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Free Software Meets Facebook: Placing Digital Platforms' Usage by Free Culture Communities

The use of digital platforms in social movements has given the Internet a central role in analyzing activism over the last decade. However, social networks' potential for social change has to be analyzed critically and take complex economic and political contexts where actors remain unequally powerful into consideration. Through a combined methodology, this paper explores the tensions of free culture communities in Spain when using proprietary digital platforms. These communities include 1,651 platforms, of which 1,162 are proprietary, and 489 are free. They describe a complex ecology in which they use proprietary platforms or free alternatives depending on their ultimate goals. The logic of technological corporations is notably imposed when communities aim to communicate with outsiders as commercial social networks attract a significantly greater number of users.

digital communication, informational capitalism, political economy, information ecology, social movements, digital activism, technopolitics, free culture, free software, digital platforms

'For the master's tools will never dismantle the master's house.'

Audre Lorde (1984).

1. Introduction

In recent decades, social movements have, so far, been connecting to commercial social networks due to their potential to spread messages, communicate demands, and organize collective action (Castells, 2012; Gerbaudo, 2012). However, the fascination with these digital platforms involves a technodeterministic discourse that identifies them as a means that necessarily leads to social transformation when used by civil society (Couldry, 2015; Lasén and Martínez De Albeniz, 2011; Morozov, 2018).

Technologies have never developed in a vacuum, so acquiring a political economy perspective helps to analyze the transformative potential of digital platforms in contemporary societies (Carragee, 2019). Internet technologies are embedded in a capitalist system, contributing to the acceleration of production processes and information accumulation. Interaction and emotions are monitored and commodified by technological corporations, which control data flows and algorithm design (Birkinbine et al., 2016; Fisher, 2010; Illouz, 2007).

Internet users engage and actively participate on digital platforms, generating information –a surplus-value, in Fuchs' (2013) words– exploited by technological corporations. Thus, commercial platforms' affordances should be comprised as interwoven with the logic of informational capitalism (Cammaerts et al., 2013; Kaun and Uldam, 2018). As Winner (1980: 122) states, 'What matters is not technology itself, but the social or economic system in which it is embedded.'

This research is aligned with the political economy perspective to analyze the digital platform usage by social movements in their daily communication practices. To this end, we focus on free culture communities, which leverage a new economy model when relying on collaborative creation and the collective sharing of cultural production (Benkler, 2004). This position entails the contestation of informational capitalism since it strives to overturn hierarchical systems of control over personal data (Birkinbine, 2018).

Free culture comprises knowledge as multiple types of common goods (Hess and Ostrom, 2007), which belong to the population and not to particular subjects. In this view, technological corporations do not centralize digital platforms' design and development, as this creative process relies on a big community that examines and experiments on the code (Raymond, 1999). Bridging the hacker ethic (Himanen, 2001), the communities propose learning as a joy without the restrictions of hegemonic and institutionalized spaces. Thus, instead of limiting their practices to the creation of several kinds of knowledge, they also present a pedagogical orientation to mentor newcomers in technical skills (Balali et al., 2018) and foster the use of technologies for social transformation (Barbas and Postill, 2017).

For that reason, Milan (2016) includes the daily practices of those communities under the broader term 'emancipatory communication activism,' as they create alternatives to existing communication infrastructures and resist technological corporations' hegemony. The connection of free culture to activism in Spain was especially relevant in 2011 when hacktivists and collectives against copyright promoted and participated in the

15M movement: Anonymous and Nolesvotes platforms —i.e., a collective against the copyright regulation Sinde Law— leveraged protests at the onset and, in turn, hacklabs and hackmeetings around the state prompt social ties between activists and promoted the politization of technologies prior to 2011 (Fuster Morell, 2012; Padilla, 2012).

During the 2011 protests, those activists created alternative digital platforms, combining them with the usage of commercial ones (Candón Mena, 2012). Due to this technological imaginary, this country has been internationally recognized for its 'major contribution to the popularization of the notion of technopolitics' (Treré, 2019: 143). Technopolitics entails both the tactical use of digital platforms for social change and the assessment of those technologies from a political viewpoint (Toret et al., 2013). As Treré and Barranquero (2018) noted, this term serves as a lens to jointly observe the practices of worldwide movements beyond their nuances, since tech-savvy activists present innovative uses of digital platforms to communicate with outsiders and coordinate their action. Technopolitics is also related to an ecological perspective insofar as these activists comprehend and perform online and offline participation as intertwined areas to exert any influence.

This article tries to connect free culture studies with theoretical contributions of digital capitalism and information ecologies, showing these approaches' analytical usefulness regarding this branch. Overall, our argument is that the use of alternative platforms by social movements is restrained by informational capitalism, which leads them to negotiate between their technological imaginary and their tactical objectives. With this aim, we asked free culture communities in Spain about their daily digital platform usage through a questionnaire and several interviews. We connect the critical interpretation of

this corpus with the theoretical understanding of a complex political milieu that dynamically connects the technologies, subjects, and economic conditions of the Internet (Croeser and Highfield, 2014; Kavada, 2015).

