

SHARING ECONOMY: CAR SHARING SYSTEMS

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Abstract: The basis for the development of the sharing economy is that certain of our objects are unused most of the time, they just take up space, and in many cases their ownership involves unnecessarily high costs. This encouraged people to save and look for cheaper solutions, which could also result in an alternative source of income. As a result of this new approach, we become more environmentally conscious customers and the realization of sustainable consumption becomes possible. The sharing economy has appeared in several industries and achieved significant results in the last few years, but the mobility industry is the area that can boast the most significant results.

Keywords: *sharing economy, carsharing, environmental impact*

1. INTRODUCTION

The term "sharing economy" is not a new concept, but it was only in the late 2000s that its use became widespread. The European Commission's 2016 European Agenda for the Sharing Economy states that "The term 'sharing economy' refers to a business model in which activities are facilitated by collaborative platforms that create an open access marketplace for the temporary use of goods and services, often provided by individuals." [1].

After the turn of the millennium, the widespread use of the internet and the development of infocommunication technologies allowed the emergence of social networks, advanced mobile devices and platforms, and online payment systems that have led to the foundation and rapid spread of the sharing economy.

In addition to technological developments, changes in the economic environment have also played a significant role in the emergence of the sharing economy. In the aftermath of the 2008 global economic crisis, rising unemployment and falling household incomes encouraged people to make more rational use of their financial resources. People have realised that they can generate additional income by sharing their unused assets on digital platforms.

Technological and economic changes, social influences have had a significant impact on the spread of the sharing economy. As globalisation has increased, consumer needs and habits have changed. Whereas previously, the possession of objects was the primary concern of the consumer, with the spread of the sharing economy, access, i.e. use, is becoming more important. Because of this new approach, we are becoming more environmentally conscious consumers and sustainable consumption is becoming possible [2].

The sharing economy started to grow significantly in the early 2010s, and TIME magazine included the term in its compendium of the most important trends shaping the

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future. Because of this growth, in a short period, more than half of the US population was using some kind of sharing economy platform [3].

Within the frame of this article, the authors describe the most important potentials of car sharing solutions, as an important application of the sharing economy, focusing on the existing models and systems worldwide and in Hungary.

2. CORE FACTORS OF COMMUNITY-BASED ECONOMICS

The rapid spread of the sharing economy has been made possible by the technological, social and economic changes affecting different markets and territories on a global scale (Fig. 1).

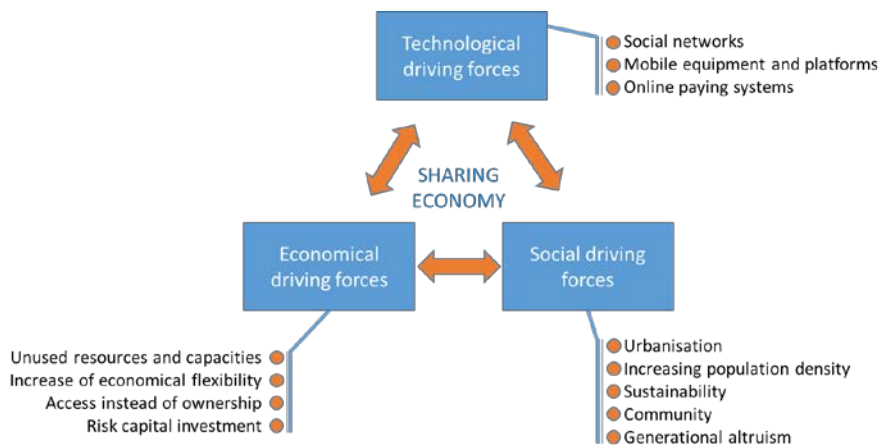


Figure 1. Driving forces of the sharing economy [2]

The social factors behind the spread of the sharing economy include the growing population, with the obvious consequence of increasing the demand on our natural resources. With a growing population, we are not only talking about a growing population, new births, but also an increase in life expectancy thanks to ever improving technologies and advances in medicine. The current average life expectancy is somewhere around 79 years, but a list of life expectancies for countries around the world shows that this number increases or decreases depending on how developed a country is. For example, Japan currently tops the list at 83.7 years, while most African countries are at the bottom of the list at 50-53 years. We are already pushing the limits of the Earth's ecological carrying capacity and natural resources. The sharing economy and the collaborative consumption that underpins it could be a solution. While in normal consumption individuals, maintaining exclusive access, pay the full cost of a good here, collaborative consumption is the shared use of a good or even a service by a small or large group [4]. Although decades ago, solutions to protect the environment were entirely common activities, we have become more indulgent thanks to our accelerated society and evolving solutions and technologies. Although we have Generation Y to thank for the opportunities, it is Generation Z who has started to re-engage with the issue in their everyday lives, are more open to change and are more serious about keeping our planet alive, and therefore use these solutions more often.

