

# SUSTAINABILITY AND SHARING ECONOMY IN PUBLIC TRANSPORT DURING CRISIS TIME: INSIGHTS FROM CROATIA

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## ABSTRACT

*Numerous indicators show that the sharing economy in public transport, with the help of its strong flexibility as a market model, has adapted extremely well to the economic crisis caused by the pandemic. Consequently, this paper investigated the attitudes of users in the Republic of Croatia when it comes to the sharing economy as a business model used in public transport during the pandemic. The empirical research conducted in the Republic of Croatia shows that the respondents prefer to use digital platforms of the sharing economy in transport compared to conventional forms of public transport. The results of the conducted research indicate that respondents are aware of the advantages of ordering and paying for rides through digital platforms of the sharing economy in public transport. The analysis of the results of the empirical research clearly points that the respondents will not stop using public transport companies that use the business model of digital platforms of the sharing economy (Uber, Bolt) and that they will not switch to conventional forms of public transport, since conventional forms of public transport pollute the environment less with carbon dioxide emissions. The conducted empirical research indicates the uncertainty of the use of public transport after the pandemic.*

**Key words:** *sharing economy, public transport, pandemic, The Republic of Croatia.*

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## 1. INTRODUCTION

The world has changed significantly as a result of the advancement of technology for communication and information. Among other things, the sharing economy is undoubtedly one of the new paradigms that have emerged

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as a result of its development. Regarding the economy of sharing, different definitions and opposing viewpoints can be found in the literature. While the need for couriers and public transportation staff members changed significantly, these employees were still considered essential workers in many countries throughout the global epidemic. It is unclear how the global epidemic was actually affecting drivers' lives or if its consequences are contingent on the nature and obligation of the associated job.<sup>1</sup> However, it is evident that this market model is predicated on user-to-user (peer-2-peer) sharing, trading, and lending, which is primarily accomplished via different mediums, including internet pages and mobile apps. The sharing economy is primarily linked to the utilization of websites run by Uber and Airbnb for temporary lodging or as a mode of transport. Even though sharing economy services work by matching peers' supply and demand for some neglected assets, all shared assets necessitate some level of in-person communication between the supplier and the end user.<sup>2</sup> When it comes to public transportation, the sharing economy has developed into a very alluring and compelling business or market model, according to even a cursory examination. There are quite many reasons to engage in the sharing economy, including financial savings, time savings, convenience, and social benefit. It is evident that this economic model depends on having access to goods and services via sharing, renting, trading, and selling rather than ownership. Of course, the growth of communication and information technology (ICT), particularly the rise of smartphones, the Internet, and, most importantly, the online platforms of the sharing economy, has made the establishment of such an economic model attainable. Among many authors, we will mention Botsman<sup>3</sup>, who defines the sharing economy as an economic model based on the sharing of underutilized assets, whether it is a service, space or something else in exchange for compensation, whether monetary or non-monetary. Given that various definitions of the sharing economy significantly change the way of how it is calculated, it is currently very challenging to establish the overall scope of the sharing economy market. Furthermore, this has an impact on whether specific businesses are allowed to participate in the sharing economy market or not. Despite this, consulting firm PwC<sup>4</sup> estimated that in 2015 in Europe, companies generated income from the sharing economy in the amount

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<sup>1</sup> Fielbaum A. et al.: The job of public transport, ride-hailing and delivery drivers: conditions during the COVID-19 pandemic and implications for a post-pandemic future, *Travel Behaviour and Society*, 31(April) 2023, pp. 63-77.

<sup>2</sup> Nuttah, M. M. et al.: The Short-and Long-Term Impacts of COVID-19 Pandemic on the Sharing Economy: Distinguishing Between "Symptomatic" and "Asymptomatic" Platforms, *Journal of the Knowledge Economy*, 15(2) 2024, pp. 9238-9287.

<sup>3</sup> Botsman, R.: The sharing economy lacks a shared definition, 2013.