1.1. Commercial and free social networks from an ecological perspective

The use of technologies has been a continuum in the historical analysis of social change and mobilization (McChesney, 2013; Rodríguez et al., 2014). The Internet has been used for social mobilization during the last decades (see, for instance: Costanza-Chock, 2001) and social networks have acquired a central role in the analysis of global uprisings to the point that they have been called the most popular social networks, i.e., Facebook, Twitter, and YouTube. Treré and Mattoni (2016) consider these labels a manifestation of an analytical reductionism that assumes a functionalist usage of digital platforms.

Some authors have referred to 'technological fetishism', the term from Marxist tradition, to describe the utopian discourse that tends to overestimate the role of the Internet in social transformation (Barassi, 2015; Downing, 2008). This viewpoint overlooks a more sophisticated understanding of collective actions, as well as legitimizing the use of commercial platforms, which ultimately serves the corporate interests of their owners (Fisher, 2010).

The criticism toward technodeterminism is not new. Before the expansion of social networking sites, Mosco (1980) pioneeringly noted that the centrality of optimistic opinions about information technologies presents an ideological nature that eventually

justifies the acceleration of globalized markets, the creation of new lucrative business models, and the inequalities in the distribution of global information.

From this standpoint, researchers criticize their instrumentalization by state powers and conservative forces (Schradie, 2019); their collaboration with repression and censorship actions (Dencik and Leistert, 2015); their extraction of an economic benefit from user prosumption (Fuchs, 2013); their datafication of personal relationships (John, 2019); their surveillance practices (Croeser and Highfield, 2014); their possession of personal data and opacity (Jakobsson and Stiernstedt, 2010); their design not being oriented to democratic ends (Lasén and Martínez De Albeniz, 2011); their structure toward individualistic use (Krasnova et al., 2010); and the commodification of the self through the public expression of personal emotions (Illouz, 2007).

Activists are also aware of the contradiction between the use of commercial social media and their shared values (Galis and Neumayer, 2016) so they have been working on alternative digital platforms to support more radical and egalitarian participation (Candón Mena, 2012). Free software embraces four freedoms for computer programs (Stallman, 2004): to run the program for any purpose, to study and improve the program's code, to redistribute copies of it, and to distribute its modified versions. It differs from commercial –also, proprietary– software, whose source code is closed, and its modification or redistribution not allowed (Androutsellis-Theotokis et al., 2010).

The definition of free software comes from the end of the last century when the commodification of computer programs began to restrict collaborative programming and the free distribution of the code (Perens, 1999). Currently, the notion maintains the values

of autonomy, privacy, and horizontality of participation (Fuster Morell, 2012), expressing a political view of technologies, the Internet, and digital platforms (Lessig, 2009; Youmans and York, 2012). In comprehending the difference between commercial and free software, it arises as premonitory in Winner's (1980) view on technological innovation since the author claimed to take the characteristics of technology –license, say– into consideration to better analyze their meaning.

Along with the longstanding tradition of technological appropriation by civil society (Losey and Meinrath, 2016; Rodríguez et al., 2014), academic literature has reported the design and use of free software platforms by social movements, such as Ning, Global Square (Castells, 2012), Lorea (Cabello et al., 2012), Loomio (Jackson and Kuehn, 2016), Indymedia (Giraud, 2014), and Autistici/Inventari (Treré, 2019). These alternative digital platforms are linked to the social movement identity and were created to pursue specific production forms (Atton, 2002; Milan, 2016). They represent a materialization of their political culture and a legacy for future activists and protests (Giraud, 2014). As part of their imaginaries, they connect with both shared visions of the contemporary world and social projects that sustain collective oppositions against global political and economic systems (Fenton, 2007).

However, these free software platforms often deal with tensions due to the lack of diversity of sociodemographic profiles that contribute to the code (Ghosh et al., 2002; Robles et al., 2014); the high technical skills of their users (Coleman, 2011); their effectiveness and usability for daily practices (Sprenger, 2015); their long-term economic sustainability (Jackson and Kuehn, 2016), and their little popularity compared to that of services provided by technological corporations (Cabello et al., 2012; van Dijck, 2014).

Although free culture communities traditionally assume that they can appropriate technology for new and unexpected uses (Jordan and Taylor, 1998), technological innovations also exist for the traditionally dominant subjects of the system. Thus, the analysis of digital platforms cannot ignore the unequal structure of the contemporary political context where the practices of the diverse actors acquire different dimensions (Carragee, 2019; Giraud, 2014).

