

# OPEN SOURCE AS A TEST CASE FOR A POST-HUMANIST COMMONS

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Underground culture and non-institutional arts of Eastern Europe, North America and Western Europe of the 1970s/1980s often included experimentation with the dispensation of individual signatures and identities, in favor of pseudonyms and collective-anonymous identities (Deseriis, 2015). This included dispensation of ownership and property - including copyright. A parallel phenomenon existed in computer hacker culture where, since the 1960s, freely sharing information and even one's personal computer logins became part of a "hacker ethic" (Levy, 1984). This culture gave birth to Free Software, later branded Open Source, and its "copyleft". The Free Software practice of collective project development on the basis of giving up traditional authorship had existed for decades, but only became wider known in the 1990s and 2000s with the rise of the Linux operating system and, some years later, Wikipedia whose open-collective authorship is based on the development model and copyleft principle of Free Software.

Both traditions - collective-anonymous (sub)culture such as in underground and samizdat publishing, zine culture, Mail Art, punk as well as Free Software, Open Source and copyleft - could be seen as working practices of "the commons", in a time where the commons are broadly advocated as an alternative to capitalist

production and as an antidote to the imminent ecological catastrophe from over-exploitation of resources and anthropocentric blindness for the earth as a system. Contemporary Open Source culture can even be seen as a showcase for a post-humanist worldview, since most of it originates in collaborations of human and non-human actors, human developers and automated software agents.

But as a real-life test case for a post-humanist commons, Open Source exhibits the flaws of these models: unclear governance with lack of democratic participation, in the worst case oligarchies disguised as meritocracies and corporate politics disguised as community service.

Before drawing these conclusions, I would like to sketch a cultural history that involves both cultural activism and Free Software copyleft. Aymeric Mansoux' PhD thesis *Sandbox Culture* (2017) reconstructs and investigates this history more comprehensively.

## GIFT ECONOMIES

'Potlatch' is a traditional Native American gift exchange ceremony. In the twentieth century, the word was adopted for a radical politics and aesthetics of the public domain. The *Lettrist*

*International*, a group of poets, artists and political activists that preceded the Situationist International, published its periodical *Potlatch* free of charge and free of copyright. From 1954 to 1957, *Potlatch* appeared in Paris and the Dutch section of the Situationist International published its own issue of the bulletin in 1959. In an essay included in the Dutch edition, Guy Debord explained gift exchange as a way in which to 'reserve and surmount' the 'negativity' of modern arts (NOTBORED, 2017). With 'negativity', he not only meant aesthetics, but also economics. The successor to *Potlatch*, the journal *Internationale Situationniste*, was free of copyright too. This way, Lettrists and Situationists sought to preemptively undermine the collector's and art market's value of their work, at least in theory. In practice, none of the major participants kept up anti-copyright.

Around the same time, in the 1960s, Fluxus sought to fundamentally rethink the economics and public accessibility of art when it focused on street performances and on its own genuine invention 'multiples': the production of artworks (from artists' books to small sculptural objects) in affordable editions. Fluxus' founder and theorist George Maciunas did not literally use the terms 'access' or 'accessibility', yet radically addressed them on both an institutional and

aesthetic level. By moving contemporary art from museums and galleries to bookshops and streets, Fluxus sought to give it 'non-elite status in society' (Maciunas, 1971). This, by itself, does not differ much from other programmes of bringing art into the public space, for example as open air sculpture. But Maciunas also sought to radically change form and language of contemporary art for this purpose. He wanted art to become 'Vaudeville-art' and 'art-amusement' (ibid.). Art should become 'simple, amusing, concerned with insignificances, have no commodity or institutional value ... obtainable by all and eventually produced by all' (ibid.). This eventually lead to Fluxus being perceived, like Situationism, as counterculture rather than as contemporary art in its own time. Today, both are mostly seen as forerunners of contemporary performative, conceptualist and political art, although their radical anti-institutional agenda is being overlooked. Little attention has been paid to political-economic visions in both movements: a radical public domain without commodities and private property.

