



Inter-Agency Task Force on  
**Social and Solidarity Economy**

# **A Framework to Assess the Sustainability and the Pro- Democratization of Platform Economy**

*The Case of Barcelona*

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**Implementing the Sustainable Development Goals:  
What Role for Social and Solidarity Economy?**

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## Abstract

Platform Economy is growing rapidly, exponentially, and creating high expectations of sustainability and its potential to contribute to the democratization of the economy. However, Platform Economy platforms lack a holistic framework to assess these elements. In addition, there is confusion about platforms which present themselves as collaborative when they actually are not. To address it, this article provides a framework for assessing the pro-democratic qualities of Platform Economy initiatives, taking into account governance, economic model, technological and knowledge policies and social responsibility and impact. The framework has been tested empirically in a sample of 100 cases with presence in the city of Barcelona. The results show different levels of pro-democratization, and different tendencies of pro-democratization. The cases which tended to be open in one dimension also tended to be open in the other dimensions. On the one hand, the analysis points to a correlation between technological and knowledge policies and governance; on the other, a correlation between project governance and its model of economic sustainability has also resulted. The results suggest that the way that is conducted the governance of a platform plays a central role and relates to the other democratic qualities. Finally, we link this with the Sustainable Development Goals.

## Keywords

Platform Economy, Sharing Economy, Democratization, Sustainability

## Bio

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## 1. Introduction

The Platform Economy (also known as collaborative platform economy or Sharing Economy) is used as a floating signifier for interactions among distributed groups of people supported by digital platforms that enable them to exchange (matching supply and demand), share and collaborate in the consumption and production of activities leveraging capital and goods assets, and labour. It is growing rapidly and exponentially, creating great interest, and has become a top priority for governments around the globe (Hernández Bataller, 2014). However, it suffers from three main challenges:

1) Platform Economy occurs in a regulatory vacuum, with unsystematized policy reactions and uncertainty towards which policies may be more beneficial. Furthermore, collaborative practices are opening up a tremendous potential and opportunity for public innovation that is not being exploited.

2) Platform Economy is creating high sustainability expectations for its potential to contribute to a sustainable development of society (Botsman and Rogers, 2010; Cohen and Kietzmann, 2014; Heinrichs, 2013), constituting a paradigmatic change (Rifkin, 2014). But it lacks a holistic framework for the assessment of its sustainability. Furthermore, the sustainable design of platform has considered questions of technological and economic aspects but has not integrated other sustainability relevant questions, such as environmental impact, gender and inclusion, or legal implications, lacking a proper multidisciplinary perspective to Platform Economy.

3) There is a confusion about the platforms which present themselves as collaborative while actually, they are not; and similar uncertainties and ambiguities associated with diverse models. The disruptive impact of the best known Platform Economy model, that of Unicorn extractionist corporation platforms like Uber and Airbnb, is provoking huge controversy (Codagnone et al., 2016). Successful alternative and truly collaborative models exist, such as open commons, platform cooperativism and decentralized organizations based on a social economy and open knowledge, but these have received limited policy and research attention. Additionally, there is a lack of a classification system that helps to establish the difference between the different models. In sum, Platform Economy constitutes a paradigmatic change, but assuring a positive direction to this change requires that we target these three challenges in order to re-direct Platform Economy towards a sustainable future.

In order to contribute to address these challenges, this work primarily will a quality balance of the Platform Economy (Fuster Morell et al., 2017). The quality balance is an analytical tool that helps to characterize the platforms, differentiate models by visualizing the democratic qualities of Platform Economy initiatives and provide insights of the sustainability implications of their design and performance from several perspectives. This commons balance considers the dimensions of governance, economic strategy, technological base, knowledge policies, and impacts and social responsibility towards the externalities of the platforms.

## 2. A commons balance in order to assess the sustainability of the Platform Economy

A more recent frame of studies on Platform Economy, departing from Botsman and Rogers (2010) characterization of Platform Economy swaying away from the sharing-oriented consumption practices, provide a state of the art on how far there has been applied a sustainability analysis. In contrast to Commons-based peer production (CBPP) (Benkler, 2006; Fuster Morell et al., 2016) and platform cooperativism (Scholz, 2016; Fuster Morell, 2017) frames, since the initial characterizations of sharing-oriented Platform Economy, its potential to contribute to a sustainable development of society (Botsman and Rogers, 2010; Cohen and Kietzmann, 2014; Heinrichs, 2013) has been pointed out. Nonetheless, the empirical evidence of the expected socio-economic and environmental effects of sharing-oriented platforms is still limited, fragmented and inconclusive. Only 9% of the Platform Economy literature has focused

