

The Role of Digital Platforms in Agroecology Food Consumption Collaboration. A Comparison between Porto and Barcelona

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Abstract: *Collaboration around food consumption has had an important role in the transformation of societies over time. From historical cooperatives to current urban commons, citizen self-management has allowed to build food supply alternatives linked to the principles of Social and Solidarity Economy (SSE). In the era of the Network Society, these organizations are adopting Information and Communication Technologies (ICT) in order to facilitate the management of food supply, internally and to interact with their providers (Espelt 2018). Departing from the framework for Assessing Democratic Qualities in Collaborative Economy Platforms (Fuster Morell and Espelt 2018), which focuses on governance, sustainability model, technological and knowledge policies, and social responsibility impact, we analyze how agroecological food consumption organizations are embracing digital platforms. We have focused our analysis on a set of organizations that have emerged in Greater Porto and Barcelona and the meeting-points of ICT adoption. Currently, Barcelona has around sixty agroecology food consumption cooperatives distributed along the city with around 1.500 consumption units associated. In Greater Porto, there is a low tradition of self-management initiatives and only a couple of consumer groups that can be considered agroecological and solidarity-oriented (Martins Soria 2016), though there are dozens of “short food supply chain” schemes, which have been formed in the last few years with the help of proprietary and centralized digital platforms. On the one hand, the results of this investigation reveal the significance of the role of digital platforms in agroecology food consumption organizations which are involved in and promoting social market. On the other, the conclusions highlight the possibilities of platform cooperativism as a way to facilitate agroecology food consumption collaboration and its scalability, in connection with democratic qualities in collaborative economy platforms.*

Keywords: *Food, agroecology, commons, cooperativism, platformcoop*

1. Introduction: Commons and cooperativism encounter

In Catalonia, two historical events that took place in parallel at the end of the nineteenth century — the culmination of a dispossession of communal property and the industrialization and urbanization of cities — entail the generation of a working class that begins to organize itself through associationism (Miró 2017). In the same way, in Portugal cooperativism started to emerge in the mid-19th century (its Basilar Law of 1867 is one of the first statutes in the world), and was deeply linked to the slow processes of industrialization and urbanization, even though agriculture remained the major economic activity in the country until 1960s. Freire and Pereira (2017:321) point out “co-operation in the sphere of consumption was mainly a strategy to resist speculation, exploitation and political oppression.”



Cooperativism allows the preservation of the ancestral communal management (Ugarte 2014) and, as an instrument of the SSE, to imagine a “sustainable, democratic and inalienable management of the commons” (Sabin 2015:5). That is, SSE can be an economy for common goods if it has the transformative capacity to build a post-capitalist model. Collado and Casadevente (2015:59-60) propose five premises to make this possible:

“produce to meet the basic needs of society in a reproducible way, to work beyond capitalist and patriarchal relationships, internal and external democratization from cooperativism, reduction of environmental goods and defense of the territory and reproduction of cooperative goods and cooperative democratization of economic practices.” (Collado and Casadevente 2015:59-60)

Self-management organization has a link with two historical approaches that find a new amplification space within the Internet. On one hand, the tradition of self-management of common goods that, with the emergence of the Internet, has the possibility to reconfigure itself again around the Free Culture Movement and the digital commons (Fuster Morell et al. 2015). On the other hand, the tradition of cooperativism as a space for citizen self-management. Scholz (2016), in Platform Cooperativism, states that the cooperative movement must reach an agreement with the technologies of the 21st century, since the cooperative values must serve as the basis for the construction of technological platforms that allow them to amplify their virtues. Platform cooperativism promotes digital platforms based on collective ownership; the decent payment and the income security of its workers; the transparency and portability of data; the appreciation and recognition of the value generated through its activity; collective decision-making; a protective legal framework; the transferable protection of workers and the coverage of social benefits; the protection against arbitrary behavior in the rating system; the rejection of excessive vigilance in the workplace; and, finally, the right of workers to disconnect (Scholz 2016). At the same time, Fuster Morell (2016) indicates that the construction of the technological platforms is not a minor issue and that platform cooperativism must adopt free software and open licenses. In short, it originates from a self-managed governance, which allows the development of a community of digital commons, which should approach an “open cooperative” model (Bauwens 2014) as an antithesis of the «Unicorn» platforms — corporate, hierarchical and proprietary software (Lee 2013; Fuster Morell 2016; Cruz 2017; Glasner 2017).

