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The Sharing Economy: Understanding and Challenges

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Abstract

The sharing economy is the person to person (or Peer-to-Peer) economic activity that is facilitated by digital platforms. The sharing economy concept strengthens the innovation perspective. Thanks to new technological platforms (especially social media), especially city citizens have gained the power to call and track a ride, rent out their homes, and share goods. The global revenue from sharing economy companies is projected to increase to approximately \$335bn by 2025. Speaking of the future there is important nexus between Internet of Things and the sharing economy.

Introduction: The sharing economy boom in users and outreach is astounding. The sharing economy is impacting cities in the area of innovative technologies and business models (economic, socio-political, cultural and technological developments). On the other hand, cities make the sharing economy work and ability to grow worldwide¹. This is important because the world is increasingly urbanizing at a scale unprecedented in history, and it is estimated that more than 70% of individuals worldwide will live in cities by 2050².

Generally, sharing initiatives include peer-to-peer lodging and transportation services, time banks, goods exchanges and other forms of collaboration. The impact of sharing initiatives on economics resulted car sharing, homesharing, bikesharing, collaborative workspaces and beyond, and continues to develop and increase in popularity. Cities must embrace sharing idea in ways that work for them, balancing factors of safety, innovation, convenience and collaboration to move forward³.

The purpose of this article is to distinguish main factors of sharing economy definitions and to present theoretical and practical aspects of this phenomenon.

The sharing economy interpretation: There is lack of consensus around sharing economy definition. So the best way into the sharing economy understanding is to consider its past. The notion that sharing constitutes a distinct economy has been emerging at least since publication of a

¹ L. Hirshon, D. Levin, K. McCarthy, B. Morano, S. Simon, B. Rainwater, *Cities, the Sharing Economy and What's Next*, National League of Cities. Center for City Solutions and Applied Research, Washington 2015, p. 1.

² N. DuPuis, B. Rainwater, *The Sharing Economy. An Analysis of Current Sentiment Surrounding Homesharing and Ridesharing*, National League of Cities. Center for City Solutions and Applied Research, Washington 2014, p. 1.

³ N. DuPuis, B. Rainwater, *The Sharing Economy. An Analysis of Current Sentiment Surrounding Homesharing and Ridesharing*, National League of Cities. Center for City Solutions and Applied Research, Washington 2014, p. 8.

1978 academic paper called “Community Structure and Collaborative Consumption” about car sharing⁴. Wikipedia suggests that the term sharing economy started to appear in the mid-2000s, ascribing it to the work of Howard Benkler on shareable goods. More recently Rachel Botsman’s viral TED talk on the topic. However its emergence can be framed as a confluence of two broad mobilisations of sharing within different contexts: diverse economies and cyber (sub) cultures. Regarding the former practices of sharing might be seen as central to of post-capitalist economies (both the practice and the theory)⁵.

Coming up with a solid definition of the sharing economy is almost impossible. The sharing economy is the person to person (or Peer-to-Peer) economic activity that is facilitated by digital platforms. Other interpretation indicates the meaning of online platforms helping people share access to assets, resources, time and skills⁶. Sharing economy can be defined as an Internet mediated economic model based on sharing, trading, swapping or renting products and services, enabling access over ownership⁷. The sharing economy refers to businesses that provide consumers ability and platform to share resources and services from housing to cars, bikes and more, typically taking place with an online and/or application based business model. The sharing economy is referred to as collaborative consumption, the collaborative economy or the peer-to-peer economy⁸. Timothy Taylor, managing editor of Macalester College's Journal of Economic Perspectives prefers - the matching economy. Dieter Schlenker, chairman of Taxi Deutschland, describes it as – a locust economy⁹. It is worth mentioning that the terms sharing economy and collaborative consumption tend to be used interchangeably¹⁰, because the sharing economy concerns collective consumption¹¹. Four cases from the sharing economy can be considered: a time bank, a food swap, a makerspace and an open-access educational initiative¹².