on the potential benefits, costs and welfare impact of sharing-oriented platforms (Codagnone et al., 2016). The framework of sustainability in the Platform Economy has combined social, economic and environmental sustainability dimensions (Botsman and Rogers, 2010). The ex-ante analysis around impact has considered such aspects as consumer welfare, job creation and employment opportunities for independent contractors, job security and quality, and environmental impact, but has lacked in the majority of cases a holistic analysis of the integration of sustainability into society, community and economy perspectives (Bina and Guedes, 2011). Ex-post empirical research remains partial and dispersed. From a social dimension, Richardson (2015) points to Platform Economy sustainability as a source of change and of reduction in social inequalities (Dillahunt and Malone, 2015; Fraiberger and Sundararajan, 2015; Reich, 2015). Some studies conclude that peer-to-peer activities potentially benefit the below-median-income part of the population more than the above-median-income one and that sharing firms can be used as a means to redistribute income. Schor's empirical work has documented how the market orientation and organization of sharing-oriented platforms are critical characteristics shaping their potential for providing sustainable alternative economic arrangements (Schor and Fitzmaurice, 2015). From an environmental perspective, Demailly et al. (2016) argue, based on extensive surveys and interviews in the sharing-oriented Platform Economy sector, that although platforms and their users may be moved by sustainable development, various rebound effects like compulsive acquisition behaviour around capital assets also take place, something corroborated by other empirical analysis (Parguel et al., 2016). However, sharing-oriented mobility could contribute to reconciling environmental and social demands within a positive narrative of reclaiming urban space and deploying innovative solutions (Brimont et al., 2016). The multi-disciplinary approach to sustainability is optimal, embracing the complexity of the phenomenon impacts, but challenging methodologically (Heinrichs, 2013). An initial research strategy for approaching sustainability in Platform Economy was based on the use of secondary data and sustainability indicators adopted from corporations' sustainability literature (Delai and Takahashi, 2011). However, this strategy has several limitations. There is no consensus about what sustainability indicators to use (Delai and Takahashi, 2011), and frequently the indicators are not adapted to such Platform Economy features as the non-monetary character of some activities, micro-entrepreneurs (Schor, 2014), and rebound effects reducing positive contributions (Heinrichs, 2013). Another limitation of the current work, in terms of Platform Economy economic sustainability, is that it has focused only on the impact of the unicorn models in car sharing (Fraiberger and Sundararajan, 2015; Firnkorn, 2012; Hall and Krueger, 2015), on rental industries and tourism accommodation (Fang et al., 2016; Neeser, 2015) and on online labour (Agrawal et al., 2013; Horton and Golden, 2015), as well as on the contrasting impact of the unicorn model and the current incumbents (Zervas et al., 2017). Furthermore, this work is sometimes presented by stakeholders involved in the controversies. For example, Uber and Airbnb have released dozens of reports, but their reliability cannot be independently validated because the methodologies are not transparently illustrated and data is not made accessible to researchers (De Groen and Maselli, 2016; Kässi and Lehdonvirta, 2016). In contrast, we will connect with the study of sustainability in commons-oriented modalities (Ostrom, 2008). We will develop a framework of sharing-oriented Platform Economy sustainability that aims to integrate environmental, socio-economic and gender equality, political, and Internet sustainability dimensions. In contrast to previous work in the field of Platform Economy, we will consider other three critical dimensions to sustainability: gender as a source of inequality, digital sustainability of the internet as a commons, and political sustainability on the other. While sharing-oriented Platform Economy literature considers the Internet as a given immutable resource, hosting the platforms that support sharing-oriented economy, the net environmental approach points to the Internet as a living process and an ecosystem (Holman and McGregor, 2005) of common resources that needs to be preserved in terms of its fundamental principles of net neutrality, decentralization and openness (Boyle, 1997). How far the models contribute to the regulatory requirements and to policy system quality will also be considered as part of the sustainability frame.

### 3. Commons multidisciplinary balance of Platform Economy

The design of the commons balance is informed and based on a multidisciplinary analysis and state of the art of the Platform Economy from an economical, technological, environmental, gender and inclusion, legal and policy perspectives.

The commons multidisciplinary balance considers the dimensions of governance design, economical strategy, technological base, knowledge policies, and social responsibility regarding externalization impact of the platforms. The commons balance is an analytical tool that helps to visualize the commons qualities of sharing-oriented Platform Economy initiatives, differentiate models, and provide insights into the sustainability of their design, and to inform technological development. The starting point is the recognition of the Platform Economy as a very diverse and dynamic field. In light of this, the metaphor that represents what we see in front of us is more about mapping a plural galaxy than drafting a two-sided field. We are not aiming to establish—with the delimitation criteria—two sides with a clear line of delimitation of what sharing-oriented platform economy is and what it is not. We are aiming to map the diversity of Platform Economy expression typologies and the various ways in which sharing-oriented Platform Economy differs from other models. These diverse Platform Economy typologies result from several combinations of elements that constitute Platform Economy, rather than one single formula.