In a 2013 paper, Owyang mentions that guests who use Airbnb say that they mostly choose this booking solution because it allows them to build closer relationships and meet new people, thus we can conclude that people prefer to do business with each other rather than with faceless brands [5].

The sharing economy is based on transparency for both buyers and sellers. By providing detailed information, it helps to build trust and create a deal. It is always necessary to provide accurate information on the various platforms, and if you already have a name, social media and the various social networks can provide a description of individuals. Both the advantage and the disadvantage of this mechanism is that the reviews provided by individuals can be read by anyone.

Economic factors would play an important role in the spread of the sharing economy. The products we own spend most of their time unused. The sharing economy is about making use of this idle time. From the customer's point of view, the products and services offered by the sharing economy are significantly cheaper, making this type of opportunity much more economical. The seller -which is a service rather than a product - buys the product or products necessary to provide the service once, earns revenue as it is used again and again, and can therefore generate additional revenue. People who could not previously afford the more expensive products now have the opportunity to borrow from those who have so many resources. This is how our world is becoming a world of access rather than possession. Whether we look at the global crisis of 2008 or the one we are in today, people are looking for alternative ways to generate income. They are trying to take advantage of currently under-utilised resources, while others are renting or borrowing items instead of buying new products to spend less, thus compensating for the difficulties caused by the crisis.

Technological factors play an important role in the spread of the sharing economy. Compared to the 2000s, the growth of digitalisation and technological advances have reduced the cost and risk of bringing different platforms and applications to market. As a result, IT solutions are at the forefront of the drivers. This also includes the fact that electronic payment methods have made transaction processes simpler, more transparent and easier to monitor.

The first and most important technological driver is the social network. It is a major contributor to the development of the sharing economy, creating a link between supply and demand that was not possible to this extent before. Feedback and ratings allow trust to be built between buyer and seller. Thanks to technological advances, smartphones are creating a place of sale. Most of these businesses establish a relationship through platforms and apps.

Electronic payment systems are a major driver for the development of the sharing economy. However, it is not only the simplification of payments that contributes to this, e-commerce solutions and online payment methods offer a key security solution. The integrity, validity and traceability of information, as well as the authenticity of transactions and the reliability of the system, create an unquestionable climate of security and trust. For this very reason, all companies operating online must pay special attention to software protection (encryption, firewalls, etc.). One important technological element in the spread of the sharing economy is the spread of Internet use. According to a summary of the International Telecommunication Union, Internet use is the most widespread in Europe. Globally, almost half of the world's population, 47.1%, use the Internet, compared with only 25.1% of people in African regions.

Asset sharing and the economic solutions based on it have been used for centuries, but what makes a significant difference between the current and the old system is the way they meet. Interconnection between individuals has become completely independent of distance, and the barriers to it have been significantly reduced thanks to technological progress. Both parties to the transaction are therefore more likely to find each other. To solve this problem, an infinite amount of data and its analysis is needed, which Big Data analytics can provide [6].

Environmental factors play an important role in the spread of the community economy. The guidelines for environmentally conscious production include working exclusively with renewable resources, using raw materials found in their natural habitat, thus reducing pollution.

Today, the spread of environmentally conscious consumption habits is driven by our impact on the environment, striving to create a sustainable future. Various sharing solutions aim to increase the useful life of products, thereby reducing their negative impact on the environment. The tools are resale, rental, leasing and shared ownership. It can therefore be said that the sharing economy is a major contributor to environmental protection [7].

According to a European Commission analysis, of the approximately 1 billion cars currently on the world's roads, 740 million are used by only one person, underlining the fact that the sharing economy offers huge potential for the mobility industry. Over the last few years, we have seen the emergence of more sharing and access-based travel solutions. Younger generations are increasingly viewing cars as a means of transport rather than as status symbols to be owned, with high maintenance and usage costs [8].

3. COMMUNITY-BASED ECONOMICS IN HUNGARY

In Hungary, one of the most common forms of sharing economy is community-based agriculture, a cooperation in which farmer and buyer form a community by helping each other. The idea is that in return for long-term cooperation, consumers receive healthy, high-quality food from a reliable source. There are currently 15 such farms in our country, with more than 1000 members, brought together by the Conscious Shoppers' Association.

In practice, this is done by farmers agreeing to provide fresh food, be it meat, eggs, quality fruit or vegetables, to members of the community for 10 out of 12 months, with most farms taking a 'break' during the winter months. In return for a flat-rate fee, those waiting to receive these products at local collection points or even in their homes. The farms currently operating are located in the Budapest area and deliver to Mosonmagyaróvár, Szeged, Balassagyarmat, Debrecen, Hajdúböszörmény, Székesfehérvár, Kecskemét and of course Budapest [9].