Barassi (2015) indeed discusses the negotiation processes between social movements and informational capitalism and states that it is crucial to understand the hegemonic discourses and strategies of commercial social networks, which generate tensions with social movements due to their inherent individualism, their exploitation of digital labor, and their imposition of fast communication. The author warns that awareness of these risks does not prevent activists from connecting to commercial platforms under their imaginaries and political culture.

In this discussion, the notion of 'tactics' together with its distinction with 'strategies,' as proposed by De Certeau (1980: 7) it is particularly relevant: 'tactics are thus essentially determined by the absence of power fully as much as strategy is organized by power as a precondition.' Following this statement, free software communities are 'weak forces' trying to change a social milieu (i.e., the Internet) shaped by the strategies of dominating powers (e.g., technological corporations).

For that reason, commercial platforms are not just tools that activists appropriate for tactical use. Their usage also implies accepting their logic, which always contradicts

their values (Dencik and Leistert, 2015; Galis and Neumayer, 2016; Poell and Van Dijck, 2016). Any discourse on the Internet gives possibilities for social change that necessarily confronts this global capitalist rhetoric (Fisher, 2010; Hemer and Tufte, 2016).

According to Treré (2019), the combination of a broad set of platforms and devices accounts for the complexity of the communicative practices of social movements. The author proposes to adopt an information ecology perspective (Nardi and O'Day, 1999), to holistically analyze the interplay between actors, practices, imaginaries, and technologies in the specific circumstances of the social phenomena beyond the tactical use of a particular kind of platform.

Research on social movements needs to take into consideration how communicative processes take place. Ecological perspectives contribute to overcoming reductionist visions that propose dichotomous media practices and simplify social milieu: local/global (Fenton, 2007); online/offline (Chadwick, 2013); sovereign technologies/corporate technologies (Treré and Mattoni, 2016); alternative media/corporate media (Cammaerts et al., 2013; Rodríguez et al., 2014), mundane life/mobilizations (Mattoni, 2017), conventional repertoires/new repertoires (Lasén and Martínez De Albeniz, 2011).

Combining information ecology and political economy perspectives, this research aims to analyze the relationship of the free culture communities in Spain with the platforms used in their daily practices. Regarding information ecology, we aim to identify the set of tools that communities employ for communication (Treré, 2019). Concerning the political economy, we focus on exploring the negotiation processes between informa-

tional capitalism and the imaginaries of a movement that is explicitly critical of commercial social networks and the current Internet context at large (Barassi, 2015). In proposing these specific objectives, we suggest two research questions:

RQ 1. Which technologies do the free culture movement use for communication processes inside and outside their communities?

RQ 2. How does informational capitalism affect the use of certain digital platforms by free culture communities?

2. Methods

To reach the objectives and answer the research questions, we addressed a combined methodology in which each phase contributes to delving further into the study objective. Firstly, we identified 739 free culture communities through the snowball technique, starting with 21 previously known communities until reaching saturation. These groups fulfilled four characteristics to be included in the sample, as follows: 1) They identified themselves as free culture communities. 2) Their activity was carried out in Spain and/or at least a part of their members participated in Spain. 3) They had been active for at least one year. 4) They were not established as companies or public administrations.

Thus, the communities involved in this investigation embrace the Spanish technopolitical stream, sharing a commitment toward the creation of a non-hierarchical alternative Internet system. Free culture encompasses an extensive set of initiatives with different legal constitutions –informal groups, associations, cooperatives–, number of members –up to 500–, scope –local, regional, international–, and aims –free programming language communities, hackspaces, Wikipedia editors, mesh networks. Among those differences underlies their support for autonomous and horizontal communication as well

as the creation, spread and defense of digital commons –so that free culture encompasses their values and practices–. The questionnaire was answered by 290 communities [1] so the survey response rate was 39.24%.

Overall, the survey has mainly been selected as a method to investigate free culture communities from different domains (Androutsellis-Theotokis et al., 2010), which has cast light on the motivations, forms of organization, and sociodemographic characteristics of those who use and contribute to the development of the code individually or collectively (see, among others: Balali et al., 2018; Ghosh et al., 2002; Robles et al., 2014).

The questionnaire addressed two open-ended questions about the platforms used for internal and external communication. The distinction between the two categories meets the objective of obtaining a greater number of tactical uses, addressing a more complex concept of communication (Cammaerts et al., 2013; Rodríguez et al., 2014), and understanding that the repertoire of actions is a phenomenon that transcends the public and private boundaries of communities (Kavada, 2015). Furthermore, five participant groups carried out a pre-test, which consisted of answering the questions and discussing their appropriateness and style.

The response of the 290 communities to these two open-ended questions resulted in the mention of 1,651 platforms, of which 916 were for external communication, and 735 focused on internal communication. They were sorted by license through documentary consultation on their web pages [Table 4]. In the results, we grouped the platforms by functionality to facilitate the comparison of use between similar computer programs.