This did not prevent Lettrist, Situationist and Fluxus work from ending up (or even being produced) as collector's items wherever this work had a conventional material form, such as auto- or serigraphs, objects, installations, performance

remnants, photographs or original copies of *Potlatch*. When the World Wide Web became a mass medium in the mid-1990s, the first avant-garde and contemporary art that became available online were Situationist writings from the 1960s; works that were conventional text with no collector's value. Thanks to their non-copyright status, they could easily be retyped and uploaded. Works from Fluxus and closely related conceptual and intermedia art movements (including concrete and sound poetry, video and audio art) became the foundation of UbuWeb ([www.ubu.com](http://www.ubu.com)). Created in 1996 by poet and conceptual artist Kenneth Goldsmith and still maintained by him today, UbuWeb is the largest online library and electronic archive of avant-garde audio-visual documents. It has become the historically most successful public access initiative for contemporary arts, since it gave artists' books, recordings and videos a public visibility which pre-Internet museums, archives and libraries could not physically provide. In addition, UbuWeb turned this art into a common good since all content of the website is freely and easily downloadable for any Internet user.

In her 1973 book *Six Years*, art critic Lucy Lippard characterized the performative, conceptualist and intermedia art of the late 1960s and early 1970s as a movement towards

the 'dematerialization of the art object'. In 1983, Jean-François Lyotard, founder of postmodernism as a philosophical concept, organized the exhibition *Les Immatériaux* at Centre Pompidou in Paris, which combined art installations by, among others, Daniel Buren and Dan Flavin with extensive displays of scientific inventions and computer technology. If one were to construct a genealogy from Fluxus and conceptual art via Lippard's 'dematerialization' and Lyotard's postmodern 'immaterials' to UbuWeb and the online Situationist text archives, then the latter might be seen as the ultimate realization of 1960s gift economy promises. Promises which, at the time, were still held back by analogue material constraints. Even cheap media such as print have affordances that can be prohibitive: printing, shipping and storage costs, the limited number of print copies versus the unlimited copying of digital files. Live performance art in public spaces was non-reproducible and therefore reinforced the aura of the unique artwork.

In such a reading, UbuWeb delivers the original yet unrealized promise of Maciunas' Fluxus Editions from the 1960s. Likewise, the Situationist servers—but also: every other electronic book, audio record, film, game copied and shared among people—provides the *Potlatch* that the Lettrist bulletin symbolized rather than

realized. Digital technology, with its inherent facility of copying a file in infinite generations without quality loss and at comparatively negligible costs, would then have been the final missing building block for a working 'gift economy'. This idea had also influenced the first generation of net.artist in the 1990s, including jodi, Heath Bunting, Alexei Shulgin, Vuk Ćosić and Olia Lialina, whose work mostly circulated outside exhibition spaces and suspended notions of 'the original'.

Concepts of a 'gift economy' based on 'the commons' did not only exist in the arts. They became generally popular with the Internet. By the 1990s, two popular phenomena substantiated them: Firstly, the GNU/Linux computer operating system, a fully working alternative to proprietary computer operating systems such as Unix, Windows and Mac OS, programmed by volunteers and available for free downloading, copying and adaptation. Secondly, the popular culture of freely sharing music in the MP3 format through decentralized Internet services such as Napster. Kenneth Goldsmith, founder of UbuWeb, later described Napster as his 'epiphany': 'It was as if every record store, flea market and charity shop in the world had been connected by a searchable database and had flung their doors open, begging you to walk away with as much as you could

carry for free. But it was even better, because the supply never exhausted; the coolest record you've ever dug up could now be shared with all your friends.' (Herrington, 2015) Linux received similar artistic appreciation, when in 1999, the Ars Electronica festival awarded it with its Golden Nica in the '.net' category, a prize meant for electronic media art. The jury cited Linux' cultural 'impact on the "real" world' as a reason for its decision, along with the intention 'to spark a discussion about whether a source code itself can be an artwork'. (*Linux Today*, 1999)

As if to prove that avant-garde art still does justice to its own name and historically runs ahead of popular culture, the fringe 'gift economy' concepts of Lettrists, Situationists and other counter-cultural groups became mass phenomena with Linux and MP3 file sharing three decades later. In his 1998 essay *The Hi-Tech Gift Economy*, British cultural studies scholar Richard Barbrook therefore called the Internet 'Really Existing Anarcho-Communism'. He credited the Situationist International as a forerunner but criticized that it 'could not escape from the elitist tradition of the avant-garde'. For his references to Linux, Barbrook drew on the software developer Eric S. Raymond who, in the same year, had helped coin the term 'Open Source' for the new collaborative software development model.

