

Society in ad-hoc mode: Decentralised, self-organising, mobile.

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This article speculates on whether Western societies are in the process of adopting self-organisation in ad-hoc mode as a predominant organising principle. Can mobile and wireless media be used for a project of grass-roots democratic renewal? And can participatory, group-forming media help to overcome the paradigms of consumerism and broadcast media?

The practice of free wireless networks and the resulting abstract notion of a Network Commons form the basis for a positive vision of the ad-hoc society as a society capable of inventing and constantly questioning its own rules.

The inspiration for this article and its title originally came from the technical domain. In WLAN-based wireless networks, there are two types of operation: infrastructure mode, where one node controls the communication of the entire network, and ad-hoc mode, in which each node has the same status as every other, acting as a router to receive and forward data. Such dynamically self-configuring networks in ad-hoc mode require no infrastructure and no central control. I also use 'ad-hoc mode' to mean something that is not contained in the term itself, stretching it to include the idea of self-organisation.

In public life, the term ad-hoc organisation is used when measures or institutions (committees, workers' councils, etc.) are created especially for a particular occasion. Ad-hoc organisation is used above all in crisis management and during periods of social upheaval. This can degenerate into populist political activism in cases where new legislation that overturns historically consolidated principles is proposed in response to the events of the day.

Forms of ad-hoc organisation can be found in everyday business practice. For some time now, companies have been at pains to switch from top-down to bottom-up organisation in certain areas. This applies above all to local self-management of workgroups or business units, which still serve the company's overall business objectives, but with more freedom to select the means of achieving these goals than was traditionally the case in bureaucratic capitalist organisations. Self-regulation of this kind, however, does not encroach on the larger-scale framework of power in society.

In science, ad-hoc interpretations are sometimes employed when experiments or observations cannot be reconciled with a dominant theory. Instead of finding an alternative theoretical approach, this method tries to simply explain away the contradictions.

Techno-utopianism

After these opening paragraphs, critical readers may be thinking that this is yet another attempt to build techno-utopian castles in the air. Techno-utopianism is a recurring theme in Western society. For more than five centuries, we have associated progress with "unlimited expansion of 'rational' mastery" of the world (Castoriades 1997a: 236)¹. The natural sciences are accorded a privileged role within society due to the assumption that they study 'objective laws of nature' which can be harnessed to boost economic growth. Although the ideological character of science under the conditions of neo-capitalism has long since been identified and analysed by competent critics², it persists stubbornly, taking on the traits of a dogmatic doctrine.

Media, understood as technologies for storing and transmitting knowledge, are credited with the ability to bring about societal change on their own – as if neither history, ideologies or dominant social strata with their interests and power structures existed. The invention of new communications technologies always prompts an explosion of 'theories' on the extent to which they might not only strongly influence the development of society, but actually fundamentally reform it. Wireless broadcasting technology, radio, television and, most recently, computers and the Internet have served

¹ Here and on the following pages, Castoriadis continues to link the unlimited expansion of "productive forces", "progress" etc. with the institutional forms of businesses, bureaucratic hierarchies, political parties and states. He describes the irrational origins of this fixation on rationality, which he reveals as a pseudo-rationality, as one of the basic ills of capitalist societies.

² Building on the work of Thomas Kuhn (1962, 1996), Paul Feyerabend (1973, 1996) demonstrates the inconsistency of scientific method, in particular the principle that accords a given theory scientific status if it matches observed facts.

over the past hundred years as sources of inspiration and as bearers of hope for social revolution. It is not the idea that these technologies cause social change that needs criticising here, but the way in which the link between new technology and social change is imagined (Medosch 2004). The human factor is more or less ignored and social change is interpreted as a direct function of technology, reflecting a vulgar techno-determinism that is sadly hard to root out: only recently, the latest embodiment of techno-utopianism—the Internet bubble—exploded like a party cracker leaving little behind but confetti and empty champagne bottles from dotcom launch events.

In contrast to this, I support the view that social progress really can result from dealing with communication technologies. And I insist on the term ‘dealing with’ as distinct from merely ‘using’ since it gives a better idea of the human activity involved, e.g. in the form of work. But this active element cannot be reduced to merely satisfying the dictates of utility and necessity. It is embedded in a concrete historical context and has specific objectives, which in turn result from a combination of manifold endeavours, wishes, needs and orientations.³ The community develops a specific way of dealing with technology on the basis of these bundled criteria: the combination of technology and socio-political decisions gives rise to a ‘project’. Later in this article, the Network Commons is presented as a significant project in this sense and compared with commercial projects in the field of communications technology.

