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**DOI**

[10.14763/2020.4.1517](https://doi.org/10.14763/2020.4.1517)

**Publication date**

2020

**Document Version**

Final published version

**Published in**

Internet Policy Review

**License**

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[Link to publication](#)

**Citation for published version (APA):**

Maxigas, P., & Latzko-Toth, G. (2020). Trusted Commons: Why 'Old' Social Media Matter. *Internet Policy Review*, 9(4). <https://doi.org/10.14763/2020.4.1517>

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Volume 9 | Issue 4



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## Trusted commons: why ‘old’ social media matter

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**DOI:** <https://doi.org/10.14763/2020.4.1517>

**Published:** 21 October 2020

**Received:** 9 June 2020 **Accepted:** 5 August 2020

**Competing Interests:** The author has declared that no competing interests exist that have influenced the text.

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**Citation:** Maxigas, P. & Latzko-Toth, G. (2020). Trusted commons: why ‘old’ social media matter. *Internet Policy Review*, 9(4). DOI: 10.14763/2020.4.1517

**Keywords:** Social media, Trust, Digital commons, Commons, Peer production, Critique

**Abstract:** This paper looks at contemporary uses of an “old” social media – Internet Relay Chat (IRC) – and shows how they constitute a form of resistance to and a social critique of mainstream social media platforms. By examining IRC uses within three social worlds of peer production (free software development, hackerspace participation, Anonymous hacktivism), we argue that this open protocol (a digital commons) continues to serve as an essential component of the digital infrastructure, while receiving minimal public attention or funding.

This paper is part of **Trust in the system**, a special issue of *Internet Policy Review* guest-edited by Péter Mezei and Andreea Verțeș-Olteanu.

## Introduction

After a decade of growth and unquestioned pervasiveness in all walks of life, in recent years social media platforms have been subject to what can be called a *trust crisis*: trust in their ability to preserve privacy and the integrity of personal data, to prevent the spread of disinformation, or to protect users against harassment, among others. The climax of this crisis is probably best epitomised by the Facebook-Cambridge Analytica episode and the following public hearings of Facebook's CEO, Mark Zuckerberg, who was held accountable for this "breach of trust" (Wong, 2018). But this is only the tip of the iceberg. From Alphabet (Google) admitting that Gmail scans personal emails to extract commercially valuable data, to Snapchat recognising that supposedly ephemeral messages may be stored (Federal Trade Commission, 2014), to Tinder's secret algorithm matching people based on a *desirability* score (Dent, 2019), to Grindr being caught sharing HIV-status information of its LGBTQ+ users with other companies (Ghorayshi & Ray, 2018),<sup>1</sup> the ongoing question revolving around those communication devices is always the same: can we trust them? How transparent are their algorithms? How ethical are the values embedded in their design? How safe and fair is the communicational space they are enabling? What data do they collect and store, and what do they do with them?

This paper stems from a study of the historical shift from internet protocols as *commons* to social media as *platforms*. We are interested in the platformisation of social media (Poell, Nieborg, & van Dijck, 2019; Helmond, 2015), a gradual process by which digital interactive media based on open protocols and free software got superseded by proprietary applications embedded within platforms. The core of our argument is that social media, as a type of computer-mediated communication device, is not an emanation of (commercial) digital platforms, but in fact predates them. We therefore use the term *social media* in a broader sense than the generally accepted definitions that have been proposed. These definitions, which insist on a set of characteristics inherent to web-based social networking and content sharing devices, pertain to the rhetoric of periodisation that has become commonplace in studies of digital media, as the notion of newness has been instrumental in struc-

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1. Note by the editor: This sentence was modified on 22 October 2020 on the request of the authors, after they had found a mistake in language related to Grindr and misattributed information.

turing the research agenda (Gitelman, 2006; Park, Jankowski, & Jones, 2011). Drawing attention to the most recent technologies contributes to framing already existing technologies as “old” in the derogatory sense of *obsolete* and *irrelevant*. It obscures (and denies) the possibility for users of technologies that are not in the spotlight of public attention to contribute to a social critique of dominant technologies, overlooking their political and subversive potential.