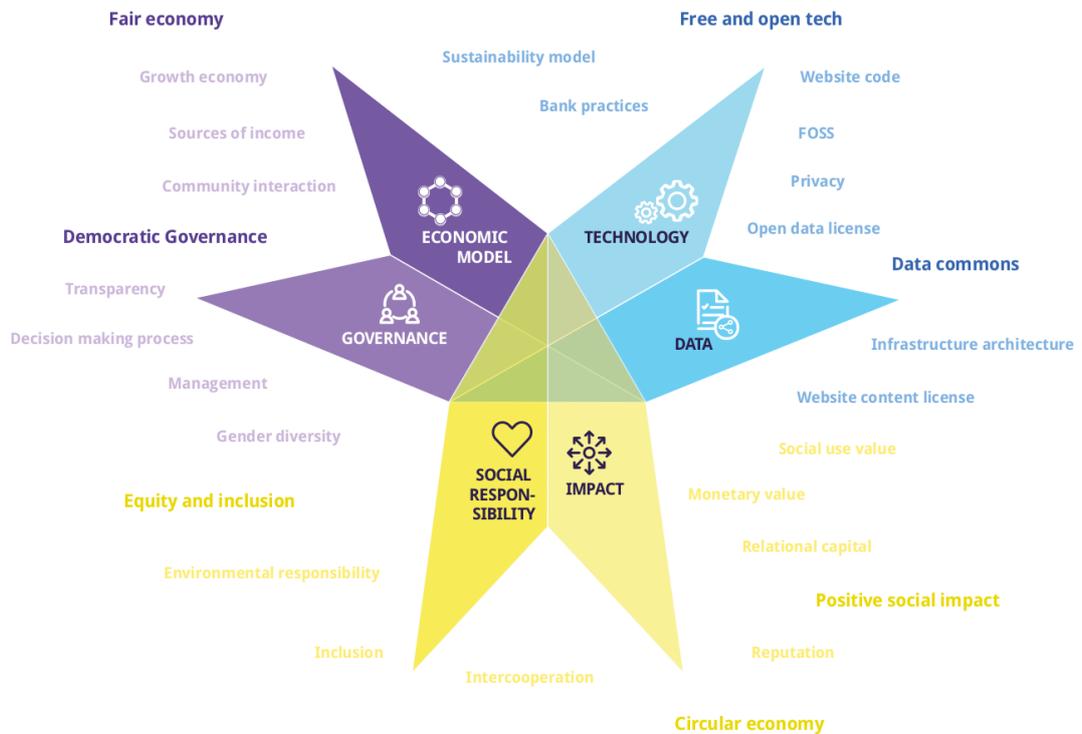
The commons qualities of the sharing-oriented Platform Economy are articulate around 5 dimensions (Figure 1):

- **Governance:** Regarding democratic enterprises and involving the community generated the value in the platform governance. Regarding decision-making model of the organization; mechanisms and political rules of the digital platform participation.
- **Economic model:** Regarding whether the project financing model is based on a private capital, an ethical finance, or a distributed found (crowdfunding or match-funding); the business models; mechanisms of economical transparency; how far the profitability is driven by the whole plan; distribution of value generated; and equity payment and labour rights. To ensure 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).
- **Knowledge policy:** Regarding the type property as established by the license used (free licenses or proprietary licenses) of the content and knowledge generated; type of data (open or not), the ability to download data (and which formats), and the promotion of the transparency of algorithms, programs and data. Privacy awareness and the protection property from personal data and prevent abuse, as well as the collection or share of data without consent. Guarantee the portability of data and reputation.
- **Technological policy:** Regarding the mode of property and freedom associated with the type of 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).
- **Social responsibility regarding externality impacts:** These dimensions related to any source of awareness and responsibi open technology and knowledge openness variables, and open governance lity regarding the externalities and negative impact such as social exclusion, and social inequalities, regarding the equal access of people with all kinds of income and baggage in an equitable and impartial way (without discrimination) to gain access to the platform; the inclusion of gender, compliance with health standards and safety standards that protect the public; and the environmental impact, 2 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; the protection of the general interest, public space, and basic human rights, such as access to housing.

