

RESEARCH

<https://doi.org/10.15198/seeci.2018.46.35-51>

Received: 15/08/2017 --- Accepted: 14/10/2017 --- Published: 15/07/2018

**FROM OFFLINE TO ONLINE COLLABORATION: THEORETICAL
APPROACH ON HUMAN COOPERATION STUDIES AND THE
SHARING ECONOMY**

**DE LA COLABORACIÓN FUERA DE LÍNEA A LA LÍNEA: ENFOQUE
TEÓRICO SOBRE LOS ESTUDIOS DE COOPERACIÓN HUMANA Y
LA ECONOMÍA COLABORATIVA**

Esther Martos Carrión¹. Charles University of Prague. Czech Republic.
sharing.economy.prague@gmail.com

ABSTRACT

Since the mid-60's, several scientific approaches based on social experiments, observational techniques and ethnographic methodologies have been issued seeking to explore and understand (offline) human behaviours in terms of cooperation and community building as well as selfish rational actions. However, over the last decade, an innovative socio-economic system, technologically driven and entirely based on online platforms, the sharing economy, appears to disrupt established manners of collaboration. This study considers that, given the novelty of the sharing economy, there is still a lack of empirical studies attempting to compare and connect both offline and online forms of acting together. Thus, the main goal of this paper is to understand to what extent relevant theories on human cooperation, formulated from 1965 onwards, might be suitable for explaining the collaborative behaviour of the digitally driven sharing economy.

KEYWORDS. Sharing Economy; Collaborative Consumption; the Commons; the Internet; Selfish Rational Actions; Cooperation.

RESUMEN

Desde mediados de los años 60, se han publicado varios enfoques científicos basados en experimentos sociales, técnicas de observación y metodologías etnográficas que buscan explorar y comprender comportamientos humanos (fuera de línea) en términos de cooperación y construcción comunitaria, así como acciones racionales egoístas. Sin embargo, en la última década, un sistema socio-económico innovador, impulsado por la tecnología y totalmente basado en plataformas en línea, la economía colaborativa, parece perturbar las formas establecidas de colaboración. Este estudio considera que, dada la novedad de la economía colaborativa, todavía faltan estudios empíricos que intenten comparar y conectar formas de actuar en línea y fuera de línea. Por lo tanto, el objetivo principal de este documento es comprender hasta qué punto las teorías relevantes sobre la cooperación humana, formuladas a partir de 1965 en adelante, podrían ser adecuadas para explicar el comportamiento colaborativo de la economía colaborativa impulsada digitalmente.

¹ **Esther Martos Carrión:** Faculty of Humanities, Charles University of Prague, Department of Historical Sociology, Prague, the Czech Republic. sharing.economy.prague@gmail.com

PALABRAS CLAVE: Economía compartida; consumo colaborativo; los bienes comunes; Internet; las acciones racionalistas egoístas; cooperación

DA COLABORAÇÃO ANALÓGICA À COLABORAÇÃO EM LINHA: APROXIMAÇÃO TEÓRICA DOS ESTUDOS DE COOPERAÇÃO HUMANA E ECONOMIA COLABORATIVA

RESUME

Desde meados dos anos 60, várias aproximações científicas baseadas em experimentos sociais, técnicas de observação e metodologias etnográficas foram tentadas, buscando explorar e entender o comportamento humano (analógico) em termos de cooperação e construção de comunidades, assim como as reações racionais egoístas. Sem embargo, a última década, um inovador sistema sócio econômico, impulsionado pela tecnologia e inteiramente baseado em plataformas em linha, a economia colaborativa, parece transtornar os padrões estabelecidos de cooperação. Este estudo considera que, dado ao novo aspecto da economia colaborativa, ainda há uma falta de estudos empíricos que busquem comparar e conectar os modos analógicos e em linha de atuar em conjunto. Por isso, o principal objetivo deste estudo é entender até que extremo as teorias relevantes sobre cooperação humana, formuladas desde 1965, podem ser adequadas para explicar o comportamento cooperativo de uma economia colaborativa impulsionada digitalmente.

PALAVRAS CHAVE: Economía Compartilhada; Consumo Colaborativo; Comuns; Internet; Ações Racionais Egoístas, Cooperación

How to cite the article

Martos Carrión, E. (2018). From offline to online collaboration: theoretical approach on human cooperation studies and the sharing economy. [De la colaboración fuera de línea a la línea: enfoque teórico sobre los estudios de cooperación humana y la economía colaborativa] Revista de Comunicación de la SEECI, 46, 35-51. doi: <http://doi.org/10.15198/seeci.2018.46.35-51>. Recuperado de <http://www.seeci.net/revista/index.php/seeci/article/view/501>