<sup>4</sup> PwC.: Assessing the size and presence of the collaborative economy in Europe, 2016.

of around four billion euros. According to the same consultancy, the global sharing economy market may exceed a value of \$335 billion by 2025. Upon examining the findings of the previously discussed study, it becomes evident why there is so much hope for the growth of the sharing economy industry. Namely, the results indicate that the main motives for participating in the sharing economy (for both service providers and service users) are: saving money, a fairly simple way to earn extra money, protecting the environment, and creating a stronger community<sup>5</sup>.

In the future, we can expect the appearance of an increasing number of platforms as well as business models that will combine supply and demand, which can have a positive effect on the further growth of the sharing economy<sup>6</sup>. While a number of research efforts have tracked how lockdowns affect the use of public transportation, comparatively few have examined how ridership levels unevenly recovered throughout the pandemic. Learning ridership recuperation is essential to predicting the effects of adjusted public transportation shipment on accessibility, the inclusion of people with disabilities, and environmentally friendly travel, as local public transportation financing is discussed in the UK and internationally.<sup>7</sup> According to some authors, adopting the sharing economy in traffic will guarantee a decrease in traffic because cars will be used more effectively. Several indicators suggest that the sharing economy in public transportation has responded remarkably well to the economic downturn brought on by the pandemic thanks to its strong flexibility as a market model. An increasing amount of research has looked at how the initial lockdowns affected travel patterns across different nations when the pandemic first started.<sup>8</sup> The goal of this paper is to investigate the attitudes of customers in the Republic of Croatia when it comes to the use of public transport regarding the sharing economy during the economic crisis caused by the pandemic.

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<sup>5</sup> Smith, A. W.: *Shared, collaborative and on demand: The new digital economy*, Washington: Pew Internet & American Life Project, 2016.

<sup>6</sup> Brozović, V. et al.: Ekonomija dijeljenja: Poslovni model budućnosti?, *Zbornik Ekonomskog fakulteta u Zagrebu*, 17(1) 2019, pp. 33-61.

<sup>7</sup> Long, A. et al.: Who is returning to public transport for non-work trips after COVID-19? Evidence from older citizens' smart cards in the UK's second largest city region, *Journal of Transport Geography*, 107(February) 2023, pp. 103529.

<sup>8</sup> Hintermann, B. et al.: The impact of COVID-19 on mobility choices in Switzerland, *Transportation Research Part A: Policy and Practice*, 169(March) 2023, pp. 103582.

## 2. SIGNIFICANCE AND IMPORTANCE OF PUBLIC TRANSPORT IN MODERN SOCIETY DURING THE PANDEMIC

Today's lifestyle, both private and business, is characterized by the constant spatial mobility of people, and thus the need for demand for different types of transportation. First of all, this leads to the increasing importance and meaning of public transport in cities. Public transportation includes city buses, trolleybuses, trams and passenger trains, subway rapid transit and ferries, as well as other transportation services. When it comes to public transport between cities, air transport, buses and intercity railways are mostly used.<sup>9</sup> Socio-economic changes in society have an important impact on functioning of public transport.<sup>10</sup> The pandemic has made environmentally friendly transportation strategies more crucial, and given the current circumstances, implementing sustainable city modes of transport has grown simpler. One of the most important factors to take into account when deciding on these measures is the monetary damage incurred by regional governments, running organizations, and governments as a result of the decline in passenger numbers.<sup>11</sup>

Now, it is completely clear that the crisis (the pandemic) has shown everyone, and confirmed once again, the great importance and meaning of public transport when it comes to ensuring mobility from the aspect of its availability and continuity.<sup>12</sup> When it came to sanitation, the abundance of areas of contact needed when utilizing public transportation and the absence of overt sanitizing amenities during travel were frequently brought up.<sup>13</sup> Naturally, this risk can be decreased by using known mitigation techniques like ventilation, social distancing, and face mask use. When it pertains to the risk of contracting the virus, it is evident that certain aspects of public transportation (such as the nature of ventilation at varying speeds, duration of exposure, length of

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<sup>9</sup> Naletina, D. et al.: Consumer satisfaction with the organization of public transport during the corona crisis, in: Baković, T., Naletina, D., Petljak, K. (eds.): *Proceedings of The International Scientific Conference, Trade Perspectives 2020: The interdependence of COVID-19 pandemic and international trade*, Zagreb: Ekonomski fakultet and Hrvatska gospodarska komora, 2020, pp. 159-183.

