Facing the Challenge of Collaborative Consumption in Europe: A Time for Independent Metrics

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Abstract

This paper summarizes the results of an independent research on the economic, environmental and social impact of peer-to-peer collaborative consumption. The research design included Desk Research, Delphi Process, Netnographic Study and Triple Impact Assessment Questionnaire. This paper offers an overview of the methodological process and the main outcomes. First, we argue that the positive long-run effects claimed by the chief advocates of the sharing movement contrast with lack of evidence and of independent research. Second, we move on to the presentation of a multi-panel three round Delphi Study whose purpose was to identify the dimensions and indicators with which to assess the impact of collaborative consumption in the three aforementioned areas. Part three offers an overview of the Netnographic Protocol, a tool designed to evaluate a sample of 70 national CC platforms from 55 different European platforms. This part also advances a summary of the resulting typology of collaborative consumption.

Keywords: Collaborative Consumption; Sharing Economy; Impact Indicators; Community Footprint; Delphi Process; Netnography.

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1. THE SHARING TURN: A MULTI-FACETED AND COMPLEX PHENOMENON

The explosive growth of the Sharing Economy during the last decade is far from an isolated phenomenon. The sharing economy is an outcome of ideological mobilizations from all over the world as much as economic factors. It grew out of an international context of recession, labor precariousness and social cutbacks, first brought about by the Welfare State during the early 90s that then became further entrenched and more visible during the on-going Great Financial Crisis. At the same time, Collaborative Consumption (CC) has its roots in new global ecological and environmental awareness movements, which came about due to the environmental degradation cause by production and consumption patterns (European Commission, 2003; IPCC, 2007). Such movements include the environmental activism of the Greens in the 1980s, the current climate change movement, and the G20 and Kyoto Protocols. Traditional consumption systems were viewed as insufficient to transform the global economy toward sustainability, and CC, as part of the wider Sharing Economy movement, offered new arguments that promised incremental improvements in our existing production model.[1]

Furthermore, sharing has become a global phenomenon in a context of other social changes such as collaborative open culture (P2P, open source, creative commons), as much as technological innovation.[2] Therefore, Collaborative Consumption, as the promotion of a new culture of access instead ownership, fueled by technologies and decentralized networks, unlocks wealth in the base of a movement that creates new marketplaces.

It is from this wider scenario that we can also understand the way consumption patterns are quickly changing towards a model based on the exchange of goods and services, not only between companies and consumers, but also between private individuals (Peer-to-Peer–P2P).

Nowadays, the Sharing Economy has become a popular name for a broad range of activities and organizations, but it is not just about collaborative "consumption". It also incorporates alternative forms of collaborative finance, education and production that aim to transform the social and economic system, based on certain ideological values. As such, its economic, social and environmental impact requires serious scrutiny (Schor, 2004). For example, even though the sharing economy has been around for a long time, and is currently undergoing a period of great revitalization, the literature in this area remains poor. In particular, any analysis of the sustainability of CC models is hampered by a lack of methodologically sound research (Demailly, 2015). Demonstrating if CC is a fairer, greener alternative to capitalism or, on the contrary, an updated more efficient form of capitalism (Morozov, 2014), is a challenge in itself (Cohen and Kietzmann, 2014; Schor, 2014).

1.1. From Unfounded Claims to Evidence

The lack of evidence on the environmental benefits of CC is a common view expressed by most of the independent studies consulted. In this regard, Demailly and Novel (2014: 26) quote the frank remarks of an environmental impact expert who said: “It is hard to reason on the basis of very poor statistical data”. For her part Stokes (2015) puts it as follows: “What happens if you discover that the fantastic impacts promised by the platforms don’t exist? Or even worse, that they are negative? Don’t believe the hype and show me the evidence”.

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[1] We understand **Sharing economy** as the socio-economic system around the social paradigms of sharing, collaborating and cooperating. It refers to the access economy, gig economy, P2P collaborative economy (included consumption), and commoning economy. For its part, our use of **Collaborative consumption (CC)** refers to the consumption exchanges between private individuals (or organized groups of individuals) relating to access instead of ownership, redistribution markets and collaborative lifestyles.

[2] For grounded accounts of open culture and commons initiatives and debates see Estalella et al, 2003.

If the ecological benefits of sharing have often been seen as obvious, there are also widespread beliefs about positive social and economic impacts. At an economic level, the long-term benefits promised by the sharing economy include: higher rates of economic growth; higher standards of living; increased innovation; and lower barriers to entrepreneurship. For instance, the CC literature is replete with statements about how citizens can gain financially from sharing their assets. Users become prosumers by offering their under-utilized or idle products and services to other consumers who pay a competitive price. CC also promises cheaper access to goods that you cannot, or perhaps don't want to own; it promises economic empowerment for consumers whether through collective purchasing power or the diversification of products and services (E.g. ridesharing, room and house rental, etc.).

Although, a liberal conception of free access is the bedrock of CC ideology, economic disparities and the shifting of resources also creates barriers and inequality. For instance, digitally excluded groups cannot access the opportunities offered by the sharing economy. Bearing this in mind, one of the main economic challenges identified relies on scaling up access from the young, urban and tech savvy citizens to a viable alternative for all consumers, including rural ones, unable to participate due to a lack of proximity to potential peers (Torregrosa, 2013; Bremner, 2014).

Another major debate on the economic impact of CC relates to dangers or structural weaknesses in relation to workers' rights. The main dilemma here is whether the Collaborative Economy frees us from the power of monopolies and big corporations, or, on the contrary, if it destroys stable employment and consumer rights. While CC is supposed to foster local production, exchanges and investments, many issues in relation to labor exploitation and workers' rights have been raised, particularly in the for-profit sector. Some critics see CC platforms, particularly those operated by large companies, as architects of a growing precarious class of workers, indicative of the end of the era of economic security. They also argue that the main reason for sharing or engaging is desperation. "Sharewashing" is the term used by Kalamar (2013) to refer to platforms that shift risk from companies onto employees, or so called "microentrepreneurs", under the guise of sharing. For-profit platforms face a challenge to prove they are able to provide decent earnings, a safety net and good labor conditions to providers.

Alongside positive environmental and economic impacts, P2P platforms are also proposed to have social benefits through a renewal of beliefs about the importance of community values; increased social interaction among people who do not know each other is a key requirement for a sharing economy. Accordingly, social transformation through these emerging, mostly virtual, community exchanges and trades is an important goal. In their survey research on the benefits of local currency involvement, Jacob et al. (2004) point out that a personal dimension to the P2P exchange often eclipses the economic aspects of participation. Drawing on a survey that evaluated sharing community experiences with their city's local currency (HOURS) in Ithaca, New York, a significant percentage of respondent saw HOURS as raising their self-confidence and allowing them to use their skills and develop new ones. The sense of belonging to these communities on occasions accords users an additional sociocultural value or social currency (Jacob et al, 2004). However, other authors hold a more a critical and skeptical stance by maintaining that users are the main assets of the sharing platforms, as they are the critical mass required for the success of the platform. According to Balkan (2015) "[I]n digital companies, you are the product. The data you are generating is the product they sell".

Platforms and users are the owners of the new portable coin in the sharing economy: reputation. The role of ratings and reputational information is at the center of questions about new forms of social capital. Platforms achieve and offer ratings of participants as their main assets. Peer-to-peer social networks allow the building of communities and foster trust by using identity verification systems and risk reduction by posting information on users via comments, ratings and reviews. However, trust building lacks standardized peer review verified reputation systems, and as Pick (2012) points out, the pertinent question here is whether platforms foster trust *or* control.

Social network integration is another of the main social missions of CC platforms. However, CC may participate in the reproduction of social differences insofar as sharing transactions mostly happen between people with similar socio-economic status. In their research at a food swap, Schor et al (2014) found that: "Only participants with the "right" offerings, packaging, appearance, or "taste" received offers or, in some cases, even felt comfortable returning". In their time bank research they also found that "many highly educated people were unwilling to offer their most valuable skills (like programming or web design), preferring instead to act as amateur electricians or manual workers". These findings are backed up by a recent study that also reported evidence of racial discrimination among Airbnb users, finding that non-black hosts were able to charge 12% more than black hosts for comparable properties (Edelman and Luca, 2014; cited in Schor et al, 2014: 6).

2. MAIN RESEARCH OBJECTIVES

As we have briefly summarized above, there is a lack of independent research on the economic, social and environmental benefits of Collaborative Consumption. This paper reports on research findings that set out to address this lack of evidence.**[3] At a global level our main aim was to employ metrics to analyze the impact of this new model of consumption that is growing faster than our ability to measure and understand its impact. Specifically, the research set out to assess the economic, environmental and social impact of **collaborative consumption activities that take place exclusively between private individuals (P2P)** in three broad areas of activity or modalities, as defined by Botsman and Rogers (2011):

-Access instead of property: also known as Product Service Systems, this refers to systems based on goods markets instead of property. They allow people to pay for the benefit of using a product without owning it outright. This category includes services related to:

-Transportation: carpooling, ridesharing, car&park rental, carsharing (P2P only).

-Accommodation: P2P room and house rental, free accommodation and home swapping.

-P2P goods rental.

-Redistribution markets: the redistribution of things from where they are not needed to someone/somewhere they are needed. The origin of this type of market dates to 1995 with the founding of eBay and Craigslist (local classified ads). Online Exchange now includes second hand markets, donations and bartering networks.