⁴ E. Newcomer, *The Sharing Economy: Friend or Foe?*, <https://newsletters.briefs.bloomberg.com/document/4vz1acbgrxz8uwan9/what-it-is> [Access: 06.15.2015].

⁵ L. Richardson, *Performing the sharing economy*, “Geoforum” 2015, Vol. 67, p. 123.

⁶ L. Richardson, *Performing the sharing economy*, “Geoforum” 2015, Vol. 67, p. 122.

⁷ Ch. J. Martin, P. Upham, L. Budd, *Commercial orientation in grassroots social innovation: Insights from the sharing economy*, “Ecological Economics” 2015, Vol. 118, p. 240.

⁸ N. DuPuis, B. Rainwater, *The Sharing Economy. An Analysis of Current Sentiment Surrounding Homesharing and Ridesharing*, National League of Cities. Center for City Solutions and Applied Research, Washington 2014, p. 1.

⁹ J. Rossa, *The Sharing Economy By Any Other Name*, <https://newsletters.briefs.bloomberg.com/document/4vz1acbgrxz8uwan9/naming-conventions> [Access: 06.15.2015].

¹⁰ Ch. J. Martin, P. Upham, L. Budd, *Commercial orientation in grassroots social innovation: Insights from the sharing economy*, “Ecological Economics” 2015, Vol. 118, p. 240.

¹¹ On the other hand crowdsourcing and crowdfunding provide two interesting examples of collaborative production. *OECD Digital Economy. Outlook 2015*, OECD, 2015, p. 59.

¹² J. B. Schor, C. Fitzmaurice, L. B. Carfagna, W. Attwood-Charles, *Paradoxes of openness and distinction in the sharing economy*, “Poetics” 2015 (Article in Press), p. 2.

Figure 1. Sharing economy business models

		Type of Provider	
		Peer to Peer	Business to Peer
Platform Orientation	Non-Profit	Food Swaps, Time Banks	Marketspaces
	For-Profit	Airbnb	Zipcar

Source: J. Schor, *Debating the Sharing Economy*, Great Transition Initiative. Toward a Transformative Vision and Praxis, October 2014, p. 4.

The sharing economy term is very often used to refer to collaboration that results in efficiency - the efficiency economy that is the network of collaborative consumption and/or collaborative creation¹³. The sharing economy strengthens the concept of innovation. Thanks to new technological platforms (especially social media), citizens have gained the power to call and track a ride, rent out their homes, and share goods. Sharing economy services have also presented cities with complex questions. The greatest challenge for any city is finding an equilibrium between embracing these platforms, as well as the various benefits they offer to residents and visitors, and regulating them in the name of safety and responsibility. In the context of the sharing economy, being receptive to innovation has become the gold standard for any city¹⁴.

The sharing economy market: The commissioning of the report itself is an indication of the current hype around the sharing economy in Western Europe and North America, also exemplified in Pricewaterhouse Cooper’s valuation of the global sharing economy at £9bn, with a predicted rise to £230bn by 2025¹⁵. The global revenue from “sharing economy” companies, according to the report, in 2015 was estimated at \$15bn, and that figure’s projected to increase to approximately \$335bn by 2025 - despite the trust issues¹⁶.

Consumers who use sharing economy business models are often more comfortable with transactions that involve social interactions than traditional methods of exchange. Airbnb provide travelers with the ability to connect with local hosts and receive travel tips in a personalized fashion. Ride sharing services such as RelayRides and Lyft depend on users being comfortable trusting strangers to complete their journey safely¹⁷.

¹³ A. Killeen, *The Confluence of Bitcoin and the Global Sharing Economy* [in:] *Handbook of Digital Currency. Bitcoin, Innovation, Financial Instruments, and Big Data*, ed. D. Lee Kuo Chuen, Elsevier, Amsterdam – Boston 2015, p. 489.

¹⁴ L. Hirshon, D. Levin, K. McCarthy, B. Morano, S. Simon, B. Rainwater, *Cities, the Sharing Economy and What’s Next*, National League of Cities. Center for City Solutions and Applied Research, Washington 2015, p. 6.