Although it may seem that there is a disconnection between the two models (platform coop and unicorns), the border is not accurate and the line drawn between the two is extremely complex (Figure 1). For this reason, the «Analytical framework of the democratic and procommons qualities of collaborative economic organizations» (Fuster Morell et al. 2017) is a useful tool to review holistically the characterization of each digital platform.

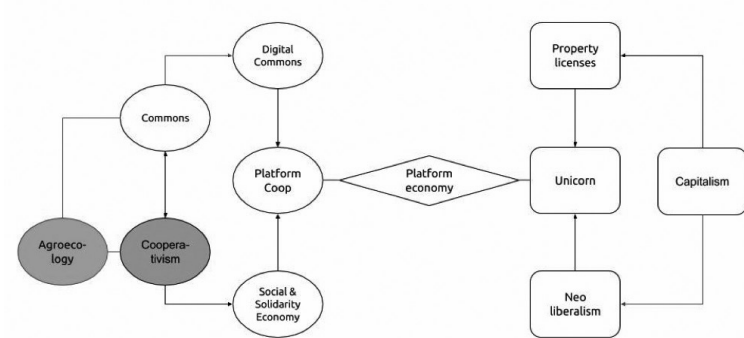


Figure 1. Agroecology Digital Platforms Paradigm (Espelt 2018)

2. Analytical Framework of Democratic Qualities of Digital Platforms

According to Fuster et al. (2017), the democratic qualities of digital platforms are articulated around three main dimensions, with six subdivisions (Figure 2):

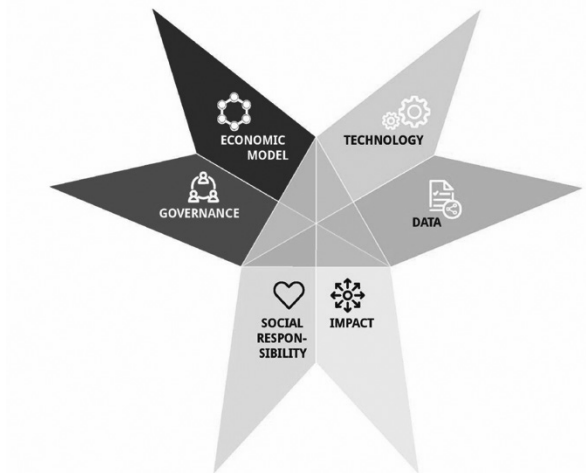


Figure 2. Procommons Collaborative Economy Analytical Star Framework

2.1. Governance and Economics

The way that the project or platform is governed is connected to its underlying economic model:

- Governance: This aspect regards democratic enterprises and involving the community generated value in the platform governance. This aspect also regards the decision-making model of the organization, and mechanisms and political rules of participation in the digital platform.



- Economic model: This aspect regards whether the project's financing model is based on private capital, ethical finance, or a distributed fund (crowdfunding or match-funding), the business models, mechanisms of economic transparency, how far profitability is driven in the whole plan, distribution of value generated, and equity payment and labour rights. This aspect regards ensuring equitable and timely remuneration, and access to benefits and rights for workers (maximization of income, salary predictability, safe income, protection against arbitrary actions, rejection of excessive vigilance at the workplace, and the right to disconnect).

2.2. Knowledge and Technological Policies

The adoption of certain technological tools or licenses impacts the way the platform promotes knowledge:

- Knowledge policy: Regards the type property, as established by the license used (free licenses or proprietary licenses) for the content and knowledge generated, type of data (open or not), the ability to download data (and in which formats), and the promotion of the transparency of algorithms, programs, and data. This aspect regards privacy awareness, the protection of property including personal data, and preventing abuse and the collection or sharing of data without consent. This aspect also regards guaranteeing the portability of data and reputation.
- Technological policy: This aspect concerns the type of property and freedom associated with the software used and its license (free or proprietary) and the model of technology architecture: distributed (using blockchain, for example) or centralized (software as a service).