After classifying online questionnaire results, we held offline conversations with 37 communities that had participated in the previous online questionnaire [Table 1]. They discussed the survey's outcomes from a working document like Table 3, critically analyzing the results and suggesting their explanation (Cuesta et al., 2008). Groups were selected using an intentional sampling method to ensure a diversity of responses (Ortí Mata and Díaz Velázquez, 2012). During the sessions, the author's intervention was only occasional. The aim was to avoid imposing logic of academic research that could appropriate the evaluation and analysis of the social and cultural reality of the communities (Offen, 2009).

Table 1: Communities participating in offline meetings.

[Table 1 here]

Author's own.

3. Findings

3.1. The repertoire of commercial and free platforms used by communities

The quantitative data in the questionnaire showed a trend toward the use of proprietary platforms, especially when activists needed to inform and interact with an external audience [Table 2]. The groups spontaneously indicated that they used up to 916 platforms to disseminate their actions and contact with outsiders of which 785 (85.7%) were proprietary, and 131 (14.3%) were free. The platforms used for internal communication were quite similar to those for maintaining contact with the public. However, there was a better balance in the use of free and corporate technologies: 377 (51.3%) proprietary platforms and 358 (48.1%) free platforms. Thus, the frequency of use and the diversity

of alternatives increased when addressing code review, project management, cloud storage, and online word processing.

Table 2. Summary of external and internal communication platforms used by communities.

[Table 2 here]

Author's own.

Communities reported that people with different stances regarding the use of platforms with different characteristics coexist within their groups. In other words, the use of specific platforms was tightly interwoven with a preference for practical solutions or to respect privacy, decentralization, and autonomy of communications: 'There are people who have said, "I will never use WhatsApp." and people who have said, "I will never use Telegram." So, we're blocked.' This resistance could explain the balanced results on platform usage for internal communication, and the high number of platforms they employ daily –5.69 per community.

The results drew attention to the central role of commercial social networks for external communication, 'They are free culture communities, but they want people to come' (Interview 20). Twitter (249) and Facebook (174) were the most used platforms for this purpose. Communities identified two flaws of Facebook that prevented its usage. Firstly, users had to have a personal account to manage the community's page and secondly, Facebook centralized the users' activity more than Twitter, as it impeded the consultation of published content on their page, 'All the knowledge production that is taking place on Facebook, is locked up inside there and that's so sad' (Interview 15). Alterna-

tives to last two commercial platforms –e.g., Quitter (5), Mastodon (2)– could not replace them due to the absence of users, particularly those who were not yet activists.

The hierarchy of technological corporations was also explicit in email services since some of the most used platforms belong to Google. Communities mainly used Gmail (48) for direct contact with outsiders, and Google Groups (37) for the internal mailing lists. Similarly, Google Drive (19) was the most common platform for cloud storage. Communities criticized that this company was acquiring a high relevance even in the public sector in Spain –e.g., education– so they distrusted it. However, they recognized the convenience of using its server, as many of the coordination tools needed are available with just one Gmail account.

Several alternatives contested Google hegemony: Mailtrain, phpList –mailing lists–, Mailman, Riseup –email services–, Etherpad/PiratePad, NextCloud –cloud storage–. However, they never included more than eight communities as regular users, due to their server capacities being limited compared to a company. Also, communities usually published and broadcasted their audiovisual materials on YouTube (72), and only one shared them through the open-source P2P application Peertube. Although online video-sharing platforms did not require an account to use them, communities justified that publishing their messages using the commercial option afforded 'a great impact' (Interview 16).

Skype (42) and Google Hangouts (14) were the most common platforms for videoconferencing. Although frequent and diversified reliance on alternative platforms such as Jitsi (11) and Loomio (9) was reported, they did not reach the proprietary ones' popular-

ity. Furthermore, both Skype and Google Hangouts were native applications on Windows computers and Android smartphones, so a wide range of users had them without prior download. Communities questioned the default application strategy, as it served the purpose of benefitting the services of corporate technologies at the expense of alternative platforms.

While not one of the Internet giants –i.e., Apple, Microsoft, Google, Amazon, and Facebook–, Slack (49) was the most popular platform for internal team communications, and Meetup (67) was often used to organize external events –'Meetup has the advantage that it already has many people […]. We get people from similar communities because they recommend us.' (Interview 2)–. Conversely, communities regretted not being able to take an active part in the development –i.e., studying and modifying the code– of the platforms used for communication.

Telegram was highlighted as an outlier of this tendency to proprietary software, ranking as the third most popular platform among the communities. It allowed the creation of open broadcasting channels, which could be accessed without a prior invitation so that this functionality enabled it to work as a channel for public information. Additionally, some communities noticed that the transition from WhatsApp to Telegram was more natural since more people were previously familiar with the application. Telegram (156) was also the most extensive platform for instant communication, followed distantly by the proprietary platform WhatsApp (85).