<sup>10</sup> Kral, P. et al.: Key determinants of the public transport user's satisfaction, *Administrativna i Management Public*, (31) 2018, pp. 36-51.

<sup>11</sup> Yildizhan, F., Bilgiç, Ş.: The Financial Impact of the COVID-19 Pandemic on Public Transportation and Sustainable Policy Recommendations: A Case Study of Eskişehir, *Gazi University Journal of Science*, 36(2) 2023, pp. 573-590.

<sup>12</sup> UITP: *Public Transport After The Coronavirus Pandemic*, 2020.

<sup>13</sup> Beck, M. J. et al.: Attitudes toward public transport post Delta COVID-19 lockdowns: Identifying user segments and policies to restore confidence, *International Journal of Sustainable Transportation*, 17(8) 2023, pp. 827-844.

travel, etc.) vary from those of other activities. Evidence from the early phase of the pandemic suggests, for example, that vehicle congestion and journey length also affect risk, so this could be used to identify particularly high-risk services and potentially enable targeted interventions.<sup>14</sup> Of course, this is not accidental, since public transport companies took measures in time to prevent the virus from spreading. In contrast, it was found that cars were a trigger for the spread of the virus in some places.<sup>15</sup> During the crisis, various aspects of public transport were investigated, including possible changes in user preferences regarding different forms of transport. The results of a survey carried out in Germany indicate that people used individual transport more. This is primarily about private cars, which was completely to be expected considering the fear caused by the pandemic, on the one hand, and on the other hand, the stigmatization of public transport associated with the same pandemic.<sup>16</sup> All of the above has had the effect that public transport as an economic activity in many countries has suffered major blows. Of course, the crisis has led to a change in consumer behavior when it comes to public transport. People have turned to less dangerous means of their mobility (bicycles, cars, etc.). Let's just mention the study done by Lock<sup>17</sup> where he proved that there were more bicycles and individual cars on the road in Sydney during the pandemic, considering the stigmatization of public transport associated with the increased spread of the virus. The question is, of course, whether any of those bicycle riders had a direct connection to a closed gym. It is evident that maintaining public transportation's appeal during and after the pandemic is extremely difficult. Specifically, maintaining public health is imperative even in the face of the pandemic's need for financial recovery. It is clear that in such conditions, public transport is faced with special challenges, since it is a closed space and there is danger close contact can bring with it. Various studies have been

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<sup>14</sup> Gartland, N. et al.: Transmission and control of SARS-CoV-2 on ground public transport: a rapid review of the literature up to May 2021, *Journal of transport & health*, 26(September) 2022, pp. 101356.

<sup>15</sup> Ardila-Gomez, A.: In the fight against COVID-19, public transport should be the hero, not the villain, *World Bank Blogs*, 23.07.2020.

<sup>16</sup> Eisenmann, C. et al.: Transport mode use during the COVID-19 lockdown period in Germany: The car became more important, public transport lost ground, *Transport policy*, 103(March) 2021, pp. 60-67.

<sup>17</sup> Lock, O.: Cycling Behaviour Changes as a Result of COVID-19: A Survey of Users in Sydney, Australia, *Findings*, (June) 2020.

done<sup>18 19</sup> which suggest that the use of public transport may play a role in the spread of the virus. However, these studies did not prove that the transmission of the virus occurred in public transport. There is another research that examines the impact of the pandemic upon the transport system as well as restarting possibilities and difficulties for the economy using public opinion information gathered from Twitter, a well-liked microblogging sites platform for discussions along with brief posts.<sup>20</sup>