Bernie Hogan and Anabel Quan-Haase define *social media* as a computer-mediated communication device aimed at *many-to-many* communication, promoting the participation of a wide audience, and offering a set of *social affordances* (2010, p. 310). Given this definition, we can trace down a number of digital devices predating current platforms, including various messaging systems fostering synchronous (chats, instant messengers, Multi-User Dungeons) and asynchronous interactions (Usenet groups, bulletin board systems, email lists). By investigating all forms of so-defined social media in current use regardless of their “newness”, nor the amplitude of their user base, we can see devices that enjoy continued use as legitimate technologies, rather than mere oddities surviving thanks to their users’ nostalgic attachments to obsoleted machines – as reported by Christina Lindsay (2003) on retrocomputing. Christina Dunbar-Hester’s work on low-power radio activism (2014) shows how political values attached to the understanding of media in continued use shape the appropriation of new technologies. We build on her arguments to formulate a critique of dominant social media platforms informed by the empirical study of current “old” social media users.

An example of “old” social media is Internet Relay Chat (IRC), a long-standing protocol for real-time text conferencing, developed around 1990, the same time as the Hypertext Transfer Protocol (HTTP) known from web addresses. Since then, the IRC protocol has silently become ubiquitous, unhampered by the fierce competition on the tech market. For instance, our data revealed that it is used as the chat engine behind the scenes of major social media platforms such as Twitch and Ustream/IBM Cloud Video; and parts of it were integrated in “modern” collaborative tools like Slack (interview with J.). In other words, many lay internet users use IRC every day without being aware of it. As we will illustrate further in this paper, IRC has become a key - but invisible - component of the contemporary digital infrastructure. In former works we provided a detailed account of the history of chat protocols, where we situate IRC within the emergent digital technology landscape (see Latzko-Toth & Maxigas, 2019). Here, we examine what can be learnt about social media from expert users who stick to its earlier manifestations.

While our relationship to technology is strongly structured around the modern

myth of progress, it can be helpful to pay attention to users who go against the grain in their technological choices. In line with Carolyn Marvin's (1988) and David Edgerton's (2008) pleas for decentring our historical accounts of technology from innovations to uses, we focus on the IRC case and argue that this decentralised, co-constructed (Latzko-Toth, 2014) communication infrastructure continues to serve user groups who tend to distrust proprietary platforms – groups involved in the collaborative production of software, hardware and politics.

We use the term *social world* to designate the social aggregates whose practices can be related to peer production. People contributing to free software production, taking part in hackerspaces or in hacktivist operations do not form bonded groups, with a clear sense of membership or exclusion. Rather, they have fuzzy boundaries, and accommodate various perspectives, even though people taking part in them have a shared sense of mutual expectations. They constitute what Adele Clarke and Susan Leigh Star (2008) call *social worlds*, borrowing a concept developed by Tamotsu Shibutani, Anselm Strauss, and Howard Becker, within the Meadian interactionist-ecological tradition of social theory (Cefai, 2016). Social worlds constitute “a unit of analysis that cuts across formal organizations, institutions [...], and other forms of association such as social movements. It is, put simply, a set of relations between people doing things together” (Bowker & Star, 1999, p. 294). Daniel Cefai insists on the variability and flexibility of these social forms, noting that some are “loosely connected universes of special interest” (Shibutani, 1955, p. 566; cited in Cefai, 2016, p. 173), but also that they exist “only in and through communication” (178), hence the importance of digital media in holding together the social worlds of peer production. Based on our observations, IRC appears to be the common denominator among the communication tools used within these social worlds, which warrants its further investigation.

In the next section, we present our theoretical approach to the history of social media and the dynamics of informational capitalism. Subsequently, we explain our methodology, which is oriented towards digital ethnography. Then, we report our empirical findings about three particular social worlds of peer production (free software, hackerspaces, hacktivism). We close the analytical part of the paper with a discussion of the results in terms of their theoretical import. Finally, we conclude with a summary and provide policy recommendations.