2.3. Social responsibility and Impact

These dimensions relate to any source of awareness and responsibility regarding the externalities and negative impacts, such as social exclusion and social inequalities, the inclusion of gender, regarding the equal access to the platform of people with all kinds of income and circumstances in an equitable and impartial way (without discrimination). This aspect regards compliance with health and safety standards that protect the public, and the environmental impact (promoting sustainable practices that reduce emissions and waste, taking into account the rebound effect they can generate and the most efficient use of resources, the origin and production conditions of the goods and services they offer, minimizing resource use, and recycling capacity), and the impact in the policy arena, and the preservation of the right to the city of its inhabitants and the common good of the city. This aspect also regards the protection of the general interest, public space, and basic human rights such as access to food.

3. Results

3.1. Greater Porto

The history of consumption cooperativism in Porto goes back to the late nineteenth century but nowadays it is quite rare to find consumer groups that follow principles of cooperation, self-management, solidarity and agroecology (Martins Soria 2016) – most of the initiatives directly connecting farmers with consumers are based on the individual action of small farmer-entrepreneurs. However, there has been a boom of “short food supply chain” schemes in the last few years with the help of mainly proprietary and centralized digital platforms.

AMAP | <https://amap.movingcause.org>

Associação para a Manutenção da Agricultura de Proximidade (AMAP) is a community-supported agriculture scheme where consumers commit to pay in advance a complete season of agro-production from one or more farmers, and then receive weekly baskets of certified organic vegetables and other food goods. There are currently three active AMAP groups in the Greater Porto area: AMAP Porto (launched in 2016), Gaia (2016) and Matosinhos (2018), summing a total of roughly 70 consumers and 7 producers.

- Governance: each AMAP constitutes an informal association, without legal status, with relative democratic governance: there are one to two meetings a year to present results, reflect on the evolution of the group and discuss future plans. Some groups foster self-management in the delivery points, although participation response is low.
- Economic model: AMAP's financing model is based on autonomy (no external funding) through participation of consumers. Instead of profit, the model aims at providing a dignified life for farmers (timely remuneration in the beginning of the season; safe income; and protection against unforeseen events affecting the production). Some economic information is accessible to the community.
- Technological policy: Google forms to organize orders and distribution plans, allowing for easy collaboration between different producers who provide a group of consumers. One AMAP is parallelly adopting Open Food Network's open source platform Katuma.
- Knowledge policy: There is no formal policy regarding knowledge, content or data, although they are partly open access, and replicable on demand (AMAP members provide support to new groups that want to set up, facilitating tools and knowledge).
- Social responsibility: No policy or action about inclusion, though it is discussed. Every AMAP follows a Charter of Principles concerned with agroecological practices, human-scale bonds, and food as a commons (and not as a commodity).
- Impact: the model has been adopted by five consumption groups in Northern Portugal and more are preparing to do so. In December 2018 existing groups got together and launched the Portuguese Network of Solidarity Agroecology, Regenerar.

Fruta Feia | <https://frutafeia.pt>

Fruta Feia is a consumption cooperative which aims at reducing food waste, by buying directly from farmers the produce that the big retail shops reject due to nonconforming size or aesthetics. It was launched in 2013 in Lisbon, and today has 11 delivery points (“delegations”) around the county, three of which in the Greater Porto area (Porto, Gaia, Matosinhos).



- Governance: By default, consumers have to be associate members of the cooperative, but without vote: decisions, assemblies and reports are restricted to few co-op members who have the right to vote. Some participation tools are provided, the delivery is co-managed with volunteers.
- Economic model: A series of awards in 2013-2014 as well as a crowdfunding campaign helped to launch and expand the cooperative. The co-op is also supported by membership fees. Some economic information is accessible to the community, but full economic reports are only available for members with vote.
- Technological policy: the platform is based on Drupal (GNU General Public License)
- Knowledge policy: It presents a clear privacy policy and confidentiality notice concerning GDPR. Content licenses are not available, nor data for download.
- Social responsibility: It focuses on providing opportunities for “rejected” farmers by providing their products to consumers concerned with social justice and environmental protection. It also offers baskets that are left over to social institutions.
- Impact: Fruta Feia currently has 11 active delegations, and has been adopted by 190 producers and more than 5000 consumers, saving 15 tons of food waste per week.