In 2000, Raymond's paper *Homesteading the Noosphere* characterized the 'The Hacker Milieu as Gift Culture', arguing that 'Gift cultures are adaptations not to scarcity but to abundance'. The promise of digital technology and the Internet was that electronic replication of digital zeros and ones had overcome the constraints and affordances of mechanical reproduction. In that light, Lippard's 'dematerialization' in conceptual art and Lyotard's postmodern 'immaterials' seemed to be issues that the digital commons had resolved.

Raymond and others effectively paraphrased social-liberal economist John Maynard Keynes who, in 1930, had predicted that thanks to automation 'the economic problem may be solved ... within one hundred years' so that an 'age of leisure' would follow (Keynes, 2010). Keynes' theory was influential in French post-war sociology and most prominently adopted by Guy Debord's teacher Henri Lefebvre. Debord and the Situationists expected a transformation of society into a leisure society, propagated machine-made 'industrial painting' and based their 'Potlatch' on a firm expectation of the near end to economic scarcity.

In the late 1990s and early 2000s, the debate on the Internet as a gift economy found its most prominent voice in law professor



Lawrence Lessig, who saw the technology as a means to a *Free Culture* outside traditional intellectual property and media industry regimes (Lessig, 2004). In 2001, Lessig co-founded the Creative Commons, a non-profit organization whose licenses encouraged people to apply the distribution principles of Open Source software such as Linux, including free copying and modification, to creative works of any kind, including texts, images and sound recordings. Wikipedia, founded in 2001, is among the best-known projects licensed under Creative Commons, and has become, besides Linux and MP3 file sharing, a poster case for the Internet as a 'digital commons'. Today, most academic Open Access publications are released under the terms of a Creative Commons License, too.

The underlying assumption is that in the age of digital media technology traditional copyright is too restricted for works to be truly publicly accessible, since it doesn't permit downloading or sharing. When the World Wide Web and social media were still new, these issues were not seen as issues of access and shifts in consumption of culture, but rather as a paradigm shift in cultural production. This was perfectly in line with Maciunas' pre-Internet vision of art being 'obtainable by all and eventually produced by all' (Maciunas, 1971). When legal scholar

Yochai Benkler (2006) coined the notion of 'commons-based peer production' in 2002, he saw Wikipedia, Creative Commons and blogging as living proofs of a participatory 'Wealth of Networks', as opposed to traditional mass media with their sender/receiver and producer/consumer hierarchies. On a larger economic scale, 'wealth of networks' implied that economic egoism would be overcome and would lead to more effective and sustainable production. Where Keynes saw automation as the key to overcome economic scarcity, Benkler advocated network collaboration. In 2008, the cultish 'Zeitgeist Movement' advocated a 'post-scarcity economy' in which economic and political decisions should be delegated to a central computer. Zeitgeist became a major force behind the Occupy protests in New York City and Frankfurt, Germany, both taking place at the center of the two cities' banking districts.

The latest Internet-cultural iteration of Benkler's optimism and Keynes' 1930s post-scarcity visions is to be found in the so-called Maker movement (Mansoux, 2017). It was founded on the idea of using 3D printing and FabLabs for fully self-sufficient fabrication outside classical capitalist production and distribution chains. Bestseller writer and political consultant Jeremy Rifkin propagates

a 'Third Industrial Revolution' based on these technologies. In his vision, they will lead to a 'Zero Marginal Cost Society'. With nearly costless production, according to Rifkin, 'the Internet of Things, the collaborative commons' will lead to an 'eclipse of capitalism' (Rifkin, 2015). In other words, Linux, MP3 file sharing and Wikipedia were seen as working commons because of their 'dematerialization' – with software and data being no longer subject to the material constraints of industrial production. But now this vision has transcended software and data to the point where even material products are expected to become shareable, like MP3 files. What Goldsmith had written about record stores 'begging you to walk away with as much as you could carry for free' with 'the supply never exhausted', would then apply to any store and any commodity.