1. INTRODUCTION AND PURPOSE OF THE STUDY

The sharing economy also known as *collaborative consumption* (Felson and Spaeth, 1978; Algar, 2007; Botsman and Rogers, 2010), has achieved a considerable level of popularity in developed countries. San Francisco, Paris, London, Amsterdam and New York are capital cities of the sharing economy in which pioneer platforms such as Uber and AirBnB are progressively disrupting traditional markets. This socioeconomic system attempts primarily to empower peers to share, trade, swap, or rent their underused goods within online communities (Matofska, 2016). Sharing economy experts (e.g. Gansky, 2010; Owyang, 2013; Rifkin, 2014) claim that the optimal performance of this platform-based model of collaborative consumption will bring multiple benefits to societies. For instance, (1) it is fundamentally sustained by

decentralized or distributed networks, contrary to capitalist economies which are shaped under pyramidal and centralized structures (Botsman and Rogers, 2010). The equal redistribution of power and control among all members of the same community contribute to increase levels of cooperation and trust (Benkler, 2004). As such, providers and consumers of sharing economy businesses would be more likely to trust each other given that platforms are based on peer-to-peer (p2p) relationships, that is, both parties arrange the transaction, excluding any third party or middle men. (2) The sharing economy also aims to reduce waste and overproduction of items. It fosters clean and sustainable cities by allowing consumers to gain access to the same products from a large pool of resources available through online networks, rather than hyper-consuming new products (Gansky, 2010). Furthermore (3), the efficient aggregation of technological innovations into collaborative manners of production and consumption permits to enlarge the scope of the entire schema from local to global. The internet contributes to the performance of large-scale collaboration (Sundararajan, 2016). Finally (4), the sharing economy embraces cooperative practices as well as community building (Felson and Spaeth, 1978; Lessig, 2008; Matofska, 2016). Concretely, this model of consumption claims that by performing collaborative consumption, levels of happiness and personal satisfaction increase.

However, it has been observed that given the novelty of the sharing economy there is still a lack of empirical investigations aiming to understand the commercial, cultural, social and technological behaviour of this disruptive paradigm. Approaching a broader scope, since the mid-'60s, multiple studies have been issued attempting to understand the key factors for which individuals engage in collaborative communities, as well as possible causes that propitiates acts of selfishness and egoism. Thus, in order to construct a more explanatory narrative in which both offline and online models of cooperation are connected, this study proceeds as follows. First, explore the most relevant theories on human cooperation, taking also into consideration investigations based on rational behaviours (1965-2010). And second, analyse and argue diverse sharing economy definitions proposed by several experts in the field (2004-2016). This paper concludes with its theoretical conclusion in which the main research questions are carefully argued. These are: is it possible to explain the collaborative nature of the sharing economy from remarkable (offline) theories of human cooperation? What sort of similarities and differences are found when comparing well established theories on human cooperation and the innovative sharing economy?

2. METHODOLOGY

Given the theoretical nature of this investigation, notable bibliographic references are used as a primary research resource. Taking the year 1965 as starting point, it is aimed to compile highly relevant theories on human cooperation as well as on selfish and rational actions; in turn, their most substantial principles will be evaluated and exposed. In addition, in order to contextualize the sharing economy as a

collaborative and digitally driven system, this paper will proceed to collect, explore and chronologically sort nine definitions of this disruptive socio-economic system stated by Benkler, (2004), Tapscott and Williams (2006), Algar (2007), Lessig (2008), Botsman and Rogers (2010), Bauwens, (2012), Rifkin (2014), Stephany (2015) and Sundararajan (2016). This data will be arranged by means of a table in which the original author's quote, the year of publication and the main insights will be presented. By combining all the essential parts, the research will accomplish a more explanatory narrative in which the research findings will be exposed.

3. EXPLORING THEORIES ON (OFFLINE) HUMAN COOPERATION.

3.1 Theories on collective action and the temptation to free ride.

The most relevant theories on collective action were written between the 60s and the 70s, a period in which opinions highly differed across different geographical locations. American studies were based on micro-levels of research that gave greater importance to the relationship between individuals. As a result, scholars developed the resource mobilization theory (RMT). This theory defines social movements as rational exchanges, opposing the traditional collective behaviour theory, which is known by its irrationality. Social movements constructed under RMT follow political goals by collecting financial resources and attracting the attention of the media. Charles Tilly and Doug McAdam were important writers of this political theory (Kendall, 2006).

By that time in Europe, scholars preferred to study social movements using macro techniques and prioritizing society as a whole. Critics developed the theory of new social movements (NSM), which is focused on analysing social rights. This theory was tied to contemporary issues, for instance, post-industrial economies or late capitalism (Diani & Eyerman, 1992; Pichardo, 1997).

In particular, Olson (1965), Hardin (1968), and Ostrom (1990) have made a great theoretical contribution to the understanding of the commons and their management by communities. Many of their studies explore how individuals interact within groups and networks to get the maximum profit from natural resources, goods or services. Hence, in an effort to link these theories to the collaborative face of the sharing economy, this paper proceeds to carefully examine and summarize the main findings of, not only approaches developed by these three scholars, but also other notable investigations on human cooperation and selfishness issued between the 20th century and the early 21st century.