-Collaborative lifestyles: platforms allow for the sharing and exchange of less tangible assets such as time, skills, money, experiences or space at local level. Examples include: food consumption groups, time banks/skill sharing, micro tasks, garden sharing, repair cafés, crowdfunding (donations & reward only) and tourism experiences.

The specific objectives of the research, which involved the design and testing of a theoretical model by means of a questionnaire, include the following:

[3] An executive summary of the research process and outcomes is presented in: OCU (2016). *Collaboration or Business? Collaborative Consumption: From the Value for the Users to a Society with Values*.

- To establish a typology of platform types, taking into account the balance between scores in each area of the triple impact, the type of platform/business model (and size, market scope) and modality.
- To produce a ranking of platforms in order to develop an overview of the state of CC in each of four participating European countries (Belgium, Italy, Portugal, Spain).

3. METHODOLOGICAL DESIGN

The methodological design includes the analysis of previously published documentation and secondary data on Collaborative Consumption, with an emphasis on the European context. It also includes the design and implementation of a set of techniques for the production of primary data on the triple impact (economic, social and environmental) of Collaborative Consumption.

In the first phase we worked with existing literature in order to identify the main issues and dimensions that might be relevant to the evaluation of the impact of CC. This initial Desk Research phase also helped us to identify key players and CC experts (stakeholders). The following phases consisted of the development of a *Delphi Process* and a *Netnographic Study* (Figure 1). The purpose of the Delphi Process, which counted on the collaboration of a panel of 33 experts, was to refine those dimensions and strengthen the set of indicators used to measure the triple impact (social, economic and environmental) of the three modalities of CC (access instead of property, redistribution markets and collaborative lifestyles). The Netnographic Study was developed as an Observation Protocol or tool to assist data collection and analysis of the social impact of 70 online P2P Collaborative Consumption platforms.

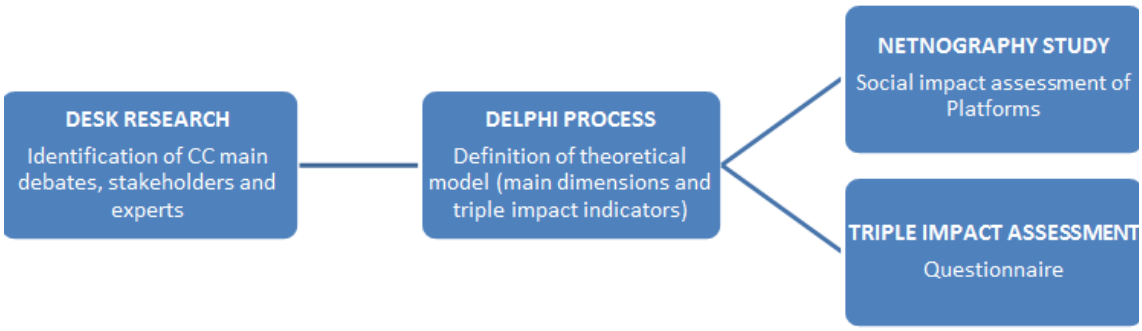

Figure 1: Methodological Design for Triple Impact Assessment

Finally, the theoretical model was constructed. This model included the relevant factors affecting each of the dimensions of the triple impact (social, economic and environmental). Its indicators and weights, mostly related to social impact, served to further refine the triple impact evaluation tool or **Triple Impact Assessment Questionnaire**.

In the rest of the paper we focus on presenting the methodological process and main outcomes of the **Delphi Process** and **Netnographic Study**.

3.1. The Delphi Research Process

As we argued earlier, there is both a lack of evidence and a research gap on the "real" benefits of the CC. To date there are no standardized indicators with which to measure the socio-

economic and environmental impact of CC. In the context of our research the Delphi method proved to be an effective research practice to start moving towards measurable evidence.

A Delphi study involves bringing together a panel of experts in order to arrive at an answer to a difficult question. The majority of the early Delphi studies were designed to assist forecasting and to identify and prioritize key organizational issues. Nowadays studies also use Delphi processes to clarify complex issues and to develop a framework to deal with them.

All the design issues of survey research (method and instrument development) also apply to a Delphi study. After questionnaire design, the researchers select an appropriate group of experts who are qualified to answer the research questions. The researchers then administer the survey and analyze the responses. Next, they design another survey based on the responses to the first one and re-administer it, asking respondents to revise their original responses and/or answer another set of questions based on the group feedback provided during the first round. The researchers repeat this process until the respondents reach a satisfactory degree of consensus. During this process the researchers can also adjust the questions if they think that some of them need rephrasing or modifying. An important part of the design and methodology is respondent anonymity; in order to avoid prestigious experts having an undue influence over the rest of the panelists the respondents are not aware of the identities of the other participating experts. Furthermore, the anonymous online format encourages more open and full expression of opinion. It also gives experts greater social leeway to reconsider opinions and positions in light of the collective results from the preceding round.

The **sample design and selection procedure** followed the following five steps:

- Step 1. Devising criteria for the design of the sample frame: CC stakeholders with any of the following backgrounds and/or expertise:
    - Public administration, preferably from a European context and any of the countries involved in the research (Belgium, Italy, Portugal and/or Spain);
    - CC platforms: founders, Chief Executive Officers or directors of platforms which represent the three modalities of P2P CC projects (Access to the Product; Collaborative Lifestyles; Redistribution markets), from the four countries taking part in the study and other countries;
    - Experts/researchers/freelancers from each of the fields of Collaborative Consumption under study (economic, social, environmental).
- Step 2. Stakeholders Database Design.
- Step 3. Nominations for additional panelists by drawing on the database (step 2) of international experts, public organizations and advocacy and networking organizations in the sharing economy field.
- Step 4. Ranking the resulting list of panelists according to their profiles, expertise and the research requirements.
- Step 5. Contacting the panelists and explaining the scope and objectives of the research.

The table below shows the final List of participants in the Delphi Research (n=33) (Table 1).

	COUNTRY	NAME	RESPONSIBILITY	ORGANISATION
1	United States	Adrien Querbes	Researcher	Carnegie Mellon University
2	Spain	Alejandro Salcedo	Coordinator	Instituto de Consumo de Castilla-La Mancha
3	Spain	Angel González	Chief	Universo Crowdfunding

4	Spain	Angel Mesado	Public Policy Manager	Airbnb - Spain & Portugal
5	Belgium	Angelo Meuleman	Project manager	Taxistop
6	Belgium	Anonymous		Public administration
7	United States	April Rinne	Sharing Economy Adviser	
8	Spain	Bernardo Hernández Bataller	Secretario General	AUC
9	Portugal	Cãndida Rato		The People Who share
10	USA	César M. Buenadicha Sanchez	Senior specialist	Interamerican Development Bank
11	Portugal	Anonymous		Platform
12	France	Esra Tat	Consultant, partner	Alkimya.co
13	Germany	Francesca Pick	Global Coordinator	OuiShare
14	Spain	Gemma Domènech Costafreda	Profesora de derecho de la UE	Academy
15	Spain	Javier Creus	Founder	Ideas for change
16	Spain	Joel Serra Bevin	Global Community Manager	Eatwith
17	Spain	José Luis Fernández-Pacheco	Miembro	Instituto de Moneda Social (IMS) / UCM
18	United Kingdom	Kathleen Stokes	Senior Researcher	Nesta
19	Belgium	Ms. Khushboo Balwani	Connector	OuiShare Belgium
20	Denmark	Anonymous		Public administration
21	Belgium	Lieven D'Hont	Founder & communications	WijDelen vzw
22	United Kingdom	Lisa Gansky	Founder	Mesh labs
23	Belgium	Louise Hain	coordinator/project officer	Environmental Training Institutte
24	Spain	Natalia Fernández	Socia directora	Cooperative Think tank Las Indias
25	United States	Neal Gordenflo	Co-founder	Shareable
26	Spain	Nolberto Munier	Researcher	Polytechnical University of Valencia
27	Spain	Oriol Pascual	Director	IQS Tech Factory
28	Spain	Rafael Martinez Cortina	Founder	Yottottel
29	United Kingdom	Richard Bates	Digital Programme Lead	Consumers International
30	Spain	Santiago cuerda	Coordinador	Asociación Reforesta- Huertos Compartidos
31	Spain	Sergio Alonso	Presidente	Asociación Desarrollo de los Bancos de Tiempo
32	Portugal	Toni Jorge	Founder	Boleia
3	Spain	Vincent Rosso	Co fundador	Blablacar España

Table 1: Final list of Participants in the Delphi Process

The Delphi Process consisted of a Pre-Delphi test and three iterations or Rounds:

a) Pre-Delphi Test. In the initial stage an Advisory Group was used to refine and test the list of CC triple impact dimensions to be presented to the panelists in the first Delphi round ("seed list"). These dimensions were identified through the Desk Research.

b) 1st Round/Single Panel. In the first Delphi round all participants answered the same set of questions, which were subsequently analyzed collectively. The questionnaire was divided into two sections. The first section consisted of open-ended questions designed to maximize the possibility of unearthing the most important issues (Schmidt, 1997; Schmidt et al, 2001). In the second section panelists were invited to consider additional dimensions that they might not have initially considered. This process helped us to refine the list of dimensions, taking advantage of the existing literature on the topic, but it also allowed experts and advisors to participate in the construction of the item lists from the beginning. At the end of this first round we had three consolidated lists that more accurately represented the three kinds of impacts. The resulting consolidated lists for the social dimension are displayed in Table 2.