From the 1990s to the early 2010s, these visions and debates remained largely exclusive to hacker culture, media activism and specialized areas of Internet art and media theory. This changed only recently. In 2013, artist and filmmaker Hito Steyerl brought the issue to the centre of contemporary art when she coined the term 'circulationism' in an essay for the *e-flux journal*. Using filmmaking terminology, Steyerl (2013) stated that, in the Internet age, image production is superseded by 'postproduction'.

She suggests:

What the Soviet avant-garde of the twentieth century called productivism – the claim that art should enter production and the factory – could now be replaced by circulationism. Circulationism is not about the art of making an image, but of postproducing, launching, and accelerating it.

The label 'circulationism' is not only a good fit for the endlessly 'post-produced' visual memes on image boards and moving image remixes on YouTube. The older Internet gift economies of Linux, Wikipedia, MP3 file sharing, UbuWeb and Situationist web sites are 'circulationist', too, since they are all sites of postproduction: Wikipedia with its policy not to publish any original research but only information from 'reputable sources', GNU/Linux as a clone of the Unix operating system that AT&T had developed in the 1970s. Steyerl concludes her essay with a Rifkin-esque extrapolation from software and data to hardware:

Why not open-source water, energy, and Dom Pérignon champagne? If circulationism is to mean anything, it has to move into the world of offline distribution, of 3D dissemination of resources, of music, land, and inspiration.'

This view is shared in the contemporary philosophical movement of accelerationism.



In their 2016 book *Inventing the Future: Postcapitalism and a World Without Work*, Nick Srnicek and Alex Williams, authors of the 2013 '#ACCELERATE MANIFESTO for an Accelerationist Politics', advocate 'full automation' in combination with universal basic income.

What is envisioned in these scenarios is the maximum expansion of the public domain through the abolition of work and any form of property. Yet the political backgrounds of these writers and actors are extremely diverse, sometimes even contradictory: democratic socialist (Barbrook), neo-Leninist (Srnicek/Williams), right-wing libertarian (Raymond), liberal (Lessig), cyber-new age (Zeitgeist movement). On top of that, they range from contemporary art (Steyerl) to political consultancy of EU governments (Rifkin).

## THE DOUBLE MEANING OF THE 'PUBLIC DOMAIN'

Strictly speaking, a gift economy, and a potlatch, can only exist if the difference between gift exchange and other forms of economic exchange is still in place. In a Keynesian full-automation, post-scarcity future, everything and hence nothing would be a gift. From the Lettrists to the 'Third Industrial Revolution', the gift thus

covertly disappears from the scene. What's more, technology gradually replaces culture as agent and site of economic change. This results in artists' real-life public domain practices, from Lettrism to net.art and UbuWeb, being less and less acknowledged, even in the writings of artists such as Steyerl.

For their concept of the gift economy, Lettrists and Situationists drew on the French anthropologist Marcel Mauss (like Georges Bataille before and Jean Baudrillard after them). In the 1920s, Mauss had described the Potlatch as an 'archaic' economy of reciprocal gift exchange. Despite its common understanding as a counter-model to modern Western economic models of accumulation, the Potlatch ultimately is no less consumerist than modern capitalism, since it is based on social peer pressure of excessive giving and taking (Mauss, 1954).

In the contemporary art market, where 19th/20th century-style production and sales business models rule and economic visions such as Rifkin's or Srnicek/Williams' are out of question, gift economies nevertheless remain a provocation. They squarely contradict the art market's principle of selling items to collectors and its creation of value through balancing an item's scarcity against collector demand. There could thus be no sharper contradiction than the

one between a Potlatch, whether in its traditional or in its Lettrist form, and a contemporary art fair such as Art Basel or Frieze.