Figure 1. Star of democratic qualities of digital platforms

## STAR OF DEMOCRATIC QUALITIES OF DIGITAL PLATFORMS



Authors: Mayo Fuster, Ricard Espelt

Source: Prepared by the authors

On the basis of the commons balance of Platform Economy, sharing-oriented Platform Economy can be defined as a tendency, a set of qualities, and a modality of sharing economy — regarding both the design and the performance of the process— characterized by a commons approach regarding the dimensions of governance, economic strategy, technological base, knowledge policies, and social responsibility of the externalizations impacts of the platforms. In this regard, sharing-oriented platform economy is characterized by (1) favouring P2P relations —in contrast to the traditionally hierarchical command and contractual relationships detach from sociability, and merely mercantile exchange— and the involvement of the community of peers generating in the governance of the platform; (2) it is based on value distribution and governance among the community of peers, and the profitability is not its main driving force; (3) its developed over privacy aware public infrastructure, and results in the (generally) open access provision of commons resources that favor access, reproducibility and derivativeness; and finally, (4) the responsibility with the externalities generated by the process.

## 4. Methodology

A “codebook” for data collection -a set of indicators related to the analysis variables- was employed.

The data collection was based on two modalities: web collection and a structured interview. Web collection was based on digital ethnography of the web platforms. It was performed in 100 cases. In addition, we did a structured interview to 50 of these departing 100 cases. Finally,

during the data collection, “field notes” on general impressions were kept in a field book in order to have qualitative detailed data about study cases.

One single researcher was collecting the data. To guarantee the reliability of our sample, another two researchers test the indicators of the codebook with a set of cases, and verify the data collected of some cases of the main data collector. In this way, we controlled the quality of our data.

To develop the analysis we have generated descriptive statistics of defined variables and correlation analysis so as to study the relation between the different dimensions. For the statistical analysis of the data, we applied different non-parametric tests. We were aware that non-parametric methods are not as powerful as parametric ones. However, because non-parametric methods make fewer assumptions, they are more flexible, robust, and applicable to non-quantitative (categorical/nominal) variables.

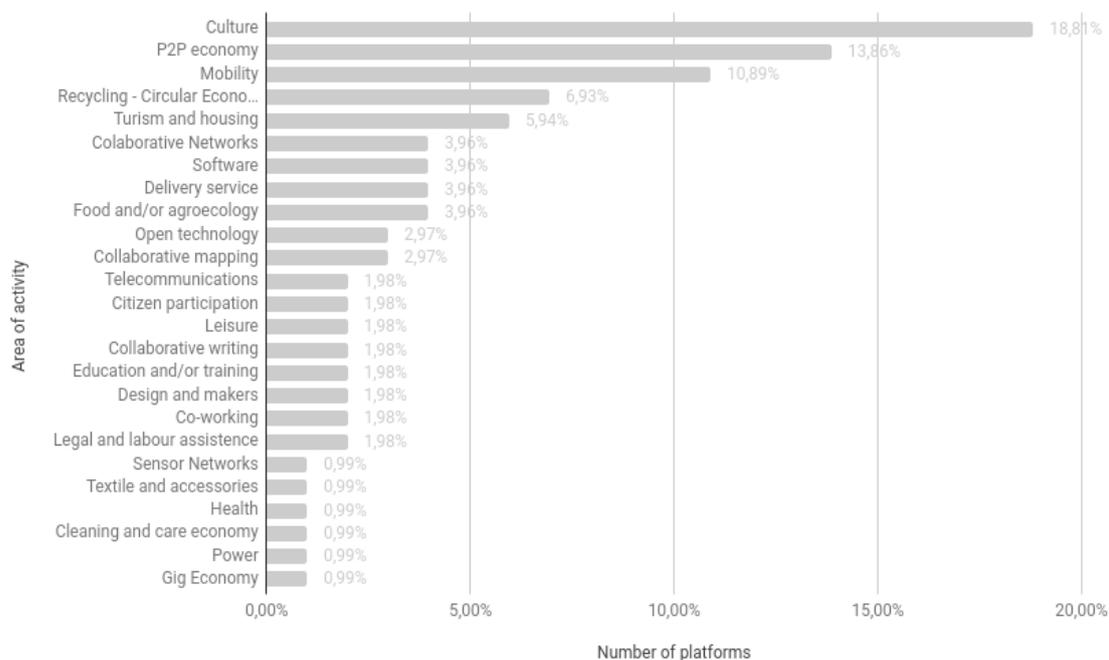
## 5. Barcelona sharing ecosystem

In this section, we will show an overview of how are the characteristics of 100 platforms of sharing economy platforms with an impact on the city of Barcelona. Based on an initial list of

cases of the P2P Value project (about 1,000), a review has been made to introduce new sharing economy platforms, and some criteria have been defined to make the selection of the sample: (1) Projects with activity in Barcelona, (2) Projects based or supported by a digital platform and (3) Projects based on collaborative production. Some cases are well-known and important, but there are also many, almost unknown experiences.