SOCIAL DIMENSIONS CONSOLIDATED LIST I
Creates stable and reliable social relations based on trust, which encourages the development of social bonds.
Empowers consumers by enabling more active involvement in decision-making related to consumption, such as pricing and when to sell/share, as well as encouraging participation in the sharing community.
NEW DIMENSIONS PROPOSED BY PANELISTS
Reduces the social impact of unemployment by promoting alternative forms of income generation or access to products and services.
Increases the availability of products and services, enriching cultural and social life.
Makes people feel better because of the experience of sharing, contributing to the community and creating social value, etc.
Improves knowledge exchange and increases creativity and openness between those who participate.
Establishes the value of trust in consumption interactions as a key to success, which also helps to expand the scope of collaborative practices to more activities or industries.
It has an impact on local communities by improving and promoting businesses, cooperatives, relations and social activities.
Connects people from different places and backgrounds, promoting the exchange of cultures and experiences.
Generates inclusivity by providing and making available services to more people, including underserved communities.
Strengthens community ties and relationships improving social cohesion and solidarity
Empowers citizens to create alternative solutions to public issues or social needs, by democratizing economic processes (funding, employment, work, etc).
Helps build networks of interest, creating bridges between diverse groups and amplifies the social capital OF users.
Creates more interactions between strangers opening up possibilities for unexpected opportunities or experiences.
Establishes reputation as an important social value that regulates interactions and exchanges.

Table 2: List of social dimensions developed for the Delphi Second Round

c) 2nd Round/Multiple Panels *ad hoc*. In the Second Round all participants answered the same set of questions. However, the analysis differentiated the results and scores according to the field of expertise and professional activity (economic, environmental or social); the panelists had provided Personal Data during the first round questionnaire. As such, there was in effect a Multiple Panel Approach to the statistical analysis, whereby the results from groups of experts in each of the three areas of impact were differentiated from the overall results. All scores were translated into percentages so they could be compared. The percentages in the resulting tables show how close each dimension was to the highest score, i.e. a score of 100% meant that all the panelists (be they social impact experts or the whole panel) had chosen that item as the most relevant. This relative measure allowed us to determine the ranking of all the dimensions (Table 3).

SOCIAL IMPACT – RANKING	Experts Score	Total Score
1. Creates stable and reliable social relations based on trust, which encourages the development of social bonds.	48,6%	39,3%
2. Connects people from different places and backgrounds, promoting the exchange of cultures and experiences.	38,6%	24,5%
3. Empowers consumers by enabling more active involvement in decision-making related to consumption, such as pricing and when to sell/share, as well as encouraging participation in the sharing community.	37,1%	53,6%
4. It has an impact on local communities by improving and promoting businesses, cooperatives, relations and social activities.	37,1%	33,2%
5. Strengthens community ties and relationships improving social cohesion and solidarity	35,7%	24,0%
6. Makes people feel better because of the experience of sharing, contributing to the community and creating social value, etc.	31,4%	35,7%
7. Establishes reputation as an important social value that regulates interactions and exchanges.	28,6%	27,6%
8. Improves knowledge exchange and increases creativity and openness between those who participate.	27,1%	21,9%
9. Establishes the value of trust in consumption interactions as a key to success, which also helps to expand the scope of collaborative practices to more activities or industries.	24,3%	31,1%
10. Helps build networks of interest, creating bridges between diverse groups and amplifies the social capital of users.	22,9%	17,9%
11. Empowers citizens to create alternative solutions to public issues or social needs, by democratizing economic processes (funding, employment, work, etc).	21,4%	30,1%
12. Creates more interactions between strangers opening up possibilities for unexpected opportunities or experiences.	21,4%	14,3%
13. Reduces the social impact of unemployment by promoting alternative forms of income generation or access to products and services.	18,6%	12,8%
14. Generates inclusivity by providing and making available services to more people, including underserved communities.	1,4%	8,7%
15. Increases the availability of products and services, enriching cultural and social life.	0,0%	19,4%

Table 3: Results of the evaluation of the Social Impact in the Delphi Second Round

The results show that in general the experts had a more focused view of which dimensions are important within their own field in comparison to the total group of experts; there is a higher rate of agreement between area specific experts than between all panelists as a whole (see also Table 4 and 5). For the analysis and the preparation of the final round we used the results from the panelists that specialized in each specific area under assessment (social, economic and environmental).

SOCIAL IMPACT - ALL PANELISTS	Access to the product	Collaborative Lifestyle	Redistribution Markets
1. Creates stable and reliable social relations based on trust, which encourages the development of social bonds.	25,0%	71,4%	7,1%
2. Connects people from different places and backgrounds, promoting the exchange of cultures and experiences.	17,9%	28,6%	17,9%
3. Empowers consumers by enabling more active involvement in decision-making related to consumption, such as pricing and when to sell/share, as well as encouraging participation in the sharing community.	50,0%	46,4%	50,0%
4. It has an impact on local communities by improving and promoting businesses, cooperatives, relations and social activities.	17,9%	46,4%	25,0%
5. Strengthens community ties and relationships improving social cohesion and solidarity	7,1%	46,4%	14,3%
6. Makes people feel better because of the experience of sharing, contributing to the community and creating social value, etc.	25,0%	57,1%	25,0%
7. Establishes reputation as an important social value that regulates interactions and exchanges.	39,3%	14,3%	25,0%
8. Improves knowledge exchange and increases creativity and openness between those who participate.	7,1%	46,4%	25,0%
9. Establishes the value of trust in consumption interactions as a key to success, which also helps to expand the scope of collaborative practices to more activities or industries.	46,4%	28,6%	32,1%
10. Helps build networks of interest, creating bridges between diverse groups and amplifies the social capital of users.	14,3%	32,1%	21,4%
11. Empowers citizens to create alternative solutions to public issues or social needs, by democratizing economic processes (funding, employment, work, etc).	32,1%	50,0%	21,4%
12. Creates more interactions between strangers opening up possibilities for unexpected opportunities or experiences.	28,6%	28,6%	25,0%
13. Reduces the social impact of unemployment by promoting alternative forms of income generation or access to products and services.	35,7%	35,7%	21,4%
14. Generates inclusivity by providing and making available services to more people, including underserved communities.	10,7%	17,9%	17,9%
15. Increases the availability of products and services, enriching cultural and social life.	57,1%	17,9%	35,7%

Table 4: Second round Social Impact results per type of CC modality (All Panelists)

SOCIAL IMPACT - ONLY EXPERTS	Access to the product	Collaborative Lifestyle	Redistribution Markets
1. Creates stable and reliable social relations based on trust, which encourages the development of social bonds.	30,0%	70,0%	10,0%
2. Connects people from different places and backgrounds, promoting the exchange of cultures and experiences.	30,0%	30,0%	10,0%
3. Empowers consumers by enabling more active involvement in decision-making related to consumption, such as pricing and when to sell/share, as well as encouraging participation in the sharing community.	80,0%	30,0%	60,0%
4. It has an impact on local communities by improving and promoting businesses, cooperatives, relations and social activities.	30,0%	60,0%	20,0%
5. Strengthens community ties and relationships improving social cohesion and solidarity	10,0%	40,0%	10,0%
6. Makes people feel better because of the experience of sharing, contributing to the community and creating social value, etc.	20,0%	70,0%	20,0%
7. Establishes reputation as an important social value that regulates interactions and exchanges.	30,0%	20,0%	30,0%
8. Improves knowledge exchange and increases creativity and openness between those who participate.	10,0%	50,0%	20,0%
9. Establishes the value of trust in consumption interactions as a key to success, which also helps to expand the scope of collaborative practices to more activities or industries.	60,0%	40,0%	20,0%
10. Helps build networks of interest, creating bridges between diverse groups and amplifies the social capital of users.	20,0%	30,0%	30,0%
11. Empowers citizens to create alternative solutions to public issues or social needs, by democratizing economic processes (funding, employment, work, etc).	30,0%	30,0%	10,0%
12. Creates more interactions between strangers opening up possibilities for unexpected opportunities or experiences.	20,0%	40,0%	40,0%
13. Reduces the social impact of unemployment by promoting alternative forms of income generation or access to products and services.	50,0%	50,0%	30,0%
14. Generates inclusivity by providing and making available services to more people, including underserved communities.	10,0%	10,0%	10,0%
15. Increases the availability of products and services, enriching cultural and social life.	60,0%	20,0%	40,0%

Table 5: Results obtained by Experts on Social Impact per type of CC. Second Round

d) 3rd Round/Multiple Panels. The final phase of the Delphi process was to use the multi-panel approach to develop the decisive set of measurable indicators that would be included in the theoretical model and also operationalized for inclusion in the platform questionnaire. The more technical nature of this phase required that the panelists have a high level of knowledge of the impact areas; otherwise, their interpretation of what a suitable measurement indicator is could have been misleading. During the analysis of this phase, mean values and standard deviations were developed for all the items ranked by the panelists. Most of the indicators obtained high scores, with a mean above 3 on a scale from 1 to 5. This is a positive result, because it means that the list had been refined to pertinent and relevant indicators by the previous work calibrating the dimensions. The majority of the indicators were subsequently used in the design of the questionnaire for the platforms.

While the level of consensus obtained in the third round could have been improved with a further iteration, the cost-benefit of undertaking a further round may have been negligible. Additionally, participant fatigue after a particularly complex and difficult process also had to be taken into account. Undoubtedly the final list and weights can be built upon and improved in the future, but, on the whole, we believe that the process achieved the primary objective, which was to identify 'what' should be measured.