Self-organisation

The concept of self-organisation is commonly used in physics and molecular biology for the phenomenon of parts joining to form a larger whole with no identifiable blueprint or regulating mechanism. In societal terms, the issue of self-organisation is linked to the fundamental question of forms of government. Since the 1960s, and even before, the current form of government, representative democracy, has been challenged by calls for more grass-roots self-determination. What this might actually involve, however, often remained unclear. One of the few apparently coherent concepts for self-organisation was developed by the philosopher, psychoanalyst and political activist Cornelius Castoriadis.⁴

His ideas centre on autonomy (self-determination) as opposed to heteronomy (outside control). In his view, self-organisation is not simply a better model for organisation or management, serving instead as a principle for “the *permanent and explicit self-institution of society*; that is to say, a state in which the collectivity knows that its institutions are its own creation and has become capable of regarding them as such, of taking them up again and transforming them.” (Castoriadis 1997a: 30) Castoriadis encourages us to understand that democracy involves more than just regular elections. The success of liberal democracies, he says, also relies on the existence of a certain type of individuals who have internalised democratic values—politicians, journalists, civil servants, teachers, etc.—and on society’s ability to generate positive values drawn from the “radical social imaginary”.

In other words, democracy cannot be taken for granted. The assumption that “it’s written in the constitution, so that’s the way it is” is a fallacy; democracy must be constantly reborn, constantly filled with new content. According to Castoriadis (and many other social theorists) this constant rebirth of democracy has in the past been realised by revolutionary movements constantly challenging those in power, bringing the system down in times of crisis and forcing a process of renewal. In his view, however, this social dynamic came to a standstill in the 1970s. Over the past two or three decades, the struggle has ‘only’ been about particular interests, such as the green movement, women, lesbians and gays, and other minorities. Castoriadis is not saying that the fight for these individual causes is not worth fighting or that progress in these areas is not welcome: instead he points to that the downside of this situation, i.e. the absence of an overall dynamic within society focusing on the essence and character of society as a whole.⁵

³ At this point, Castoriadis would speak of the “magma of the radical social imagination”. See for example Castoriadis 1997d.

⁴ Cornelius Castoriadis took part in the attempted Communist coup in Greece in 1944. This experience turned him into an opponent of Stalinism and he went to France, where he joined the Trotskyites, soon leaving again due to their authoritarian tendencies. He then founded the group “Socialisme ou barbarie” and the publication of the same name. In his work with this group, he developed his ideas of self-organization, using the example of wildcat strikes, among others. He was one of the first radical socialists in France at the time to publicly criticise Stalinism, as well as publishing critiques of Marx’s historical determinism.

⁵ These last sentences are very freely paraphrased and summarised, drawing on various paragraphs and articles in the Castoriadis Reader edited by David Ames Curtis, in particular Castoriadis 1997b und c.

Technological and social progress

If one follows Castoriadis, then social progress begins with developments at the individual level and takes place not according to criteria imposed from outside, but based on each person's abilities and possibilities in a process of active ethical self-reflection. Only this kind of development can lead to meaningful collective development within society as a whole—to social progress. In my opinion, one indication of such progress is the way conflicts and problems within society are resolved: whether this can be achieved in a civilised manner through political debate, the formation of opinions, discussion and voting; or whether it is necessary to occupy factories, as has been the case, for example, in recent years in Argentina. Another indication would be which positive values a society is capable of generating; positive not in the sense of morally good, but in the sense of values as ethical choices against a free, secular, self-determined background, i.e. influenced by neither religious nor ideological dogma. Today, developments in the technological and social realms are progressing at different speeds, to put it mildly: while technology celebrates one triumph after the other, often referred to as “revolutions”, in social terms, it is doubtful whether we have any progress to show at all.

The breeding ground for technological development

While technology is credited with the ability to change the world, the breeding ground for the development of technology is often left out of the picture. New technologies do not fall from the skies, they are produced by human beings, in a concrete socio-historical context. Technological development takes place not in the name of democracy but under the conditions of capitalism, two things which are often mixed up or automatically equated with each other. This means that the primary objective of new technologies (besides those used for military purposes or as instruments of power) must be to serve economic growth. In this light, technology is far from being the neutral ‘tool’ it is unfortunately so often billed as. Decisions about which forms of fundamental research to pursue and which technologies to market are an expression of a social project—which is where Castoriadis' radical social imaginary comes back into play: This needs mentioning here to avoid a purely sociological interpretation. Technologies can be understood as expressions of social relations—an almost totally automated factory, for example, expresses different social relations to a skilled craftsmen's workshop. Technologies can also be read as metaphors, as discursive models.⁶

Ad-hoc mode in crisis management

Ad-hoc mode cannot be automatically associated with the principles of grass-roots democracy and self-organisation. Even at the highest levels of government, finance and business, ad-hoc mode is in use, as highlighted during the Asian financial crisis in 1998. At this time, central banks, institutional investors and governments were confronted with the problem of ‘contagion’. The bursting of a local speculation bubble in Thailand, mainly limited to the property sector, first sent the Thai currency into free fall and then went on to infect the rest of Asia's ‘tiger’ economies one after the other. Investors identified structural similarities with the Thai system and withdrew their trust from these economies. When this ‘Asian virus’ within the financial system threatened to spread to Russia and Brazil, the alarm bells began ringing in Washington, New York, London, Paris and Frankfurt. The international community of bankers and finance ministers reacted with a series of meetings, mostly under the auspices of the G7/8, to halt the looming global financial crisis. But these ad-hoc meetings of small groups of leading experts from the most powerful industrialised nations lacked the slightest legal status under international law. The G7/8 itself is an ad-hoc organisation, a club of rich countries where entry is by invitation only. The G7/8 summits of heads of government and finance ministers are often also attended by technocrats from the boards of central banks, the International Monetary Fund, the World Bank and organisations little known among the general public such as the Paris Club, a body of international creditors for states. These meetings usually take place behind closed doors. Journalists (with the exception of lobby journalists from a few agencies), non-government organisations and representatives of the ‘Third World’ are rarely granted access to these meetings dealing with economic issues that are eminently political and of global importance.