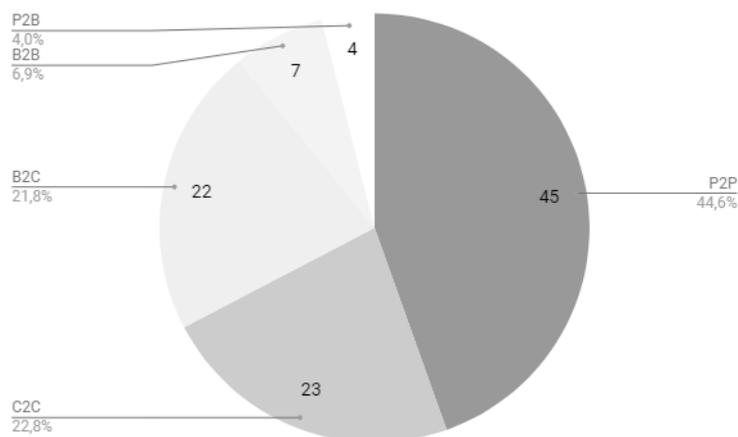
Although the universe is unknown, based on a map of 100 cases, we have a strong confidence in reaching our study in much of the experiences of this area with an impact on the city of Barcelona. The most representative platforms are in the field of culture (18.8%), the P2P economy (13.9%) and mobility (10.9 %) but there are many areas with sharing-oriented economy platforms presence (Figure 2).

Figure 2. Percentage sharing-oriented economy platforms regarding their area



Source: Prepared by the authors

Figure 3. Percentage sharing-oriented economy platforms regarding their area



Source: Prepared by the authors

Most of the projects base their activity on digital interactions (74.3%), compared to the minority in which the digital platform is a further support (25.7%). While the interaction between peers (44.6%) or between consumers (22.8%) are the most relevant (Figure 3). Focusing on the community, 42% indicate that this is international, while 8% European, 20% Spanish, 22% Catalan and 8% from Barcelona.

## 5.1. Governance

The level of the freedom of the users of the sharing economy platforms is quite relevant. In spite, the study shows that in the majority of cases (42.6%) platforms offer, demand or value services or products, 31.7% allow users to create content among them, and in 7.9% users have the possibility to generate new ways of adding content. Finally, 17.8% of projects studied have other formats of contribution. At the same time, 35.6% of the platforms allow participation without filters, 25.7% moderate before the user contribution and 2% after. In addition, 57.4% of the analyzed platforms allow users to interact or form groups among them.

Focusing on the governance of the platform, most of them (60%) have different user roles. If we distinguish different degrees of opening in the administrator role, we note that in 30% of the cases administrators are generated automatically, in 2% through elections among the community, 2% are chosen by other administrators, 4% are selected by the providers of the platform with mechanisms of participation, while in 44% of cases are selected for platform providers without participation mechanisms. At the same time, 50% of the cases have formal community decision-making mechanisms and 54% involve the community in the definition of formal policies of the platform.

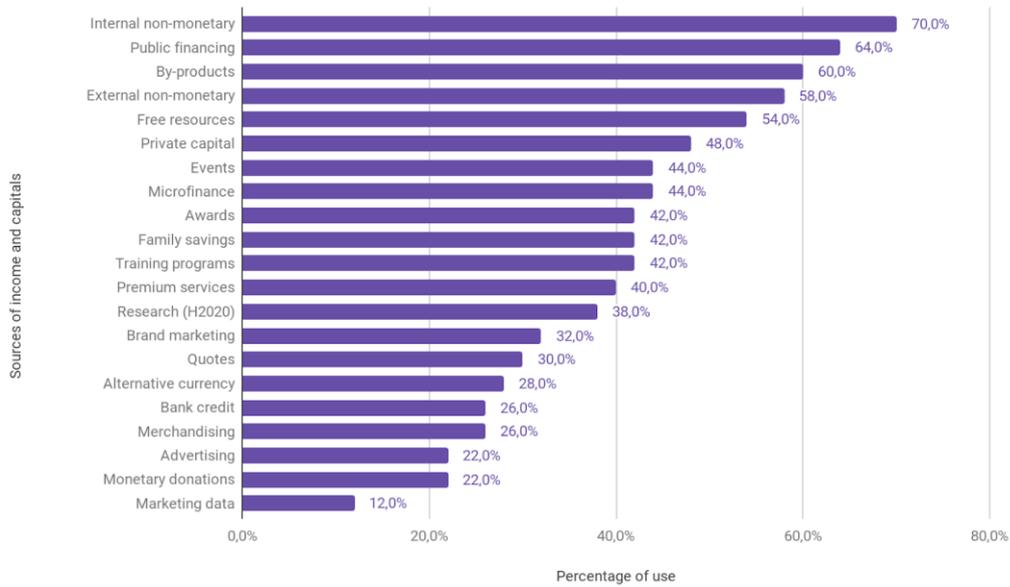
## 5.2. Economic model

According to our analysis, 52% of the platforms are not based on economic transitions, while 30% of them, users have almost or always monetary exchange. In the sense of economic governance, 40% of the projects reinvest the benefits in their self, while 50% divide them among the owners and 10% are not defined. In terms of ethical banking, 40% of the platforms use them.