PROVE | <http://www.prove.com.pt/www/sk-pub-nucleos.php?dst=3>

PROVE (acronym of Promote and Sell) is a network that promotes short food supply chains. It was publicly launched in 2006 as a brand, bringing together local entities, public authorities, farmers and consumers in two municipalities of central Portugal, and today is disseminated across most of the national territory. It has 30 active groups / “nuclei” in Greater Porto.

- Governance: a regional development association, Adrepes, is responsible for managing the core and backoffice; 16 “local action groups” promote PROVE in their territories; they meet once a year.
- Economic model: the project has been funded by European funds since conception but it is not sustainable for promoters; the current economic model is being reorganized and will possibly start charging producers (for the platform and promotion). No economic information is publicly available, but the interviewee pointed an annual turnover of roughly 3.5 million euro.
- Technological policy: the platform (GPROVE) was developed 10 years ago mostly in PHP and is based on proprietary applications with some open libraries; the source code is available for 10.000€;
- Knowledge policy: all rights reserved; GDPR guaranteed; no data for download.
- Social responsibility: it started by training farmers on the use of computers and internet, until they could manage orders by themselves; it promotes job creation in the agricultural sector; concerning the environment, all deliveries are in a radius of 50km; all vegetables are fresh and seasonal.
- Impact: it is the most disseminated short food supply chain mechanism in Portugal, with 112 delivery points in 12 districts (out of 18).

Reforma Agrária | <https://www.reformaagraria.pt/>

Launched in August 2018 by the initiative of two independent developers, Reforma Agrária promotes the direct connection between farmers and consumers (sales do not go through the website).

- Governance: individual enterprise without legal status; no participation tools are provided (except for a Facebook discussion group);
- Economic model: the platform is free of costs for farmers, but aims at becoming sustainable by possibly introducing agrarian real estate for rent/sale. No economic information is accessible to the community;
- Technological policy: proprietary software (VBNet, .NET, Windows server): No tech tool is based on FOSS; centralized architecture;
- Knowledge policy: there is not an explicit license, nor is data downloadable.
- Social responsibility: it has some inclusion policies such as the role of facilitators to help bring opportunity to farmers who are digitally excluded.
- Impact: The platform has been adopted by 83 producers, mostly from Northern Portugal, but it is not clear whether they are actually benefiting from it.

Sachar | <http://www.sachar.pt>

Sachar was launched in 2015 by a former banker who had started to dedicate to amateur agriculture after a health problem, and soon faced the problem of the outflow of his own production. The idea was to provide a platform where small farmers could announce their products and surpluses, for offer or sale at a fair price.

- Governance: property of a private enterprise, there are no tools for participation.
- Economic model: the platform is non-profit and does not intervene in economic activities - it simply serves as a catalog of farmers and their produce, to facilitate contact with interested consumers. There is no economic information available.
- Technological policy: the first version was developed with Ruby On Rails (open source software), but it “became unbearable in terms of maintenance costs”. The second version is currently under development using Wordpress.
- Knowledge policy: it is a registered brand, it doesn’t have licensing policies (GDPR was one of the reasons why the platform has been temporarily taken down for maintenance).
- Social responsibility: it aims at supporting “unprotected farmers” and fighting food waste.
- Impact: the platform is currently unavailable online therefore it was not possible to confirm its outreach.

Smart Farmer | <https://www.smartfarmer.pt/>

SmartFarmer is an agri-food consumption platform acting at the national level in Portugal. It was launched in August 2016 by Oikos - one of the country’s largest NGOs - in partnership with the Vodafone Foundation.

- Governance: it is managed by an NGO; no participation tools are provided
- Economic model: the platform was developed with funding and expertise from Vodafone Foundation. It charges farmers 16% of their sales. No economic information is provided;
- Technological policy: proprietary software with centralized architecture;
- Knowledge policy: copyright / no data downloadable;
- Social responsibility: it “aims at contributing to the rural development and the growth of the local economy, as well as enhancing agri-food supply chains and proximity markets”;
- Impact: It has been adopted by 77 “sellers” around the country.