Finally, Git engines played a crucial role in the imaginary of free culture since they allowed the source code of the communities' projects to be released. GitHub (57) was

commonly employed as a code repository. Despite this platform working with the Git engine, their code was proprietary and was purchased by Microsoft in October 2018 during the fieldwork for this investigation. Similarly, Telegram's server also did not have a free license, so it was not possible to install this program on one that is independent of the company that manages the application. The use of these platforms classified as free software should be carefully interpreted in light of these constraints that communities discussed in the next section.

Table 3. Digital platforms used by communities and frequency of use.

[Table 3 here]

Author's own.

3.2. Negotiation of communities around the use of digital platforms in digital capitalism

The communities interpreted previous results negatively, as they went directly against their values. One of the interviewees explicitly expressed that tension as follows, 'This is the greatest contradiction faced by free software groups. Because it's software, and it's free culture' (Interview 4). Another activist paraphrased Spanish hacktivist Padilla (2012) to describe the groups' tensions in the usage of proprietary platforms and considered them 'monstrous alliances' (Interview 26).

The groups interpreted this strategy from two different central positions, 'We see two sides, the most purist side claims, "Oh, how sad, people don't use external broadcasting channels with free tools." I have another perspective; that is, purist approaches lock us

up quite a bit' (Interview 15). They thus understood the need to negotiate between their ideals and the tactical uses of digital platforms to achieve their specific goals.

Due to the power of corporate services, many people mainly interacted in private social networks, 'Connecting to Facebook is shit? Yes, but is where the people are' (Interview 2). One group explained that they had renounced the use of Facebook with a conscious educational objective. This refusal had allowed them to explain the political reasons why they were not using it when someone asked for their Facebook profile. Using and not using certain platforms thus served specific objectives within the logic of the communities themselves.

If the actual communication strategy were to disseminate information to a mass audience, the communities should migrate to where it was. In spaces such as Mastodon, Diaspora, or Riot, there were more technopolitical active profiles, but their use was subordinate to the options of the largest technology companies. 'If there were a social network that was not privative, that was used massively; we would incorporate it without any doubt. However, this isn't happening' (Interview 7).

The activists implicitly recognized that only the most politicized and technologically skilled profiles meet in more autonomous and free spheres, 'When not everyone uses the same platform, you have to use what is easiest and simplest for people, no matter if it's free or proprietary' (Interview 18). Communities reported increased tensions when opening their projects to a wide range of people and confirmed that the ability to engage with their values was more likely in smaller groups.

On the contrary, they admitted not having the professional demands imposed by external logic of productivity and the maximization of profit. This non-commercial condition gave communities enormous scope to experiment on new designs and alternative platforms. However, communities conflicted with liberal logic when prioritizing the efficiency of their collective projects, 'Is it a contradiction to design something with proprietary software and release it under a free license? Yes, but when you have 45 collaborators, you can't set that limitation if you want the projects to come out' (Interview 19).

Since the dominant agents of the system defined the socialization spaces on the Internet, opening the community to a greater number of people meant adapting to the platforms with mainstream access. They consciously identified this situation as an extension of the unequal power structure of the Internet, which affected the usage of platforms, including in their daily practices as activists. Therefore, they considered it necessary to address an emancipation process that would conclude with the use of alternative platforms, but the dominant position of technology corporations constrained those practices. They had used the gratuitous efficient digital platforms, even if their usage resulted in personal data exploitation.

Even under the agreement to tend to free code programs, this type of software presented a more significant organizational effort for communities. Access barriers limited communities' activity to proprietary platforms, which generally entailed a higher level of usability. The bugs and limitations of free software platforms implied that they sometimes prioritized proprietary options' functionality and effectiveness. 'Mastodon is shit because it has all these problems we've been talking about, and the interface is objectively ugly. This is what happens to GNU/Social, which is as ugly as sin' (Interview 4).

The activists implicitly admitted the need to partially orient the objectives of communities to create teams for communication, design, and usability of digital platforms. They believed that these strategies could overcome the barriers related to the challenge of employing alternative platforms. At the same time, they noted that these processes of transitioning to free software could make them dependent on the commitment and availability of higher technological skilled profiles to solve technical problems.

The communities were highly aware of informational capitalism and the extent to which the Internet's material conditions limited their aims. 'We are changing the discourse on the metrics [...] Volume of users, volume is the new measure of power' (Interview 17). Their accumulated economic power allowed them to develop higher-quality technologies with dedicated teams to develop them during their working hours.

> It's very cool that someone has programmed it so one can say, 'Look at this shit, well done!' Who pays for the servers and all the stuff then? [...] In the end, to make a good product, you need the money, and you need developers' (Interview 20).