Below, we present the list of social indicators that were developed following the final round of the Delphi process, which includes 4 tables: one for general results and three more for each type of CC modality (Tables 6-9).

SOCIAL IMPACT – GENERAL INDICATORS (N=10)	Mean	Stand. Desv.
1. Participation level: Users' average number of interactions per year.	4,2	1,033
2. Most active users: The percentage of users whose participation is above total users average interactions over the previous year.	3,1	1,287
3. Recursive interaction: The percentage of recursive interactions on the platform between any two users.	3,6	1,174
4. Offline social gatherings: The percentage of users participating in meet-ups or events over the previous year.	4,2	0,632
5. Online community building: The percentage of users involved in online community spaces, such as forums, online groups/communities, etc.	4,1	0,738
6. Bridging connections I: The proportion of all interactions that are between people from different countries.	3,1	1,197
7. Bridging connections II: The proportion of all interactions that are between users with different education levels.	3,8	0,789
8. Bridging connections III: The proportion of all interactions that are between users of different age groups.	3,9	0,738
9. Intensity of use: The average time spent by users on the online platform per month.	2,7	0,823
10. Local interactions: The percentage of all interactions that are between people from the same location/city/region.	4,3	0,675
11. Non-monetary: The percentage of non-monetized transactions (including alternative currencies), such as: swapping, gifting, bartering, etc.	4,1	0,994
12. Alternative currency: The percentage of total transactions based exclusively on alternative currencies, including time as a currency in time-banks.	3,8	1,229
13. Users' reputation maps: The proportion of users in each reputation level.	2,9	0,994
14. Activity and reputation: The proportion of interactions/transactions made by users in each reputation level.	3	0,943
15. Monitoring Rules I - Block and report systems: The level of development of systems to block, flag and report users (measured on a qualitative scale: from no block/flag system to allows special measures for recidivist misbehavior).	3,3	0,949
16. Monitoring Rules II - Ratio of blocks and reports: The proportion of blocked, flagged or reported users to total users on the platform (e.g. 10 reports every 1.000 users).	3,33	1,414
17. Monitoring Rules III - Procedures against misuse: The level of development of procedures against abuse, fraud or impersonation. (measured on a qualitative scale, from no procedures to the platform actively helps users in this situation).	3,56	0,882
18. Monitoring Rules IV - Ratio of misuse: The proportion of users reported for abuse, fraud or impersonation to total users on the platform.	3,56	1,13
19. Consumer empowerment: Development of the options available for users to select offers or search for them (making information more available and improving consumers' ability to choose).	3,67	0,707
20. Social Trust I - Cognitive trust: Development of the possible information that users can make available on their profiles (measured on a qualitative scale, from basic data -name, gender, age-, to ID Verification).	3,89	0,782
21. Social Trust II - Emotional trust signals: Options given to users to show themselves in images (measured on a qualitative scale, from only profile picture, to videos or advanced forms of expression).	3,67	0,707
22. Social Trust III - Rating System: Complexity and development of social trust rating systems (measured in a qualitative scale, from no rating system to advanced forms of rating users and interactions).	3,67	0,707
23. Social Trust IV - Virtual reputation (VR) systems: Complexity of the mechanism to build reputation (measured on a qualitative scale, from no resources to build VR to advanced forms of managing VR, etc).	3,33	0,866

Table 6: Final results for Social Indicators. Third Round (part 1)

SOCIAL IMPACT – ACCESS TO THE PRODUCT (N=10)	Mean	Stand. Desv.
1. Participation level: Users' average number of interactions per year.	4,78	0,441
2. Most active users: The percentage of users whose participation is above total users average interactions over the previous year.	3,78	1,202
3. Recursive interaction: The percentage of recursive interactions on the platform between any two users.	3,67	1,323
4. Offline social gatherings: The percentage of users participating in meet-ups or events over the previous year.	3,22	0,972
5. Online community building: The percentage of users involved in online community spaces, such as forums, online groups/communities, etc.	3,22	1,093
6. Bridging connections I: The proportion of all interactions that are between people from different countries.	2,78	1,394
7. Bridging connections II: The proportion of all interactions that are between users with different education levels.	3,33	1,5
8. Bridging connections III: The proportion of all interactions that are between users of different age groups.	3,33	1,5
9. Intensity of use: The average time spent by users on the online platform per month.	3	1,225
10. Local interactions: The percentage of all interactions that are between people from the same location/city/region.	4,44	0,726
11. Non-monetary: The percentage of non-monetized transactions (including alternative currencies), such as: swapping, gifting, bartering, etc.	3,67	1,323
12. Alternative currency: The percentage of total transactions based exclusively on alternative currencies, including time as a currency in time-banks.	3,11	1,537
13. Users' reputation maps: The proportion of users in each reputation level.	3,33	1,225
14. Activity and reputation: The proportion of interactions/transactions made by users in each reputation level.	3,44	1,236
15. Monitoring Rules I - Block and report systems: The level of development of systems to block, flag and report users (measured on a qualitative scale: from no block/flag system to allows special measures for recidivist misbehavior).	3,67	0,866
16. Monitoring Rules II - Ratio of blocks and reports: The proportion of blocked, flagged or reported users to total users on the platform (e.g. 10 reports every 1.000 users).	3,67	1,225
17. Monitoring Rules III - Procedures against misuse: The level of development of procedures against abuse, fraud or impersonation. (measured on a qualitative scale, from no procedures to the platform actively helps users in this situation).	4	0,707
18. Monitoring Rules IV - Ratio of misuse: The proportion of users reported for abuse, fraud or impersonation to total users on the platform.	3,67	1,225
19. Consumer empowerment: Development of the options available for users to select offers or search for them (making information more available and improving consumers' ability to choose).	3,89	0,928
20. Social Trust I - Cognitive trust: Development of the possible information that users can make available on their profiles (measured on a qualitative scale, from basic data -name, gender, age-, to ID Verification).	3,56	1,014
21. Social Trust II - Emotional trust signals: Options given to users to show themselves in images (measured on a qualitative scale, from only profile picture, to videos or advanced forms of expression).	3,89	1,167
22. Social Trust III - Rating System: Complexity and development of social trust rating systems (measured in a qualitative scale, from no rating system to advanced forms of rating users and interactions).	3,78	0,833
23. Social Trust IV - Virtual reputation (VR) systems: Complexity of the mechanism to build reputation (measured on a qualitative scale, from no resources to build VR to advanced forms of managing VR, etc).	3,56	0,882

Table 7: Final results for Social Indicators. Third Round (part 2)

SOCIAL IMPACT – DISTRIBUTION MARKETS (N=10)		
1. Participation level: Users' average number of interactions per year.	4	1,414
2. Most active users: The percentage of users whose participation is above total users average interactions over the previous year.	3,56	1,74
3. Recursive interaction: The percentage of recursive interactions on the platform between any two users.	2,78	1,202
4. Offline social gatherings: The percentage of users participating in meet-ups or events over the previous year.	2,89	1,167
5. Online community building: The percentage of users involved in online community spaces, such as forums, online groups/communities, etc.	3,11	1,167
6. Bridging connections I: The proportion of all interactions that are between people from different countries.	2,89	1,537
7. Bridging connections II: The proportion of all interactions that are between users with different education levels.	3	1,225
8. Bridging connections III: The proportion of all interactions that are between users of different age groups.	3,11	1,364
9. Intensity of use: The average time spent by users on the online platform per month.	3	1,118
10. Local interactions: The percentage of all interactions that are between people from the same location/city/region.	4,67	0,5
11. Non-monetary: The percentage of non-monetized transactions (including alternative currencies), such as: swapping, gifting, bartering, etc.	4,56	0,726
12. Alternative currency: The percentage of total transactions based exclusively on alternative currencies, including time as a currency in time-banks.	4,22	1,302
13. Users' reputation maps: The proportion of users in each reputation level.	3,33	1,225
14. Activity and reputation: The proportion of interactions/transactions made by users in each reputation level.	3,44	1,236
15. Monitoring Rules I - Block and report systems: The level of development of systems to block, flag and report users (measured on a qualitative scale: from no block/flag system to allows special measures for recidivist misbehavior).	3,44	0,882
16. Monitoring Rules II - Ratio of blocks and reports: The proportion of blocked, flagged or reported users to total users on the platform (e.g. 10 reports every 1.000 users).	3,67	1
17. Monitoring Rules III - Procedures against misuse: The level of development of procedures against abuse, fraud or impersonation. (measured on a qualitative scale, from no procedures to the platform actively helps users in this situation).	3,44	1,014
18. Monitoring Rules IV - Ratio of misuse: The proportion of users reported for abuse, fraud or impersonation to total users on the platform.	3,78	1,093
19. Consumer empowerment: Development of the options available for users to select offers or search for them (making information more available and improving consumers' ability to choose).	4,11	1,054
20. Social Trust I - Cognitive trust: Development of the possible information that users can make available on their profiles (measured on a qualitative scale, from basic data -name, gender, age-, to ID Verification).	3,56	1,333
21. Social Trust II - Emotional trust signals: Options given to users to show themselves in images (measured on a qualitative scale, from only profile picture, to videos or advanced forms of expression).	3,67	1,414
22. Social Trust III - Rating System: Complexity and development of social trust rating systems (measured in a qualitative scale, from no rating system to advanced forms of rating users and interactions).	3,56	1,236
23. Social Trust IV - Virtual reputation (VR) systems: Complexity of the mechanism to build reputation (measured on a qualitative scale, from no resources to build VR to advanced forms of managing VR, etc).	3,33	1,414

