

Sharing Services and Goods: the sharing economy management and perspective

Fernando Ferri¹, Patrizia Grifoni¹, Adam Wojciechowski²

¹Consiglio Nazionale delle Ricerche, Istituto di Ricerca sulla Popolazione e le Politiche Sociali
Via Palestro 32, 00185 Rome, Italy
fernando.ferri@irpps.cnr.it, patrizia.grifoni@irpps.cnr.it

²Poznan University of Technology
ul. Piotrowo 2, 60-965 Poznań, Poland
Adam.Wojciechowski@put.poznan.pl

Abstract

This paper discusses the main issues arising by the new models and approaches connected with the sharing economy. In particular the temporal management, the problem of trust and the organization rules for sharing services and goods are discussed, and in particular a Social Network approach for sharing services based on agents, and a Social network model for sharing 2nd hand goods are proposed.

Keywords: Social Network, Sharing Economy

1. Introduction

The pervasive use of Web and Social Networks, the advent of Web 2.0/3.0 and the new perspectives arising from the social and economic crisis are the driver elements that are stimulating the arising of Sharing Economy.

The term Sharing Economy identifies a broad set of activities of consumer, production and trade of goods and services, which often imply a deep engagement and social participation due to the fact that the philosophy behind has as fundamental concept, the concept of access. In fact, in the sharing economy arise the concept of access to resources has the same weight of the concept of ownership. The concept of sharing can be used alongside or can replace the concept of exchange.

“Instead of buying and owning products, consumers are increasingly interested in leasing and sharing them. Companies can benefit from the trend toward “collaborative consumption” through creative new approaches to defining and distributing their offerings.” (<http://sloanreview.mit.edu/article/adapting-to-the-sharing-economy/>).

This paper focuses on perspectives and opportunities offered by the sharing economy, mainly considering problems connected with reputation, risks and quality of resources involved, and in particular considering the need to manage time and space dimensions to satisfy the needs of the different actors involved, minimizing risks, and maximizing quality of services and users’ satisfaction. In particular the paper addresses both the perspective of the sharing economy for enterprises, and in the perspective of social economy system.

2. Open Problems

The Sharing economy encompasses a very broad set of sharing means of goods and services (Amóros, Moska and Singer, 2015), Belk, R. (2014a), Belk, R. (2014b). This paper focuses on services and goods. The study of the sharing economy is still at an early stage, and business models are mainly based on

consumer-to-consumer (C2C) or peer-to-peer (P2P) models. However, many of the most famous sharing platforms are based on business-to-consumer (B2C) or business-to-people (B2P) models like Car2Go, Uber, etc. The services sharing platforms are transforming many business sectors like automotive services (Car2Go, Uber, Enjoy), travel and tourism (Airbnb), learning (Massive Open Online Courses), and finance and credit (Quirky, Kickstarter, etc).

The changes in the services models from vertical to circular are also changing marketing processes from traditional (D’Andrea A. and others 2012) (Ferri F. and others 2012) toward new approaches based on different people perceptions, motivations and intentions like cost saving, service benefits, reduction of the burdens of ownership and environmental concerns (Botsman, R., & Rogers, R., 2010) Belleflamme P., Lambert T. and Schwiendbacher A. (2014). A further aspect of the sharing economy is the dichotomy (Schor 2014) for-profit and non-profit business models, both the models seem to be very effective. This market is characterized by low barriers to entry. For this reason, competitors can emerge suddenly and existing startups need to step up or out. Stepping up requires significant cash flow to finance advertising, marketing and promotion, which non-profit firms are unlikely to have unless, conceivably, backed by a wealthy donor over a considerable period of time.

2.1 Sharing or economy of services

The management of sharing services implies:

- Someone that will offer the service in an established slot of time and in a place
- Someone that has the need of the service in an established slot of time and in a place
- Sharing knowledge about the characteristics of service in terms of typology, space and time availability
- Sharing knowledge about the users’ needs and preferences

- Knowledge which allows to decide and choose any service

But what are services that the user is interested to receive and what are services that the user is interested to provide? What are user's constraints in providing/receiving services in terms of time, space, etc.. In fact, it is not only important to receive or provide a service, but also *when* and *where* are very relevant issues. *When* is important: 1) for satisfying the user needs, 2) for allowing a trustful exchange of service.

A service is not atomic, in fact the time is a relevant dimension in providing it, moreover, a service is not available before the swapping/exchange/..., it is a promise, not an already available good, at the beginning it is not clear the quality of the service that will be provided, the level of the service depend on the specific skills of the service provider, but the satisfaction depends on the expectations of the service beneficiary.

The consequent value creation of a service has therefore uncertainty in time and quality. All these aspects must be managed in matching exchange of services and for optimizing satisfaction of users.

