

SHARING ECONOMY AND MOBILE APPLICATIONS – ACCEPTANCE AND USAGE

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Abstract: This study investigates the impact of mobile applications on the sharing economy and consumer attitudes towards environmentally conscious practices. Utilising a structured questionnaire distributed via Google Forms, data was collected from 160 respondents between October and November 2023. The findings reveal a significant awareness of various mobile applications aimed at promoting sustainability, with Vinted, MOL Bubi, and Munch being the most recognised amongst users. Despite a self-reported inclination towards environmental consciousness, the study indicates a disconnect between awareness and actual usage of these applications. The results suggest that factors such as limited availability, lack of promotion, and personal preferences significantly influence the adoption of sharing economy services. Future research is recommended to expand the dataset and explore additional applications to gain a more nuanced understanding of consumer behaviour in this evolving economic landscape. This paper contributes to the discourse on the sharing economy by highlighting the challenges and opportunities presented by mobile technology in fostering sustainable practices.

Keywords: *sharing economy, collaborative consumption, mobile applications, generations*

Introduction

The majority of countries now have social, political, and economic frameworks that include the sharing economy idea. Its growth is driven by the growth of the digital platforms that enable it, and it happens in a way that frequently outpaces the relevant legal frameworks and scholarly research. Mobile applications, due to their widespread use and accessibility, have become a powerful tool for promoting environmentally conscious practices. This paper examines the sharing economy as a novel economic structure as it is used in everyday life through mobile applications, and the attitudes of consumers toward it.

The sharing economy, characterised by collaborative consumption facilitated through online platforms, has revolutionised various industries such as tourism and accommodation (Morandeira-Arca et al., 2023). It provides access to goods and services without ownership burdens, and facilitates product exchange and wayfinding strategies (Moresi et al., 2018; Ku et al., 2022). Sharing economy and the business models based on it started to explode at the end of the first decade of the new millennium. Airbnb, now a household name, was launched in 2008 and Uber in 2009.

Platforms like Airbnb and Uber have disrupted traditional markets by enabling peer-to-peer interactions and encouraging the sharing of goods and services, leading to cost savings and increased efficiency (Simic & Liem, 2023). The sharing economy's success hinges on building trust, reducing uncertainty, and maximizing product utilization through digital peer-to-peer platforms, ultimately reshaping consumption patterns and economic interactions (Acosta et al., 2022). Furthermore, the sharing economy's disruptive nature challenges traditional business models, emphasizing the role of startups in creating value through horizontal networks and community participation, especially in the food industry (Toivola, 2018; Mucelin & Durante, 2018). These studies collectively underscore the significant impact of mobile applications on reshaping consumer behaviours, enhancing sustainability, and fostering innovative business models in the sharing economy.

In this study we set out to introduce usage and attitudes of Hungarian consumers of various collaborative online platforms. In the next sections, after a brief literature review, followed by a Materials and Methods section, we present results and discussion, and the paper is finalized by conclusions and recommendations.

Literature Review

The demand for environmentally conscious behaviour has become increasingly important due to the alarming environmental consequences of traditional consumption-production attitudes. As a result, there is a growing interest in exploring alternative approaches to promote sustainability. One such approach is the intersection of the sharing economy and the circular economy, which represents a promising way to explore environmentally conscious consumption and production practices.

The aim of the circular economy is to minimize the generation and emission of waste, as well as to reduce the consumption of raw materials and energy. This is achieved by designing products with a focus on circulation, where materials are used for as long as possible and waste is transformed into new resources. On the other hand, the sharing economy emphasizes access over ownership, allowing individuals to share underutilized goods with others. By combining these two concepts, we can create a more sustainable system that encourages the sharing of resources and reduces the need for new production (Hoffman et al., 2022).

Economic models based on sharing can also offer a solution to the ecosystem problems of big cities. The services cooperate with many local actors, such as local government companies, local residents and other economic and social actors and institutions. Partnerships take many forms, for example the bicycle sharing company MOL BUBI, has a direct relationship with MOL and the state-owned Budapest Transport Center (BKK), as well as indirectly with the district municipalities. GyőrBike has a direct partnership with István Széchenyi University in Győr. In the case of transport sharing services, partnerships are important, as users must provide parking spaces at pick-up and drop-off points (Czakó et al., 2019).