Reformation-age pamphlets and graphic prints, including Dürer's, can be interpreted as early Western forms of an art in the public domain that circumvented traditional art markets (most of all, clerical and aristocratic patronage, churches and palaces). With early 20th century Dadaism as their precursor, Situationism and Fluxus pioneered a practice of the public domain that transgressed the two realms of publishing media and public space. Merriam-Webster defines the public domain both as 'land owned directly by the government' and as 'the realm embracing property rights that belong to the community at large, are unprotected by copyright or patent'. Contemporary English and Romanian ('domeniu public') gravitate towards the second definition, the public domain as creative works that are free from individual rights claims. In other European languages, however, the double definition of 'the public domain' is still more pronounced, for example in the French expression 'domaine publique' and in the Dutch 'publieke domein'. Legally, the concept thus refers to (a) physical property and (b) intellectual property: to physical territory that is not privately owned, and to creative work—writing, pictures, audiovisuals,

designs, technical inventions—whose copyrights or patents have either expired or been given up.

The cybernetic utopia of circulationism, accelerationism, the Third Industrial Revolution, Open Source thus is to collapse both definitions and areas of the public domain into one: When the Dom Pérignon bottle becomes infinitely downloadable, there is no more sense in differentiating physical from intellectual property. De jure, however, intellectual property has a clearly different status from physical property, being a metaphor born out of the invention of the printing press. Western jurisdictions put most intellectual property violations under civil law yet physical property violations under criminal law. 'Property' thus does not equal 'property'.

## FROM PEER PRODUCTION TO NON-PROFIT ORGANIZATION

In 2012, *Forbes Magazine* estimated the total operating costs for the Internet at \$100-200 billion per year (Price, 2012). The figure only reflects operating costs of Internet service providers, excludes public investments into network infrastructure, costs for cell phone and telephone networks, expenses of Internet and media companies for maintaining their own services as well as computer hardware expenses

of private households, public administrations, educational institutions et cetera. The Internet is not, to use Lyotard's word, an 'immaterial'. Optical fibre cables, its infrastructural backbone, are a degrading organic material that needs to be replaced every ten years. Scarcity of Internet resources may not be visible today since its infrastructure still benefits from massive private and public investment, and from slave labour combined with massively unfair trade in the production of electronic hardware. The current picture of data abundance might be skewed in the same way as the picture of electricity and oil abundance was skewed in the 1950s and 1960s.

With the world population projected to grow to ten billion people and more, global warming, depletion of natural resources, scarcity of energy, scarcity of raw materials needed for electronics and industrial production and, leaving hyperbolic prophecies aside, no realistic perspective that artificial intelligence robotics will soon make the bulk of manual labour obsolete (which would still beg the question on what energy and material resources those machines would run?), Keynes' hope that 'the economic problem may be solved' and create an age of leisure, appears dated. It is one of the contradictions of our present times that some of the same thinkers who subscribe to a philosophical 'new materialism'—with its focus

on ecology, a 'parliament of things' (Latour), 'object-oriented ontology' and worries about the ecological catastrophe of the anthropocene—also believe in total leisure through total automation, as if computing and robotics operated in some immaterial void where the laws of physics, economy and natural resource exploitation are suspended.

Likewise, a critical look back at radical public domain projects of artists and media activists reveals countless flaws: The anti-copyright publishing of the Situationist International was only possible because the group was financed through gallery sales of paintings by its co-founding member Asger Jorn (Kurczynski, 2014). Fluxus' alternative business model of selling multiple editions faltered after less than a year. None of the participating artists followed the initial suggestion to sign over their individual copyright to Fluxus Editions (Kellein, 2007). Most Internet public domain projects were only possible through infrastructural support of public arts or educational institutions. UbuWeb, for example, runs on a university server in Mexico. Kenneth Goldsmith periodically warns users that the website might cease operation any day because of technical or legal difficulties, and recommends that people download its contents to their home computers. Unlike Fluxus

Editions, UbuWeb does not have an economic compensation model for the artists whose works it provides, thus assuming that they have other sources of income (including the art market). The support infrastructures for Internet art in the public domain are, in the end, identical to those for traditional public art.