Table 8: Final results for Social Indicators. Third Round (part 3)

SOCIAL IMPACT – COLLABORATIVE LIFESTYLES (N=10)	Mean	Stand. Desv.
1. Participation level: Users' average number of interactions per year.	4,78	0,441
2. Most active users: The percentage of users whose participation is above total users average interactions over the previous year.	3,78	1,093
3. Recursive interaction: The percentage of recursive interactions on the platform between any two users.	4,22	0,667
4. Offline social gatherings: The percentage of users participating in meet-ups or events over the previous year.	4,67	0,707
5. Online community building: The percentage of users involved in online community spaces, such as forums, online groups/communities, etc.	4,33	0,707
6. Bridging connections I: The proportion of all interactions that are between people from different countries.	3,67	1,581
7. Bridging connections II: The proportion of all interactions that are between users with different education levels.	4,22	1,394
8. Bridging connections III: The proportion of all interactions that are between users of different age groups.	4,33	1,323
9. Intensity of use: The average time spent by users on the online platform per month.	3,89	0,928
10. Local interactions: The percentage of all interactions that are between people from the same location/city/region.	5	0
11. Non-monetary: The percentage of non-monetized transactions (including alternative currencies), such as: swapping, gifting, bartering, etc.	4,56	0,726
12. Alternative currency: The percentage of total transactions based exclusively on alternative currencies, including time as a currency in time-banks.	4,56	0,726
13. Users' reputation maps: The proportion of users in each reputation level.	3,22	0,833
14. Activity and reputation: The proportion of interactions/transactions made by users in each reputation level.	3,11	0,928
15. Monitoring Rules I - Block and report systems: The level of development of systems to block, flag and report users (measured on a qualitative scale: from no block/flag system to allows special measures for recidivist misbehavior).	3,22	0,833
16. Monitoring Rules II - Ratio of blocks and reports: The proportion of blocked, flagged or reported users to total users on the platform (e.g. 10 reports every 1.000 users).	3,44	0,726
17. Monitoring Rules III - Procedures against misuse: The level of development of procedures against abuse, fraud or impersonation. (measured on a qualitative scale, from no procedures to the platform actively helps users in this situation).	3,44	0,882
18. Monitoring Rules IV - Ratio of misuse: The proportion of users reported for abuse, fraud or impersonation to total users on the platform.	3,56	0,726
19. Consumer empowerment: Development of the options available for users to select offers or search for them (making information more available and improving consumers' ability to choose).	3,22	0,972
20. Social Trust I - Cognitive trust: Development of the possible information that users can make available on their profiles (measured on a qualitative scale, from basic data -name, gender, age-, to ID Verification).	3,33	0,866
21. Social Trust II - Emotional trust signals: Options given to users to show themselves in images (measured on a qualitative scale, from only profile picture, to videos or advanced forms of expression).	3,56	1,014
22. Social Trust III - Rating System: Complexity and development of social trust rating systems (measured in a qualitative scale, from no rating system to advanced forms of rating users and interactions).	3,22	0,441
23. Social Trust IV - Virtual reputation (VR) systems: Complexity of the mechanism to build reputation (measured on a qualitative scale, from no resources to build VR to advanced forms of managing VR, etc).	3,22	0,833

Table 9: Final results for Social Indicators. Third Round (part 4)

3.2. Delphi Process: Conclusions

Throughout the Delphi Research, from the Advisory Group pre-Delphi phase, where the first list of dimensions was tested to the final round, we achieved a progressive development of knowledge regarding the impact of Collaborative Consumption. The Delphi process helped us to reach a consensus on a set of indicators, and brought us closer to the development of a system for modelling and measuring the triple impact of Collaborative Consumption platforms. These lists of measurable indicators would be transformed into questions – sometimes more than one question- and included in the final platform questionnaire.

The different values obtained in each of the Collaborative Consumption modalities (Access to the Product, Redistribution Markets, Collaborative Lifestyles) helped to identify the relevance of each indicator regarding the activity of the platform. The highest level of consensus amongst the panelists was found in the economic indicators, because the standard deviation of the indicators is lower than in the other lists. Studying and measuring social impact represents a real challenge. This is reflected in fact that the list of social indicators was longer because categorizing and measuring social impact is more complex. For example, in the end, some of

indicators were expanded and divided into several other indicators, offering alternative ways of measuring the same concept. This was the case for Bridging connections, Monitoring rules and Social trust. The complexity of measuring social impacts was the main reason why we choose to support its evaluation and modelling with the Netnographic Protocol, a methodology that uses platforms' websites as material for analysis.

4. NETNOGRAPHIC STUDY: ASSESSING THE SOCIAL IMPACT OF COLLABORATIVE CONSUMPTION PLATFORMS

Even though netnography comes from the need to adapt and update ethnographic methods to the digital environment, it is important to bear in mind that it contains specific characteristics that respond to the particularities of virtual interaction (Xun and Reynolds, 2010). Despite being a relatively new methodology, there are a number of examples of the application of netnographic research in social sciences. As pointed out by Kozinetz (2010a), it can be used to understand social processes that emerge in online interaction, such as the designation of an informal leader or the building of networks of interest on social media sites. Moreover, netnographic methods are now commonly applied in market research to evaluate brand perception, segmentation strategies, consumer opinions and social trends.

The main consideration to bear in mind in the context of this netnographic research is the way that the design characteristics of a particular digital platform shape social interactions, by promoting and enabling particular opportunities and transmitting specific values. Also, the design of each digital platform permits a certain form of interaction between the users, the system and community administrators. In this sense, the rules and principles that govern the platform are highly relevant and determinant of social interactions (De Rivera, et al. in prep.).

Another issue that has to be considered carefully is the nature of the data that is gathered through the research. Is the data focused on an analysis of the structure of the platform (features, design, and informational content) or the content of the communication between users and the way their interactions are developed? In both cases, it is necessary to specify how the information is going to be gathered, much the same as in offline research, where “observational protocols” are designed to categorize and standardize the collection of information. In digital contexts, the abundance of information is also another important factor that necessitates coordinated action between different researchers in order to gather and analyze data according to the same principles of observation. However, the positive side of digital contexts comes from its archival nature: the content that is observed is usually equally accessible for all observers during a certain period of time.

While the trend in Big Data and market research is to use complex automated software to gather large caches of data and perform statistical analysis across several databases, this netnographic approach aimed to produce a deeper, more nuanced understanding of the interactions that take place in online contexts. The methodological procedures for the development of innovative research practices in social studies of digital environments are well established (Finkel et al., 2013), as are other precedents for its use in the study of digital platforms (Gheitasy et al., 2014; Gordo and Finkel, 2013).

The Netnographic Protocol presented below identifies and defines a series of questions and items that have been designed to evaluate the development of the websites according to a collaborative perspective that takes into consideration the previous research in the field. The protocol aims to facilitate the development of a picture of the social impact of these platforms in terms of the type of interactions and social connections that they enable and promote in the digital environment. The main rationale behind the methodological design was that digital platforms create online environments in which people interact, therefore the way these “spaces” are designed and operate will be indicative of the type of social exchanges and “impacts” they are enabling and producing. The Netnographic Protocol was applied to 70 website platforms,

which provided a sufficiently large sample size to carry out posterior statistical analysis (Table 10).

LIST OF INTERNATIONAL COLLABORATIVE CONSUMPTION P2P PLATFORMS:

1 - ACCESS TO THE PRODUCT INSTEAD OF PROPERTY		2 - REDISTRIBUTION MARKETS	3 - COLLABORATIVE LIFESTYLES	
CARPOOLING	HOUSETRIP	**P2P SECOND HAND**	**FOOD GROUP PURCHASES**	**REPAIR CAFÉS**
AMOVENS	www.housetrip.com/pt	MANZANASUSADAS	BONAPPETOUR	REPAIR CAFÉ
https://amovens.com/		www.manzanasusadas.com/	www.bonappetour.com/	www.repaircafe.be/
BLABLACAR	**P2P FREE ACCOMODATIONS**	PERCENTIL	GNAMMO	
www.blablacar.be	BEWELCOME	http://percentil.com/	https://gnammo.com/	**CROWDFUNDING (donations and reward)**
www.blablacar.es	http://www.bewelcome.org/	REOOSE	LA COLMENA QUE DICE SI	CROWDFUNDING ITALIA
www.blabacar.it	WONINGOPPAS	www.reoose.com	https://laruchequiditoui.fr/es	www.crowdfunding-italia.com/
www.blablacar.pt	www.woningoppas.be/	SEGUNDAMANO (Vibbo)	PEOPLECOOKS	CROWDIN
BOLEIA		www.segundamano.es/	www.peoplecooks.it/	https://crowdin.be/
www.boleia.net	**HOME SWAP**			DEREV
ROADSHARING	HOME EXCHANGE	**P2P DONATIONS**	**TIME BANKING**	www.derev.com/it/
www.roadsharing.com/it/	www.trocmaison.com/fr/	FREECYCLE	SEL	MYMICROINVEST
	www.huizenruil.com/nl/	https://www.freecycle.org/	http://www.asblrcr.be/	www.mymicroinvest.com/en/about
RIDE SHARING	www.intercambiocasas.com/es/	NOLOTIRO	TIMEREPUBLIK	PPL
UBERPOP Brussels	www.scambiocasa.com/it/	http://nolotiro.org/es	https://timerepublik.com/?locale=es	http://ppl.com.pt/pt
www.uber.com/es/cities/brussels	www.trocacasa.com/pt/		https://timerepublik.com/?locale=it	PRODUZIONI DAL BASSO
	HOMELINK	**P2P BARTERING NETWORKS**	WWOOF	www.produzionidalbasso.com/
P2P CAR & PARKING RENTAL	www.homelink.be/en	BARATTO MATTO	www.wwoof.pt/	SO CROWD
SOCIALCAR	homelink.it/	www.barattomatto.it/		www.socrowd.be/
www.socialcar.com/	TRAMPOLINN	COSE(IN)UTILI	**ON DEMAND MICROTASKS**	ULULE
	https://trampolinn.com/es/	www.coseinutili.it/	ETECE	www.ulule.com/
P2P CARSHARING		CRECICLANDO	http://etece.es/	VERKAMI
TAPAZZ	**P2P RENTAL**	www.creciclando.com	GUDOG	www.verkami.com/
www.tapazz.com	INSTRUMENTHEEK	IEDEREEN RUILT MEE	https://gudog.com/	
	http://instrumentheek.be/	http://iedereen.ruiltmee.be/	LIST MINUT	**P2P TOURIST ACTIVITIES**
P2P ROOM/HOUSE RENTAL	LOCLOC	OP WIELEKES	https://listminut.be/	EATWITH
AIRBNB	www.locloc.it	http://opwielekes.be/	PIGGY BEE	www.eatwith.com/
www.airbnb.be	WIJDELEN (PEERBY)	TROKAOK	www.piggybee.com/	TRIP4REAL
www.airbnb.es	www.peerby.com/	http://trokaok.pt/		www.trip4real.com/
www.airbnb.it		ZERO RELATIVO	**GARDEN SHARING**	
www.airbnb.pt		www.zerorelativo.it/	HUERTOSCOMPARTIDOS	
HOMEAWAY			www.huertoscompartidos.com/	
www.homeaway.es				
www.homeaway.it				
www.homeaway.pt				

Table 10: List of International Collaborative Consumption P2P platforms included in the Netnographic Study

4.1. The Structure and Design of the Netnographic Protocol

Through the Delphi Research and a review of previous virtual ethnographic studies, it was established that websites/platforms could be evaluated on the basis of four overarching dimensions: <<Functionality and Usability>>, <<Trust and Virtual Reputation>>, <<Security and Conduct>> and <<Community Footprint>>. Before going into detail on these criteria, it is necessary to describe other features and methodological decisions related to the Netnographic Protocol. Each of these four criteria were evaluated using two categories of assessment: observational and evaluation. The observational part of the protocol assessed features of the website/platform that can be objectively observed, while the evaluation items required a subjective assessment by the observer (field researcher) of the quality and usability of platform features. In this sense, the evaluation items acted to reinforce or support the observational assessment, which received much higher weightings during the analysis.

As any human observation has potential for bias, it is very important to triangulate results between different evaluators (observers), particularly with the more subjective "evaluation items". As such, a number of observers (experts) evaluated each website and their mean score (evaluation) was used to provide a more accurate measurement than a single evaluator score.

The following section details the item content and distribution of weights for each of the four dimensions that were assessed:

a) Functionality and usability relates to certain aspects of the 'social impact' of Collaborative Consumption, particularly those concerned with the social experience associated with how users express their identities, and the empowerment of users to find what they need or engage in communicative and social interaction with other users (Table 11).

		FUNCTIONALITY & USABILITY	Weight
1		Identity and Profile Building	25%
2		User Status System	20%
3		Functional Interactivity Design	20%
4		Connected Services/Interconnectivity	15%
	5.1	It's easy to find other users and invite new users to the network.	3%
	5.2	The platform's has facilities for direct communication, e.g. chatting, emailing, comments, rating contents	3%
	5.3	The platform has a wide-variety content and services	3%
	5.4	It's easy for users to share and exchange content.	3%
	5.5	The platform provides good clear and easily understood information about the service's functionality.	3%
	5.6	The platform uses graphics/symbols that convey information on the products/services	3%
	5.7	Users can customise searches to display only information relevant to them	3%
	5.8	The platform enables users to assess the cost and quality information together	3%
		TOTAL FUNCTIONALITY & USABILITY	100%

Table11: Functionality and Usability - Items and Weightings Distribution

The items in this category are not exclusive to collaborative platforms; they could be applied to many different digital environments because they refer to the communicative and informational experience of the user. These aspects of platforms are also closely related to how social capital can be developed in digital contexts, and how the platforms' design can enable or promote the accumulation of capital by their users (Williams, 2006). In this regard, collaborative platforms also participate in the social and cultural changes that are happening through digital technologies, such as the development of what has been coined “networked individualism”; connections between people mostly improve and grow at an individual level (Wellman et al., 2003).

b) Trust and Virtual Reputation. The platform and the way it is designed play a major role in the process of building trust between peers, acting as an institution that organizes and regulates interactions. Its main role is to provide the means for users to assess the trustworthiness of other users and present themselves as trustworthy (Keetels, 2012). User reviews and ratings, statistics on past performance and ID Verification options are just some of the resources that platforms provide to allow users to assess peer reliability in the context of CC. Virtual Reputation is one the main resources available to peers to create and build trustworthiness (Pick, 2012). As such, platforms can encourage the development of attitudes that promote reputation building and become a reliable part of the sharing system. In the evaluation of how this is achieved by the platform, we distinguished between “cognitive” and “emotional” trust. Cognitive elements are those that let the user assess the trustworthiness of peers by looking at the information provided (by the peer, by other users or by the platform). Emotional trust is built through sharing personal experiences, images or videos, and is also an important part of interaction on collaborative platforms (Table 12).

II		TRUST RESOURCES & VIRTUAL REPUTATION	
II	1	Profile Information I: Cognitive Trust Information	20%
II	2	Profile Information II: Emotional Trust Signals	15%
II	3	User identification Resources (how the platform identifies users)	15%
II	4	Rating System	15%
II	5	Virtual reputation	15%
II	7.1	Reputation, as an important social value in regulating interactions and exchanges, is an important part of how the platform operates	5%
II	7.2	Knowledge exchange, as a way to increase creativity and openness, is an important part of how the platform operates	5%
II	7.3	The platform empowers users, e.g. by promoting independent decision-making (establishing price, timing of exchange, etc.) and through sharing within the community	5%
II	7.4	The platform promotes user trust as a key way to regulate the actions of consumers and providers (keeping them honest).	5%
II		TOTAL TRUST RESOURCES & VIRTUAL REPUTATION	100%

Table 12: Trust Resources and Virtual Reputation - Items and Weightings Distribution

c) Codes of Conduct are closely related to the concept of "institutional trust", they refer to how platforms provide a safe environment for communication, transactions and exchanges at a more explicit level. It relates to the mechanisms that the platform puts in place to tackle problems, either by early identification and avoidance of problems or systems to manage problems when they occur. For example, *flagging* or *blocking systems* can help identify and ban pernicious users that might diminish the value of the sharing system. In general the items included in this category are aimed at identifying the platform's efforts to provide a safe place for users (Table 13).

III		CODES OF CONDUCT: MONITORING RULES AND POLICIES	Weight
III	1	Codes of conduct	20%
III	2	Block and Report	20%
III	3	Abuse, Fraud or Impersonation	30%
III	4.1	1. The platform has explicit rules of behavior and cooperative norms.	10%
III	4.2	2. The monitoring rules and policies are prominently displayed, accessible and comprehensive	10%
III	4.3	3. There are self-monitoring mechanisms (e.g. flag button on profile pages, participants can publically post a review to notify other participants).	10%
III		TOTAL CODES OF CONDUCT: MONITORING RULES AND POLICIES	100%

Table 13: Codes of Conduct: Monitoring Rules and Policies - Items and Weightings Distribution

d) Social/Environmental Mission and Community Footprint is the most "social" of all the categories, as it deals directly with how the platform aims to produce positive impacts on the community, society and the environment. The promotion of local consumption, the existence of social or environmental mission statements, and the intention to create positive impacts on society and the environment through collaborative consumption was assessed in this dimension. In contrast to how digital platforms raise the "social capital" of their users through the development of individual networks of connections, this category focuses on investment in communitarian goals and the development of collective resources. Platforms with a high score in this dimension tend to be focused on

the creation of community bonds and having a positive impact on society and the environment (Table 14).

IV		SOCIAL/ENVIRONMENTAL MISSIONS: COMMUNITY FOOTPRINT	
IV	1	Geographical Reach	15%
IV	2	Social Mission	20%
IV	3	Environmental Mission	20%
IV	4.1	The platform actively promotes and invests in local development and activity, e.g. businesses, cooperatives, social and community activities.	5%
IV	4.2	The platform promotes collaboration, open exchange, co-responsibility and self-management	5%
IV	4.3	The platform promotes a more equitable distribution of wealth through horizontal business models and equality in exchange relationships.	5%
IV	4.4	The platform promotes connections and exchanges between people from different places, backgrounds, cultures and experiences.	5%
IV	4.5	The platform empowers users by promoting new ways to use their skills and knowledge	5%
IV	4.6	The platform is actively involved and invested in environmental causes.	10%
IV	4.7	The platform encourages sustainability through local production (i.e. by reducing footprint on the delivery of products, services and wastes).	10%
IV		TOTAL SOCIAL/ENVIRONMENTAL MISSIONS: COMMUNITY FOOTPRINT	100%

Table 14: Social/Environmental Missions: Community Footprint - Items and Weightings Distribution

4.2. Quantitative Analysis and Resulting Typology

The analysis of the platforms final scores began with a Factor Analysis, a multivariate technique that groups variables according to their correlations. Using the scores in the four categories the Factor Analysis provided statistically significant results according to the Bartlett Test (greater than 0.5) and on the Kaiser-Meyer-Olkin test (Table 15).