⁶ In this vein, Paul N. Edwards studies the history of computers from the viewpoint of Cold War thinking with its geographically, politically and discursively “closed worlds”. Cf. Edwards 1997.

This reference to the global financial system also acts as a reminder of the connection between telematics networks and international politics. The computer networks on which the global financial system is based were essential for the creation of a global playing field of financial speculation in real time, mobilising and accelerating capital so that individual governments have less and less scope for controlling their own national economies. On one hand, the G7/8 summits are a product of globalisation, created in response to global economic issues, and on the other hand, they have increasingly become a driving force behind economic globalisation itself.

Protest movement in ad-hoc mode

The fact that key decisions shaping global economic policy are seen as being made in such elite circles that are neither transparent nor subject to democratic control and accountability is one of the main criticisms levelled by the anti-globalisation movement. For years now, all major G7/8 summits have drawn large gatherings of protesters without a single ideology, without leaders, uniting a broad range of interest groups, from Indian farmers resisting the obligation to buy genetically modified seed, through to union groups and a myriad of citizens' action and anarchist groups. At the conference of the World Trade Organization to launch the so-called Millennium Round in Seattle in 1999, the protest movement reached critical mass for the first time, with over 50,000 demonstrators. Aware that their concerns, positions and objectives would receive only grossly distorted coverage, if any, in the established media, the protesters set up an Independent Media Centre (IMC) that was to give rise to the network of Indymedia websites and groups that now operates worldwide. The image, sound and text material posted on the Internet by Indymedia during the demonstrations in Seattle was instrumental in invalidating the official media version of the protesters as violent and lacking a thematic focus, bringing about a change of mood so that suddenly, the focus of attention was on excessive police violence.

Since then, the politicians and technocrats attending G7/8 summits and similar events have entrenched themselves behind ever larger police presences, high fences and exclusion zones. From the protesters' point of view, these barriers have come to symbolise the divide between governments and those they govern. In July 2001, over 300,000 anti-globalisation protesters came to the G8 summit in Genoa. This event saw the tragic death of Carlo Giuliani, a demonstrator who was hit in the head by a bullet apparently fired by a young *carabiniere*.⁷ In Genoa, police units stormed the building where Indymedia had its offices, beating those present and confiscating computers and video cassettes. The legal repercussions of these events are still unfolding, involving both Indymedia staff and members of the security forces. Ever since, the Berlusconi government has been trying to demonise Indymedia in Italy as an extremist left-wing medium. Subsequent G7/8 summits have been held at increasingly isolated locations, most recently on Sealand, a hermetically sealed off island off the coast of the American state of Georgia.

The anti-globalisation movement uses the Internet as a means of communication, organisation and mobilisation. As a movement with no single focus, it is eminently suited to ad-hoc mode, not just on a technical level. During the demonstrations themselves, attempts are made to distract the attention of the security forces and to overstretch their resources with numerous, often carnival-like spontaneous actions, while directing media attention to the places where organised state power is seen to break down or to expose itself by overreacting. In other words, the technique of protest itself is an ad-hoc technique, which is not really new⁸, but worth stressing here nonetheless.

The crisis of democracy

The hysterical reaction of state power to the successes of the anti-globalisation movement is a sign that governments and their expertocracies genuinely feel challenged. Strikingly, both sides seem to agree that the key to the representation of democratically legitimated power is no longer to be found at the classical locus of democracy, the parliament. Demonstrators no longer march on parliaments or town halls, as it would clearly be meaningless to protest there. Governments take refuge behind their legitimacy as democratically elected bodies and behind powerful security apparat-

⁷ I say "apparently" because a second version of these events exists according to which another gunman may have been involved. This conspiracy theory is nourished by a mysterious, near-fatal car accident involving the officer who allegedly fired the shot.

⁸ With slogans like "Under the cobblestones, the beach!", the student protests of May 1968 established once and for all the use of imaginative and artistic forms of protest.

uses. The fact that both sides in the conflict are moving away from the place traditionally considered as the centre of democracy illustrates that society is already operating in ad-hoc mode to a certain degree. This can also be interpreted as symptomatic of a crisis of democracy and of political and media representation. Both sides court media attention, with each side marshalling its own media channels, the mainstream establishment press on the one hand, and Indymedia and related projects on the other. These developments point to the ambiguity of ad-hoc mode, a form of political organisation used both by neo-liberal elites and by their critics and opponents. Rather than praising ad-hoc mode as a form of organisation worth aspiring to per se, this article presents it as the (perhaps necessary) reaction of a society in the throes of crisis and upheaval.