At the very beginning of the pandemic, the crowds in public transport and the length of the journey could have influenced public transport to be recognized as a high-risk service for the spread of the pandemic. An analysis of almost all relevant studies published until 2021 related to the spread of the pandemic and related to the risk of transmission of the pandemic in public transport was made in 2022.<sup>21</sup> According to the previously provided analysis of pertinent research, there is a possibility that the virus could spread through public transportation, just like it may do in other settings where people interact closely with one another. Research carried out in France indicates that the transportation industry accounts for merely 1.2% of the underlying causes of virus infections. In particular, the previously mentioned studies demonstrate that the primary sources of the virus infection in France were places of work (24.9%), schools and universities (19.5%), health facilities (11%), transient public and private events (11%), and family get-togethers (7%). Given the foregoing, it is evident that a large body of empirical research and scientific investigations demonstrate that using public transportation is linked to a markedly lower risk of contracting the pandemic than using other public spaces or home gatherings. In spite of this, the stigma surrounding public transportation is frequently applied lacking a compelling case. The public's accessibility was significantly impacted by the pandemic. Numerous studies have calculated the impact of

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<sup>18</sup> Burns, J. et al.: Travel-related control measures to contain the COVID-19 pandemic: a rapid review, *The Cochrane database of systematic reviews*, 2020.

<sup>19</sup> Francetic, I., Munford, L.: Corona and coffee on your commute: a spatial analysis of COVID-19 mortality and commuting flows in England in 2020, *European journal of public health*, 31(4) 2021, pp. 901-907.

<sup>20</sup> Habib, M. A., Anik, M. A.: Impacts of COVID-19 on transport modes and mobility behavior: analysis of public discourse in Twitter, *Transportation Research Record.*, 2677(4) 2023, pp. 65-78.

<sup>21</sup> Gartland, N. et al.: Transmission and control of SARS-CoV-2 on ground public transport: a rapid review of the literature up to May 2021, *Journal of transport & health*, 26(September) 2022, pp. 101356.

restrictions on quarantine and the decline in transit use, among other ways for assessing these modifications.<sup>22</sup>

The public transport of the City of Zagreb is recording a fairly good recovery. Compared to 2020, the drop in city tram transport in the first half of 2021 was 12%, and for bus transport 15.33%.<sup>23</sup> Nevertheless, this refers to a drop in Zagreb's usage of public transportation in 2021 over 2020. In general, understanding the effect of the pandemic on the sharing economy is essential.<sup>24</sup> It is clear that the pandemic has fundamentally changed the tourism industry, and it is necessary to get out of this global tragedy by quickly transforming into sustainable tourism.<sup>25</sup>

### 3. THE ROLE OF SHARING ECONOMY IN PUBLIC TRANSPORT DURING THE PANDEMIC

It is important to note that limited access to the object and market intermediation prevent the development of appropriation practices. It is quite unquestionable that when it comes to the business model that is most often called the sharing economy, it is a market model based on sharing, exchange and lending from user to user (peer-2-peer), and this is mainly done through different platforms, either in the form of mobile applications or websites.<sup>26</sup> However, within the constraints of public transportation, some of the methods by which this new discussions of the area and other placement methods take influence and acquire on specific significance while on the move to display outstanding characteristics.<sup>27</sup> Over the past 20 years, there has been a significant increase in the economic activity of transportation, which has brought both positive and neg-

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<sup>22</sup> Pezoa, R. et al.: Estimation of trip purposes in public transport during the COVID-19 pandemic: The case of Santiago, Chile, *Journal of Transport Geography*, 109(May) 2023, pp. 103594.

<sup>23</sup> Naletina, D.: Public transportation during the COVID-19 pandemic in the city of Zagreb, *InterEULawEast: journal for the international and european law, economics and market integrations*, 8(2) 2021, pp. 29-51.

<sup>24</sup> Hossain, M.: The effect of the Covid-19 on sharing economy activities, *Journal of Cleaner Production*, 280(Part 1) 2021, pp. 124782.

<sup>25</sup> Gössling, S. et al.: Pandemics, tourism and global change: a rapid assessment of COVID-19, *Journal of sustainable tourism*, 29(1) 2020, pp. 1-20.