Factor Analysis: KMO & Bartlett Tests		
Kaiser-Meyer-Olkin Test		0,636
Bartlett Test	Chi-2	68,669
	gl	6
	Sig.	,000

Table 15: Factor Analysis: KMO & Barlett Test

The rotated matrix below indicates a positive validation of the 2 factors obtained in the analysis (Table 16). The **First Factor** groups together the first three dimensions: <<Functionality & Usability>>, <<Trust & Reputation>> and <<Codes of Conduct>>. This means that high levels of positive correlation were found between the scores obtained in these dimensions. The **Second Factor** only contained the fourth dimension, <<Community Footprint>>, showing that it was not consistently correlated to any of the other variables. Additionally, some of the categories in the First Factor had negative correlations with the Community Footprint category (Second Factor).

Rotated Matrix – Factor Analysis		
Variables	**Factor 1**	**Factor 2**
Trust & Reputation	0,88	-0,23
Functionality & Usability	0,86	-0,29
Codes of Conduct	0,76	0,24
Community Footprint	-0,09	0,95
Method of extraction: Principal Components Method of rotation: Varimax with Kaiser		
a Rotation converged in 3 iterations		

Table 16: Rotated Matrix- Factor Analysis

Based on the two groupings derived from the factor analysis we defined three groups of platforms that appear to have distinct behavioral differences in relation to each other.[4] Table 17 shows the average score obtained by each of the groups (clusters of platforms) on the two main Factors.

Cluster analysis			
	Cluster 1	Cluster 2	Cluster 3
Factor 1 Score	0,781	-0,982	-0,084
Factor 2 Score	-0,423	-0,523	1,505

Table 17: Cluster Analysis

In practice, this result meant the development or identification of a typology of platforms, organized in three main groups:

a) Networking Oriented Platforms [Group 1]

This group had the highest scores in the <<Functionality and Usability>> and <<Trust and Reputation>> categories. These platforms enable highly dynamic, efficient and reliable P2P collaborative interactions. The group includes platforms that build on principles of interconnectivity, individual networking, reputation as a new currency, promotion of social capital and users' individual personal branding. However, their "superior" technical features do not necessarily involve the promotion of "collaborative or communitarian culture" (like the platforms in Group 3). On the contrary, they offer high quality resources for users to develop a complex identity and build a virtual reputation and social capital in order to achieve individual goals. The main representatives of this group are the international, well-known platforms that pioneered the development of the Collaborative Economy in the digital marketplace, i.e. **Airbnb**, **Blablacar**, **TimeRepublik**, **and Eatwith** (Table 18).

[4] The researchers define the number of groups in the cluster analysis, which is obtained by evaluating the results from the statistical analysis in conjunction with theoretical concepts.

	GROUP 1: NETWORKING ORIENTED PLATFORMS						
Rank	PLATFORM NAME	Type of CC	FUNCTIONALITY & USABILITY	TRUST & REPUTATION	CODES OF CONDUCT	COMMUNITY FOOTPRINT	TOTAL
1	AIRBNB	Access	**4,00**	**4,35**	**4,20**	**2,40**	**3,78**
2	DEREV	Collaborative	**3,98**	**4,10**	**3,70**	**2,75**	**3,59**
3	TIME REPUBLIK	Collaborative	**4,83**	**4,05**	2,20	**2,45**	**3,39**
4	BEWELCOME	Access	**3,68**	3,25	4,30	2,05	**3,37**
5	BLABLACAR	Access	3,40	**4,00**	**3,20**	**2,40**	**3,27**
6	GNAMMO	Collaborative	**4,23**	**4,00**	2,90	2,05	**3,26**
7	WONINGOPPAS	Access	2,93	**4,10**	**3,90**	1,75	**3,20**
8	HOMELINK	Access	**3,63**	**4,00**	**3,30**	1,55	**3,18**
9	TRAMPOLINN	Access	**3,98**	**4,10**	2,40	1,75	**3,12**
10	EATWITH	Collaborative	3,18	**4,10**	2,30	**2,35**	**2,95**
11	LIST MINUT	Collaborative	2,93	**4,00**	2,90	2,10	**2,92**
12	MYMICROINVEST	Collaborative	3,33	**3,85**	2,30	**2,30**	**2,92**
13	ETECE	Collaborative	2,73	**4,25**	2,80	2,15	**2,92**
14	HOME EXCHANGE	Access	3,15	3,40	**3,20**	1,60	**2,88**
15	PEOPLECOOKS	Collaborative	3,23	3,05	2,80	**2,35**	**2,84**
16	PRODUZIONI DAL BASO	Collaborative	3,08	3,45	2,50	**2,25**	**2,79**
17	VERKAMI	Collaborative	3,08	**3,60**	2,10	**2,35**	**2,76**
18	ULULE	Collaborative	3,15	**3,60**	2,10	2,15	**2,73**
19	CROWDIN	Collaborative	**3,68**	2,75	2,70	1,75	**2,70**
20	PPL	Collaborative	2,93	3,45	2,10	**2,35**	**2,69**
21	BONAPPETOUR	Collaborative	2,75	3,40	2,60	1,85	**2,67**
22	HOUSETRIP	Access	2,90	3,35	2,90	1,30	**2,66**
23	GUDOG	Collaborative	2,55	**3,65**	2,10	2,25	**2,61**
24	SOCIAL CAR	Access	2,43	2,80	2,80	2,15	**2,55**
25	TRIP4REAL	Collaborative	2,90	**3,55**	1,90	1,80	**2,51**

Table 18: Networking Oriented Platforms [Group 1]

b) Transaction Oriented Platforms [Group 2]

This is the group with the lowest overall scores. It represents a model of Collaborative Consumption focused on transactions. They enable exchanges between users, making products and services more accessible, introducing dynamism in the economy, without investing in complex technical resources for individual self-management and branding. The platforms in Group 2 opt for simple systems that enable quick and pragmatic interactions between users. Many of these platforms offer simple services, such as second hand markets, that do not require users to build trust or to develop complex online identities, as is the case in other collaborative or sharing experiences (such as home swapping, time banks, carsharing, etc.) (Table 19).

	GROUP 2: TRANSACTION ORIENTED PLATFORMS						
Rank	PLATFORM NAME	Type of CC	FUNCTIONALITY & USABILITY	TRUST & REPUTATION	CODES OF CONDUCT	COMMUNITY FOOTPRINT	TOTAL
1	IEDEREN RUILT	Redistribution	**2,95**	2,20	**2,10**	**2,50**	**2,46**
2	CRECICLANDO	Redistribution	**2,45**	**2,50**	1,90	**2,95**	**2,44**
3	AMOVENS	Collaborative	**2,68**	**2,85**	**2,20**	1,55	**2,35**
4	HOMEAWAY	Access	**2,70**	**3,05**	**2,10**	1,20	**2,30**
5	LOCLOC	Access	2,08	**2,65**	**2,30**	**2,10**	**2,28**
6	MANZANAS USADAS	Redistribution	1,78	**2,50**	**3,30**	1,40	**2,24**
7	CROWDFUNDING ITALIA	Collaborative	2,13	**2,80**	**2,00**	1,80	**2,15**
8	BOLEIA	Access	**2,58**	2,20	1,40	**2,35**	**2,14**
9	SEGUNDAMANO	Redistribution	1,70	1,55	2,50	**2,45**	**2,03**
10	NOLOTIRO	Redistribution	1,95	1,95	1,00	**3,20**	**2,01**
11	ROADSHARING	Access	2,00	**2,60**	1,00	1,95	**1,88**
12	UBERPOP BRUSSELS	Access	1,73	1,70	**2,30**	1,75	**1,87**
13	TROKA OK	Redistribution	1,53	1,55	1,80	1,90	**1,68**
14	PERCENTIL	Redistribution	1,35	1,55	**2,40**	1,35	**1,65**
15	PIGGY BEE	Collaborative	1,55	1,35	1,50	1,70	**1,54**

Table 19: Transaction Oriented Platforms [Group 2]

This group incorporates both simple underdeveloped platforms (such as **Nolotiro**) and high-quality commercial platforms (such as **HomeAway**). **Nolotiro** is a not-for-profit dedicated to the gifting economy with high scores in Community Footprint, however the system is so simple that it cannot be considered for Group 3. On the other hand, **HomeAway** is a high quality platform for house renting, but it is still focused on a centralized model of consumption, that does not include the complex space for P2P

interaction common in Group 1 platforms. In both cases, the dynamism of the transaction has greater relevance than the connection between users.

c) Community Oriented Platforms [Group 3]

These platforms have the highest scores in Community Footprint, but they also have good scores in the other categories. Platforms in Group 3 have a more community focused perspective of the sharing economy, promoting environmentally sustainable practices and awareness, better social connections, and stronger communities. Their main strength lies in their hyper/local orientation, non-monetized and/or alternative currencies and their not-for-profit legal status. (Table 20).