The sharing economy based on social consumption has many concrete forms, but they generally have in common that the emphasis is on demand-based access instead of

ownership, and that they use (P2P) solutions based on the direct connection of users, the creation of which uses Internet-based platforms (Frenken & Schor, 2017). Social media, mobile technology, and digital devices are extremely important to people's daily lives everywhere. Information technology and digitalization have revolutionized the market of goods and services alike (Mai & Tick, 2021). Hungary's digital infrastructure, which includes reliable broadband networks and cutting-edge mobile connectivity, has rapidly expanded, allowing its citizens to access information and communicate digitally with ease (Tick, 2023).

Mobile applications have become a powerful tool for promoting sustainable practices, especially in the areas of travel, waste management and the circular economy. Eco-friendly travel is one area where mobile apps can have a significant impact. Apps can promote sustainable travel behaviour and accessibility by encouraging people to use alternative modes of transport such as walking, cycling, public transport or carsharing – to reduce carbon emissions and traffic congestion (Cimsir & Uzunboylu, 2019). E-scooters are still relatively new in the field of transportation. This new vehicle type was first introduced in California, USA, in 2017 and is currently offered globally. In Europe alone, e-scooter sharing has about 20 million users, and its uptake rate is four times higher than that of bike sharing (Szemere & Nemeslaki, 2023).

Waste management is another area where mobile apps can motivate sustainable behaviour. They can contribute to the practice of reuse, they give objects a new life, thereby reducing the amount of garbage that ends up in landfills (Martín & Calvo Martínez, 2022). Food waste is a global problem today, with significant economic, environmental and social consequences. According to the Food and Agriculture Organization of the United Nations, around one-third of the food produced for human consumption worldwide is lost and wasted every year (Dwyer, 2023). Consumers play a significant role in the generation of food waste, especially in high-income countries (Ahmed et al., 2021). Some mobile applications can also help reduce household food waste. Restaurants, bakeries, supermarkets, hotels, and other businesses can save money by selling unsold but intact, fresh food at a set time or by the end of the business day, at the same time helping out their consumers. For example, in Hungary people can order food at a 40-70% discount through the Munch platform from a browser or APP (Wu & Takács, 2023).

Materials and Methods

The questionnaire required for my research was distributed using Google Forms and the answers were collected on various internet platforms. The fillings took place between October and November of 2023. In this time interval, 160 replies were collected. The questionnaire was completely anonymous and the data was only used for research purposes. The questionnaire was structured as follows:

- demographic questions, where I also asked about sensitive data such as monthly net income per capita, this is justified by the idea that the level of earnings affects people's willingness to be environmentally conscious (the demographic characteristics of the data can be found in Table 1),

- 7 questions that assess the attitude of the interviewees towards sustainability, in this part I would also like to highlight how consistent people's opinions and actions are,
- 6 questions that ask the respondents about specific environmentally conscious mobile applications, among them are lesser-known ones, but also include the most well-known ones in Hungary:
 - Vinted – sale of new and used clothes at favourable prices
 - Munch – discounted sales of still good quality food packages
 - MolBubi – community bicycle rental
 - MolLimo – community carpooling, car sharing
 - Lime – e-scooter rental
 - Rakun – returnable food packaging for home delivery

Designation	Frequency (%)	Designation	Frequency (%)
Generation		Main activity	
Silent/Great	3.8%	Work	55.0%
Baby Boomer	16.9%	Education	16.3%
GenX	20.6%	Entrepreneur	15.0%
GenY	18.1%	Retired	12.5%
GenZ	40.6%	Unemployed	1.3%
Gender			
Male	29.4%		
Female	70.6%		
Education		Domicile	
Less than lower secondary	3.8%	Capital and suburbs	45.0%
Secondary	43.1%	City	39.4%
University	53.1%	Village	10.6%
Subjective Income		Abroad	5.0%
We live in deprivation	10.0%	Household members	
We get by	35.6%	alone	14.4%
We can set aside some money	41.3%	2	48.1%
Have substantial savings	10.6%	3-4	31.3%
No answer	2.5%	5 or more	6.3%

Table 1 Demographic data (N=160)

Examining the ratio of women to men, the number of women's responses is clearly higher. It was filled out by twice as many women (111 people) as men (49 people). Also, about half the respondents live in the capital city and its suburbs and have a university education. Additionally, the older generations (especially the Veterans) are underrepresented. Due to the low number of responses, and the skewed data, the survey is not representative. The survey also did not include psychographic aspects, such as values and lifestyles.