The Internet as a training ground for the ad-hoc society

The technical and communicative two-way structure of the Internet makes it possible to break out of the pattern of broadcast media. Within this pattern of communication, viewers are imagined as consumers whose putative needs the media attempt to satisfy. The viewers are subjected to one-way communication coming from the broadcaster, there is no adequate return channel.⁹ The problem here is not just the creation of one-way communication in purely technical terms; more problematic are the resulting social, psychological and (not least) economical relations between the central broadcaster and its viewers. The audience is part of a closed communications set-up which does more than simply provide entertainment or information: in a certain sense, it also helps produce the audience as such—from the ‘television family’ of the 1970s to the hyperactive singles of today. This pattern is used by both commercial and public service channels, quite independently of any differences there may be between the two concerning standards of ethical journalism.

With its strongly distributed network topology, the Internet allows ‘symmetrical’ two-way communication between individuals and groups (i.e. as equal partners in technical terms) with no possibility of exerting social control from any single point. However, possibilities for control also exist on the Internet, whose structures are less decentralised and its hierarchies less flat than originally suggested in the days of Internet euphoria. This is reason enough for me not to hail the Internet as a panacea. The step from the off button on the TV remote control to the mouse button for the Internet is not about to wipe out seven decades of conditioning by broadcast media and other sources of social signification. I am not claiming that communication on the Internet will lead automatically to a renewal of democracy by making everyone discover virtual communities and, through them, to found participatory grass-roots democratic movements, leading directly and inevitably to a renewal of democracy in the west. I emphasise this particularly because such abilities were attributed to the Internet in its early days and are still in circulation. By attributing the power to bring about social change to media communication as an isolated factor, one is once again following the techno-determinist idea of utopia and fetishising technological communications media.

Having said this, the Internet does have the potential to promote social progress, if it is made into a ‘project’ as described above.

Besides access to information and cultural content, the most important property of the Internet is its capacity for promoting the creation of social communities, since the properties of the medium both facilitate and actively favour the formation of groups. The distributed, meshed structure of the network enables interest groups to establish communications with each other in various different constellations, as illustrated by a wide range of online communities. We have already mentioned the anti-globalisation movement, but other groups also find in the Internet a space for communications that is (for the time being) free: established non-governmental organisations, hobby communities, lobbies, activists across the political spectrum from the right, the left and the loosely defined ‘centre’. Whatever the field of activity, when launching a project, it is now common practice to begin by setting up a mailing list and, more recently, a wiki (a web-based platform for geographically distributed collaboration). These online collaboration tools aid communication and discussion, self-organisation and mobilisation, and in some cases, even direct political action in the form of electronic protest (cf. Medosch 2002). If it was formerly possible to say, “Show me what you read and I’ll tell you who you are”, the updated version might be “Tell me which mailing lists you’re on and I’ll tell you who you are” (although ironically, the content of mailing lists often consists, of book titles).

⁹ I say “adequate” here because channels for return communication or feedback do exist, from phone-ins during studio discussions or the voting procedure in *Big Brother* through to viewer ratings and other instruments of media market research. But these return channels were set up by the broadcasters, tailored to their wishes and needs, and it is also they who evaluate the results.

This group-forming and group-reinforcing property of the Internet can be interpreted as a breeding and training ground for the ad-hoc society. The Internet offers the possibility of associating with others and of acting as a politicised group. In this context, politicised implies self-awareness as a group or collective with shared views, regardless of political orientation (right-wing extremists also use the Internet). Communication within these groups forms new publics. “New” because these publics would not exist without the Internet, but also “new” in a non-trivial sense, because they differ from the idea of the public in representative democracy. On the Internet, freedom of the media can be practiced directly and actively. Instead of a single media public, however, there are many. In spite of their relatively small numbers, these fragmented online publics have the power to put issues on the agenda that would otherwise be ignored by mass media and politics. As the example of the anti-globalisation movement and Indymedia shows, traditional politics and its loyal media are sometimes literally swept along by the power of Internet publics to dictate the issues.

Mobile telephony and mobile, wireless Internet

At present, technical progress in telecommunications and computer science (in their combined form as ‘telematics’) is on the verge of a leap in quality. Just over a decade ago, the Internet was opened up for use by businesses and private individuals—the Internet’s progress from an Arcadia for network philosophers to the golden calf of e-commerce is still fresh in our minds, and the memories are not all good. Today we are seeing the Internet coupled with wireless technology, the unwiring of the network. For the first time, this will create a ubiquitous network. The Internet leaves homes and offices and goes out onto the street, into parks, cafés and squares. This development is being driven by two fundamentally different positions: by mobile phone companies that are gambling billions on the installation of third generation (3G) mobile networks, and by network enthusiasts who are using WLAN and do-it-yourself technologies to build independent network infrastructures.¹⁰ The main difference between these two positions is not the technology used, which at an elementary level is quite similar, but the uses to which it is put, the way it is embedded in society and the imaginations it generates.