Corporate projects had a broader capacity to invest in the development and improvements in their platforms. Given the extensive use and centralized structure of their services, they could also isolate Internet users who connected to alternative spaces. 'If I were in Mastodon and all the content of my Twitter followings would be sent to me at Mastodon, I would forget about Twitter […]. However, Twitter explicitly forbids that [external account synchronization] in its terms of use' (Interview 4). The transition to

free culture was limited not only by direct competition with the services of other platforms but also by the concentration practices of the dominant agents of the system, which even tried to control free software projects, 'If Bill Gates is publishing open algorithms, it is because he realizes that he can save time and money' (Interview 30).

At the same time, they were optimistic that free culture communities could eventually provide solutions to the setbacks and issues that could arise in these types of applications and systems. They remembered that free code could be audited, improved, and distributed along with these upgrades. The potential of free software platforms connected with the imaginary of these communities, whose values of horizontality, decentralization, privacy, and autonomy often directly confronted informational capitalism.

4. Discussion

This research has attempted to provide empirical data to the study of free culture communities' negotiations on the use of certain platforms in their daily activities within an informational capitalism system on the Internet. The existence of alternative platforms with similar services to those of technological corporations, as illustrated in the results, expresses the resistance to communication infrastructures far removed from the objectives of maximizing profit. The freedoms comprised in the free software notion (Stallman, 2004) support the license as a useful criterion to understand the real potential of alternative platforms that contest the hegemonic Internet logic (Youmans and York, 2012). At a practical level, this investigation provides a set of alternative platforms' affordances and limitations that communities can prospectively examine to overcome their use of commercial options.

This research has limitations. The platform evaluation should extend beyond their license and include other criteria such as decentralization or server characteristics. The classification by license implies a reductionist view, as noted by the communities. Consequently, we consider the need to acquire an ecological perspective that contributes to carrying out analyses beyond specific dichotomies (Kavada, 2015; Mattoni, 2017). Understanding this dynamic environment is appropriate to recognizing the blurred boundaries in the use of free and proprietary digital platforms.

Results indeed show that communities employ an array of platforms for communication that all together constitute a complex ecology (Treré, 2019) [Research Question 1]. Due to the tensions between participant's position in the usage of commercial software drives communities to use a greater number of platforms –5.69 per community–, combining commercial and alternative options –1,162 (70.4%) and 489 (29.6%), respectively. The distinction between internal and external communication is a relevant factor since data proves that commercial platforms' usage depends on communities' needs.

This is remarkably explicit in commercial social networks, which are widely used for external communication –most used platforms for this purpose are Twitter, Facebook, and YouTube. Besides, the more balanced use between free and proprietary digital platforms for internal communication indicates that these alternatives are spheres for more politicized and technologically skilled profiles. A transition to alternative options is possible when a critical mass is aware the platforms, as with Telegram. Mass self-communication (Castells, 2012), which has been used to optimistically describe the new communicative potential of the Internet, only finds its meaning in the spaces of hegemonic subjects.

Simultaneously, the tensions between the imaginary of social movements and informational capitalism pointed out by Barassi (2015) are explicit in the outcomes of this investigation. As communities reported, their tactical use is conditioned by the informational capitalism in which the communities coexist, so they must adapt to the commercial platforms (Poell and van Dijck, 2016) [Research Question 2]. Due to the ability of technological corporations to accumulate users (McChesney, 2013), communities remain on websites that contradict their values. Additionally, alternative platforms are also affected by this trend when replaced by commercial social networks with a wider reach.

De Certeau's (1980) distinction between strategies and tactics is extremely helpful in interpreting communities' interviews. They frequently report actions of technological corporations that shape the Internet context: they include default applications in their operating systems (Google), buy free software projects (Microsoft), impede communication with other networks (Twitter), and keep the information published on their pages private (Facebook). Faced with this situation, communities' tactics express their capacity to appropriate digital platforms and use them for their specific objectives. They may accept or reject specific platforms, but these decisions still serve their purposes: facilitating teamwork, spreading messages to a broad audience, and engaging new activists with their projects. Thus, communities demonstrate the ability to remain on corporate digital platforms while maintaining their imaginary.

Quantitative results prove that communities use commercial social networking sites, but they also employ multiple commercial services that are useful for them and usable for a

broader population, such as the tools provided by Google. Despite their willingness to learn about technologies (Himanen, 2001) and create their platforms (Raymond, 1999), the access barriers to their communities remain as a central discussion that leads them to decide between their values: supporting free software options (i.e., autonomy) or opening their knowledge and practices to a broader number of people (i.e., horizontality).

5. Conclusion

Political economy and information ecology altogether are presented in this study as insightful contributions to delve further into free culture communities' practices and imaginaries. The political economy provides a relevant insight to the Internet system in which free culture communities participate since it allows for a practical explanation of the context in which digital platforms are embedded (Carragee, 2019), even when they are written in free code. However, addressing the material conditions of free software is not enough to analyze either the use of alternative platforms or their presence in the services of technological corporations. This unique perspective potentially avoids the capability of communities to appropriate commercial platforms for their tactical purposes.