The paper "The Tragedy of the Commons," published in 1968 by Garrett Hardin, sparked criticism within the scientific community. Hardin's approach (1968) describes a situation in which a number of individuals, motivated solely by their self-interests and rational behavior, lead to the destruction of their common goods. In his view, this situation will occur even when the members pretend to protect their shared resource. The scholar draws attention to a case in which an open access pasture is exploited by rational agents. In this instance, the egoist individual will tend to add

more animals to graze the grass, in order to increase his/her own profit. This individual will achieve a higher income while the total cost of maintaining the pasture will be shared by all the members. Eventually, the pasture will be destroyed by the high amount of animals. Finally, in Hardin's opinion, the common field will arrive at its tragedy. The scholar attached this problem as a direct consequence of rational economies and warned about how negative it can be for natural resources:

Therein is the tragedy. Each man is locked into a system that compels him to increase his herd without limits –in a world that is limited. Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. (Hardin, 1968)

Three years before Hardin's theory, Olson (1965) published his findings in his book titled "The Logic of Collective Action." This book emphasizes the logical behaviour of people engaging in groups by incentives as a means of motivation. For him, a group of individuals acting collectively would be tempted to free ride only when the group is utilizing public goods. However, if the benefits obtained are enjoyed only by the members of the group, they will not act individually. Furthermore, in these cases, larger groups will be less likely to engage in collective action due to the fact that they will face higher costs and individuals will gain reduced incomes, Olson (1965) stated:

...if the members of some group have a common interest or object, and if they would all be better off if that objective were achieved, it has been thought to follow logically that the individuals in that group would, if they were rational and self-interested, act to achieve that objective.... (Olson, 1965)

In addition to Olson's approach, the scholars Kaplan and Gurven (2001) identify three influential issues that would enhance free riding in collaborative groups. Firstly, as Olson (1965) believed, group size is proportional to the possibility of free riding, either because high numbers of users automatically increase the possible number of free riders or because in large groups the chance of being accused of not cooperating by others diminishes. Secondly, if individuals have access to good quality data about transactions, earnings, losses and personal information of other members, this might be a great tool to practice free riding among others. And lastly, groups in which there is a high level of non-relatives become subject to selfishness (see also Cosmides & Tooby, 1992).

In Hardin (1968) and Olson's (1965) view, collective action and community building arise from a crucial social dilemma: an individual of a group will only get benefits when the rest of the members collaborate too, however, if other members tend to free ride this individual might see his/her investments and future benefits to be in danger. Assuming that collaboration by other members is not guaranteed, the initial individual could be involved in a personal dilemma, a confrontation between their own rational interest and the best outcomes for the whole group.

Deconstructing Hardin and Olson's approaches, Ostrom (1990) developed a complex study called "Governing the Commons" (2009 Nobel Prize Winner) questioning the efficiency of such theories. For Ostrom (1990), autonomous and self-managed groups might achieve great levels of cooperation while preventing the tragedy of the commons. Furthermore, she states that neither the state nor the market is favourable enough when connecting individuals and common resources. She adds that "individuals are perceived as being trapped in a static situation, unable to change the rules affecting their incentives." Ostrom (1990) bases her research on in-depth case studies where, in her view, first, throughout history many successful instances of natural resource management occurred without any intermediation by the state or private organizations, and second, property rights do not ensure the maintenance of the commons. In fact, Ostrom (1990) denies that government policies help members of a group to organize themselves. Ostrom (1990) proposes an alternative learning-based model in which individuals monitor and adopt strategies from the rest of the actors, collecting the information required to pursue the common goal. If this process continues over time and the participants have developed shared "norms of reciprocity," they will be more likely to acquire common strategies of self-management.

From a different point of view, Kaplan and Gurven (2001) argue that rational and selfish individuals will only engage in reciprocal altruism when rewards and punishments are repeated and continually reinforced. Actors who attempt to take advantage of the common resources by trading or bargaining must be reprimanded (Kaplan & Gurven, 2001). This argument is supported by previous findings of Boyd and Richerson (2005) who state that human cooperation is mainly dominated by penalization. In their view, larger collaborative communities can only endure when high levels of punishment are executed, thus either those who disobey or collaborators who do not castigate defectors must be punished. Many social experiments have been developed on the basis of reward and punishment among the players. This paper pays special attention to the prisoners' dilemma game.

Axelrod and Hamilton (1981) have focused their research on the understanding of how cooperation and egoism are developed between individuals. The theoretical and experimental basis for their study is mainly built on the theory of rational action and principles of the prisoner's dilemma game – originally designed by Merrill M. Flood and Melvin Dresher (1950). This dilemma proposes a situation in which two people are accused of having committed a crime but neither have enough evidence to prove their innocence. Both are arrested and imprisoned in separate cells. They should make a decision which would generate either individual profit or collective benefits. The selection in this game is taken individually and privately, prisoners can either: cooperate, which would mean to stay silent, or defect and accuse the other (Poeete, Janssen & Ostrom; 2010). The prisoner's dilemma game establishes the following rules:

Table 1

Prisoner's dilemma game.

	Prisoner A Cooperates	Prisoner A Defects
Prisoner B Cooperates	Both get convicted for 1 year.	Prisoner A goes free and prisoner B is convicted for 5 years.
Prisoner B Defects	Prisoner B goes free and prisoner A is convicted for 5 years.	Both are convicted for 3 years.