## Theoretical framework

### A use-centred historical approach to social media

Only a critical history of technological devices allows to shed light on contemporary debates about them. For that matter, discussing media technologies as “new” or “old” obscures what is actually lost or gained with them. As Carolyn Marvin (1988) puts it:

New media, broadly understood to include the use of new communications technology for old or new purposes, new ways of using old technologies, and, in principle, all other possibilities for the exchange of social meaning, are always introduced into a pattern of tension created by the coexistence of old and new, which is far richer than any single medium that becomes a focus of interest because it is novel. (Marvin, 1988, p. 8)

This is why, Marvin argues, “[t]he history of media is never more or less than the history of their uses” (Marvin, 1988, p. 8). Developing this point, David Edgerton (2008) claims that the study of technology-in-use yields a very different history of technology than a chronological account of technological innovations. In his study of technological mobilisation in World War II, he found that horses played a more significant role than cars, planes, and even the atomic bomb. Focusing on technological innovations that occurred during the war overshadows what actually happened on the field. This is why, Edgerton pleads, we should shift the focus of our historical accounts of technology from innovations to uses. That is, from an innovation-centric perspective to a use-centred one. The former term refers to an (unconscious) bias for the invention date in assessing the significance of a technology, while the later corresponds to the mindful, methodologically grounded focus on the effective uses of existing technologies – who was using it, during what period of time, for what purposes, and to which effects. The use-centred approach leads to a considerably more textured picture of the trajectories of artifacts through time: “In use-centered history technologies do not only appear, they also disappear and reappear, and mix and match across the centuries” (Edgerton, 2008, p. xii).

Therefore, following the uses of a given technological device can tell a very different story than if we just look at technologies that surface at the crest of the wave, being the most visible and discussed at a certain moment in time. A use-centred approach to digital media allows media scholars to theorise properties of devices stemming from their design and resulting affordances – via path dependency – as

well as emergent properties that are gained through maintenance, development and a changing socio-technical context. In line with these insights, our study targets users of old technologies such as IRC, who would have plenty of alternative chat solutions to choose from (such as Slack, Discord, WhatsApp, etc.). Our aim with this study is to explore the possibilities of critical insights on communication technologies that studying them from a use-centred perspective may offer. At the same time, we seek to understand why “old” social media – protocols from the pre-platform era of the internet – matter to the people who use them, and to what extent they matter politically for our societies at large. Since pursuing such a project requires a particular kind of approach to the “history of the present” (Rabinow & Bennett, 2007, p. 7), in the next section we conceptualise the history of devices as technological cycles of critique and recuperation.

### **IRC use as a critical social practice**

We argue that contemporary IRC use qualifies as a critique of mainstream social media, and substantiate this claim with empirical observations in the case studies that follow. But first we need to clarify the notion of critique within the framework of a use-centred historical approach to social media. IRC use as a critical social practice today unfolds in the context of platformisation, a concept that describes “the rise of the platform as the dominant infrastructural and economic model of the social web and its consequences, in its historical context” (Helmond, 2015, p. 1).

Platformisation goes beyond and builds on market concentration and market consolidation following the dot-com bust of the early 2000s that led to the hegemony of a few application service providers (Poell et al., 2019). Caroline Bassett calls these services *social media monopolies* (Bassett, 2013, p. 157). Stressing the infrastructural aspect of digital platforms, Anne Helmond claims that their architecture and ontology entail the extension of social media platforms into the rest of the web, so that all content and services always already have to be published and provided in a “platform ready” format (2015, p. 1). Only against the background of general platformisation can we recognise the use of old social media by technical experts as a critical social practice that goes against the grain of mainstream technology and media use. It is in this way that we can properly grasp its political significance as an act of resistance to the *recuperation* of chat devices by informational capital. This echoes Sally Wyatt’s argument that people resisting or rejecting a specific technology are actually exerting a form of technological agency (2010, p. 9).

Luc Boltanski and Eve Chiapello (2005) propose a theoretical framework where historical developments are analysed as an alternating series of critique and recuperation. This framework allows us to make sense of the contemporary moment in relation to social conflicts in a determinate past through examining their full trajectory and their eventual outcomes. Their particular case involves the artistic critique of alienation in the 1960s through a widespread cycle of struggles and the associated desires it would unleash. The critique of alienation was implemented by firm managers so that by the 1990s, particular demands would be met, but at the same time the main thrust of the 1960s critique would be derailed or undermined.