¹⁵ L. Richardson, *Performing the sharing economy*, “Geoforum” 2015, Vol. 67, p. 122.

¹⁶ M. Mondon, “Sharing Economy” Could Reach \$335 Billion by 2025, But Will It Get a New Name?, <https://nextcity.org/daily/entry/sharing-economy-to-reach-335-billion-by-2025> z dn. 14.04.2015.

¹⁷ *The Sharing Economy*, Consumer Intelligence Series, PricewaterhouseCoopers, 2015, p. 15.

Table 1. Groups of innovation within the sharing economy

Groups of innovation	Examples of sharing economy platforms	Description
Accommodation sharing platforms	Airbnb	A P2P marketplace for people to rent out residential accommodation (including homes) on a short term basis.
Car and ride sharing platforms	Uber Zipcar	P2P platform providing taxi and ridesharing services. A business-to-consumer vehicle rental platform offering per hour rental of vehicles located within communities.
P2P employment markets	PeoplePerHour and Taskrabbit	P2P marketplaces to micro employment opportunities (i.e. piecemeal contracts or hourly work).
P2P platforms for sharing and circulating resources	Freecycle Peerby and Streetbank Ebay	A P2P platform which enables people to freely and directly give unwanted and underutilised item to others in their local area. P2P platforms which enable communities to freely share durables goods, skills and knowledge. An online marketplace for people to sell their second-hand items to others.

Source: Based on: Ch. J. Martin, *The sharing economy: A pathway to sustainability or a nightmarish form of neoliberal capitalism?*, “Ecological Economics”2016, Vol. 121, p.152.

Ridesharing is typically recognized as a one-time transaction where someone who needs a ride is matched with a nearby driver and is shuttled to a destination. This service is distinguished from traditional for hire transportation service by the fact that ridesharing vehicles are the personal vehicles of the operators (i.e. UberX, Lyft and Sidecar), who are generally non-professionals providing rides on a part-time basis¹⁸. This situation caused that the automotive industry recognized the sharing economy as an early threat and adopted the model where it was applicable. Today, many car manufacturers now run their own car-sharing operations and others have made strategic investments in new entrants - such as Avis in Zipcar and BMW in JustPark¹⁹.

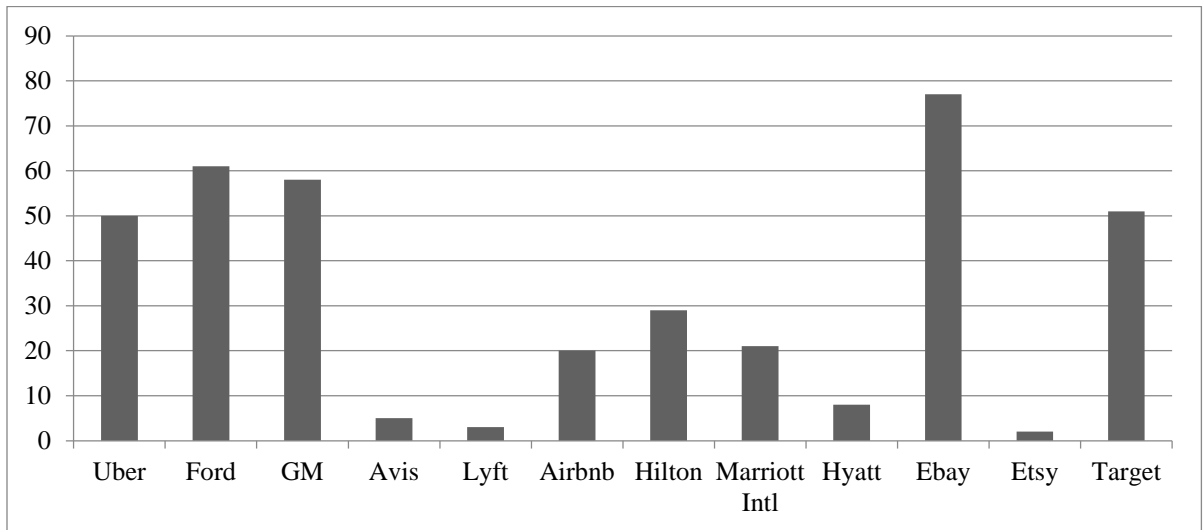
Home sharing is recognized as an organized agreement between two sides, in which one side rents out all or part of his or her home to another side on a temporary, one-time basis. While these two industries are not necessarily representative of the full range of services offered using

¹⁸ N. DuPuis, B. Rainwater, *The Sharing Economy. An Analysis of Current Sentiment Surrounding Homesharing and Ridesharing*, National League of Cities. Center for City Solutions and Applied Research, Washington 2014, p. 1-2.