The most prominent digital commons projects have, in the meantime, become corporate. Linux started as a student project at a public university but is now financed by an IT industry consortium consisting, among others, of IBM, Intel, Samsung, Huawei, Oracle, Hewlett Packard, Qualcomm, Google, Facebook, Ebay, Toyota and Hitachi. In 2014, statistics (*InfoWorld*, 2016) showed that more than 80% of Linux kernel code is currently written by corporate employees, with the mobile and embedded devices industry and its agenda driving the development of the software (among others, because Linux forms the basic software stack for micro controllers and for the Android smartphone operating system). This does not change the fact that Linux is Open Source and freely available to anyone to download, use and modify. But ever since the Linux commons has become a corporate commons, it is evident that a commons does not necessarily need to be democratic; it is not necessarily a public domain under public

governance. Two and a half decades after its first release, Linux has arguably become the technological backbone of today's platform capitalism – as it has been analyzed, among others, by Nick Srnicek (2017).

In comparison to Linux, Wikipedia might be considered a step-up towards a truly participatory commons, since it is profoundly easier for most people to contribute to an encyclopedia article, using the Wikipedia's edit button, than to write operating system kernel code in the C programming language and submitting it via the Git version control system. Wikipedia should theoretically be more open to participation since contributions do not have to pass a multi-tier human review process, but immediately end up on the site. First-tier quality has been automated with editing bots which currently create 15 percent of all edits. Yet this has also lead to a post-human dystopia where these bots are fighting each other, endlessly overwriting each others edits (Tsvetkova et al., 2017). In its human matters, Wikipedia and its sister project, the Wikimedia Commons, are subject to similar issues of governance and community representation as Linux. 90% of Wikipedia's editors are male and most of them work in the technology industry. The non-profit organization running the encyclopaedia

experiences major internal conflicts over organizational policy and transparency, and is being criticized for being 'increasingly run by those with Silicon Valley connections'. (Atlantic Media Company and Motherboard, 2016).

Academic Open Access publishing, which is modeled after Open Source and was founded to replace publisher monopolies with an academic knowledge commons, has now turned—squarely against its original intentions—into a revenue model for publishers that charge extra fees for giving up exclusive distribution rights.

Given their present state, none of these projects still fit the 1990s/2000s narratives of 'Anarcho-Communism' (Barbrook), 'bazaar' development (Raymond), 'read/write culture' versus 'read-only culture' (Lessig) and 'commons-based peer production' (Benkler). Instead, as a result of matured and professionalized organization, their ways of working have aligned themselves to those of industry consortia and design committees. It is difficult to spot organizational differences between non-profit Internet projects such as Linux, Wikipedia and The Creative Commons, and the general sector of non-profit organizations, with their mix of volunteer and payroll work. The same questions that concern internal governance and external influence of non-profit, non-governmental

organizations thus also concern the major Open Source and Open Content projects, despite the fact that they are based on open participation and ecologies of sharing and reusing resources.

## TRAGEDY OF THE COMMONS

Activist arts projects weren't free of these pressures and dynamics either. *Potlatch* ended up being reprinted as a book by Gallimard, France's most reputable publishing house. The book cover does not attribute it to the anonymous collective of the Lettrist International, but reads 'Guy Debord présente *Potlatch* (1954-1957)', with 'Guy Debord' typeset as the book's author's name. On page 7, the book bears the copyright mark '© Éditions Gallimard, 1996'.

When the ecologist Garrett Hardin coined term 'the commons' in 1968, he intrinsically linked it to the idea that they were doomed to fail in a 'tragedy'. In his paper, Hardin used the term in a way similar to the first dictionary definition of the 'public domain', namely as commonly used space. However, he did not focus on the space as such but on its economic exploitation. For Hardin,

"The tragedy of the commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many cattle as possible on the commons. ... As a



rational being, each herdsman seeks to maximize his gain.”

As a result, the herdsman will have their cattle overgraze the shared resource:

“Each man is locked into a system that compels him to increase his herd without limit - in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all.”