Over the past few years, we have seen an increasing trend towards sharing and access-based travel solutions. Car-sharing is now a well-known term not only in the US but worldwide, and although it has entered the public domain, it is treated rather broadly [10]. Carsharing can refer to services such as Mol Limo or GreenGo, to services such as Turo in the US, where people rent cars to each other, or even to Uber, a community taxi solution. A similar example is Oszkár, which is more common in Hungary, where the idea is to get from a given place to a given place, but in each case from city to city, in the comfort of a car, for a relatively low price, the price of a train ticket or less.

Carsharing is nothing more than the shared use of jointly owned road vehicles, typically a car, but also a small bus or motorbike, for a period of time. The focus here is no longer on

the product but on the service surrounding it. The system provides a service that offers the possibility to use a car without the obligation of ownership. The process is a well-regulated, commercial service that forms a transition between public and private transport modes [11]. Its aim is to achieve social and environmental impacts and maximise the use of our resources rather than to be commercial or financial. Its mission, vision and values are in the interest of the future of its users, reducing emissions [12].

For short-distance transport in Hungary, business-related models have been the first to spread. Avalon, Mol, GreenGo or Share now use a smartphone application to allow their customers to pick up and drop off cars anywhere within a defined area, so that each vehicle can be used by several people. In all cases, however, the service company has to pay for the rental, as only vehicles owned by the company can be used with these solutions [13].

The Share Now, is said to be the largest car-sharing fleet in Hungary today, with 500 company-owned vehicles available for users. The company is still in its infancy, with a steady increase in the number of existing models. With this solution, too, a car can be rented from a few minutes to a whole day. Its service area currently covers more than 100 square kilometres in the districts of Budapest, but from June 2022 it has also targeted neighbouring municipalities such as Dunakeszi, Budaörs and Budakalász. The expansion more than likely didn't stop there, as the number of users has increased by 200% in the last period, with business usage quadrupling. In Budapest, a car-sharing car can replace up to 7-10 cars, reducing traffic and congestion, and freeing up parking spaces. Companies operating in Budapest could replace up to 10,000 parking spaces with a total of 1,250 shared cars, if people were willing to give up ownership [14].

It is not yet widespread in Hungary, but there is a car-sharing model such as P2P, or peer-to-peer, which differs from the above-mentioned models only in that it involves renting out cars that you own, thus increasing the utilisation of cars. The service therefore works like Airbnb. The advantage and disadvantage of this is that the company is not responsible for cleaning and car maintenance. It is the responsibility of the renter to return the car in a condition that he or she would like to use the next time. In Hungary, if you want to rent a car, you don't pick up the four-wheeler in a deserted car park or on the side of the road with the help of an app, but you must always meet the owner face to face. This was necessary from a psychological point of view, because it is more conducive to people's conscience even subconsciously. If you know that you will have to return the rented vehicle in a few days' time, without having to look the owner in the eye again, you will be much more likely to take care of it, avoiding any mishaps if possible.

P2P car-sharing is based on the underutilisation of cars, in the face of the fact that the car is one of the most expensive assets. According to a 2016 survey, four-wheelers in Hungary spend on average 95.65 percent of their time unused. This can be determined by looking at the average mileage, which according to the 2016 Bosch survey is 16,000 kilometres, and comparing this with the average speed of the population, which according to the KSH is 42 km/h. This shows that a car is on the move for an average of 381 hours a year. Based on a 2018 survey, this was 17,000 kilometres, so calculated as 404 hours a year the car is on the move, but this still only reduced the under-utilisation to 95.39%.

According to 2019 data, the various forms of car-sharing are available in 59 countries in 3,128 cities around the world, employing around 236 operators.

According to Movmi, the number of cities offering car sharing increased by 47% between 2018 and 2019, demonstrating the market demand for carsharing [15].

Of course, it is not always worth choosing these options. If one is driving a lot, paying per minute will not be an advantage, even with the various discounts, packages or season tickets. Everyone should consider when it is worthwhile to use car-sharing, but for short, occasional trips it is definitely worth using it.

4. SUMMARY

The spread of the sharing economy is increasingly visible today, which can be explained by technological, social and economic factors. The sharing economy has emerged in several industries and has made significant progress in the last few years, but the mobility industry is the one that has made the most significant progress. In this paper, we have reviewed the drivers of the sharing economy and its situation in Hungary, with a special focus on car sharing systems. As our analysis shows, the car sharing solutions are important parts of the sharing economy and car-sharing solutions have important impact on sustainability of our environment. One potential future research direction of this topic is the optimization of car sharing systems from logistics point of view.

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