and known colloquially as Web 2.0, or alternatively the 'networked information economy' (Benkler, 2006) or 'Network Society' (Castells, 2001; Castells, 2010). While a technological system premised on capitalist logic may seem an unusual starting point for an analysis of anarchist organization, it has the distinct advantage of ensuring that technologies necessary for anarchist organizing are already widely distributed and embedded in day-to-day lifestyles.

Benkler's (2006) vision of a networked society, for example, exists in the spaces outside both the market and the state and is based around a collaborative, peer-to-peer 'gift economy' (Benkler, 2006: 91–128). This produces a social domain where 'a person whose life and relations are fully regimented by external forces is unfree, no matter whether the regimentation can be understood as market-based, authoritarian or traditional community values (ibid.: 20)[1].

[1] It should be noted, however, that – somewhat confusingly — Benkler's ultimate position is neo-liberal and despite his support for directly

Similarly, Castells argues that Web 2.0's 'multi-model communication networks' (Castells, 2009: 301) are a de facto public space for twenty-first century society. Crucially, Castells' 'public space' moves beyond a neo-Habermasian discursive public sphere by arguing that such self-organizing 'horizontal communication networks' (ibid.: 302) are an 'insurgent politics' (ibid.: 301) designed to enable cultural and political system change by reclaiming political practices from dominant and hierarchically-organized elites.

Castells and others use this self-organizing potential of Web 2.0 to account for a range of social change, from the open and free production and reproduction of cultural and commodity forms (Lessig, 2004; Moglen, 1999) to forms of social and legal justice and welfare (Benkler, 2006: 301–355) and even revolutionary collective action seen in former Soviet and Arab countries (Rovira, 2011; Shirky, 2011) and the eventual establishment of direct democracy (Dahlgren, 2013).

Critics of such idealistic perspectives point out that as a result of its consumer capitalist origins (Kleiner, 2007; Scholz, 2008), Web 2.0's very potential for anarchist organization and social change is limited by the fact that its constitutive 'platforms are owned and controlled by telecoms and media corporations whose agenda focuses on profit and corporate interests, rather than participation, empowerment and social justice' (Milan, 2013: 1). This argument returns us to one of the core limitations of cybernetics: 'so long as capitalism is the dominant mode of production, it will produce platforms that reproduce it' (Wilson and Kleiner, 2013: 79).

Web 2.0's ubiquitous presence in supporting horizontal, self-organizing practices across social, political and cultural realms, however, arguably differentiates it from the earlier,

democratic, non-market and non-state organizing he rejects the suggestion that his theoretical approach is either 'radical anarchism or libertarianism' (2006: 20)

communiqué: 'Anonymous is not Unanimous' (Anonymous, 2011).

This can present problems, however, if abstract hacktivism is to deliver an approach to prefigurative organizing that can 'prototype[e] a new society in the shell of the old' (McQuillan, 2012c). For instance, Anonymous consciously adopts a strategic duplicity that is used to misdirect the public and media, fool people into revealing personal information and as cover for hacking activity. While on one level this can be read as a political practice that challenges assumptions about identity and representation that cut to the heart of contemporary democracy's limitations (Coleman, 2011) it also raises concerns about abstract hacktivism as an ethical mode of organization.

Similarly, the openness of Anonymous' organizing and opportunities for easy, granular 'micro-actions, such as participating in DDoS attacks by simply downloading software has further raised ethical criticisms. This has resulted in cases where committed – but not necessarily technically-skilled – participants have taken part in unlawful Anonymous actions and consequently exposed themselves to law-enforcement agencies (Coleman, 2011; Menn, 2011).

Conclusions?

Where, then, does this leave abstract hacktivism as a model for postanarchist organization?. On one-hand, abstract hacktivism offers a potent practical model for understanding how the interaction of human, social phenomena and nonhuman, material technology can produce dynamic socio-technical assemblages characterized by an experimental self-organization continually prototyping new forms of social and technological agency. Moreover, theoretically such organizational logic viewed through the lens of postanarchism's immanent space ensures that any such hacktivist assemblages are ultimately ir-

munication networks to plan self-organized virtual and real-world actions, thus reducing previous tensions between on and offline organizing into a smooth immanent space. Moreover, the glimpse we get of Anonymous in action reveals a commitment – however loose – to forms of organization that evokes an explicitly anti-authoritarian position. For example, while hierarchy is present in the form of IRC 'operators' who have the power to eject people from the online community, such power is not based on technical ability and is widely dispersed throughout the network, which, at the least, 'modulates, even if it does not fully eliminate, the concentration of power' (ibid.).