¹⁹ *The Sharing Economy*, Consumer Intelligence Series, PricewaterhouseCoopers, 2015, p. 28.

collaborative models, the policy discussions related to ridesharing and home sharing reflect the current sentiment for this emerging economy²⁰.

Chart 1. Sharing economy and traditional economy companies (Valuation/Market Cap \$bn)



Source: E. Newcomer, *The Sharing Economy: Friend or Foe?*, <https://newsletters.briefs.bloomberg.com/document/4vz1acbgfrxz8uwan9/what-it-is> [Access: 06.15.2015].

Airbnb is an home sharing example of centralized sharing platforms for common goods and services whose utility may be measured and priced by common units: hours, days or distance. The acquirer can easily asses the quality of these resources and their ranked preference for these resources. Importantly, each resource’s accessibility is made clear to users through the public marketplace. Consider Airbnb’s searchable marketplace and transparent calendar of availability tool. As a result, procurers may easily estimate the future accessibility of preferred resources. Ability to simply evaluate personal preference for a resource, as well as the future accessibility of that shared resource permits an individual to forgo resource ownership and choose resource access sharing²¹.

Presently, Airbnb is valued at \$13 billion, more than mature players such as Hyatt or Wyndham Worldwide. The company booked stays for 20 million travelers in 2014, operating with about 1,500 employees in 20 cities worldwide³. It has helped pioneer a market that is radically changing consumer hospitality preferences and behaviors²².

²⁰ N. DuPuis, B. Rainwater, *The Sharing Economy. An Analysis of Current Sentiment Surrounding Homesharing and Ridesharing*, National League of Cities. Center for City Solutions and Applied Research, Washington 2014, p. 1-2.

²¹ A. Killeen, *The Confluence of Bitcoin and the Global Sharing Economy* [in:] *Handbook of Digital Currency. Bitcoin, Innovation, Financial Instruments, and Big Data*, ed. D. Lee Kuo Chuen, Elsevier, Amsterdam – Boston 2015, p. 490.

²² *The Sharing Economy*, Consumer Intelligence Series, PricewaterhouseCoopers, 2015, p. 23.

On the example of AirBnB it is easier to show three key elements of the sharing economy. Firstly, the company is paradigmatic in offering an online platform: a digital intermediary that reduces the costs of connecting a diverse array of potential consumers and producers. The hypothetical impact of this is that, assuming relatively constant demand, supply is able to increase meaning that prices can decrease. Thus AirBnB has very quickly built up a greater choice of rooms in terms of location, price and amenities, than many global hotel chains. This is connected to the second element of the sharing economy: it is peer-to-peer. This means that AirBnB hosts are also travellers, or more generally that client and service provider are (theoretically) interchangeable. Thirdly, AirBnB is access-based: it is premised upon the ability to buy access to a resource or service for a period of time. This criterion would exclude peer-to-peer marketplaces in which products are purchased for ownership²³.

The sharing economy challenges: There exists a complementary nature between the three movements of (a) bitcoin, the cryptographic currency²⁴, (b) the Sharing Economy, the network of collaborative consumption and the network of collaborative creation, and (c) connected autonomous devices, commonly referenced as the Internet of Things. The technical infrastructure, underlying psychology of each network, and the cultural incentive are similar or shared by these three named movements²⁵.