Anne Barron already showed how Free/Libre and Open Source Software (FLOSS)—a social movement built around a digital artifact (software)—went through such a cycle from critique (*free software*) to recuperation (*open source software*). Free software has been established as a critical response to the commodification of code that had been freely shared before by academics, amateurs and indeed, corporations. Yet, in a few decades FLOSS became an organic part of capital accumulation practices in the IT industry. While the *demands* of the free software community for code sharing (a critique of property rights) have been gradually accepted and implemented by major industrial actors, its associated values (the hacker ethic) paradoxically became the “ethical foundations of contemporary capitalism” (Barron, 2013, p. 19; see also Himanen, 2001).

The methodological implication of Barron’s pioneering study is that the theoretical framework of critique and recuperation can be fruitfully applied to the study of technology use. Following up on this observation, Johan Söderberg and Alessandro Delfanti (2015) suggest that the critique/recuperation framework is general enough to be applied to the study of the interaction between media use and media policy, especially in the context of hacking as critical social practice:

Whereas Boltanski and Chiapello’s argument dwells on the evolution of organizational forms, they have little to say about the role of technology in the processes they describe. Yet technical innovations spawned by hackers [...] constitute the material infrastructure of today’s capitalism. We argue for including hacking as one of the sources of the processes that constitute such infrastructure. (Söderberg & Delfanti, 2015, p. 3)

We propose that some media technologies like IRC are initially formulated as a critique of the present conditions, yet many others fall prey to recuperation on their

way to mass adoption. Following Alan Liu (2004) and Peter Fleming (2009) who make a formally similar claim regarding “cool” and “authenticity” (respectively), we posit that the capitalist system feeds off the technological creativity at its fringes and makes use of the results for its own purposes. Notably, such a conception can be understood as a politicised reading of the user innovation phenomena described by Eric von Hippel (2005). He points to the social worlds of peer production as a source of inspiration for developing commercial products and services. Designers in the user innovation paradigm follow users who adopt deviant use patterns, modify products, and even develop alternative technologies. Vendors incorporate these inventions into their products and services in order to improve on their profit margins and market positions.

We examine IRC use within the social worlds of peer production because they are the prime targets for recuperation through the user innovation paradigm. And we argue that by turning to IRC as their core synchronous communication device, participants of these social worlds actively resist the hegemony of platforms and ultimately perform a political critique of the recuperative attempts of informational capital. Referring back to Helmond (2015), she finds that in the past decade most online services—including chat devices—have been incorporated into social media monopolies through platformisation. Therefore, we conclude that contemporary IRC use as a critical social practice is an indicator of ongoing social conflicts, a privileged vantage point that allows a critical and dynamic understanding of the media and policy landscape.

## Methodology

Our claim that IRC serves as the preferred communication infrastructure of peer production communities—a trusted commons—rests on the study of three specific user groups from the realms of software, hardware and politics. In software, we looked at the communication practices of FLOSS developers. In hardware, we investigated the media uses of hackerspace members, since these shared machine workshops are considered the infrastructure of peer production “in the physical realm” (Kostakis, Niaros, & Giotitsas, 2015). In politics, we examined the reported technological choices of participants in the Anonymous hacktivist movement, since they have been the most visible example of peer produced politics of the last years (Dagdelen, 2012).

We could have examined other subfields of peer production, such as the peer production of knowledge (e.g., the Wikipedia community), the peer production of crime (cybercriminal groups) or the peer-production of the internet itself (the IETF

organisation). But the three aforementioned cases are socially significant because their influence reaches beyond subcultural bubbles: these social worlds shape the mainstream of software, hardware and politics, which are all of critical importance for internet policy—and society in general. If not representative of all spheres of peer production, the three cases are complementary while at the same time showing commonalities that allow for the inference of a cultural pattern—what a single case study, or even a comparison between two cases, wouldn't afford. Finally, they formed a convenience (opportunistic) sampling. Either we had privileged access to the field through ongoing research that both authors had pursued (hackerspaces, IRC developers) and that provided primary data; or they were already well documented in Science & Technology Studies scholarship (free software, Anonymous), allowing for secondary analysis.

Our methodological approach is to study practices (media in use), rather than devices (mere media). In line with this, we followed the guidance of Tom Boellstorff, who proposes *digital ethnography* as a way to study both what people do and what people say. Digital ethnography can overcome a major methodological limitation of some qualitative inquiries, which is to focus solely on representations gathered through elicitation, missing the crucial difference between meanings and practices (Boellstorff, 2012, p. 55). In other words, culture is defined as much by what is said than what goes without saying. Boellstorff asserts that ethnography is not a method, “but the written product of a set of methods, as the suffix *-graphy* (to write) indicates” (2012, p. 53, emphasis in the original). The crucial point is that only a combination of methods can adequately grasp culture, yet these have to come together in the process of writing itself. Therefore, this article is the result of research conducted over a number of years through a variety of methods.