Focusing on the model of sustainability, we detected a large number of types of forms of financing (Figure 4). The five most used, with a rate over 50%, are non-monetary internal donations (70%) and external donations (58%), public funding (64%), the generation of by-products or derivatives (58%) and the creation of free resources (54%). Below we find a range

of financing models with an average level (between 30% and 50%) of use: private capital (48%), organizing events (44%), microfinance (44%), prizes (42%), training programs (42%), offering premium services (40%), research programs (38%), marketing the brand (32%) and member fees (30%). Finally, the least used financing models with a use of less than 30% are: alternative currencies (28%), bank credit (26%), merchandising (26%), advertising (22%), monetary donations (22%), and the commercialization of the data.

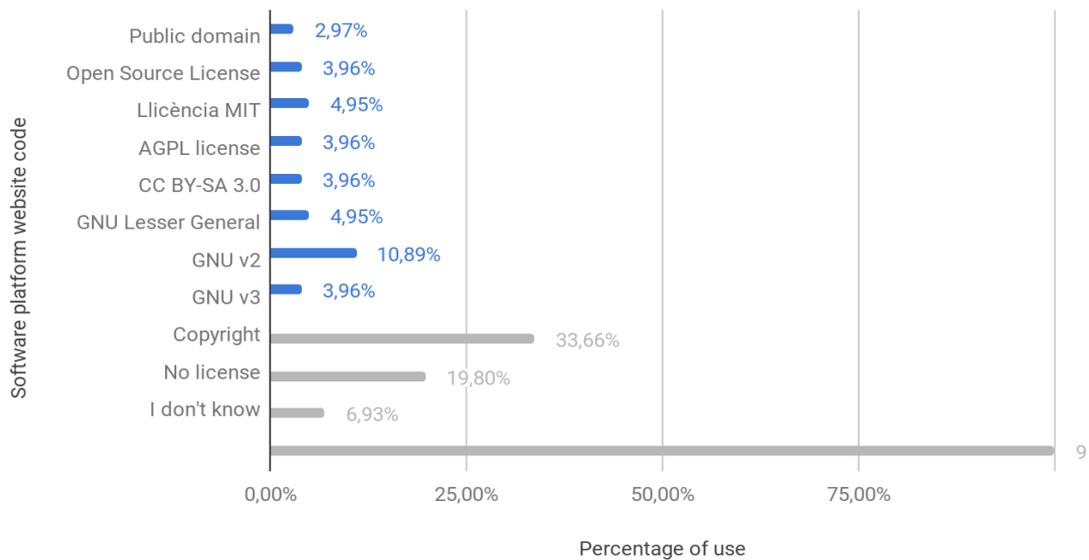
Figure 4. Sources of platform income and capitals