Today, Hardin's theory seem to be backed up by facts like the one that the world's biggest fifteen ships create as much environmental pollution as all the cars in the world because their engines run on waste oil, on open oceans (Vidal, 2009). Yet his notion of the commons has been criticized for lacking any differentiation between unregulated 'open access resources', such as open oceans, and policy-regulated 'common-pool resources', such as fisheries and forests, to use the terminology and examples of Nobel Prize-winning economist Elinor Ostrom (2008). Ostrom's notion of 'open access resources' must not be confused with 'open access' as in Open Access publishing. It concerns the exploitation of material resources while Open Access publishing is about the creation of immaterial goods. Furthermore, Ostrom's

'open access resources' are 'open' in the sense that their access and exploitation is completely unregulated, while Open Access publishing involves standards and rules for both, such as the provisions that an Open Access publication may not be commercially exploited or incorporated into a non-Open Access work.

The various theories of the commons from Hardin to Ostrom indicate the lack of a generally agreed-upon concept of 'the commons'. Terms such as 'Creative Commons' avoid these issues by offering practical solutions rather than theoretical definitions. Yet the issues remain unresolved.

It is even questionable whether the notion of the commons applies to such a globally standardized system as the Internet. In its current status quo, the Internet can hardly be called a commons. It is, in Ostrom's terms, neither an open access resource nor a common-pool resource, because of the private ownership and control of most parts of its technical infrastructure. As it exists today, the Internet is also driven by industrial manufacturing of electronic hardware in low-wage countries, the inexpensive, ecologically questionable extraction of natural resources for manufacturing and electricity, and finally the concentration of Internet traffic and, increasingly, physical network infrastructure onto



only a handful of large corporations (Google, Facebook, Amazon).

If one nevertheless suspends these objections and hypothetically assumes Benkler's belief that the Internet is a commons and that projects like Linux and Wikipedia constitute true commons production, then Hardin's 'tragedy of the commons' still provides a useful critical perspective. Increasingly, Linux and Wikipedia are exploited to serve as 'back-ends' for private services. Google's search engine now relies on Wikipedia for its top-ranked search results and uses the free encyclopaedia to auto-generate information summaries on search result pages themselves, thus encouraging users to remain on Google's advertising-financed site. By putting a proprietary service layer on top of Linux that, among others, heavily tracks user behaviour, Google's Android operating system effectively turns Linux into a proprietary operating system while legally conforming to its Open Source license. In a 2012 critical paper on Android, Kimberly Spreeuwenberg and Thomas Poell (2012) therefore conclude that the 'exploitation [of Open Source] has not only become more pervasive, but also more encompassing and multifaceted'.

Hardin identifies economic growth and surplus extraction as the ultimate reason for

the tragedy of the commons. This is just as true for a case such as Linux whose Open Source availability may be pessimistically interpreted as a driver for surplus extraction like Google's - which conversely results in wasteful gadget production and resource consumption. Yet for Hardin, commons 'may work reasonably satisfactorily for centuries' if there is no economic growth and population numbers do not increase above 'the carrying capacity of the land'. Gift economies, however, from Potlatch to Kenneth Goldsmith's cornucopian record stores and Hito Steyerl's open-sourced Dom Pérignon, are economies of excess. They never pretended to be ecologically reasonable. Against communist interpretations, Georges Bataille (1988) characterized the Potlatch as 'the meaningful form of luxury' that 'determines the rank of the one who displays it'. The gift economies of Lettrism, Situationism, Fluxus, Mail Art, 1980s postpunk culture and later net. art involved excessive production of ephemera—pamphlets, multiples, performative leftovers, badges, pamphlets, code works—whose exchange was poor people's luxury and whose volatility was part of this 'circulationism'. In that sense, the tragedy of the commons, violation of the commons' rules of constraint, is a crucial part of these practices. 'Circulationism', if taken as

an umbrella term for everything from Berlin Dada to UbuWeb, is not about ecological-ethical self-constraint, but it amounts to a bohemian antithesis to scarcity, including the artificially created scarcity of gallery art.

In this perspective, the Internet has only been a temporary accelerator (in the late 1990s and early 2000s perhaps more than today) for a history that is politically, not technologically driven. Being neither commons nor gift, the public domain now exceeds separations of 'public space' and 'free information', as these cultural practices and excesses show.

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