Other organizational practices consistent with anarchist principles are visible within Anonymous' communities. Through observational research Coleman has identified collaborative decision-making through the use of shared-editing software – co-creative production of activist materials, such as communiqués, press releases and informational videos – while discussion between group members reveals a sense of prefigurative reflection more akin to 'a group of seasoned politics activists, debating the merits and demerits of actions and targets' rather than a group of online practical jokers (Coleman, 2010).

Perhaps more intriguingly, the very nature of Anonymous' identity and its conscious self-representation reinforces its position within a postanarchist framework. Akin to the strategic anonymity of groups using the Black Bloc tactic, Anonymous operates as a non-identity with the actions of the group irreducible to their members. Such a reading of Anonymous and its organizational and operational logic echoes the nature of socio-technical assemblages central to abstract hacktivism. As McQuillan notes, when 'elements come together in an assemblage new capacities emerge, that become characteristic of the emergent whole. The assemblage is not reducible to its parts' (McQuillan, 2012c). Or, as Anonymous itself articulates in a

more abstracted reading of cybernetics' potential for anarchist organizing and opens it to a greater range of critiques. Terranova (2000; 2004), for example, offers a detailed, empirical account of the ways in which the culture-centric economy of late capitalism has co-opted the horizontal and self-organizing mechanisms of Web 2.0.

Challenging the notion that networked communications technology entails a new politically insurgent public space (Castells, 2009) Terranova echoes Tiqqun's (2001) excoriating critique of cybernetics, by arguing a twenty-first century, networked and self-organized society doesn't embody 'the means to self-fashioning and communal liberation' (Terranova, 2000: 35); rather, it has become a society totalized by capitalism expropriating value from the entire range of lived and virtual social, cultural and political spaces of individual and collectives experiences.

States, too, recognizing the revolutionary potential for Web 2.0-based self-organization, have taken steps to surveil and undermine collective action (Morozov, 2012b; Greenwald, 2013). While the tactics deployed by global state and government actors around the world vary from Egypt's crude attempts to 'turn off' the internet (McQuillan, 2011; Dunn, 2011) to Western governments' more subtle forms of mass intelligence gathering (MacAskill, Borger, Hopkins et al., 2013; Hopkins, 2013) and online disinformation operations (Greenwald, 2014) designed to disrupt any self-organization it deems threatening to the dominant 'centre-periphery' model of society (Schön, 1971 cited in Ward, 2001: 51–52).

Postanarchism, Hacktivism and Anarchist Organizing

Returning to Gordon's argument that technology is intrinsically and inescapably shaped by capitalism from the outset,

we find that any proposed response from anarchism which seeks to act as 'contemporary anarchist Luddism [...] understood as a[n] [...] abolitionist resistance to new technological waves which enhance power-centralisation and social control' (Gordon, 2008: 129) is problematic. Does such a 'new luddis[t]' position, while historically valid, offer a desirable position from which to approach twenty-first century technology? Is an engaged resistance to 'bad' as opposed to 'good' technology an adequate response? Given the ubiquity of technology and its embeddedness in day-to-day life it can be argued that such a reading can be challenged on two counts.

Firstly, given the current, deeply rooted interaction of technology and everyday practices, is it a productive use of energy – or even possible – to attempt to monitor and police the development, adoption and application of technology? Secondly, and more importantly, it's possible to argue that viewed through the lens of postanarchism, any reductive distinctions we seek to make, whether between good and bad technology, market and state, market and society, physical and virtual, etc. becomes increasingly unrealistic.

Postanarchism, according to Brucato (2013) is an 'anarchism that disavows essentialism and universalism, is oriented towards practice and experimentation, and poses situation-specific interventions as an alternative to grand narratives that explain causes and consequences of the prevailing orders of power' (Brucato, 2013: 35). Postanarchism, then, enables us to view society as an immanent space in which hierarchical ontologies or categories of existence become irreducible to fixed or generalizable concepts or processes. Such a space replaces any discrete or deterministic interpretation of events with a framework that accounts for inter-related processes of emergence and creation.