As an example, let us consider the following situation;

Mary needs of a ride by car from Rome to Warsaw on 3rd of October 2015, while Rita needs of ten English tuitions starting from 5th of October 2015, twice a week.

Mary and Rita will share their services if:

- Mary can provide English tuitions in the location and in the period of time specified by Rita
- Rita can provide the ride by car to Maria
- The number of lessons that Rita requires are evaluated as value-equivalent by Mary with respect to the ride by car offered by Rita (and vice-versa)
- Mary and Rita have trust in the service provided each other, as it is impossible to have a simultaneous service providing

We have the following aspects to manage:

- durations of service promises are different
- Mary and Rita should demonstrate their ability to give a good service before the service is provided for convincing mutually.
- the evaluation of the quality of the services provided is strongly dependent on the skill of Mary and Rita but also from their expectations.

It is therefore necessary to manage reputation scores based on the satisfaction levels. The paper considers two reputation scores: as provider of a service and as beneficiary of a service. This allows to take into account that some people are particularly demanding. Therefore the problem of in-satisfaction is measured balancing skills of providers and expectations of beneficiaries. Levels of satisfaction must be evaluated for specific kind of services, because both skills and expectations can depends on the kind of the service. However, there are possible cases of conflicts as consequences of damages or

problems in satisfying the promised service. In this case the strategy for the exchange of services can involve a third party, the mediator, who will ensure the Service.

As example, since the service requested by Mary and the one requested by Rita have different times and different modes of delivery, a subject mediator (legally registered and recognized) may occur as a guarantee of contract. A mediator will first of all can ask a registration fee to the Sharing services community. S/he has to ensure that the service is provided.

If one party fails providing the service that s/he agreed to provide (without notice), then the mediator will be required to sanction those who are not providing the service, or asking them other services or a penalty; the mediator may come to exclude from the community who did not provide the service as specified.

In the event that an individual could not provide a service as agreed, s/he can contact the mediator, who will in turn involve another service provider (for example Tom) who takes over the agreement.

At this point, Tom (if he does not need of any service at the moment) provides a service and collects a credit with the mediator, for future services needs. Note that the mediator can be a person or a group of person that will manage the community.

It is on this basis that a new model of enterprise is arising, i.e. enterprises that play the mediator role. Mediator plays the role of managing the access when complexity does not allow a sufficient trust.

2.2 Sharing or economy of goods

Key representatives of Social *economy* systems, even mentioned in this paper above, are designed to merge owners with people who are interested in temporal use of particular goods. The system is popular and has many users if value saved by temporal use instead of buying the good is relatively high. It is worth to notice that the saved value does not have to be expressed in monetary units. Flexibility to change decision (e.g. change flight dates or change hotel) or ease to rent expensive goods instead of buying and reselling them after use saves a lot of hassle and time although it may be a more expensive way. It is obvious that a tourist does not buy a house to go for holidays but looks for a place to rent. In some cases it is cheaper to rent a special car like a van or truck (maybe with a driver) while one needs to do some occasional work or it is more convenient to rent a car or hire a taxi instead of going by own car a long distance especially if it is safer, faster and cheaper to fly to a distant destination. Temporal use of goods – renting the products from their owners – is also a chance to have the pleasure to use them while one has not enough money to own those products. Those obvious observations make foundation for lending and renting business which is present in many areas of life. Lending/renting procedures are used in relation to goods and services. One should notice that in cases mentioned above from borrower's perspective sharing or temporal use is a way to save money, save hassle or the only chance to use an expensive good for a time. Thus the borrower pays a rent

or fee for temporal use which seems rational and socially acceptable.

In consumption society we can observe a trend to change cars, home appliance, clothing, tools etc. only because they went out of fashion or their newer equivalences are available, although the products are still functional and in a good condition. The process is stimulated by practice of so called *planned obsolescence* (Bulow 1986). Many people feel not comfortable while they throw still-good-to-use products on the scrap-heap (Schwartz 2004) because the products still represent a value, however, they occupy space at home, in garage or in attic. A way to get rid of old goods, giving them a new life, but saving some of their value is selling them on flea market or more conveniently on an internet auction. This practice stimulates the use of second-hand products as well as it leads to reducing pollution caused by production process and utilization. In some cases exchange of used goods may also build social relations and friendship. Depending on the point of view this environmental and social added value may be a side effect of trading transaction or the beginning of wider social movement and trend to reuse and recycle. In such an approach the power stimulating cycling 2nd hand product is backed by economical arguments – the seller wants to get rid of the used product but preserve a part of its value while the buyer looks for a bargain – a 2nd hand product in acceptable condition for a reduced price.