The best case for the group would be the one in which both partners cooperate. However, this game reasons that both are selfish rational actors and, therefore, they are trying to get the minimum possible sentence: Prisoner A would think that if Prisoner B cooperates then it is better to defect and go free, while if Prisoner B defects, the best choice is to defect too, given that three years is better than five. This dilemma therefore argues that a rational person would tend to defect, even assuming that their partner may suffer the worst sentence.

The prisoner's dilemma game, as well as many other social experiments, demonstrates that there is not always a consensus on cooperation. Such approaches state that human choices are mainly based on personal interests, and thus, a community would be shaped by the individual rational decisions of each member. As such, "the invisible hand" metaphor written by Smith (1759) describes how individuals, as self-decision makers, can collectively generate an effective economic system. In a situation governed by the invisible hand; sellers, buyers, growers and importers have their own right to balance gains and losses by setting the prices. Each player executes individual choices in order to maximize their personal profit, thereby freeing the market (Smith, 1759).

Using selection and evolutionary theories, Kaplan and Gurven (2001) identify eight key facts that, at some point, individuals experience when cooperating within a community; (1) they develop a special perception for detecting potential gains; (2) they will pursue a way to make a profit of these gains; (3) they will tend to free-ride; and in turn (4) they will avoid being the victim of free-riding; (5) they will develop the perspicacity required to find the opportunities to free-ride and, (6) develop the sensitivity to detect and analyse personal costs and group outcomes by acting collectively; (7) rational actors will perform skills to negotiate internal and common norms in order to maximize personal gains and; (8) they will aim to obediently execute the norms while encouraging others to act similarly so that punishment is respected.

3.2. Introduction to (offline) collaborative consumption and some related factors.

To conclude this specific section and aim to bridge previous theories and the digitally driven sharing economy, this study proceeds to observe the first definition of

the concept *collaborative consumption* (a term which is also used nowadays to refer to the sharing economy) found up to this time. In 1978, Marcus Felson and Joe L. Spaeth coined the term collaborative consumption in their paper "Community Structure and Collaborative Consumption" on car sharing. They paid special attention to human interactions and discovered that individuals prefer to do things in groups because a common goal is usually achieved quickly and easily by mutual consensus. More concretely, Felson and Spaeth (1978) propose the following definition:

Collaborative consumption, namely, those events in which one or more persons consume economic goods or services in the process of engaging in joint activities with one or more others. For example, drinking beer with friends, eating meals with relatives, driving to visit someone or using a washing machine for family laundry are acts of collaborative consumption. (p. 614).

Collaborative consumption, in their view, is focused mainly on aspects of life style, community building and consumer behaviour. Timing also represents a crucial factor given that cooperative routine activities are linked to temporal coordination. Furthermore, the spatiotemporal structure of a community directly affects the development of collaborative consumption activities, such as dining, driving or learning. For instance, a community that performs the same routine activities in similar ranges of time will tend to better engage with collaborative consumption. For instance, working hours or school schedules will influence activities such as having lunch with co-workers, going to the park with other parents and their kids, hitch-hiking, etc.

This early definition, which later would be better known as the sharing economy, dismisses any type of technology as a tool for fostering cooperation or community building. However, it suggests that social interactions, feelings, personal experiences, and similar interests greatly encourage the formation of groups driven by collaboration.

Similarly, Diani and Eyerman (1992) define contemporary *social movement networks* as the relationships and interchanges among individuals and organizations that share the same beliefs and are constituted by a certain collective identity. They attribute "the sense of belongingness" as a strong characteristic of social communities together with "unity". In his view, the assurance of community survival requires constant interactions between the participants; exchanges, debates, feedback and negotiations. Unlike Olson (1965), who argued that heterogeneity hinders cooperation within a group, Diani and Eyerman (1992) warn social researchers about the difficulty of finding communities' boundaries given that they are not "empirical entities," but instead formed by heterogeneous actors (See also Ostrom, Jansen & Poete, 2010).

Trust and reputation are considered by several sharing economy experts (e.g. Botsman and Rogers, 2010; Owyang, 2013; Gansky, 2010) as vital for the optimal development of collaborative consumption. Accordingly, Arrow (1974) remarks the

importance of trustworthiness and positive reputation as key factors in community building; he states that “[trust] is extremely efficient, it saves a lot of trouble to have a fair degree of reliance on other people’s word.” Similarly, Ostrom (2010) adds that in order to achieve an optimal level of participation, members have to develop trust from a reciprocal learning process, thus, when actors of a certain community repeat collective actions over time, others will be more likely to learn and adopt these actions. If this process is continued, she states, “levels of trust and reciprocity will be mutually reinforced.” Furthermore, Ostrom (2010) identifies certain variables to enhance trust in networks and communities, namely: (a) the reputation of members must be known by the entire group, when the information is published and shared by the members, levels of cooperation increase; (b) personal and face-to-face debates lead to trustworthiness and; (c) the community must ensure members the right to enter and exit at any time.