As a result, any notion of anarchist organization must be initiated in response to the contingent circumstances in which fluid models of power or authority emerge. More

productive socio-technical assemblages, Anonymous, can be characterized as 'a loose alias [...] of skilled hackers' who reject conventional moralities and established values (McQuillan, 2012a). Embodying the ontological status of postanarchism and abstract hacktivism, Anonymous can be described as a movement that, according to Coleman, resists analysis 'using traditional analytical categories [...] It purports to have no leaders, no hierarchical structure, nor any geographical epicenter. While there are forms of organization and cultural logics that undeniably shape its multiple expressions, it is a name that any individual or group can take on as their own' (Coleman, 2011).

Anonymous' origins lie in the disruptive environment of the bulletin board, 4Chan, where members — distinctly lacking a 'political intentionality and consciousness' — routinely participated in trolling[3] internet users for the 'Lulz'[4] (ibid.). From 2008, however, the group's actions become 'catalyzed and moved forward by a series of world events and political interventions', such as the popular uprisings in Tunisia and Egypt and the commercial sanctions applied to the whistle-blowing website Wikileaks, and moved rapidly from practical jokes to disruptive political actions, including a series of global street protests against the Church of Scientology and DDoS attacks[5] against a range of commercial and government websites.

In keeping with the ethos and function of abstract hacktivism's socio-technical assemblages already described, Coleman discusses how Anonymous operates through online com-

[3] Trolling is an online practice where 'Trolls' intentionally post offensive or irrelevant messages or content designed to misdirect and disrupt discussion and internet use.

[4] An intentional misspelling of the pluralization of the internet cultural acronym 'LOL' (laugh out loud).

[5] Distributed Denial of Service (DDoS) attacks occur when software is used to direct a significant volume of communication traffic to a 'target' website. This results in the website either failing to function effectively or crashing.

2012c), which sought to take control of the situation to further accrete state and/or commercial power.

It's worth noting, however, that while the emergent, dynamic and volunteer-resourced assemblage of the PFIF are beneficial in maintaining the agile functionality necessary to remain autonomous and resist potential 'choke points' (ibid.) of government, aid agencies and commercial contractors, such conditions can be problematized. For example, how can an open, responsive and socially oriented socio-technical form of organization be assembled effectively so that it remains autonomous and free from coercion by the dominating forces and actors (identified above) that are particularly active in the field of disaster relief (Kenny, 2007; Klein, 2008; Donini, 2010)?

While such a tension is a real concern, McQuillan points to the replication of the PFIF during the 2010 Haiti Earthquake. Here the PFIF assemblage directly inspired the grassroots response which was further hacked by new volunteers and participants from the Hurricane Katrina project using existing and newly developed technology (McQuillan 2012c). Moreover, the autonomy of the organizational assemblage during the Haiti response was sustained despite the presence and participation of a greater number of institutional relief agencies than during Katrina and specific efforts by the NGO community to 'capture' the 'post-event narrative' (ibid.).

Such examples of socio-technical innovation can be read constructively as one half of the call for a twenty-first century anarchist organizing that 'experiment[s] with technological invention and destruction' (Truscello and Gordon, 2013: 10). Similarly, it is possible to look to the existence, organization and actions of the online network, Anonymous, to gain an understanding of the disruptive and destructive side of abstract hacktivism.

Unlike McQuillan's 'hopeful hybrids' (McQuillan 2012c) where socially progressive volunteers, grassroots development activists and geeks self-organize to form supportive and

specifically, this immanent domain of social reproduction and political struggle is inseparable from the relations and forces of capital that dominate contemporary society. Attempts to step outside of technology and capital to occupy an objective Luddist watchdog role become not only undesirable but also untenable.

In its place, it is possible to understand anarchist organizing in our technologically mediated era as an immanent and prefigurative function requiring an experimental approach which recognises and opens up the latent capacities possessed by technology when it comes into contact with social practices and vice versa. As Truscello and Gordon note, 'Anarchists must theorize revolutionary conjunctions with technology even as we experiment with technological invention and destruction' (Truscello and Gordon, 2013: 10).