The platforms are usually well-established projects built for the community and/or with a particular social or environmental purpose. They have clear social or environmental mission statements that make these issues an important part of their identity. They tend to focus on the development of connections and interactions within communities, generating services that help social or local initiatives to grow by creating a community of collaboration and sharing rather than pragmatic individualistic exchanges. For example, projects such as **WWOFF**, **La Colmena que dice que Sí** or **Huertos Compartidos,** are focused on organic farming or the growing of food produce for personal consumption.

The presence of **CiroSel** as the highest scoring member of this group is also relevant. It is a platform that was included in the sample as a representative of the online platforms that are part of the Belgium Local Exchange Trading Systems network. This particular platform obtained high scores on most of the categories, but what is particularly relevant is its impact on <<Community Footprint>>. The platform's **LETS** system is designed to have a positive impact on the community, while also encouraging environmentally friendly practices: sharing, reusing, etc.

	GROUP 3: COMMUNITY ORIENTED PLATFORMS						
Rank	PLATFORM NAME	Type of CC	FUNCTIONALITY & USABILITY	TRUST & REPUTATION	CODES OF CONDUCT	COMMUNITY FOOTPRINT	TOTAL
1	CIROSEL (SEL/LETS)	Collaborative	**2,83**	**3,50**	**3,50**	**3,30**	**3,26**
2	COSE (IN)UTILI	Redistribution	**3,23**	**3,30**	**3,20**	**3,25**	**3,24**
3	BARATTO MATTO	Access	**3,03**	**3,05**	**3,00**	**3,25**	**3,07**
4	LA COLMENA QUE DICE SI	Collaborative	1,68	**3,10**	2,70	**4,35**	**2,98**
5	SO CROWD	Collaborative	**2,55**	3,25	2,50	**3,35**	**2,92**
6	REOOSE	Access	**2,48**	2,50	2,90	**3,65**	**2,85**
7	TAPAZZ	Access	2,18	**3,10**	**3,20**	**3,00**	**2,84**
8	WWOOF	Collaborative	1,73	**2,90**	2,50	**3,90**	**2,78**
9	HUERTOS COMPARTIDOS	Collaborative	1,65	2,05	2,50	**4,45**	**2,73**
10	ZERO RELATIVO	Redistribution	**2,30**	2,35	**2,90**	**3,25**	**2,67**
11	INSTRUMNETHEEK	Access	1,48	1,85	**3,10**	**3,70**	**2,47**
12	FREECYCLE	Redistribution	1,63	1,35	**3,20**	**3,30**	**2,32**
13	WIJDELEN (PEERBY)	Access	2,10	1,95	2,00	**3,25**	**2,29**
14	REPAIR CAFE	Collaborative	1,45	1,80	1,40	**3,45**	**2,09**

Table 20: Community Oriented Platforms [Group 3]

Finally, it is worth noting that additional analysis also reveals significant relationships between the three groups and the three modalities of Collaborative Consumption. Table 21 below shows the distribution of each group according to CC modality in percentages.

Distribution of Groups in Types of Collaborative Consumption						
		Access instead of property	Redistribution Markets	Collaborative Lifestyles	Total	Weighted Total
Group 1	N	9	0	15	**24**	
	%	45%	0%	60%	**44%**	**45%**
Group 2	N	6	7	5	**18**	
	%	30%	70%	20%	**33%**	**30%**
Group 3	N	5	3	5	**13**	
	%	25%	30%	20%	**24%**	**25%**
All Groups	N	**20**	**10**	**25**	**55**	
	%	**100%**	**100%**	**100%**	**100%**	**100%**

Table 21: Distribution of Groups in Types of Collaborative Consumption

Statistical significance: The nominal correlation between these two variables (groups and modality of CC) is statistically significant: the contingency coefficient value, 0.4, falls within the [0-1] interval of significance (Table 22).

Nominal Correlation		
	Value	Sig.
Contingency Coefficient	,42	,019
N	55	

Table 22: Contingency Coefficient for Platform Groups and CC modality

The tables above show the following: Firstly, that the distribution of **Access instead of Property** platforms among the three groups was very balanced, meaning that their presence in each of the three Groups was very similar to the normal distribution. Secondly, most of the **Redistribution Markets** platforms analyzed belong to the Transaction Oriented Group. These platforms usually have more simple digital systems. Finally, **Collaborative Lifestyle** platforms were more likely to be in the Community Oriented Group. The types of interactions that these platforms try to develop need a complex and well design system to work properly. Issues like trust or communicative features are key elements.

5. RECAPITULATION AND CONCLUSIONS

This paper has summarized the results of an independent research project sponsored and developed by four European consumer organizations (OCU, Altroconsumo, Deco Proteste and Test Achats/Test Ankoop) in collaboration with Cibersomosaguas Research Group (Universidad Complutense de Madrid) and in an advisory role, Ouishare Spain.[5] Specifically the research set out to assess the economic, environmental and social impact of three types of collaborative consumption activities that take place exclusively between private individuals (P2P), defined as: 1) Access instead of property (i.e. carpooling, ride sharing, car&park rental, car-sharing (P2P only), domestic room rental, free accommodation, and home swapping, rental); 2) Redistribution markets (i.e. second hand markets, donations, bartering networks) and 3) Collaborative lifestyles (i.e. food consumption groups, time banks/skill sharing, micro tasks, garden sharing, repair cafés, crowdfunding -donations & reward only-, tourism experiences). The research design included the development and implementation of the following methods: Desk Research, Delphi Process, Netnographic Study/Protocol, and Triple Impact Assessment Questionnaire. In this paper we have offered an overview of the methodological process and main outcomes of the **Delphi Process and Netnographic Study**.

Drawing on the Desk Research, in the first part of the paper we identified some of the main arguments around the socio-economic and environmental benefits associated with the promotion of CC in the context of the European Union -the frame of reference of the four

[5] OCU (2016). *Collaboration or business? From value for users to a society with values* www.ocu.org.

participating countries- and on an international scale. In agreement with other authors, we found that there is a severe lack of evidence on the effects or impacts of CC. Accordingly, our main research objective was to develop reliable indicators and measures for the assessment of the social, economic and environmental impact of P2P CC in Europe. In doing so the overall objective was to make reliable and methodologically valid information available to consumers to assist them in their collaborative consumption decision-making. Without such independent and reliable data we run the risk of falling into the trap of supporting products and services that do more damage than good (green-washing, social-washing, collaborative-washing…) or missing out on the possibility of supporting real CC and Sharing initiatives. The desk research phase also helped us to identify the main issues and debates and to outline the main content of the three dimensions (social, economic and environmental) that would be further developed in the Delphi Study.

In the second part of the paper we presented the rationale and main outcomes of a multi-panel three round **Delphi** process, a methodological tool designed *ex novo* for this research, which included the design of three surveys, seed lists and consolidated lists of key triple impact dimensions and a final set of indicators for each type of impact and CC P2P modality. The Delphi process involved 33 experts from the academic world, institutions, consumer associations and experts in sharing economy. The objective of this process was to reach a consensus on the main dimensions and indicators that should be used to model and measure the impact of collaborative consumption on three areas: economic, social and environmental.

In the third part, we provided an overview of the **Netnographic Protocol**, designed as a tool to evaluate online platforms from the perspective of their collaborative development. This Netnographic Study served to analyze the social impact of CC platforms based on their performance as digital environments in which interactions are enabled and shaped. We identified four criteria that define the social impact that these digital platforms can have: <<Functionality & Usability>>, <<Trust & Virtual Reputation>>, <<Codes of Conduct>> and <<Community Footprint>>. The protocol operationalizes the evaluation of these categories into scores through a process of evaluation by independent researchers (observers).

The netnographic observation of the websites allowed for each platform to be described and categorized according to their organizational aims and the way that they produce social experiences and interactions. Through the analysis of the results, it was possible to develop a typology of platforms that goes beyond their definition in terms of P2P CC modalities: **Network Oriented, Transaction Oriented and Community Oriented** (Table 23).

Scores	Orientation	Representative platforms
-High scores in general, especially in digital development	-Network oriented: produces networks of interests, builds social capital and virtual reputation for the individual user. Provides social experiences.	International platforms, e.g.: -AirBnB -Blablacar, -TimeRepublik…
-Low overall scores	-Transaction oriented: pragmatic and simple exchange interactions. Provides economic resources to the user.	Redistribution market platforms, e.g.: -Segundamano -Nolotiro

-Medium scores in digital development -Highest scores in Community Footprint	-Community oriented: builds social connections and bonds within the community.	Local, not-for-profit, non-monetized/alternative currency, e.g.: -Repair Café -CiroSel

Table 23: Main features of resulting P2P CC platforms type

The results offer a new perspective on how to think about CC and how to identify different models and typologies, each of which creates social impacts in a particular way. To sum up, the resulting categorization has brought to light how there are different ways in which CC can be implemented, each of them producing -or aiming to produce- very different impacts on society.

Finally, we would like to insist on the need to move towards reliable CC metrics and/or accountable, independent studies. In this regard, we fully subscribe to the claim that the analysis of the triple (economic, social and environmental) impact of CC has to be objective rather than the emotive arguments typical of new truisms, intuition and/or marketing strategies. We hope this research goes some way to illuminating this area of consumer practice, particularly in these times when, more than ever, citizenship and consumption must go hand in hand to address critical issues in economics, society and the environment.

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