4. EXPLORING (ONLINE) HUMAN COLLABORATION: THE SHARING ECONOMY

At this point, this paper shifts its scope to solely explore approaches based on collaboration by means of digital technologies, fundamentally through digital platforms. It is of great importance to notice that although sharing and collaborative practices date back to ancient times, the sharing economy is only understandable within a digital context (Sundararajan, 2016, Howard, 2015; Stephany, 2015).

Table 2 compiles nine of the most influential definitions of the sharing economy from 2004 to 2016. Although authors differ when naming this disruptive phenomenon, their vision about what the sharing economy represents is greatly shared by all of them. Table 3 aims to chronologically expose not only direct quotes of eleven renowned sharing economy experts (Benkler, 2004; Tapscott and Williams, 2006; Algar, 2007; Lessig, 2008; Botsman and Rogers, 2010; Bauwens, 2012; Rifkin, 2014; Stephany, 2015; Sundararajan, 2016) but also the most salient insights found throughout their entire literature.

Table 2
Analysis of sharing economy interpretations obtained from relevant literature (2004-2016).

Year/ Author / Own term	Author’s quote and main insights.
2004 Yochai Benkler <i>Shareable Goods and Commons- based peer production</i>	“(Shareable practices/goods) represent instances where social sharing is either utterly impersonal or among loosely affiliated individuals who engage in social practices that involve contributions of the capacity of their private goods in patterns that combine to form large-scale and effective systems for provisioning goods, services, and resources” (p.275-276) - The redistribution of resources relies on distributed relationships and ethics rather than in economical purposes - Technologies enable the possibility to build decentralized

social-based networks opposed to hierarchical markets.

2006 Don Tapscott & Anthony D. Williams <i>Wikinomics and Collaboration Economy</i>	<p>“Peer-to-peer creation and communication, this utterly decentralized and amorphous force increasingly self-organizes to provide its own news, entertainment, and services. As these effects permeate out through the economy and intersect with deep structural changes like globalization, we will witness the rise of an entirely new kind of economy where firms coexist with millions of autonomous producers who connect and co-create value in loosely coupled networks. We call this the collaboration economy” (p. 32).</p> <ul style="list-style-type: none">- New technologies and innovative operating systems play an essential role in developing collaboration economy and wkinomics.- The internet serves as a very low cost infrastructure for collaboration and peer production.
2007 Ray Algar <i>Collaborative Consumption</i>	<p>“What happens when pricing insight becomes accessible and consumers begin to share knowledge? Welcome to the world of collaborative consumption (...) Technology is democratising the purchasing process and ultimately consumers will decide how far leisure suppliers can push the limits of these inventive ways of optimising price. The individual has morphed into a crowd and the crowd is wise” (p.16-17).</p> <ul style="list-style-type: none">- Collaborative consumption is a global phenomenon that harnesses connectedness.- Consumers collaborate through the web in order to exchange goods and services. Collaboration with the crowd brings much more than acting individually.
2008 Lawrence Lessig <i>Sharing Economies and Internet Sharing Economies</i>	<p>“There exists not just the commercial economy, which meters access on the simple metric of price, but also a sharing economy, where access to culture is regulated not by price, but by a complex set of social relations. These social relations are not simple. (...) everyone reading this book has a rich life of relations governed in a sharing economy, free of the simplicity of price and markets”. (p.145)</p> <ul style="list-style-type: none">- Sharing economies enhance personal connections and cooperative communities.- Sharing and commercial economies complement each other.- By embedding the internet, sharing economies enlarge their scope becoming global and crowded.
2010 Rachel Botsman & Roo Rogers <i>Collaborative Consumption</i>	<p>“Collaborative consumption is enabling people to realize the enormous benefits of access to products and service over ownership, and at the same time save money, space and time, make new friends and become active citizens once again” (p. XVI)</p> <ul style="list-style-type: none">- It is an economic model in which underused assets are exchanged, rented or swapped. Reputation systems are crucial.- Collaborative consumption depends on online networks and new technological devices.- 20th century vs. 21st century: hyper consumption vs. collaborative consumption, credit vs. reputation, advertising vs. community and ownership vs. shared access.