As Giraud (2014) previously suggested, social movements and their technologies should be understood as part of complex systems. Therefore, information ecology perspectives cast light on the Internet context and overcome the choice of free/proprietary software platforms as a dichotomy. Indeed, that decision is an interplay between their technological imaginary and their commitment to access efficiency, teamwork, and mass communication. Questions regarding the reliance of free software communities on proprietary platforms and the subject benefiting most from this relationship remain unsolved in this

investigation but propose relevant research approaches in future reflections on technology and social movements.

Notes

[1] Name and main characteristics of Spanish communities that participated in the research are publicly available at: //anonymized//

Acknowledgments

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Appendix I: License of the mentioned platforms.

[Table 4 here]

Author's own.

Table 1.

Community	Location
Akelarre Ciberfeminista, Bit:LAV, Wikimedia España	Castile and León
FabLab Cuenca	Castilla La Mancha
Aeropython, Asociación Blockchain Catalunya, Autofabricantes, Barcelona Bitcoin Community, Barcelona Free Software, Caliu, CCCBLab, Colectic SCCL, Drupalcat, Educaires, Eticas Foundation, Expansió de la Xarxa Oberta (eXO), Hackers at UPC, i-LabSo SCCL, Llefi@Net, Made Makerspace Barcelona, Panorama 180, pyBCN, Pybonacci, pyladiesBCN, Python España, Som Connexió	Catalonia
Avfloss, Cuarto Propio en Wikipedia, la_bekka, Ondula, Vivero de iniciativas ciudadanas (CIVICS)	Madrid
Asociación gvSIG, Asociación Hackerspace Valencia, FabLab Valencia, Makers UPV, Valencia TechHub, ValenciaJS	Valencia

Table 2.

		Free	Proprietary
External communication	Overall results (frequency and percentage)	131 (26.79%)	785 (67.56%)
	Most common platforms (frequency)	Telegram (56), WordPress (17), GitHub (10)	Twitter (249), Facebook (174), YouTube (72)
Internal communication	Overall results (frequency and percentage)	358 (48.71%)	377 (51.29%)
	Most common platforms (frequency)	Telegram (156), GitHub (57), Jitsi (9)	WhatsApp (85), Slack (49), Meetup (43)
TOTAL		489 (29.62%)	1,162 (70.38%)

Table 3.

Usability	External communication				Internal communication			
	Free		Proprietary		Free		Proprietary	
Instant Messaging, Real-Time Communication, VoIP, Videoconferencing, Video Recorder	Telegram	56	WhatsApp	8	Telegram	156	WhatsApp	85
	Matrix/Riot	1	Google Hangouts	2	Jitsi	11	Skype	42
	Jitsi	1	Skype	2	IRC	9	Google Hangouts	14
					Signal	5	Zoom	5
					Xmpp/Jabber	3	GoToMeeting	2
					Mumble	2	Bluejeans	2
					Pidgin	1	Vidyo	1
							Line	1
							Appear	1

								Loom	1
								Ryver	1
Internet Forum, Email Service Provider, Mailing Lists, Email Client	Mailman	3	Gmail	48	Mailman	8	Google Groups	37
	Mailtrain	2	MailChimp	16	Riseup/ WeRise	8	Gmail	11
	phpList	2	Google Groups	7	Discourse	7	Outlook	2
	Debian Mail	1	Outlook	1	Protonmail	3	Mailchimp	1
	Discourse	1	Yahoo Mail	1	Debian Mail	1		
	Protonmail	1			Groups.io	1		
	Riseup/ WeRise	1			Roundcube	1		
	SendGrid	1			Tutanota	1		
Social Networking, Social Network Manager, Microblogging, Image and Hosting, Social Network Server	GNU/Social	6	Twitter	249	Identi.ca	1	Twitter	10
	Quitter	5	Facebook	174	Mastodon	1	Facebook	9
	Mastodon	2	YouTube	72			Buffer	1
	Reddit	2	Instagram	60			Instagram	1
	Diaspora	1	LinkedIn	14				
	Fediverse	1	Vimeo	10				
	Jitsi	1	Flickr	7				
	Peertube	1	Pinterest	2				
			Caxigo*	1				
			GoToMeeting	1				
Team communication, Decision making, Ticketing, Agenda, Calendar, Surveys	Loomio	1	Meetup	67	Loomio	9	Slack	49
	Matrix/Riot	1	Eventbrite	17	Matrix/Riot	9	Meetup	43
			Slack	8	Framadate/soft	2	Google Calendar	2
			TicketBase	1	Thunderbird	1	Eventbrite	1
					Mattermost	1		
					Zimbra	1		
Repository, Git, Code Review, Project Management, Project Management, Software Documentation	GitHub	10			GitHub	57	Trello	15
					GitLab	6	Asana	5
					Phabricator	3	Quip	1
					Redmine	2	Webfaction	1
					CryptPad	1		
					Taiga	1		
Cloud Storage, File Hosting Service, Text Processor, Web Editor, Online Notebook, Cloud Transfer					Etherpad/PiratePad	8	Google Drive	19
					NextCloud	7	Dropbox	2
					OwnCloud	4	Mega	1
					CommonsCloud	1	WeTransfer	1