3.2. Barcelona

Barcelona has a great experience of agroecology cooperativism. The first organizations appeared on the last years of 1980s and first of 1990s. In a deep study of the impact of ICT in the transformation of the agroecological cooperatives of the city, Espelt (2018) concluded organizations are adopting platforms in order to organize their consumption activity (around 80% use a digital a platform and find it highly relevant for the management of the organization). At the same time, we observe two trends: on the one hand, cooperatives which adopt private software (especially Google tools), on the other, organizations that develop software in the basis of digital commons.

El Bròquil del Gòtic | <https://github.com/tiendan/broquil>

El Bròquil del Gòtic is a consumption group with the legal form of association launched in 2010. Around thirty consumer units members are involved in the organization. One volunteer of the cooperative has developed a digital platform which is only used internally in this group.

- Governance: The consumption group has a horizontal management and decision-making process. The software is on GitHub (currently with 2 contributors).
- Economic model: Non profit organization with no professional tasks in the cooperative so it is self-managed with voluntary dedication. Each member has their role and some of the tasks are rotative. This includes technological development.
- Technological policy: The source code is uploaded on GitHub but there is no specific license associated to it.
- Knowledge policy: The contents of the organization are in Google Blogspot without any type of license.
- Social responsibility: As the majority of Barcelona agroecological cooperatives, it cares about local consumption, social justice and environmental issues.
- Impact: Since now, the platform has been adopted only by El Bròquil del Gòtic.

Germinal | <http://www.coopgerminal.coop/>

Germinal is one of the main references in agroecology consumption cooperatives in the city of Barcelona. The first group of the organization was launched in 1993 in Sants as a cooperative. The model allowed the creation of different groups in other neighbourhoods and cities abroad. Germinal developed a platform which allows the management of the different groups.

- Governance: Each group, organized with different commissions, has its own assembly but the final resolutions depend on the general assembly (which involves all the groups). This model of decision making process involves all the elements of the cooperative, ICT as well.
- Economic model: Like El Bròquil del Gòtic.
- Technological policy: The platform is developed with Drupal (GNU) license.
- Knowledge policy: There is no specific license regarding contents and the data is not downloadable.
- Social responsibility: Like El Bròquil del Gòtic.
- Impact: The platform has been adopted by the whole Germinal organizations (Sants, Sarrià, Farró, Poble-sec, Rubí).

Aixada | <https://github.com/jmueller17/Aixada>

Aixada (launched in 2013) is an open Source platform that helps people to organize an alternative consumption cooperative. It is built for managing the ordering, buying, selling and handling of products between end-consumers and local producers. This software platform has been used first in the Aixada cooperative located in Barcelona where it self-administers over 700 products distributed over roughly 60 local, organic providers among 40 households. The platform combines a normal shopping cart application with a module for ordering products from providers. Apart from self-administered buying and selling it also helps to manage cooperative members, keep track of product stock, money and consumption patterns.

- Governance: A small group of developers takes into consideration the requirements of the organizations that have adopted it. The software is on GitHub (currently with 9 contributors).
- Economic model: Like El Bròquil del Gòtic and Germinal.
- Technological policy: GNU license.
- Knowledge policy: Aixada cooperative uses Wordpress with no license associated.
- Social responsibility: Like El Bròquil del Gòtic and Germinal.
- Impact: Apart from the own cooperative, Aixada has been adopted by other Barcelona city agroecology cooperatives (Can Pujades, Cydonia, Verdnou, Mespilus, Estèvia, Girasol de Sant Martí, La Tòfona).

Aplicoop | <http://aplicoop.sourceforge.net/>

Aplicoop 3.0 is an application that allows consumers to shop online, manage groups of purchases, prepare orders, invoice, etc. It has been developed for the management of a consumer cooperative where all partners are volunteers, and both orders to suppliers, such as the preparation of baskets for members, as collections and payments are made by the members themselves on a rotating basis and in commissions. The first version of the software was launched in 2009.