My research questions were the following:

- How important do each generation consider sustainability, and how responsible do they feel for the deterioration of the environment?

- To what extent are the different generations receptive to alternative solutions and environmentally conscious applications that help them?

In this paper, due to the depth of the study, not all possible correlations will be presented; the primary focus will be on generations.

After the initial descriptive statistics, ANOVA test was run followed up by Tukey post hoc testing. Additionally, chi square test was utilized to analyze categorical variables and assess the independence or association between them (McHugh, 2013). For the statistical analysis SPSS was used.

Results and Discussion

3.1. Sense of responsibility for the environment

In the first part questions were relating to sustainability (on a scale from 1 = not important at all to 7 = extremely important):

- How important is sustainability to you?
- To what extent do you feel that you are also responsible for the deterioration of the environment?

On average, the respondents rated the importance of sustainability at a level of 5.50 (SD = 1.25), whereas their own responsibility for the deterioration of the environment only at a level of 4.58 (SD = 1.59) (Table 2).

		Importance		Responsibility	
	N	Mean	Std. Deviation	Mean	Std. Deviation
Veterans	6	3.83	1.33	3.67	0.82
Boomers	27	5.70	1.44	4.37	1.86
GenX	33	5.24	1.17	4.52	1.75
GenY	29	5.59	1.24	5.00	1.54
GenZ	65	5.66	1.11	4.58	1.45
Total	160	5.50	1.25	4.58	1.59

Table 2 Importance of sustainability and sense of responsibility and generations

Source: Own figures, SPSS

An analysis of variance (ANOVA) revealed that there was a significant difference between generational groups in the importance of sustainability ($p=0.006$). Based on the between subjects Tukey test, Veterans found sustainability significantly less important versus all other generations, except GenXers ($p < 0.05$). However, no significant difference could be found among the different generations in sense of responsibility (Table 3). Nevertheless, since the number of veteran responders was very low, these results might not be reliable.

	Sum of Squares	df	Mean Square	F	Sig.
Importance	21.888	4	5.472	3.718	0.006
Responsibility	11.443	4	2.861	1.132	0.343

		Mean Difference (I-J)	Std. Error	Sig.
Veterans	Boomers	-1.870*	0.548	0.007
	GenX	-1.409	0.538	0.072
	GenY	-1.753*	0.544	0.013
	GenZ	-1.828*	0.518	0.005

Table 3 Relationship between Importance of sustainability and sense of responsibility and generations, results of ANOVA and Tukey post hoc test

Source: Own figures, SPSS

Personal responsibility was also addressed in the later questions that inquired about who do they think pollutes the environment the most (Figure 3), and who should be responsible for protecting the environment (Figure 4). In both of these question individual responsibility (or the responsibility of the consumers) was ranked very low.