Mobilisation by mobile phone

Before WLAN and 3G, good old mobile phones already offered a certain amount of potential for mobilisation. Last year, there was a burst of media excitement surrounding ‘flash mobs’, groups arranging by mobile phone to appear at a certain time at a certain place. This fashion began in the USA and was initially about nothing more than ‘fun’. Which is probably why interest in it subsided so quickly. The participants’ lack of social cohesion illustrates less the potential of a self-organised ad-hoc society and more the trauma of an atomised society whose lack of cohesion is only highlighted by the relatively helpless gesture of a spontaneous gathering for no purpose.

Mobile phones, and especially text messages (SMS), were the preferred means of organisation for the petrol strike that broke out spontaneously in Great Britain in September 2000. This was a wildcat strike in which the unions played no part. It was organised by freight carriers, farmers, taxi drivers and other trade groups who rely on motorisation. As they saw it, increases in fuel tax were placing unacceptable burdens on them. With blockades at the entrances to refineries and slow-driving truck convoys on motorways, they brought large areas of the country to a standstill within just a few days. The government and the media were taken completely by surprise—by the strike, by the speed with which it spread and by the chain reactions it triggered. On the very first day, long queues formed at petrol stations as motorists tried to fill their tanks before the effects of the strike began to make themselves felt. In no time at all, the filling stations ran out of petrol. On the second day, people began panic buying at supermarkets when it became clear that the strike would have an impact on the supply chain. The government could barely conceal its own panic and made concessions to the strikers by slightly lessening the tax increases. These concessions were not very far-reaching, however, and it is possible that the strikers broke off their campaign out of fear of their own success. No one had been prepared for the kind of chain reactions that were triggered by this mobile ad-hoc protest.

¹⁰ The practice of *Free Networks*; the research carried out for my book *Freie Netze* made a significant contribution to the development of ideas concerning self-organisation and technically and socially symmetrical forms of communication in networked systems (cf. Medosch 2003).

Text messaging also sealed the fate of the last Conservative government in Spain, following its claim, in spite of the evidence, that the Basque separatist organisation ETA was behind the Madrid bombings. When the official media lie became untenable, amidst ongoing attempts by the government and loyal media to uphold it, one day was enough, the Saturday before election day, for word to get round by SMS to teach the Conservatives a lesson by voting for the Social Democrats, who until then had only been given an outside chance in the polls.

In his book *Smart Mobs* (Rheingold 2002)¹¹, the American author Howard Rheingold collected numerous examples of this kind of mobilisation. In his presentation at Ars Electronica 2003, he stressed that he deliberately chose the title *Smart "Mobs"* instead of something like *Smart Communities*, as he thought the more dangerous-sounding "mobs" gave a better idea of the unbridled character of this new electronic socio-reality. Rheingold's previous successful book was called *Virtual Communities*, a title he now finds too harmless.

The network commons

In terms of their level of social sophistication, these examples of mobilisation by mobile phone hardly go beyond mob status. Neither flash mobs nor smart mobs are any help in realising the kind of autonomous society envisaged by Castoriadis. The still marginal practice of free wireless networking, on the other hand, opens up a whole different approach to dealing with the technologies of wireless networks.

Groups like *Consume* and *Free2air* in London, *Freifunk.net* in Berlin and *Funkfeuer.at* in Vienna propose a decentralised, self-organising network model. The elementary units in such a network are the individual (wireless) nodes. Such a node could consist, for example, of anyone with an ADSL connection and a WLAN access point, or of any local user community with a permanent Internet connection and a local (wireless) network. By reaching agreements and connecting their nodes with each other, such groups and individuals can create a larger wireless network, a free data cloud. Small-scale networks of this kind now cover parts of certain neighbourhoods, like the East End Net in London or WLAN Friedrichshain in Berlin. Technically and socially ambitious projects are trying to create wireless backbones to link these free network islands (Berlin Backbone, ConsumeX). In technical terms, there are no known obstacles to the expansion of such networks to cover entire boroughs, cities, regions or countries. Barriers do exist, however, within society, not least because such networks would undermine the business model of the mobile telephony providers.

Unlike the mobile phone networks, which are centrally planned, built, managed and operated with the aim of maximising profit, the free networks are based on the model of a network commons. The network commons is a special instance of the digital commons, a term which in recent years has become a central concept in the debate over intellectual property. The use of the term network commons underlines that this is not just about technical networks as carriers of information, but also about facilitating and multiplying options for human action.

The network commons is the result of collaboration between formally independent participants. All physical components of a network node forming part of the commons are managed by the owners/users of that node. In their internal relations, these nodes do not depend on commercial network structures as they are able to use a licence-free part of the spectrum for transmission. Within these free wireless networks, the users enjoy the luxury of relatively good transmission rates. The communications and services offered within the network are shaped by the users themselves, as are all inter-network principles and conventions. This free data cloud can also be described as the intranet of a grass-roots network cooperative, although it will usually be connected at at least one point to the global Internet. In purely pragmatic terms, there are several advantages for participants: within the intranet, no costs arise for broadband communication, and shared use of Internet connections means lower costs there too. But the real relevance of these free wireless networks is in their status as role models. They stand as examples of how the world could deal with telematics in a fundamentally different way.