- Governance: Aplicoop is an online community, where users can request future developments.
- Economic model: It is a non-profit organization.
- Technological policy: GNU-GPLv3 license.
- Knowledge policy: Data is fully downloadable.
- Social responsibility: The project promotes consumer cooperatives, procommon activity and local consumption.
- Impact: Two groups have adopted Aplicoop in Barcelona: 30 Panxes and L'Economat Social (in spite of that, this one has changed to a new platform in 2017).

Katuma | <http://katuma.org/>

Katuma is an agroecology consumption platform based on commons collaborative economy values. The project was started in 2012 and was developed by Coopdevs, a non-profit association focused on free and open software to promote social and solidarity economy projects. From early 2017, Katuma is part of the international project Open Food Network.



- Governance: The digital platform is managed by a cooperative whose members are producers, second grade and consumer organizations, with a democratic decision-making process.
- Economic model: The project gets sources from projects promoted by public administration (it is also a part of H2020 project), has participated in a match-funding campaign and monthly quotas from its members (in the upcoming months).
- Technological policy: GNU Affero General Public License v3.0 (AGPL).
- Knowledge policy: The contents are under a Creative Commons (BY NC) license.
- Social responsibility: The project is focused on connecting producers and consumers in terms of social justice.
- Impact: currently growing, it has around 15 consumer groups (201 family units that belong to those active organizations) and producers actively using the platform scattered around Catalunya, Porto and Canary Islands.

La Colmena Que Dice Sí! | <https://lacolmenaquedicesi.es/es>

La Colmena que dice sí! (LCQDS) is an online farmers' market that aims to help farmers sell their produce directly to consumers. Founded in France in 2010 by Guilhem Cheron and Marc-David Choukroun, the platform was originally called La Ruche qui dit Oui!. There are branches in France, Belgium, Spain, Germany, Denmark, the Netherlands, UK (no longer active), Switzerland and Italy. Anyone can open a node in their neighbourhood and recruit local farmers to sell there. Customers can place orders through the online platform and then pick up their orders at a local venue from the producers.

- Governance: The digital platform is managed by the promoters. Those responsible for each node have the possibility to participate (limited) in the decision-making processes.
- Economic model: Private capital allowed the development of the platform. Each node has a promoter who receives 8.35% of sales as compensation for its coordination work and invigorating the community. The promoter of the project receives another 8.35% of the income for the platform maintenance and the producers charge 83.3% of the sale price.
- Technological policy: Copyright.
- Knowledge policy: Copyright, data is not downloadable.
- Social responsibility: The project promotes local consumption and is B Corp certified.
- Impact: Currently there are 14 organizations in the city of Barcelona (two under construction).

4. Data Analysis

From the set of cases under analysis, two very different approaches have been identified concerning the role of technology in the work of the organizations: whereas for seven of them the digital platform itself represents the core of the organization and has been developed as a service or a free tool for others to use (Cases 4, 5, 6, 9, 10, 11 and 12), on the other hand there are five cases where the technology is simply a tool to make the organizing of orders and distribution more efficient, while the focus relies in the socio-economic dimensions of collaborative food provision (Cases 1, 2, 3, 7 and 8).

Moreover, there are also important disparities concerning the way the cases have come to life: from the bottom-up approaches of consumers, farmers, developers coming together to

organize their own food system (Cases 1, 2, 7, 8, 9, 10, 11), to the more top-down approaches implemented by institutions with access to relevant funding (private or European-level) (Cases 3, 6, 12). Between bottom-up and top-down, there is the spontaneous initiative of individuals who have developed platforms because they identified a need - although they don't seem to have a very clear strategy or sustainability model (Cases 4, 5).

With these considerations as a starting point, the comparative analysis (see Table 1) shows that none of the cases completely fulfills the commons balance dimensions, although in general the bottom-up approaches are better ranked. There is a clear overall pro-commons tendency in the cases from Barcelona while the Portuguese are less aligned with a pro-commons model.

Whereas the majority of the cases cover the social dimensions concerning social inclusion and environmental policies, the knowledge dimension is the one with less active supporters, both concerning licensing and (open) data. Case 10 (Aplicoop) is the one accomplishing more commons criteria (except for the economic transparency and impact dimensions, which are only partially fulfilled), followed by Cases 9 and 11 (Aixada and Katuma), who respectively do not fulfill the open data and decentralized technology requirements.