We synthesised our past field work experience going back to our doctoral dissertations with newly conducted semi-structured interviews and automated data collection, which are published here for the first time. The first author undertook participative observation in European hackerspaces between 2012 and 2018, focusing on the technical repertoire of hackers (Maxigas, 2017).<sup>2</sup> IRC use emerged as one of the distinguishing characteristics of hacker culture, observed through a variety of social worlds connected to hackerspaces, long after falling out of use with the mainstream of internet users. The second author did a diachronic study of IRC networks as sociotechnical infrastructures, through studying the mailing list archives

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2. The multi-sited ethnography included field surveys of 12 European hackerspaces, and extended field work spanning more than three months in three local hackerspaces in Budapest, Amsterdam and London.

where the operators of major IRC networks hashed out their differences (Latzko-Toth, 2014). The question of a trusted commons came up through witnessing the debates on automation, i.e. how to distribute agency in the networks between human and non-humans. Only later did we realise that IRC history had a remarkable continuity within the social worlds of peer production.

We used both qualitative and quantitative methods to further investigate this preliminary insight based on our joint observations. First, we conducted face-to-face interviews at relevant events with prominent members of the community (casual and heavy users, server maintainers, developers).<sup>3</sup> This time, the template addressed the questions of continuity and discontinuity in the historical trajectory of IRC and the idiosyncratic traits of IRC use in the social worlds of peer production directly. We coded the interviews collaboratively using a co-operatively compiled list of keywords. Quotations in this article are from these semi-structured interviews if not otherwise indicated.

Second, we used a Bash script that retrieved data from GitHub project pages and measured the frequency of the mention of an IRC channel as a contact option offered by the project, versus other means of communication (see Maxigas, 2020 for the source code). We triangulated the results by correlating them with the names of these projects occurring in the list of IRC channels on popular networks (mainly freenode.org), retrieved through the embedded channel list feature of IRC servers. We emphasise that counting is not foreign to ethnographic methods, but forms an essential, yet often overlooked aspect of the anthropological tradition, going back as far as the classic field work accounts of Malinowski. Automated data collection allowed us to assess the overall validity of some claims on IRC use, both as put forward by the participants themselves and as observed by ourselves from particular situated vantage points within these social worlds.

In sum, we combined various data streams and collection techniques to undertake a digital ethnography of three social worlds of peer production, focused on the use of social media infrastructures. We explain above why we opted for including three cases, where we could have written a more detailed account of a single in-depth case study, or bring a wider range of more impressionistic examples. The limitation of our chosen approach is that we have to keep the presentation of the empirical evidence that underpins our claims very brief in each case. Our combined field work experience is also Western-centric, even though we did substantial research

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3. Freenode Live Conference, November 2017, Bristol, UK; and Networks With Attitude, April 2019, Antwerp, Belgium.

outside the hegemonic Anglo-Saxon linguistic milieu (in Quebec and Catalonia). However, and while we cannot offer a post-colonial, gender-based or minority stand point in this paper, our goal is to provide an alternative account to hegemonic narratives. We base our analytical stance on paying attention -- and siding with -- marginalised experiences of social media in use. The next sections provide an account of this field work and of our secondary analyses, in light of our conceptual framework.

## IRC uses in the social worlds of peer production

### Peer produced software: free software projects

The GitHub platform holds the biggest collection of free software on the internet (Github, Inc., 2020). We sampled about 10% of all projects from an archive of GitHub content made by the University of Delft in 2019 (University of Delft, 2019). We threw away those without descriptions, since they are typically one-off experiments. We found that 126,681 or 3% of the 4,215,056 project descriptions mentioned IRC or a closely related term (such as the name of major IRC servers or networks). A manual review of the dataset confirmed our initial interpretation: IRC is most often mentioned as a contact point for users and developers, where users may ask for support and developers may collaborate on the project. We encourage researchers to try reproducing our results based on our published script and the data set, themselves available as a GitHub project (Maxigas, 2020).