However economical issues and will to save a part of value hidden in owned used products by selling them is not the only engine stimulating circulation of 2nd hand goods. Like in case of money collection, especially if it is aimed at helping or solving a socially important issue, people are willing to donate and they find satisfaction from participation and solving a problem in a group (Wojciechowski 2009). Providing used products for an individual or delivering them for shared use of a community may be particularly effective in case of relatively cheap products when selling them would not pay the effort of finding a customer.

3. Social Network approach for sharing services

The sharing economy can be improved by autonomous intelligent agents. Technology allows obtaining a more efficacy and effective approach in terms of necessary services and goods and resources provided under the common constraints of users and providers, and optimizing also resources under the issue of sustainability. According to the approach already proposed in (Ferri, 2014), in the services sharing community three different levels of knowledge management should be involved: knowledge on the community members, domain knowledge (the knowledge on the different kind of services) and the operational knowledge for supporting choices and decisions.

The community knowledge management is a key issue for building individual and social. ICT supports the knowledge management by a range of different tools and adaptable services (D'Ulizia A. and others 2010). Regarding the knowledge on the community members, intelligent learning agents help and assist users for

providing the best solutions for their needs and expectations and the advantages for the environment. The learning agent is characterized by a list of features considered as relevant with respect to the problem, and the users' preferences with respect to these features.

Member agent:	<i>ID</i>
Provider of the following services	<i>Car driver, Cook, ...</i>
Beneficiary of the following services	<i>House painter, ...</i>
Past services done	<i>Cook, ...</i>
Past services required	<i>Plumber, ...</i>
Satisfaction levels of past services done	<i>Cook-7-ID Beneficiary</i> <i>Cook-9-ID Beneficiary</i>
Satisfaction levels of past services required	<i>House painter-6- ID</i> <i>Provider</i> <i>....</i>

Shaping a community memory and a knowledge base of the interactions among members allows to better understand the user needs and expectations. The virtual community should be information rich, and it should allow information available for sets of people and not just for individuals.

The list of features includes services provided and requested, including timing, value given to the service and trust of the service beneficiary with respect to the service provider.

The user/provider agent maintains the history of user/provided of services/goods, containing their needs in terms of resources, involving also the time as a resource to be considered in terms of synchronization. A virtual agent, i.e. the mediator agent, will attribute resources, proposing to a user a service from a provider, based on the history of needs and resources available. The mediator agent will also contain the knowledge about the credits with mediator of any other agent and the knowledge about trust for each agent.

4. Social network model for sharing 2nd hand goods

In order to imagine a potential benefits and organizational rules of social borrowing system let's consider a model of a social network running a set of libraries distributed country-wide operated by volunteers. Libraries are selected in our example only for illustration purpose however one can imagine a 'tool lending' or 'cloth lending' as well.

To join a library network a new member may provide three sought books or pay a yearly fee. A book is considered *sought* if there is demand for that title among network readers, in other words if particular number of readers borrows this book within a period of time. Yearly fee should not be higher than 1/30 of monthly salary of the social network member. Such a practice gives

resources for buying new books or members bring their spare but popular and sought 2nd hand books.

A library can be open and operated by any social network member. Such a *librarian* declares capacity of the shelf – number of books which can be stored in his place, address and working hours. Periods when the library is available for readers do not need to be regular, e.g. Tuesdays 12:00 to 18:00 and Saturdays 17:00 to 20:00. Being a *librarian* is not a position, it is rather a mission. *Librarian* has chance to meet locals sharing his/her interests. Such a person has chance to meet, have a tea and to talk with other SN members. Personal contacts and social activity may soon become one of the main benefits in parallel to sharing and reusing 2nd hand goods. *Librarian* may not agree to keep a book in his/her library if all shelf capacity is occupied. However the state of a library shelf is visible on-line for social network members via their SN internet system.

Books can be borrowed in a limited amount by any social network member. However it is preferred that books circulate among the library network to keep each book collection dynamically changing. Thus SN members are rewarded for their work – borrowing a book from one *library* and returning it to another one. The bonus for active *couriers* could be reduction or exemption of next year membership fee. Returning a borrowed book to the same library would not add activity points to SN member account.

Books which were not borrowed for particular period of time and there were no queries representing demand for the particular title are given away or recycled to free space on bookshelves for new books. Relatively low value of individual goods (e.g. books) collected in libraries reduces the risk of thieving. Books not returned remain on SN member's account until returned like it is in case of conventional libraries.