Open participation and economic transparency are the qualities with more discrepancy between the two regions: while in Barcelona, all cases except 12 (LCQDS) accomplish these dimensions, in Porto none of the platforms completely fulfills these goals, although Cases 1 and 2 (AMAP and Fruta Feia) have some limited mechanisms and aim for it.

Dimensions	Sub-dimensions	Porto						Barcelona						
		1	2	3	4	5	6	7	8	9	10	11	12	
GOV	Type of organization	Dark grey	Dark grey	Light grey	White	White	Light grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	White
	Open participation	Light grey	Light grey	White	White	White	White	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Light grey
ECON	Goal	Dark grey	Dark grey	White	Light grey	Dark grey	White	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	White
	Transparency	Light grey	Light grey	White	White	White	White	Dark grey	Dark grey	Dark grey	Light grey	Dark grey	Dark grey	White
TECH	FLOSS	Light grey	Dark grey	White	White	Dark grey	White	Light grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	White
	Decentralized	White	White	White	White	White	White	Dark grey	White	Dark grey	Dark grey	Dark grey	White	White
KNOWL	Copyleft	Light grey	Light grey	White	White	White	White	White	White	Light grey	Dark grey	Dark grey	White	
	Open data	White	White	White	White	White	White	White	White	White	Dark grey	Light grey	White	
SOC	Social justice	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	White
	Green	Dark grey	Dark grey	Light grey	Light grey	Light grey	Light grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey	Dark grey
IMPACT	Adopters	Dark grey	Dark grey	Dark grey	Light grey	Light grey	Dark grey	White	Light grey	Dark grey	Light grey	Dark grey	Dark grey	Dark grey

Table 1. Comparison Between the Cases through the Commons Balance

Note: Dark grey: fulfilment, Light grey: Partial fulfilment; White: unfulfillment. Cases: 1. AMAP, 2. Fruta Feia, 3. Prove, 4. Reforma Agrária, 5. Sachar, 6. Smart Farmer, 7. El Bròquil del Gòtic, 8. Germinal, 9. Aixada, 10. Aplicoop, 11. Katuma, 12. La colmena que dice sí. [Table 1. Comparison Between the Cases through the Commons Balance.]



5. Conclusions

From the results of the analysis about the role of ICT (predominant in more than half of the cases), we can conclude that agroecology cooperativism is transforming into a new agroecology platform cooperativism. In spite of that, the 12 cases analyzed showed different levels of connection with the SSE and Digital Commons frameworks, networks, and values. On one hand, Barcelona has a better procommon approach; on the other, the social dimensions are more accomplished than knowledge and technological policies. The expansion of the social solidarity economy movement in the city of Barcelona (Fernández and Miró 2017) may explain the better approach to SSE principles. At the same time, while some organizations have trended to promote platforms beyond private technological solutions, they have not had much attention to knowledge generation (dismissing licenses and the possibility to download data).

Other important consideration of our investigation is the impact. Even though Porto cases have less accomplishment of the democratic and procommons qualities, their impact is higher in terms of adoption. The case of LCQDS in Barcelona, with a great expansion in the last years, confirms this behavior. This observation connects—in the majority of cases—with the duality from bottom-up to top-down approach: currently, private or institutional top-down platforms are creating a bigger impact than bottom-up ones. It seems that grassroots movements have more difficulties to scale their impact.

To sum up, our investigation shows the relevance to consider the whole analysis of a digital platform in order to connect socioeconomic values with technological and knowledge ones. Furthermore, the platforms with a better democratic approach have the challenge to improve their scalability and sustainability.

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7. Methodological Appendix

Methodology is based on an in-depth 12 case study comparison. Data collection was based on interviews and digital ethnography (in order to collect information about knowledge and technological policies and social networks), from September 2017 to February 2019. Data analysis combined qualitative and visual analysis of data from interviews and digital ethnography. Regarding the sample, we have chosen the more significant digital platforms with impact in Barcelona and Porto (six from each city).

8. Bibliographical Note

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9. Abbreviations

- **SSE:** Social and Solidarity Economy
- **LCQDS:** La Colmena que dice Sí!

10. Notes

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