The social world of free software is one of the oldest where IRC use is still taken for granted. High-profile projects such as the Linux kernel, which powers mobile phones through the Android operating system, is developed using IRC as a coordination tool.<sup>4</sup> This means that developers use it for collaboration and social interactions around the project. We could ascertain a similar use via both quantitative and qualitative methods. While the corpus we collected using computational methods revealed that a significant portion of contemporary free software projects provide an IRC channel as their main contact point for user support, the interviews confirmed that collaborating on free software projects means, without a doubt, to participate on IRC channels:

It was 2014. I kind of committed to [IRC], so to speak, just working on more free

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4. For instance, see the user-facing documentation of the Linux Foundation: "There are only two steps required to communicate to other real-time users or developers on IRC." (Gleixer et al, 2016)

software projects, where I became friends with the maintainers. They were like, you have to come here and hang out with us. So, I was drawn into [that] world [...] and I had to participate in the community. (K.)

We also found evidence of free software users relying on IRC: “When you need somebody, and join a channel, and say, ‘Hey, help, can somebody answer this question, I’m stuck!’, there is a response.” (A.)

Our ethnographic observations also provided data on how IRC fits into the wider technological repertoire of free software developers. It should not be a surprise that automation through software is rampant in the social worlds specialised on software production. Independently of IRC, free software communities work with an intricately layered infrastructure (“the stack”) in order to store software code, collate changes, as well as to build and test the results. These processes are referred to with technical terms such as “continuous build automation”. Automated software participate in developer IRC channels as bots, periodically reporting on their performance, such as how many bugs were closed or how many tests failed in the system. Some bots allow for developers to command such software directly from the IRC channel.

Along with this deep integration of IRC uses within the everyday operations of FLOSS production, we also got testimonies indicating a rejection of mainstream social media platforms. For instance, one participant stopped using Facebook altogether, and his last post on his wall was: “See you on IRC! Social networking since 1995” (K.). This example is a sharp illustration of the exertion of technical agency in Wyatt’s (2010) sense, where choosing to use a technology instead of another is a way to go against the grain and a form of political engagement. Additionally, the explicit reference to an inception date (be it erroneous) emulates the marketing practice of brands to establish their long-standing existence as a proof of trustability, thus signalling that trust may be guiding individual and collective technological preferences.

## **Peer produced hardware: hackerspaces**

We surveyed 12 European hackerspaces, and found that all relied on IRC for their backstage communication. In more general terms, the website that constitutes the public interface of hackerspaces to the wider public, hackerspaces.org, closes its brief landing page with the statement that “[f]rom around the world, hackers meet on the Freenode IRC channel #hackerspaces” (Hackerspaces Wiki contributors,

2018). This statement discursively ties the collective identity associated with the hacker world to IRC use.

Hackerspaces have been called “a manifestation of commons-based peer production in the physical realm” (Kostakis et al., 2015), since they are physical spaces where technology enthusiasts come together to socialise, work on projects, and collaborate. Hackerspaces are habitually associated with additive and distributed manufacturing using 3D printers (see for instance Dafermos, 2014), although by now, 3D printers can be found in many other, more commercial types of Shared Machine Shops. What distinguishes hackerspaces from their commercial counterparts is a humbler feature: that they use IRC as their backstage communication medium.

What we mean by a “backstage” medium is demonstrated by Y., one of the interview participants. After describing IRC as a tool for remote participation in meetings, he emphasises the informal, social, spontaneous aspect of traffic on the IRC channel of the hackerspace: “But it’s also about like, who needs food tonight? Let’s make a joint food order! I think that’s a daily message that is appearing on this channel”. He also mentions that the channel makes it “easier to reach someone” in everyday situations.

A common automation implemented in hackerspaces is controlling a LED message ticker in the physical space via an IRC bot. Channel participants can ask the bot to write custom messages on the LED ticker in the space in order to draw the attention of physical attendants. The first author saw a similar implementation in hackerspaces in Budapest, Amsterdam and Den Haag (H.A.C.K., Technologia Incognita, and Revspace). In the latter city, the hackerspace is located in a duplex space, so that the social space above is separated from the workshop space below. The tour of the hackerspace included the explanation that the LED ticker controlled through IRC is used to let participants in the workshop area know that the food order arrived, so they can come to eat.