The network commons calls for certain conditions to be met, some of which overlap with the constitutive elements of the digital commons. The first precondition is the existence of open standards. Communications on the Internet are based on the Internet protocols, the most important of which are TCP and IP. Although both were originally developed for the US military, the research results have since been made available to the public. On the basis of this tradition, all Internet protocols are free and publicly accessible. A further precondition is the existence of free software and a licensing system to protect it. The General Public Licence (GPL) grants free usage of software, access to its source code, and

¹¹ There is also a substantial website devoted to this book with a regularly updated web-log and an extensive bibliography at www.smart-mobs.com.

authorisation to modify and redistribute the software under the condition that the licensing terms continue to apply. The viral character of GPL has led to the existence of a growing pool of free software, from the GNU/Linux operating system through to a wide range of network services and applications. Most key Internet functionality can now be provided without using proprietary software.

Inspired by GPL, other copyleft licenses have now been developed, including the Open Content licence and the Creative Commons licences (cf. www.creativecommons.org). Besides software, they also protect individual types of content such as images, texts, pieces of music. Growing numbers of artists, writers and musicians are using these licenses to put their creative output in the public domain. An important aspect here is that both free software and free content break down the barrier between producer and consumer. Every reader is a potential writer.¹²

Open spectrum

Up to this point, the network commons and the digital commons overlap. But as well as open standards and free software, networks also need a transmission medium. Wireless networks based on the WLAN standard use a loophole in frequency regulations. The electromagnetic spectrum is divided up by state regulatory authorities into bands reserved for the use of specific wireless technologies and users, e.g. for public television broadcasters, emergency services or the military. The owners of such exclusive usage rights have a strong economic interest in holding onto them. Which is why the spectrum currently appears more or less 'full'.

One exception is the so-called ISM band (industrial, scientific and medical). This band includes one range of frequencies between 2.4 and 2.5 GHz that is used by WLAN equipment. Most of the world's governments have decided to make this part of the spectrum license-free and open it up to all users. As a result, quality cannot be guaranteed—no one in this band has special rights and cases of overuse may occur, resulting in disturbances. But this also means no one has to apply for authorisation and this band can be used free of charge. The experiment of opening up the ISM band for general use is now considered a success. In the United States, a lobby has come together under the Open Spectrum banner to demand the opening up of the entire spectrum. These American advocates of the open spectrum idea argue that technical progress in the field of spread spectrum technology and 'cognitive' radio have made conventional frequency regulation obsolete, allowing spectrum regulation to be left up to devices involved.

Self-organisation as a basic principle

Unlike free software, which can be copied and distributed at minimal cost once it has been written, free wireless networks require an initial investment in materials and *ongoing* investment in upkeep. This involves the acquisition, operation and maintenance of the equipment used as part of the network commons, plus an investment in social self-organisation. To qualify as a network at all, there must be more than one node, i.e. it is necessary to create links. This process involves finding partners interested in linking up and then exploring the terrain, since there must be a line of sight between the antennae of any two nodes. It is also necessary to agree on rules for common usage of the network. Here it is important to achieve a balance between individual needs and liberties on the one hand and sustainable functioning of the network on the other. The dangers and stumbling blocks are many and varied. Uncurbed file-sharing can bring even the best wireless network to its knees. Added to which, the tightening of legislation concerning monitoring and control of content poses the question of liability for the actions of those using the network.

In 2002, a group of networkers began developing a framework agreement designed to outline basic conventions for data exchange in free networks, the Pico Peering Agreement (cf. www.picopeer.net/PPA-english.html). The group thought about what actually constitutes the basis of this resource known as a 'free network' and came to the conclusion that it boils down to a willingness to allow others free transit of data. You can cross my 'virtual property', and in return I can cross yours too. The Pico Peering Agreement regulates the principles of free data transit and implicitly describes the nature of 'freedom' in a free network (as opposed to a sponsored no-cost network). Similar to the General Public Licence for free software, the Pico Peering Agreement should function as a kind of seal of quality for free networks. The

¹²

This is a reference to Walter Benjamin's call for the author's role to include the production of more writers (Benjamin 2002).

Pico Peering Agreement is the first step towards a constitution for the network commons, a declaration of basic rights and duties.

Mobile ad-hoc networks

This ideal of a highly distributed network not owned by any single party but available to all for common use is being pursued at the technical level through the development of dynamic routing protocols. Like the standard Internet protocols, this technology was originally developed in the context of military research programmes but has now found its way via the universities onto the street. MANET (Mobile Ad-hoc NETWORKing) denotes to a family of protocols which allow mobile devices to recognise each other and establish a network with no central control position. Hackers in Berlin and London, as well as small IT companies,¹³ are now working to perfect these protocols, which should soon reach a marketable state of development. What this makes possible in theory, and which has already been tested on the scale of up to 30 nodes, is the creation of ad-hoc networks with laptops or other mobile computers (handhelds or PDAs), enabling data transfer as well as voice communication. There is no (technical) reason why such protocols should not be integrated into mobile phones. This means that in theory, anyone carrying a mobile phone would become the owner of a fully-functional telephony and Internet node. Every subscriber would turn into a walking telephone company. In this scenario, the infrastructures owned by mobile telephone companies become superfluous, with the possible exception of long-distance cross-country lines. This model could be the key to a future of provider-free telematics.