Source: Prepared by the authors

### 5.3. Knowledge policies

Figure 5. User-generated content license



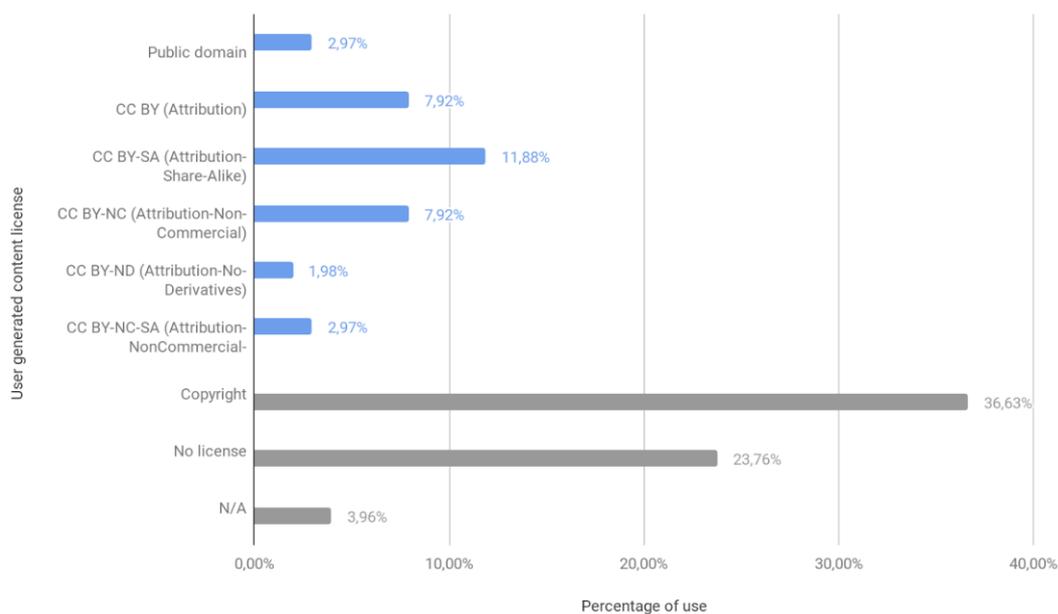
Source: Prepared by the authors

Regarding the content license generated by users (Figure 5), most of the platforms have all rights protected (36.63%) or do not use any type of license (23.76). While the remaining platforms have licenses with varying degrees of openness: 2.97% public domain, 7.92% authorship recognition, 11.88% authorship recognition and share in the same model of license, 7.92% of authorship recognition and non-commercial use, 1.98% of authorship recognition without the possibility of generating derivative works and 2.97% of authorship recognition without the possibility of commercial use and share in the same license model.

Along the same lines, most platforms studied (53.5%) do not allow data to be downloaded or accessed through an API. While 5.9% allow access through an unrestricted API, in 10.9% of cases a complete download is possible, virtually 2% makes access through an API with restrictions and almost 2% allow the free download of part of the data.

#### 5.4. Technological policies

Figure 6. Software platform website code



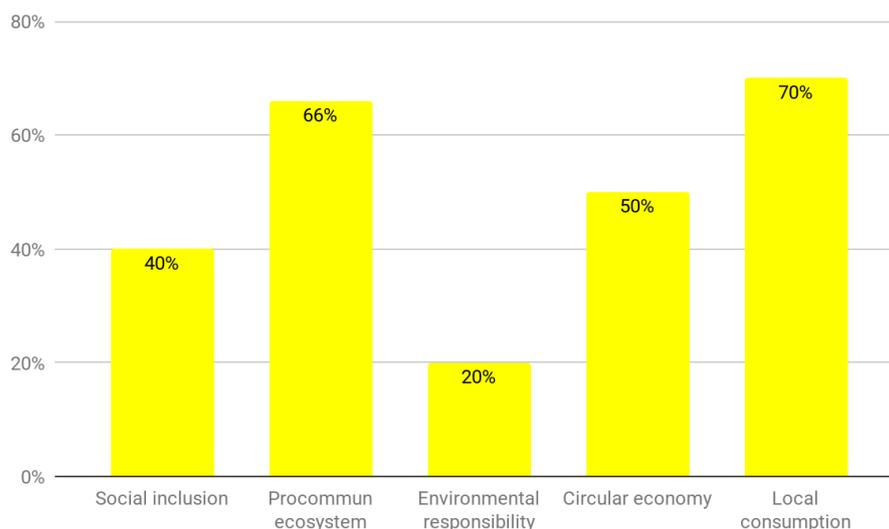
Source: Prepared by the authors

Regarding the license of the code, most (33.66%) of the platforms have all the rights reserved or are not licensed (19.80%), while the rest use a more or less open license (Figure 6). In the same vein, 44.55% of the platforms do not allow any type of software reproduction. In spite of that, 38% of the projects studied have thought of using blockchain as a way of decentralizing their technological infrastructure.

#### 5.5. Social Responsibility

Most platforms studied (36%) indicate that there are more men than women participating in the platform. Regarding to the main elements that make up the social responsibility and the impact of the projects, 40% of the platforms indicate that they have elements that favor the inclusion of collectives at risk of social exclusion, 66% favor inter-cooperation with other initiatives of the commons or of the social and solidarity economy, 20% have some type of initiative that favors a positive impact on the environment, 50% practice the circular economy and 70% favour the consumption of products or local services (Figure 7).

Figure 7. Social responsibility evaluation indicators



Source: Prepared by the authors

## 6. Conclusions

The results of our research show that the indicators that define the governance model of a platform are interrelated with those that define their economic model. Therefore, a first major conclusion is that the more democratic is the governance of a platform, the more democratic it will be its economic model.