The examples above illustrate what Marvin describes as “new ways of using old technologies” or combinations of them, but also how communication technology “carries the seeds of its own subversion” (Marvin, 1988, p. 8). They also emphasise that when old social media become infrastructural, their mundane status makes them fall under the radar of media scholars. This stresses the importance of deploying an adequate methodology focused on the study of practices instead of devices.

## Peer produced politics: Anonymous hacktivists

Even though the Anonymous hacktivist movement is still active, its heydays were in the first half of the 2010s, when most of its high-profile campaigns (“operations” in hacker parlance) took place and when most of its prominent members were arrested for the associated charges. One of the most spectacular of these operations, “Operation Payback”, was sparked by the crackdown on WikiLeaks and the arrest of its public figure, Julian Assange. Therefore, in this case we chose a more historical ethnographic approach than in the previous two. Whether the social world of peer produced politics changed in regard to our findings since then, is an open question. Paulo Shakarian, Jana Shakarian, and Andrew Ruef (2013) assert that the “world-spanning virtual social network, which conceives, decides, plans, and organizes hacking exploits is what and who Anonymous really is: a number of IRC channels, blogs, and message boards accessed from (at least) several hundred thousand devices all around the globe” (p. 96).

While the Anonymous hacker group is known for many protests, hacks, leaks and other exploits, their notoriety is mostly based on DDoS (Distributed Denial of Service) attacks. This is a relatively simple technique that involves sending too many requests to a web server that simulates an excess number of visitors. In case the attack is successful, the website becomes unavailable due to the sheer number of requests (Sauter, 2014). Some of the first documented arrests of the group was made because of such an attack on the infrastructure of PayPal, in retaliation for the company joining the financial embargo against WikiLeaks (Coleman, 2014, p. 141).

This was accomplished through the LOIC software, and specifically its legendary “hive mode”. In hive mode, the software logs in to an IRC channel and waits for instructions from an administrator (Dagdelen, 2012; Shakarian et al., 2013, p. 87). Thereby, it is a simple but effective way to lend the computer power of one’s personal computer to a coordinated activist campaign that implements the virtual version of the classic sit-in direct action tactic. This is described in detail by Molly Sauter’s (2014) monograph on hacktivist DDoS attacks, which focuses mainly on the operations of Anonymous.

Another hacktivist use of IRC was documented in the interviews. A cyberfeminist group celebrated International Women’s Day by a “march through the channels” (A.). This meant that participants logged in to various IRC channels en masse, copy/pasting slogans and briefly interacting with whoever was already there, before logging out and waiting for instructions on the next target channel to raid.

Similarly to sit-ins, this digital social practice is understood as the digital equivalent of an analogue practice, the protest march in the urban public space.

## Cross-case analysis

Based on the testimonies we collected from insiders of the peer production social worlds, the reasons for using IRC boil down to two main dynamics. The first one is the pressure of peers within the social world in question. IRC use is a “cultural thing” within a group, an organisation, and more broadly speaking a social world, as illustrated by the example mentioned before of an interviewee who had to “hang out” on IRC if he wanted to be part of the community.

The second reason, somewhat related, is the strong affective dimension of engagement with IRC, both as a mere user and as a developer. Continuous IRC use through years is often associated with affective ties developed within a distributed group of people who have become friends. But interestingly, these groups tend to stick to IRC as their main tool for online interaction, because—as reported by interviewees—IRC is seen as an essential component of the relationship between these people. Another aspect of this affective dimension of IRC is the attachment to the device itself, which motivates a sustained engagement with its development, and justifies volunteering a lot of time to it even though it is not seen as *monetisable*. Some aspects of this attachment might be related to specific characteristics of the protocol, described by developers as providing affordances for “tweaking”, being open, very easy to read, straightforward. But it appears to us that this attachment is also related to other qualities including its decentralised nature and its permanence over time.