			Joplin 1	
Wiki, Content management system	WordPress 17 MediaWiki 2 Noblogs 1	Blogspot/Blogger 1	MediaWiki 8 Wordpress 3 Drupal 2 SMF 2	
Other	10	16	11	10

Table 4.

Name	License	Name	License
Ansana	Proprietary	Meetup	Proprietary
Appear	Proprietary	Mega	Proprietary
Bandcamp	Proprietary	Microsoft SharePoint	Proprietary
Bitly	Free (MIT)	Moodle	Free (GPL)
Blogspot/Blogger	Proprietary	Mumble	Free (BSD)
Bluejeans	Proprietary	NextCloud	Free (AGPL)
Buffer	Proprietary	Noblogs	Free (GPL)
Caxigo	Privative, belonging to an association	Odoo	Free (GPL), proprietary enterprise version
CommonsCloud	Free (unspecified in commonscloud.coop)	Outlook	Proprietary
CryptPad	Free (AGPL)	ownCloud	Free (AGPL)
Debian Mail	Free (MIT)	Peertube	Free (AGPL)
Diaspora	Free (AGPL)	Phabricator	Free (AGPL)
Discourse	Free (GPL)	phpList	Free (AGPL)
Disqus	Free (MIT)	Pidgin	Free (GPL)
Dropbox	Proprietary	Pinterest	Proprietary
Drupal	Free (GPL)	Protonmail	Free web client (MIT), proprietary mobile applications
Etherpad / PiratePad	Free (AGPL)	Quip	Proprietary
Eventbrite	Proprietary	Quitter	Free (AGPL)
Facebook	Proprietary	Reddit	Free (MIT)
Fediverso	Free (AGPL)	Redmine	Free (GPL)
Flickr	Proprietary	ReverbNation	Proprietary
Framadate	Free (CeCILL)	Riot/Matrix	Free (GPL) / Communication protocol
GitHub	Git system (GPL), with proprietary components and purchased by Microsoft	Rocket	Proprietary

GitLab	Free (MIT)	Roundcube	Free (GPL)
Gmail	Proprietary	Ryver	Proprietary
GNU/Social	Free (AGPL)	Sandstorm	Free (AGPL)
Google Calendar	Proprietary	Scratch	Free (GPL and Scratch Source Code License)
Google Drive	Proprietary	SendGrid	Free (MIT)
Google Groups	Proprietary	Signal	Free (GPL)
Google Hangouts	Proprietary	Simple Machines Forum (SMF)	Free (BSD)
Google Maps	Proprietary	Skype	Proprietary
GoToMeeting	Proprietary	Slack	Proprietary
Groups.io	Free (GPL)	SoundCloud	Proprietary
Grupos de Google	Proprietary	Spotify	Proprietary
Icecast	Free (GPL)	Taiga	Free (AGPL)
Identi.ca	Free (Apache)	Telegram	Free in the source code of clients (GPL) and private server (MTProto)
Instagram	Proprietary	Thunderbird	Free (MPL)
Internet Archive	Creative Commons	TicketBase	Proprietary
IRC	Communication protocol	Trello	Proprietary
Issuu	Proprietary	TripAdvisor	Proprietary
iTunes	Proprietary	Tutanota	Free (GPL)
iVoox	Proprietary	Twitter	Proprietary
Jitsi	Free (Apache)	Vidyo	Proprietary
Joplin	Free (MIT)	Vimeo	Proprietary
Line	Proprietary	Webfaction	Proprietary
LinkedIn	Proprietary	WeRise/Riseup	Free (GPL)
Loom	Proprietary	WeTransfer	Proprietary
Loomio	Free (AGPL)	WhatsApp	Proprietary
Maadix	Free (non-specified)	WordPad	Proprietary
MailChimp	Proprietary	WordPress	Free (GPL)
Mailman	Free (GPL)	Workflowy	Proprietary
Mailtrain	Free (GPL)	WWOOF	Proprietary
Mamoto/Piwik	Free (GPL)	Xmpp/Jabber	Communication protocol
Mastodon	Free (AGPL)	Yahoo Mail	Proprietary
Mattermost	Free (MIT)	YouTube	Proprietary
MediaWiki	Free (GPL)	Zimbra	Free (ZPL)
Medium	Proprietary	Zoom	Proprietary