<p>2012 Michel Bauwens</p> <p><i>Collaborative economy and Peer production</i></p>	<p>(1) Immaterial: "In the immaterial collaborative economy, what is mutualized is knowledge, software and design, through shared innovation commons usually governed by specific legal licenses" (p.51)</p> <p>(2) Material: "The fast-growing arena of collaborative consumption uses product-service platforms, often under corporate ownership, which allow users and consumers collective access to physical goods." (p.53)</p> <p>(3) Mixed: "Platforms in which designers of both immaterial products and material products can offer their work for sale, but where some form of collective aggregation or filtering takes places" (p.52)</p> <ul style="list-style-type: none"> - The integration of social media and digital innovations functions as a notable tool for the exponential development of the collaborative economy
<p>2014 Jeremy Rifkin</p> <p><i>Collaborative Commons</i></p>	<p>"Connecting everyone and everything in a global network driven by extreme productivity moves us ever faster toward an era of nearly free goods and services and, without, the striking of capitalism in the next half century and the rise of Collaborative Commons as the dominant model for organizing economic life (...) where billions of people engage in the deeply social aspects of life" (p. 16).</p> <ul style="list-style-type: none"> - The high connectivity of innovate operational systems as the Internet of Things represents the decline of capitalist economies and the rise of collaborative commons. - New technologies embed global peer production and consumption within a "sharing culture".
<p>2015 Alex Stephany</p> <p><i>The business of sharing.</i></p>	<p>"The sharing economy is the value in taking underutilized assets and making them accessible online to a community, leading to a reduce need for ownership of those assets" (p.9).</p> <ul style="list-style-type: none"> - Sharing economy platforms are usually market-based networks which generate reciprocal economic value. Reputation systems play an important role. - The sharing economy has evolved into an online frame. The internet is vital for its emergence.
<p>2016 Arun Sundararajan</p> <p><i>Crowd-based capitalism</i></p>	<p>"I call the sharing economy or crowd-based capitalism, terms I use more precisely to describe an ecosystem driven by the following five characteristics: largely market-based, high-impact capital, crowd-based networks, blurring line between the personal and the professional as well as by blurring line between fully employed and casual labor" (p.26-27).</p> <ul style="list-style-type: none"> - This new phenomenon raises online innovative markets where assets are potentially exchanged - The sharing economy or crowd-based capitalism enlarges the usage of products by creating new opportunities for sharing.

Table 2 highlights that fundamentally all sharing economy meanings consider digital innovations primordial when developing this socio-economic paradigm. Definitions point out that, the sharing economy, as it is observed previously, would have not existed if it was not for the transformation of the early web page into commercial platforms. Moreover, most of sharing economy experts also agree on the fact that decentralized networks shape the internal structure of this economy

allowing individuals to become decision-makers. In addition, ownership passes to be replaced by access, namely, the sharing economy provides its users with a sizeable pool of resources that, normally for a fee, peers can access for a limited time, annulling in turn the necessity of purchase. And last, definitions accord that the study field essentially operates at a global scale.

After having explored diverse conceptions of the so-called sharing economy, it has been approached a more accurate understanding about, not only how it is shaped but also its aims and main characteristics. Consequently, this paper proceeds to compare and analyse this understanding with regard to the set of approaches on human cooperation studied in section 3.

5. DISCUSSION AND CONCLUSION

Throughout previous decades, sharing practices and collaborative behaviours have been imperative issues for many researchers seeking to understand the nature of interactions among members of the same network. By developing this study, in which many important theories on collective/selfish actions and sharing economy definitions have been explored, this paper has found some relevant findings with regard to the research questions posed at the beginning of this paper. Therefore, and in an attempt to understand what sort of connections might bridge popular approaches on (offline) cooperation and the sharing economy, this paper proceeds to enumerate its most essential remarks.

1. Even though most of the scholars mentioned in this work agree on how communities are structured (i.e., as a set of individuals, exchanges, and interactions shaped by common beliefs, values or goals), they widely vary in their reasoning on why and how actors cooperate among them. One of the facts that appears most discussed about whether it fosters cooperation within a community is the group size. Kaplan and Gurven (2001), as well as Olson (1965), strongly claim that large groups are less likely to generate collaboration than small groups, indeed, members of sizeable communities will tend to eventually free ride. However, it has been certainly found that the sharing economy functions at a global scale (Sundararajan, 2016; Rifkin, 2014; Lessig, 2008), which would suggest that large communities are also able to develop high levels of collaboration. In fact, several platforms considered as part of the sharing economy, such as Bitcoin and Wikipedia, are only potentially effective when their communities achieve a substantial number of users. If the community is not large enough, then they might disappear because they are unable to successfully provide its service. This sort of decentralized sharing platforms is based on abundance, all peers contribute to generate such abundance by either uploading content, offering their services or by performing any other communal task. Therefore, the bigger the network, the better.