The technology itself, however, is (in one sense and one sense only) neutral. Mobile ad-hoc networking can just as well be used for communications between tanks, helicopters and infantry units. What count are the applications and the intentions. The network commons is sustained by the desire to create a network on the basis of free cooperation and self-made rules. This expression of personal freedom of will by means of technical and social networking is a value in its own right that forms the content of the network commons 'project'. Networks of this kind that are motivated by a collective desire/need for a site of free, self-determined communication, could become necessary in the long term in order to protect free speech and the freedom of the media on the Internet, following the increasing domination of the network by oligopolistic interests.

Mobile telephony vs. network commons

Now let us compare the functioning and inner structure of the network commons with third generation mobile telephone networks. In the network commons, there is no metering of data traffic because the principle of free data transit applies. Mobile telephony operators, on the other hand, meter every individual activity, data volume, online time, locations, incoming and outgoing calls, etc.. Besides providing information for billing, the metering process itself is a cost-intensive procedure, in turn making communications as a whole more expensive. Under these conditions, the gift economy that is widespread on the Internet is hardly possible. The storage of such data also has implications for the safeguarding of private information. Data are stored in the interests of economic gain (data mining, user profiles) and in the interest of criminal prosecution. The existence of large amounts of information about users gathered without their active consent represents a significant potential for social repression and generates a climate of fear and paranoia.

The mobile phone networks are centrally planned, built and managed. Once again, the users are considered purely as consumers who purchase temporary access to an operator's network. In the scenario of the network commons, this notion of 'end users' consuming information has been done away with and replaced by the principle of nodes that participate in symmetrical communication and contribute to the value of the network.

While free networks use a part of the spectrum that is exempt from licensing obligations, the mobile phone operators had the bad luck of having to buy the usage rights for spectrum at auctions held at the peak of the new economy boom, causing the necessary investments to skyrocket. Some operators, including Deutsche Telekom, were almost ruined by this, and the short-sighted approach taken by politicians caused long-term damage to the development of telematic com-

¹³ One solution is offered, for example, by MeshCube from 4GSystems, cf. www.meshcube.org. This development was influenced by ideas from the free network community, which shows how alternative ways of dealing with technology can lead to new innovations tailored to the objectives of such communities.

munications. Now, the operators are under pressure to squeeze as much revenue as possible out of their newly built networks.

The society imagined by the mobile telephony paradigm

Under these conditions, mobile communications have become the spearhead of post-modern capitalism, which is enlightening not only in terms of the current state of that system, but also concerning the ways in which technology is developed. It is assumed that today's 'consumer' is a difficult customer. To be able to survive in the marketplace, the telcos must be interested in every individualistic whim and fancy of their client-subjects. The various services on offer are structured and finely tuned according to the tastes, preferences and interests of this imaginary clientele, also taking incomes and lifestyles into account. As well as shaping price plans, this also influences the design and functionality of the devices developed, e.g. particularly eye-catching and target-group-oriented phones, the option of calling up content services, managing addresses and appointments on the mobile phone, etc.. Functions of this kind are not merely technical features, they are based on the implicit construction of types within the repertoire of the consumer age, from the mobile executive who works everywhere and all the time, to the teenage skateboarder who wants to take her entire MP3 collection with her wherever she goes. Work and leisure form the pillars of the society imagined by the mobile telephony paradigm.

In their run on the purses and wallets of their customers, the mobile phone operators found themselves mutating into content providers—with personalised ringtones, news services, and music, pictures and videos. This is reminiscent of the early days of telephony a century ago, when attempts were also made to sell entertainment and news via this new medium, a business model which failed then and which is very probably doomed to fail again.

Brave new wireless world

The device manufacturers and telcos clearly assume that their clientele are visual people. The new generation of mobile phones can take and send both still and moving images. This has interesting effects whose consequences do not yet seem to have been fully thought through. It means that the entire world (or at least the parts accessible from wireless networks) can be captured and communicated in audiovisual form. This could degenerate into a panopticon, a world of constant observation and surveillance where public and private, personal and socially open spaces become interwoven with the global network and potentially controlled from central points within that network. But it also means that every mobile phone becomes a mobile television camera that can transmit images of public interest to TV stations live for further broadcast. The current high prices are the only remaining obstacle to such a mania of mobile video telephony.

There is a trend towards further enhancement of mobile devices by turning phones into electronic wallets, and with new applications such as biometric data, a mobile phone can also be used as a method of proving one's identity – wallet and passport in one, managed by the multinational corporation of your choice?

With mobile phones, we move in a closed world of proprietary systems whose inner workings are kept secret, subject to the ubiquitous non-disclosure agreements (NDAs) imposed by private sector R&D departments. Many of the freedoms that have resulted from the linking of freely programmable PCs and the Internet do not exist in commercial wireless networks. In this field, there is an urgent need for open-source solutions.