Table 2. The sharing economy and the future scenarios

Description	Nexus
Lost city revenue	Sharing economy Smart cities Autonomous vehicles
Renewable energy	Sharing economy Renewable energy Nanotechnology
Energy Internet	Sharing economy Internet of Things Renewable energy Nanotechnology
Resource consumption	Sharing economy Autonomous vehicles Maker economy Circular economy 3D printing Renewable energy Nanotechnology
Logistics Internet	Sharing economy Internet of Things Autonomous vehicles

²³ L. Richardson, *Performing the sharing economy*, “Geoforum” 2015, Vol. 67, p. 122.

²⁴ Bitcoin issues will not be further analyzed in this article.

²⁵ A. Killeen, *The Confluence of Bitcoin and the Global Sharing Economy* [in:] *Handbook of Digital Currency. Bitcoin, Innovation, Financial Instruments, and Big Data*, ed. D. Lee Kuo Chuen, Elsevier, Amsterdam – Boston 2015, p. 489.

Source: *The future agency*, Tata Consultancy Services Limited, <http://thefuturesagency.com/wp-content/uploads/2015/05/Intersections-Amplify-Disruption.pdf> [Access: 05.2015].

The sharing economy and the Internet of Things represent phenomena that share a common idea: moving away from central control of processes to self-organised peripheries²⁶. While use of the Internet as a digital platform has enabled the creation of the sharing economy, the ability to connect any smart device or object is enabling the Internet of Things having a profound impact on multiple sectors of the economy. In the coming years, billions of devices will be connected to the Internet. While the vision of smart, communicating objects has been around for decades, the smartphone revolution has made it possible. Smartphones and tablets provide an easy interface through which people can interact with connected devices and objects²⁷.

The Internet of Thing is a network of objects such as aircraft, automobiles, construction sites, manufacturing plants, medical equipment, property and wearable sensors, which can be sensed, controlled and managed through the Internet²⁸.

The nexus between Internet of Things and Sharing Economy means smart devices and digital services that help users share physical resources. Now we can locate, unlock, and track shared cars, bikes, and even umbrellas on a rainy day²⁹. Internet of Things is striving for computers to organize and communicate among themselves autonomously without human intervention. And the sharing economy points toward a similar development, except here it's about people, not computers³⁰.

Conclusion: The sharing economy is growing at an impressive rate across the globe. From the demand side, there are areas in which sharing is coming to life. People are willing to share just about everything today. Additionally the sharing economy has been forced by exciting new technologies. The ease with which individuals, can now connect, exchange, share information, and cooperate is truly transformative.

It seems the sharing economy will be the next stage in the evolution of fundamentally restructuring how economies work. Sharing business models have emerged in key sectors of the economy, including goods, professional services, transportation or space.

The emerging sharing economy is particularly interesting in the context of cities that struggle with population growth and increasing density. While sharing vehicles promises to reduce inner-city traffic or congestion. Given the rapid growth of the sharing economy, particularly in municipal

²⁶ T. Mallee, *Social economy vs. Internet of Things - How logistics is joining the sharing economy*, <http://www.logisticsit.com/blog/2015/09/29/social-economy-vs-internet-of-things-how-logistics-is-joining-the-sharing/> [Access: 09.29.2015].

²⁷ *OECD Digital Economy. Outlook 2015*, OECD, 2015, p. 60.

²⁸ T. Sammut-Bonnici, *Preparing for the Third Wave: The Sharing Economy and the Internet of Things*, <https://www.linkedin.com/pulse/preparing-third-wavethe-sharing-economy-internet-tanya-sammut-bonnici> [Access: 11.03.2015].

²⁹ *The sharing economy meets the Internet of Things*, <http://www.nordicstartupbits.com/2015/11/10/the-sharing-economy-meets-the-internet-of-things/> [Access: 11.10.2015].

³⁰ T. Mallee, *Social economy vs. Internet of Things - How logistics is joining the sharing economy*, <http://www.logisticsit.com/blog/2015/09/29/social-economy-vs-internet-of-things-how-logistics-is-joining-the-sharing/> [Access: 09.29.2015].

environments, insights from this research may help shed light on the future evolution of the sharing economy in smart and sustainable city initiatives around the globe.

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