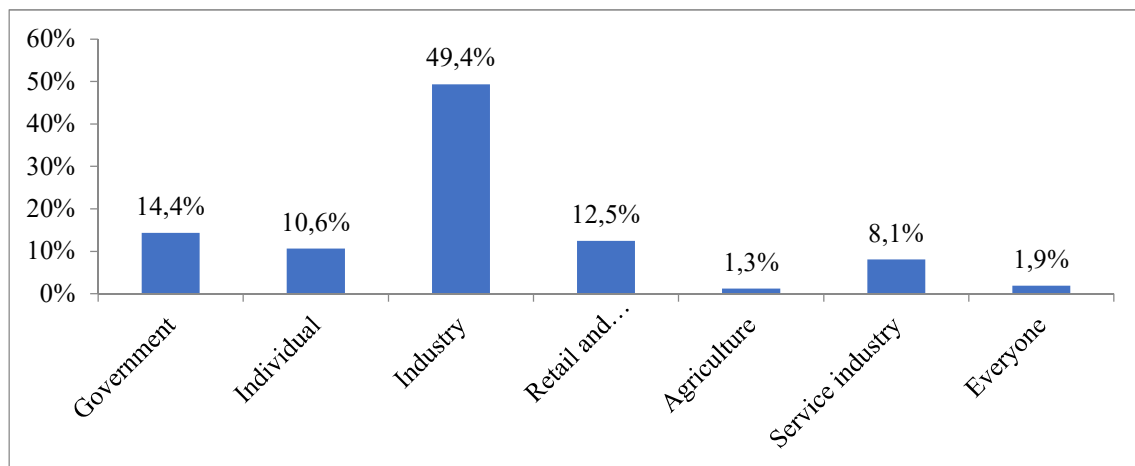


Figure 2 Who pollutes the environment the most

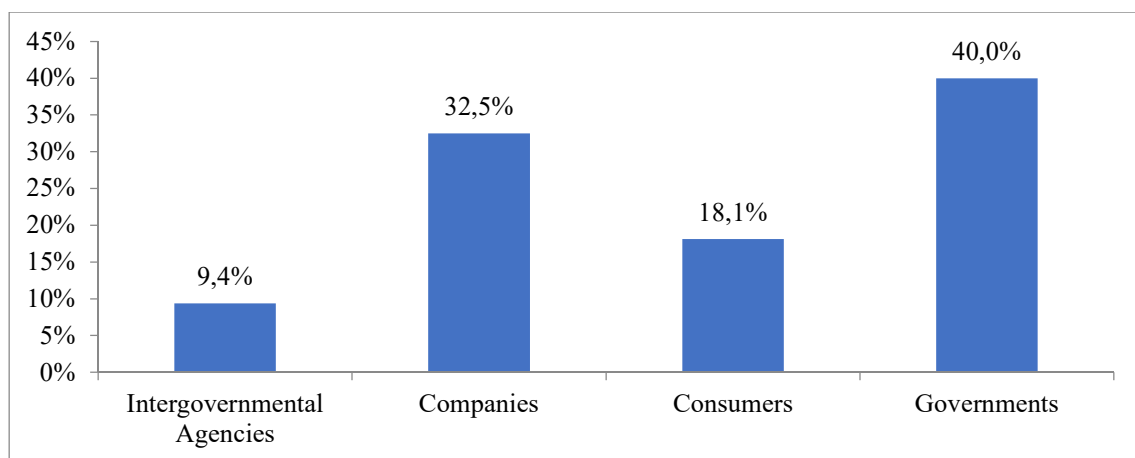


Figure 3 Who is the most responsible to act in defence of the environment

SHARING ECONOMY AND MOBILE APPLICATIONS – ACCEPTANCE AND USAGE

Only 18 percent of the respondents believe that the individual should do the most to improve the situation of the environment. 40 percent of those surveyed hold the government, 33 percent the companies, and 9 percent the international bodies (EU, UN) responsible. Thus, the majority believes that the government should first introduce regulations and decrees within the country in order to achieve a more environmentally conscious behaviour, and second it is the duty of companies to ensure that their products and services are environmentally friendly, or at least to support such initiatives.

Running chi squares test on either of these questions reveals that there are no significant differences between generations (Table 4).

	Assigned Responsibility for Pollution			Assigned Responsibility for Protection		
	Value	df	Asymptotic Significance (2-sided)	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13.798 ^a	20	0.841	13.973 ^a	12	0.302
Likelihood Ratio	14.605	20	0.799	15.735	12	0.204
Linear-by-Linear Association	0.352	1	0.553	2.019	1	0.155
N of Valid Cases	157			160		

Table 4 Relationship between assigned responsibility for pollution and protection of environment and generations, results of Chi square tests

Source: Own figures, SPSS

Note: Expected value of cells should be 5 or greater in at least 80% of cells. Since this assumption is violated the Likelihood ratio numbers should be used

3.2. Knowledge and usage of green mobile applications

Vinted is clearly the best-known mobile application among those listed (Figure 5). This can be attributed to the fact that the ads of the company that sells used clothes could be found everywhere - TV, newspapers, online advertising, influencer recommendations, in fact even those for whom this would otherwise not be relevant know about its activities. About 88 percent of the respondents know it.