Location-based services and the potential of mobile telematics¹⁴

The new mobile devices are location-aware. Using the method of triangulation, network operators can pinpoint the location of a given mobile phone, or its owner. Besides the resulting potential for surveillance on the part of prosecuting authorities, this also opens up new sources of revenue for the industry in the form of location-specific services. Often this

¹⁴ At this point, the distinction between mobile phone and free WLAN networks ends, since the possibilities described below exist for both types of application.

will mean no more than location-specific advertising spam, but it could also involve genuinely useful services. The ability to pinpoint devices is already being used, for example, to supply rescue services with the coordinates of callers who are unable to state their exact position, as may be the case with children or people in shock.

In basic terms, location-awareness means that real space and the space of electronic communications ('cyberspace') are made to overlap. Information can be fixed to specific points, as a source or target for information. The real three-dimensional world is enriched with information, with the result referred to in technical jargon as 'augmented space'. Groups like Locative Media,¹⁵ a loose-knit international association of artists, authors and developers, are attempting to derive artistic capital from this situation. They develop projects for collaborative mapping, surveying not only geographical but also social features. Instead of just focussing on specific topics on the wirebound Internet, discussion forums are now also possible on the basis of people's location. Group communications can develop spontaneously on the basis of geographical proximity. Social communities are beginning to digitally document real world environments according to their specific interests. This results, for example, in alternative city guides and new forms of 'computer games' where players no longer sit at home behind drawn curtains but move about in the real world outside.

Many of these developments are still at an experimental stage, with serious obstacles posed both by the pricing structures and secrecy policies of the network operators and by insufficient coverage with free networks. Nonetheless, these modest beginnings show that not everything in the brave new wireless world has to be surveillance and advertising. The author and Locative Media co-founder Ben Russell¹⁶ speaks of mobile devices as embodiments of a "dense network of social relations". He is referring to the management of personal data by mobile devices and the way they map systems of social relations as well as actually enabling relationships to be established. Models like Friend Of A Friend (FOAF) enable the cross-indexing of addresses with personal profiles and the definition of personal priorities and interests. Such patterns can be used as a basis for developing applications for emergent ad-hoc social networks. At this point, whether these applications will primarily serve hedonistic needs, artistic objectives or socio-political movements is still totally impossible to say.

We find ourselves at the beginning of a development towards an ad-hoc society in terms of communications technologies. Soon, there will be bandwidth 'in the air' everywhere and computational power is astonishingly cheap by western standards. Which applications and social practices will result from this, making it possible to speak of an ad-hoc society in social terms, still remains to be seen. In technical terms, there are ever fewer obstacles to the development of grass-roots democratic self-organisation with the aid of telematics. It is possible, for example, to imagine a society in which considerably less centralised planning is required because most things can be resolved locally. Mobile telematics facilitates participatory citizenship and ad-hoc organisation at local level. Between this local self-organising level and the national level, conference lines could be employed for democratic voting. Instead of amounting to an election every few years, politics could become a process integrated into the life of communities.

Whether or not this potential can actually be realised is another question. With the pricing policies and the command and control structures of the mobile phone companies, and the social models they produce, a positive utopia of an ad-hoc society is hard to imagine. For this and other reasons, it would be desirable if mobile telephony were to be restructured according to the model of a network commons. Although at present, the network commons really only exists in embryonic form, this seed carries within it the potential for restructuring the whole. The network commons model shows how advanced communications technologies could be harnessed for social progress, and not just for the financial gain of the few. It also offers an alternative model for the development of socially meaningful and desirable technologies. Whether the model is scaleable, whether it can be transferred to larger communities, depends on whether the idea meets with sufficient approval and which social values form the basis for its further development.

The movement for the establishment of free networks is not alone in this struggle for more autonomy. The developers of free software pursue similar objectives, and as I have shown with reference to the digital commons, these two movements share a great deal. The legal experts at Creative Commons are now trying to transfer this model to all cultural and intellectual property by offering licenses for the free distribution and open modification of digital cultural artefacts. Growing numbers of artists, musicians and authors are taking advantage of this. Tech-savvy activists are developing technologies specifically tailored to independent media from the anti-globalisation camp. In all of these projects, the issue is not the realisation of a technical principle or the triumph of pseudo-rational mastery of the world, but the widening of the scope for human action. This form of freedom, and not individualistic whims, is what motivates

¹⁵ cf. Locative Media Website, <http://locative.net>.

¹⁶ Interview with Ben Russell, conducted by students of Ravensbourne College for Design and Communication, published in the student magazine *Mazine*, London, June 2004. A good introduction to Ben Russell's ideas is given by the *Headmap Manifesto*, London - San Francisco 1999, available at www.headmap.org.

these efforts. All these 'projects' favour one another, learn from one another, develop alliances and links, and thus constantly expand their critical potential. At this point, it is impossible to paint a definitive picture of this development or to predict its outcome. What I hope I have achieved is to portray society in ad-hoc mode as a concrete, feasible project and one that is worth striving for.

Translated from German by Nicholas Grindell.

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