From this postanarchist standpoint we can begin to articulate a theory of twenty-first century anarchist organizing. To do so, however, we need to recognise the role that 'hacktivism' (von Busch and Palmas, 2006; McQuillan, 2012b) plays in reinvigorating debates around technology and social practice.

Originating in computer hacking, the term hacktivism is, on one level, a contraction of the terms 'hacking' and 'activism' and understood as 'the online strategies and tactics of activists that more or less follow the autonomous anarchist tradition – squatters, phreaks, scammers, crackers, and cultural jammers engaged in anti-globalisation, direct action, and resistance' (von Busch and Palmas 2006, 10, emphasis in original). Interpreted as such, the term can be read as part of the New Luddism evoked earlier: hacktivism is a practice rooted in the defacing, disruption or destruction of technology developed, operated or appropriated by capitalism.

Marking a 'radical break' from this interpretation, von Busch and Palmas (2006) suggest a renewed understanding of hacktivism as an 'abstract hacktivism' that moves beyond the online, virtual tactics of the earlier definition and refocuses

attention on the ways in which 'the abstract mechanisms enacted in actual computers are adopted elsewhere, in non-computer contexts' (ibid.: 19).

Rejecting earlier social, political and technological theories premised on the dichotomous stability or terminal instability of universal concepts abstract hacktivism instead must be seen as a constructive, generative and experimental practice which organizes new socio-technical assemblages as 'situation-specific interventions' to constitute and critique 'the prevailing orders of power' (Brucato, 2013: 35). Constituted by an entanglement of human and nonhuman components drawn from an immanent social space, von Busch and Palmas' hacktivism, crucially, occupies a position consistent with postanarchism.

Given this new focus on emergence and construction it is possible to point towards a theory of anarchist organizing premised on creating new configurations of social practice from within the immanent milieu. Citing the Science and Technology Studies pioneer, Bruno Latour, von Busch and Palmas assert that:

> The critic is not the one who debunks, but the one who assembles. The critic is not the one who lifts the rugs from under the feet of the naïve believers, but the one who offers the participants arenas in which to gather. (Latour, 2004: 246 cited in von Busch and Palmas, 2006: 17)

Abstract hacktivism, then, can be understood as a theory rooted in praxis; a prefigurative framework for twenty-first century anarchist organizing which offers a rich potential for experimentation and the creation of socio-technological solutions out of the immanent, irreducible social space of postanarchism.

McQuillan (2012b) builds on von Busch and Palmas' early work and articulates a 'critical hacktivism' to account

for the ways in which radical re-organizations of existing socio-technical values, cultures and infrastructure are used to 'prototype[e] a new society in the shell of the old'. At the heart of McQuillan's approach is 'an active reassembling that draws on the unexpected affordances of technology for constructing socio-technical structures' (ibid.).

McQuillan traces the outline of such prototype structures in real-world examples, such as the People Finder Interchange Format (PFIF), a digital tool and process developed to locate missing people following 2005 Hurricane Katrina that inflicted significant damage to the South Coast of the United States. Drawing on first-hand accounts of those involved in the PFIF project, McQuillan states how the project emerged when 'geeks start[ed] screen scraping databases and bulletin boards with information about hurricane survivors' (Zuckerman, 2005 cited in McQuillan, 2012c) and grew organically through online communication networks, such as blogs and IRCs[2], as volunteers, survivors on the ground and other, remote participants connected with each other.

This technologically-enabled and socially-aligned process created an emergent socio-technical assemblage of individuals – ranging from technologically skilled 'geeks' to volunteer aid workers and survivors – who hacked together commercial and open source software to create a system for identifying names of missing people, integrating existing databases and lists of missing people and connecting concerned friends and relatives with both the databases and relevant public and voluntary services. Crucially, McQuillan notes that such a process operated successfully outside of the centrally-organized institutions present in the post-disaster landscape, such as the International Red Cross and government agencies (McQuillan,

[2] IRC (Internet Relay Channel) is a publicly open, online communication network which is not particularly well known or used by members of the public.