Vinted is followed by MOL Bubi and lime on the familiarity list. 77 percent of the respondents stated that they know Bubi. The high rate of choice may be the result of the fact that the bike sharing app has the longest history of the listed applications in Hungary, but due to the lack of promotion and its availability only in Budapest, it slipped to second place.

60 percent of the respondents have already heard of MOL Limo as a car sharing service, so lack of knowledge is not the reason why they do not use it. Further research is needed to reveal the real reason behind this. Limo is followed by Munch, more than half of the respondents, 54 % recognized it. The least known application is Rakun, only 16 people have heard of it.

The result suggests that the respondents are not necessarily receptive to mobile applications created to protect the state of the environment, despite the fact that they described themselves as environmentally friendly in the first part of the questionnaire.

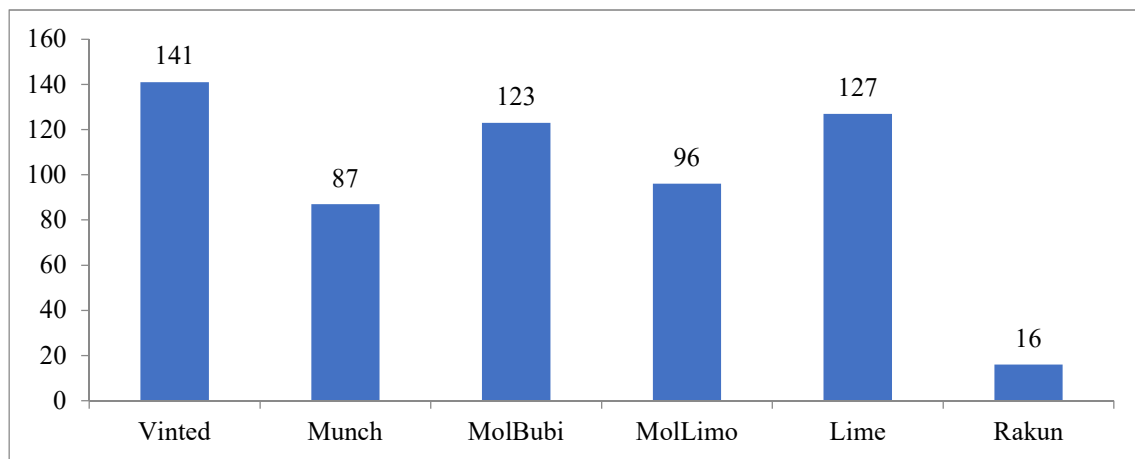


Figure 4 Which of these applications have you already heard about (number of people)

Vinted is the application that is used even on a daily basis by those filling out the questionnaire (Figure 6). Overall, 35% stated that they actually use it. Despite the fact that the Munch application is the second least known (only 54%), a reasonable proportion of the respondents, 21 percent, use the service.

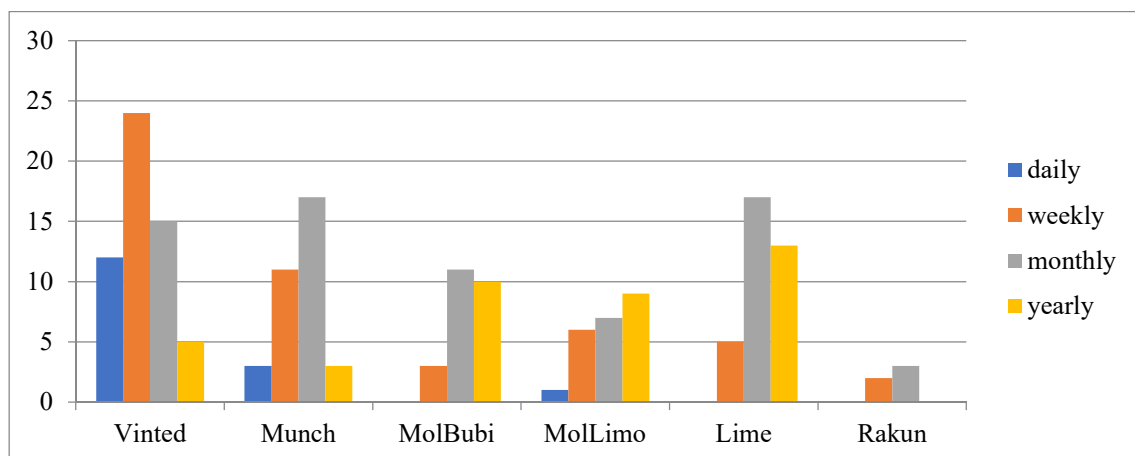


Figure 5 How often do you use these applications (number of people)

Although each subsequent generation was familiar with an increasing number of applications, there were no significant variances between the groups (Table 5).