The analysis variables used to study this connection have reinforced this correlation, especially with respect to the community's participation in the definition of the norms and the policies of the platform and the destination of the benefits, while economic participation has an inseparable link with transparency. Therefore, the generation of spaces, whether formal or informal, to promote democratic governance and promote transparency are key elements for generating sharing economy platforms based on the common good. If we focus on economic sustainability, we note the relevance of non-monetary contributions, both internal and external. This highlights the importance of volunteer work or linked to the mutual society for the sustainability of initiatives, and the creation of communities around the projects as the central capital for the viability of projects. In parallel, although research data means that few projects are initiatives of public administration, the role of public policies is important, since almost 2 out of 3 projects have public funding. For example, some projects have got the support of Barcelona City Council throughout a match-funding campaign, which allows projects to obtain sources from public administration and the community around the project. In this same sense, the link with research is also an important element for economic sustainability. For the low band of sustainability models, it stands out how traditional models (quotas, bank credits or advertising) have a minority use. Finally, we observe how the commercialization of the data generated by the platform is still an area to explore since it is the least used financing model. Regarding knowledge policies, the area with the greatest presence of openness is the user-generated content, which is present in 35.64 % of the platforms. In knowledge practices relating to data openness, however, it goes down to 20.79% of the sample.

Openness of technological practices in the three modalities investigated was not practised by the majority, but open options constituted more than a third of the cases (39.6% of the projects are based on a free software license, 35.64% are based on open architecture, and 38% of the projects have interest in exploring other forms of decentralized technology). Two factors may explain this result. The first is the desire to restrict the use of the website's software to the platform owners. The second is the low level of attention to software, content license, and open data exportation in the growing cooperative platform model (cooperatively owned,

democratically governed businesses that establish a digital platform to facilitate the sale of goods and services). Regarding governance, the most prevalent points of openness are seen in the policies of publication without filters or moderated only before publishing (61.3%), the ability to create groups or communicate with other users (57.4%), and internal transparency (76%). The least-used openness policies regard the administrators' election (only 38% of platforms had a democratic or meritocratic process to elect administrators) and who decides the destination of the economic platform's benefits (only 40% were decided by whole community). Therefore, when we look into the core of governance —platform or economic administration— the grade of openness is lower than when we study openness about member participation. Still, overall open governance of the platforms was adopted by 38% to 61.3% (depending on the specific governance indicator), which constituted a higher diffusion of openness in terms of platform governance, compared to technological or knowledge practices.

We could conclude on the basis of the data that openness collaboration in platforms is not irrelevant, but it is prevalent neither, as seen in around one-third of the sample. Furthermore, the cases which tended to be open in one dimension also tended to be open in the other dimensions. This suggests that a segment of the overall platform ecosystem could be characterized as more open, while a larger segment is not based on any of the methods of openness considered. We have shown a connection between the indicators that define knowledge and technology policies, which, at the same time, are intertwined with governance. In that sense, our investigation suggests that openness in technology and data areas tends to also be reflected in other areas like governance. In spite of the relevance of the sample, however, the limited number of cases requires caution in analyzing its results and conclusions. Regarding platform governance, we observe the active role of members in some key aspects of the democracy of the platform: defining the rules, involvement in the decision-making process, and internal transparency of the economic balance. We observed better open in the realm of open governance than in the realms of technological, knowledge, and data openness. However, the correlation analysis shows that openness in participation, knowledge and technology are also connected to the governance of the project.

Deepening in some cases, we are able to evaluate how important could be Platform Economy for the Sustainable Development Goals if initiatives are based holistically on the pro-democratic qualities.

For example, Katuma is an agroecology consumption platform developed by Coopdevs, a non-profit association focused on free and open software to promote social and solidarity economy projects. Katuma is Catalan chapter of the international project Open Food Network. Its activity facilitates a better connection between local producers and consumers. Thus, this platform incentives a sustainable model of food consumption.

Goteo is a crowd and match-funding platform constituted as a foundation. Currently, this platform has more than 90000 users, raising 4 million euros. All the projects which participate in Goteo campaigns must define the social responsibility of their actions. So, a great number of the initiatives are linked to sustainability, resilience, gender equality...

Other example is Som Energia, a Catalan renewable energies platform cooperative that has the objective of setting up something similar to initiatives such as Ecopower (Belgium) or Enercoop (France). Som Energia intends to offer its members the possibility of consuming energy from sources that are 100% renewable at a price similar to conventional energy, as well as developing its own renewable energy projects. In January 2019, the cooperative had over 54.300 members, had invested over 13 million euro in renewable energy production projects had produced over 11.80 GWh and employed 47 people.

To sum up, pro-democratic Platform Economy platforms are really connected to the principles of Social and Solidarity Economy. The platforms referred not only accomplish holistically the indicators proposed to be assessed but also some interact among them. This is the case of Katuma that has participated in a match-funding campaign promoted by Barcelona City Council throughout Goteo. Som Energia, among other platforms, uses Decidim to generate process of community participation. Obviously, the sustainability of each platform and the capacity of interact with the others will be the main goals for the future of pro-democratic Platform

Economy. In any case, the results of this investigation suggest the interrelated strength of governance openness, open technological and open knowledge dimensions in the promotion of the open collaborative ecosystem.

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