2. Heterogeneity is also a characteristic subject to discussion. Olson (1965) and Kaplan and Gurven (2001) consider that groups formed by actors of different cultures, ages, races and beliefs perform fewer levels of collaboration in comparison to homogeneous communities. On the other hand, Diani and Eyerman (1992) suggest that community members are fundamentally collaborative because a certain sense of identity motivates them to do so. When approaching sharing economy definitions, it is important to observe that collaborative networks, due to their large sizes and their virtual nature, are principally formed by heterogeneous actors (Sundararajan, 2016). Thus, there might exist, as Diani and Eyerman (1992) pose, a shared aim over all particular users that encourages them to engage within collaboration. For example, Linux contributors, voluntarily cooperate attempting to develop an efficient open source operative system suitable for their requirements (Benkler, 2004). Similarly, the sharing economy network Waze (www.waze.com), which allows users to update on real-time, road maps, traffic jumps, car crashes, etc., is entirely based on the information that peers freely provide. Members of this highly heterogeneous and global network collaborate for the common good of being up to date when referring to traffic concerns.
3. Therefore, as it is stated above, any type of compensation is expected by sharing economy users when collaborating within such networks. Most of the scholars explored in the first part of this paper agree on the fact that, in one form or another, collaborators are essentially driven by rewards (Olson, 1965; Kaplan and Gurven, 2001; Boyd and Richerson, 2005). Approaches of these authors, which were constructed to explain offline paradigms, are also applicable to the sharing economy paradigm. All sharing economy experts observe that this digital model of sharing is non altruistic and thus users will expect to be compensated at some point. More concretely, unlike Lessig (2008) and Benkler (2004) who believe that sharing economies are non commercial, however, driven by social and emotional benefits and purposes, the rest of sharing economy authors consider that this disruptive phenomenon is, in substance, based on the desire of gaining economic profits.
4. After having explored meaningful approaches focused on human cooperation, it has been found that some scholars (e.g. Boyd and Richerson, 2005; Kaplan and Gurven, 2001; Axelrod and Hamilton, 1981) consider that rewards and punishment practically operate similarly when it comes to generate cooperation. Experiments like the prisoner's dilemma game demonstrate that, in most occasions, punishment and rewards greatly influence the responses of individuals when it comes to cooperate or defect. It is to remark that, although this paper considers that this specific experiment is not directly applicable to the understanding of the sharing economy as a whole -due to sharing economy users cooperate *a priori* freely and no external control force them to engage within collaborative consumptions- a great analogy has been found between punishments/rewards and online rating systems. Boyd and

Richerson (2005) state that members of a community are in charge of reporting negative activities performed by other members. By doing that, all peers are aware that they will be punished if they commit any unacceptable act. Applying this statement to the sharing economy paradigm, reputations systems, which appear to create a more fair and reliable model of governance (Botsman and Rogers, 2010; Stephany, 2015; Matofska, 2016), might function as the online version of Boyd and Richerson's assumption (2005). Reputation systems allow sharing economy users to rate and comment services offered by other users, whether they have been satisfying or not. In that sense, reputation systems operate as a channel for rewarding or punishing members of the community. Those who have performed any negative practice will be castigated with bad reviews and their chance to provide their services again will decrease. These rating systems are public and accessible to any peer of the community, thus, to achieve a positive punctuation when swapping, renting, trading, or exchanging any good or service is primordial for sharing economy users who greatly depend on their online reputation status (see also Slee, 2015)

5. Reputation systems are meant to develop trust among unknown members of sharing economy networks (Howard, 2015; Gansky, 2010; Owyang, 2013). As it has already been mentioned these networks principally function at a global scale, which implies that collaborators are practically strangers. In studies developed by Kaplan and Gurven (2001) and Ostrom (2010), cooperation requires trust and this will be best achieved with relatives and through face to face relationships. Such arguments would be unsustainable when explaining how the concept of trust is managed in the digital sharing economy scheme. It has been demonstrated that global sharing economy platforms generate high levels of trust, which in turn, embraces users to actively practice collaboration (Botsman and Rogers, 2010). Therefore, it is important to notice that, trust appears to have been reinterpreted into a digital shape that greatly enlarges its scope from personal to impersonal and from local to global.

Besides that, there has been controversy when it comes to explaining if transparent and public information fosters cooperation or not. Kaplan and Gurven (2001) argue that the common access to other's personal information, earning, losses, transactions etc. might function as a powerful tool for individuals to free ride upon others. In other words, an actor may use this information against other members in an attempt to achieve his/her own personal goals while avoiding cooperation for the common good. Opposing this statement, Ostrom (2010) considers that, in order to foster trust and consequently also cooperation, reputation and personal information of each peer must be known by all members of the community. By networking knowledge through distributed and transparent communities, members of this will be more likely to trust other peers. Ostrom's assumption (2010) might be corroborated on, for instance, the blockchain technology which shares several principles with the sharing economy. The blockchain is based on an entirely distributed network where every single node is aware of other nodes'

activities. Highly simplified, a transaction between two peers cannot be executed unless the community verifies and agrees on the viability of the transaction in question. The optimal functionality of online communities based on decentralized networks such as block chain are fundamentally driven by transparency. Therefore, unlike the argument proposed by Ostrom (2010), Kaplan and Gurven's approach (2001) would lose weight when explaining collaboration within networks driven by public, transparent and shared knowledge.

In conclusion, it is fitting to draw attention to the fact that most of the approaches mentioned in the first part of this paper may be questioned by analysing global communities based on online sharing economy platforms. Large cooperative networks, such as Wikipedia or Linux, contradict the assumption that sizeable, complex and heterogeneous groups are less likely to act collectively (Benkler, 2011; Botsman & Rogers, 2010). Active participants of such platforms do indeed cooperate, even though the final product is freely shared and consumed by a higher number of passive users, thus conflicting with Olson's approach. Furthermore, it has been found that within online communities, kinship does not necessarily imply the creation of cooperation, unlike concepts such as trust and reputation which still playing an essential role. To conclude, the insertion of digital tools into collaborative communities seems to have reinterpreted some principles of human cooperation. A more proper and accurate empirical research has yet to have been conducted in order to understand new paradigms of online collaboration, more concretely the ones developed within the sharing economy landscape.