IRC development thus relies on passionate volunteers, admittedly “obsessed” with it. As noted by interviewees, private companies are not interested in investing resources in IRC because of the lack of direct profitability. So just like IRC use is understated and barely visible in accounts of contemporary digital infrastructure, the maintenance and development work required to make IRC work is even more invisible. This should be taken into consideration when discussing internet policy, because it implies a value statement. The statement that volunteer maintainers of IRC make by contributing to its software and services is that they find very different things valuable than the profit oriented social media platform vendors on the market. We think that it explains why they dedicate work hours to spend on IRC and why major software companies do not: a trusted commons is directly valuable as the basis for the existence of the social worlds of peer production, whereas it is not monetisable directly in the context of informational capitalism.

A third motivation behind IRC use directly connects to the notion of trust. When talking about the IRC protocol, our interviewees underline its “oldness” as a positive quality—longevity. One of them sees IRC as a “technology that survived”, making implicit reference to a Darwinian conception of technological development. Another way to put it is that IRC stood the test of time, thus proving its reliability and endurance, and therefore its trustability as a communication tool. Peer production groups can rely upon it for their internal communication needs, because it can be trusted to stay around, contrary to proprietary tools like Slack, whose protocols could not outlive the company that created them.

Finally, what can also be discerned as a common observation across the three social worlds is that participants of each of them make use of their specific customisations in the form of bots. Free software developers use bots to keep track of their “stack”, which provides quality assurance and product delivery. Hackerspace members use bots to interact with the hardware that they develop and deploy in the physical community space. Hacktivists use bots to pool their resources and direct them against a common target. One of the interview participants pointed out that through developing such customisations, users contribute to the “survival” and “longevity” of the protocol: “So, that is one of the interesting appeals of IRC. IRC can improve its chances of surviving by basically copying the best ideas from new services and enhancing itself, and keeping itself relevant and keeping itself able to provide solutions that people just expect from communication today” (J.). This is in contrast to many contemporary social media platforms whose rise and fall depend on the market fortunes of the companies behind them.

Thus, IRC use, development and maintenance appear to be a conscious choice between long-term investment in a trusted commons and reliance on symbiosis with a commercial product. As Latzko-Toth (2014) has shown, the simplicity and flexibility of IRC empower users to adapt their communication infrastructure to their particular use cases, and set up different servers and networks of servers with different rules if they deem it necessary. It would be impossible for a Facebook group to fork Facebook itself and introduce their own design changes, even if the company provides a limited Application Programming Interface (API) for interacting with the interface programmatically. In this schema, capital accumulation appears as a limitation on the possibilities of technological development, rather than an incentive to it.

## Conclusion

Analysing the social practices, media use, and technology choices of peer produc-

tion communities in terms of their deviation from the affordances of mainstream platforms does more than amplifying unheard voices or highlighting overlooked alternatives (Ermoshina & Musiani, forthcoming). It provides media scholars with an empirically grounded critical perspective on the use of hegemonic social media platforms, by highlighting their limitations *vis-à-vis* the technological possibilities actively exploited by expert users.

In this study we established that IRC is used today as the backstage communication infrastructure in the social worlds of peer production at the forefront of software, hardware and politics. We provided evidence based on ethnography, computational methods and secondary analysis of the literature. Our main argument is that a comprehensive view of digital media uses is essential for an adequate understanding of the contemporary internet landscape. With this study, we would also like to contribute to the broader project of a use-centred account of media history that can counterbalance dominant innovation-centric views.

Our findings show the use of invisible digital infrastructures, such as old social media like IRC, underpinning innovation in software, hardware, politics. Participants in the social worlds of peer production use, develop and maintain these. But we also see the fragility of these digital commons, since they receive little public attention and support—notably in terms of funding. Communications policy should therefore consider supporting the maintenance and repair of these trusted commons.

As Andrew Russel and Lee Vinsel (2016) state, “[c]apitalism excels at innovation but is failing at maintenance, and for most lives it is maintenance that matters more”. This is true for IRC as well, given the very few developers and minimal funding assigned to IRC software and services. Two conditions for a maintenance and repair shift can be outlined here. On the one hand, innovation-centric narratives of digital media history should give way to a use-centred approach that help make the invisible visible in the digital media infrastructure (Star & Bowker, 2006). On the other hand, community operated alternatives should receive more attention and be supported along with commercial ventures (Scholz, 2016). In sum, old social media matter because rather than a mere fringe phenomenon, they actually provide a privileged vantage point for the critical understanding of contemporary media in general, while suggesting possible alternatives to social media monopolies.

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