It is important to notice that such a network organized according to above model works for social benefits, not for direct monetary profit. Accounting and administrative work is strictly limited to registering new libraries, collecting yearly fees, buying new books. In order to estimate chances and risks associated with real implementation of a national or international network of *libraries of things* a discussion was conducted in October 2015 with computer science students at Poznan University of Technology. Participants' enthusiasm was very limited about the idea. Risk factors and threads that *nobody's things* will lose their value by careless use dominated the discussion. It was very difficult to change participants' perspective from owners to givers. It might be caused by young age (22-25) of participants who tended to accumulate their possession rather than regain space at home by giving away some things which are not likely to be used again.

On contrary, in discussion with a group of people aged 35+, mainly parents, we had quite positive attitude. In practice everyone confirmed that s/he had some spare things at home which will probably never be used again. Those items are too good for trashing and often worth too little to consider selling them on internet auctions. Giving the objects for charity purpose seems the only chance for a new life for the 2nd hand objects. Debaters pointed to the fact that giving things to a 2nd hand bank is like sharing memories. Some people pointed similarities of

proposed sharing economy to gift economy movement (see: https://en.wikipedia.org/wiki/Gift_economy). Older participants of discussion paid visibly less care about whether other people will treat borrowed things well then students mentioned in previous paragraph. Doubts were expressed whether the exchange system can be kept alive for long only by volunteers. Some organizational patronage was suggested, for instance an NGO might play the role.

Even such a short interview with two groups shows differences in perspective on possession and the need to keep owned things at home. Young people seemed more oriented on possessions while people aged 35-45 were more likely to share and considered this concept even a chance to try things that other people used. Sharing new or used objects for some of us may be a substitute of sharing our own happiness.

5. Conclusion and Future Works

This paper discusses of the issues arising from the Social Networks and Sharing Economy. In particular it discusses on the fact that sharing goods and services is going to underline some criticisms, such as time, trust and the need of managing the resource sharing for facing these criticisms. Moreover sustainability is a crucial issue, both in terms of environmental, as well as social sustainability; therefore an example of a model providing organizational rules of social borrowing system of a social network which aggregates a set of libraries distributed country-wide operated by volunteers.

References

- Amóros J, Moska D, and Singer S. *Global Entrepreneurship Monitor (GEM): 2014 Global Report*. Accessed 05/16/2015.
- Belk, R. a. *Sharing versus pseudo-sharing in Web 2.0*. *The Anthropologist*, 18, 1, 2014, pp. 7-23.
- Belk, R. b *You are what you can access: Sharing and collaborative consumption online*. *Journal of Business Research*, 67, 8, 2014, pp.1595-1600.
- Belleflamme P, Lambert T, & Schwienbacher A, *Crowdfunding: Tapping the right crowd*. *Journal of Business Venturing*, 29, 2014, pp.585-609.
- Botsman R, & Rogers R. *What's Mine Is Yours: The Rise of Collaborative Consumption*. New York, NY: HarperBusiness, 2010.
- Bulow J., *An Economic Theory of Planned Obsolescence*, *The Quarterly Journal of Economics*, vol. 101, issue 4, 1986, p. 729-749.
- D'Andrea A, Ferri F, Grifoni P, *SNeM2S: a Social Network Model for Marketing Strategies*. *International Journal of E-Business Development*, World Academic Publishing, Vol. 2 No. 3, 2012, pp. 103-110.
- D'Ulizia A, Ferri F, Grifoni P.: *A similarity assessment method for discovering and adapting business services*, *International Journal of Computational Science and Engineering*, Inderscience Publishers, Vol. 5 No 2 2010, pp. 97-109.
- Ferri F, D'Andrea A, Grifoni P, *IBF: An Integrated Business Framework for Virtual Communities*. *Journal of Electronic Commerce in Organizations*, IGI Publishing, Vol. 10 No. 1, 2012, pp.1-13.

- Ferri F, Grifoni P, Wojciechowski A, .*SNEP: Social Network Exchange Problem*, In 2nd workshop on social and algorithmic issues in business support-knowledge hidden in ACM SIGSOFT Software Engineering Notes,39(2), 2014)
- Ferri, F, Patrizia G, and Adam W. SNEP: Social Network Exchange Problem.
- John N A, *The Social Logics of Sharing*. The Communication Review 16(3), 2013, pp113-131.
- Schor J, *Debating the Sharing Economy*, Available: <http://greattransition.org/publication/debating-the-sharing-economy> (2014) (Accessed 19th January 2015)
- Schwartz B., *The Paradox of Choice – Why More Is Less*, Harper Perennial, 2004.
- Wojciechowski A., *Models of Charity Donations and Project Funding in Social Networks*, On the Move to Meaningful Internet Systems: OTM 2009 Workshops, LNCS, Vol. 5872, Springer-Verlag Berlin Heidelberg, 2009, p. 454-463.