	Mean	Std. Deviation
Veteran	3.17	1.72
Boomer	3.19	1.66
GenX	3.64	1.58
GenY	3.83	1.42
Genz	3.91	1.53
Total	3.69	1.55

SHARING ECONOMY AN MOBILE APPLICATIONS – ACCEPTANCE AND USAGE

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	12.247	4	3.062	1.275	0.282
Within Groups	372.128	155	2.401		
Total	384.375	159			

Table 5 Number of applications recognized by respondents and relationship with generations, results of ANOVA test

Source: Own figures, SPSS

In the next section, I aimed to find out, what could be the reason why people do not use mobile applications made in the name of sustainability, even though they acknowledge them (Survey question: If you don't use it, why not?). The field was not required to be filled in and an answer had to be entered in one's own words, thus a little more than a third of the respondents did not even want to answer (Table 6).

I examined the received answers, grouped them and came to the following conclusion - 106 of the 160 respondents expressed an opinion. The most common reasons being "I don't need it / I'm not interested/ I do not know them/ Not relevant". In the second group we can find the answers "I have my own car/bicycle/I cannot drive/ I use public transport". Some of these replies are closely related, since for the group that has their own car/bicycle or use the public transport it is not relevant to use MOL Limo or Bubi. Additionally, 45 percent of the respondents do not live in the capital, so it is understandable that they remarked that the service is not available in their place of residence.

Grouped answers	Number of respondents
Not available where I live	14
I do not need them	24
I do not know them	9
Not relevant/not useful	6
Not interested	5
I use my own vehicle/bike	12
I walk/use public transport	5
Can't drive/bicycle	5
Too complicated	7
Don't like apps	2
Not safe	5
Only buy new products	2
Didn't have good products	2
Don't have time	2
Use GreenGo	2
I cook for myself	2

Table 6 Reasons for not using these applications

Among the responses, some mentioned that it is too complicated for them to use the application, or that they do not like mobile applications. Some considered either the service not safe (it is not safe to travel by bicycle/roller in Budapest), or the mobile application themselves. In addition, two respondents specifically stated that they prefer to use the GreenGo, instead of MOL Limo, because of the more favourable price. Price and quality are still the main factors that influence brand switching, but social media plays a crucial

role in presenting new options and guiding consumers in their purchasing decisions (Tladinyane et. al., 2024).

Conclusion

Based on the responses to the online questionnaire, it can be stated that the respondents clearly consider sustainability important, however, they feel less responsible personally for the deterioration of the environment. Furthermore, most of the respondents assign responsibility both for environmental degradation and protection, not to the individual, but to governments and companies. This is in line with prior research (Piscitelli & D'Uggento, 2022; Adamczyk & Adamczyk-Kowalczyk, 2022).) Although, Veterans found sustainability less important, as far as personal responsibility, there were no significant differences between generations. Similarly, while younger generations are more familiar with these new green applications, no significant differences could be found in awareness.

The topic needs further research to find out what motivating factors can influence people to use environmentally conscious mobile applications. In my opinion, a greater degree of promotion would be necessary. Research has indicated that active participation in social media can result in increased levels of brand advocacy and loyalty among customers (Tladinyane et. al., 2024). Furthermore, I think it would be a good marketing tool for these companies to announce different challenges for their users, who after completing them can receive discounts, thereby encouraging a more frequent use. Additionally, many responses were received that indicated that they do not use these options because it is not available at their place of residence. If the companies were to extend their services to the entire country, the utilization of these applications would show an increasing trend.

Future research could focus on collecting a larger, more representative dataset (with a broader geographical reach and including psychographic data) and incorporating additional mobile applications for a better, more nuanced understating of the topic.

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