6. ACKNOWLEDGEMENTS

This research paper has been granted by the Charles University Grant Agency (GAUK) and the Science Development Program at Charles University in Prague (PRVOUK).

7. REFERENCES

- Algar, R. (2007). Collaborative consumption. *Leisure Report*, 17-18.
- Axelrod, R., & Hamilton, W. (1981). The evolution of cooperation. *Science*, 211(4489), 1390-1396.
- Bauwens, M. (2012). *Synthetic overview of the collaborative economy*. Chiang Mai: P2P Foundation.
- Benkler, Y. (2004). Sharing nicely: On shareable goods and the emergence of sharing as a modality of economic production. *The Yale Law Journal*, 114(2), 273.
- Benkler, Y. (2011). *The penguin and the leviathan; The triumph of cooperation over self-interest*. New York: Crown Business.
- Botsman, R., & Rogers, R. (2010). *What's mine is yours: The rise of collaborative consumption*. New York, NY: Harper Paperbacks.

- Boyd, R., & Richerson, P. (2005). Solving the puzzle of human cooperation. *Evolution and Culture*, S. Levinson ed. MIT Press Cambridge MA, 105–132.
- Chase, R. (2016). *Peers Inc.; How people and platforms are inventing the collaborative economy and reinventing capitalism*. London: Headline Book Publishing.
- Cosmides, L. & J. Tooby. (1992). *Cognitive adaptations for social exchange*. In *The Adapted Mind: Evolutionary Psychology and the Generation of Culture* (J.H. Barkow, L. Cosmides, J. Tooby, eds.) New York: Oxford University Press, 163-228.
- Diani M. & Eyerman R. (1992). *Studying collective action*. SAGE Modern Politics series, 30. London: SAGE Publications Ltd.
- Felson, M., & Spaeth, J. (1978). Community Structure and Collaborative Consumption: A Routine Activity Approach. *American Behavioral Scientist*, 21(4), 614-624.
- Gansky, L. (2010). *The mesh: Why the Future of Business Is Sharing*. New York: Portfolio.
- Hardin, G. (1968). The Tragedy of the Commons. *Science*, 162(3859), 1243-1248.
- Howard, B. (2015). *We-commerce.; How to Create, Collaborate, and Succeed in the Sharing Economy*. USA: Penguin Putnam Inc.
- Kaplan, H., & Gurven, M. (2001). The Natural History of Human Food Sharing and Cooperation: A Review and a New Multi-Individual Approach to the Negotiation of Norms. In *Conference on the Structure and Evolution of Strong Reciprocity*. Santa Fe.
- Kendall, D. (2006). *Sociology in our times*. USA: Thomson Wadsworth.
- Lessig, L. (2008). *Remix; making art commerce thrive in the hybrid economy*. New York: Penguin Books.
- Matofska, B. personal interview. (July, 2017). Skype Call from the UK and the Czech Republic.
- Olson, M. (1965). *The logic of collective action: public goods and the theory of groups*. Cambridge, Mass: Harvard University Press.
- Ostrom, E. (1990). *Governing the commons, The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.
- Ostrom, E., Potete, A., & Janssen, M. (2010). *Working Together: Collective Action, the Commons, and Multiple Methods in Practice*. Princeton University Press.
- Owyang, J. (2013). *The Collaborative Economy: Products, services, and market relationships have changed as sharing startups impact business models. To avoid disruption, companies must adopt the Collaborative Economy Value Chain*. USA: Altimeter.
- Pichardo, N. (1997). New Social Movements: A Critical Review. *Annual Review Of Sociology*, 23, 411-430.
- Rifkin, J. (2014). *The zero marginal cost society*. New York: Macmillan.

Martos Carrión, E. *From offline to online collaboration: theoretical approach on human cooperation studies and the sharing economy*

- Slee, T. (2015). *What is Yours is Mine; The Dark Side of the "Sharing Economy"*. [S.I.]: OR Books LLC.
- Smith, A. (1759). *The Theory of moral Sentiments*. Andrew Millar, in the Strand; and Alexander Kincaid and J. Bell, Edinburgh
- Stephany, A. (2015). *The business of sharing; Making it in the newsharing economy*. Houndmills, Basingstoke, Hampshire: Palgrave Macmillan in the UK is an imprint of Macmillan Publishers Limited.
- Sundararajan, A. (2017). *The sharing economy, The End of employment and the rise of crowd-based capitalism*. Cambridge, Mass: The MIT Press.
- Williams, A., & Tapscott, D. (2006). *Wikinomics, how mass collaboration changes everything*. New York: Portfolio.

AUTHOR

ESTHER MARTOS

She is researcher at the Charles University of Prague in the Czech Republic. She role within the Historical Sociology Department is focused on the exploration of the sharing economy and its social impact. She studied engineering in industrial design, a bachelor in communication and a master degree in visuals arts and multimedia, all three at the Polytechnic University of Valencia in Spain. She is also co-founder of the p2p homemade food platform Mealby and sharing economy advisor of the car-sharing platform HireGo, a community fully driven by the blockchain technology. In addition, she is one of the coordinators o the Collaborative Economy Research Network.