<sup>26</sup> Gobble, M. M.: Defining the sharing economy. *Research-Technology Management*. 2017 Mar 4;60(2):59-63.

<sup>27</sup> Kokkola, M. et al.: Missed connections? Everyday mobility experiences and the sociability of public transport in Amsterdam during COVID-19, *Social & Cultural Geography*, 24(10) 2023, pp. 1693-1712.

ative aspects of this fast and fierce progress. Because virtually everyone consents that traffic is the most significant environmental polluter as an economic activity, the negatives are mostly linked to environmental pollution. Estimates by the European Commission<sup>28</sup> indicate that transport as an economic activity will continue to grow intensively in Europe. Namely, the aforementioned study predicts that passenger traffic will increase by 42% by 2050, while freight traffic will grow by almost 60%. It is a well-known fact that the large and unbalanced growth of traffic so far has led to a large number of negative impacts on human health and the environment.<sup>29</sup> Given that cars are typically the most popular form of transportation, there is good reason to be concerned. Even though there is little proof to support the theory that made owning a vehicle more appealing to carless households, this might not have resulted in an enormous rise in mass car purchases over what would otherwise occur.<sup>30</sup> Eurostat data<sup>31</sup> indicate that in 2017, more than 70% of total trips were made by car. The same data indicate that public transport has grown significantly in the last twenty years (tram and metro +14.3%, railway + 6.2%, maritime transport – 33.3%, bus – 23.7%). Unfortunately, public transport is still considered a far worse solution than using a car. Some individual behaviour concerning using public transportation has changed as a result of the pandemic. The risk of contracting the virus, the need for social distancing, and isolation have all changed people's prior behaviours when they pertain to using public transportation, but collaborative transportation is now more prevalent. It makes sense why individuals would be more likely to use and trust their own transport in these conditions. It is also understandable to expect that ride sharing is a good choice to avoid infection with the virus, but also to avoid public transport, which is characterized by frequent congestion and the inability to maintain social distance.<sup>32</sup>

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<sup>28</sup> European Commission.: *Transport in the European Union Current Trends and Issues*, Brussels: European Commission, Directorate-General Mobility and Transport, 2019.

<sup>29</sup> European Commission: *Walking and Cycling as Transport Modes Mobility and Transport*, 2020.

<sup>30</sup> Palm, M. et al.: Facing the future of transit ridership: shifting attitudes towards public transit and auto ownership among transit riders during COVID-19, *Transportation*, 51(2) 2024, pp. 645-671.

<sup>31</sup> Eurostat: *Eurostat Regional Yearbook*, Luxembourg: Publications Office of the European Union, 2020.

<sup>32</sup> Andersson, L. et al.: *Why shared mobility is poised to make a comeback after the crisis*, Atlanta: McKinsey & Company, July 2020.

It is important to note that with this vehicle sharing, access to the use of the vehicle and not ownership of it is important.<sup>33</sup> The concept of shared mobility represents short-term access to shared vehicles in accordance with the needs and conveniences of users.<sup>34</sup> Thus, with all of its nuances, the sharing economy business concept in public transportation is growing every day. Car sharing has grown in popularity, particularly in the last several years. This should come as no surprise given the many advantages of car sharing. Even a superficial analysis of the sharing economy in public transport, i.e. shared mobility, shows that it is about the joint use of different types of vehicles (cars, bicycles, etc.), which enables users to have short-term access to different modes of transport as their short-term needs would be met. It is about short-term access to different types of vehicles such as: traditional bicycles, cars, vans, scooters, etc.<sup>35</sup> In enormous urban areas carsharing is given by huge profit situated companies, fit for offering productive and adaptable administrations, utilizing the most trend setting innovations with exceptionally separated and customized costs.<sup>36</sup>

If carsharing is not meant to completely replace the use of private vehicles with frequent usage of shared vehicles, it may encourage more people to walk, cycle, and use public transportation while decreasing the use of private vehicles.<sup>37</sup> First and foremost, we refer to car sharing when we discuss ride sharing. The objective is to lower expenses and traffic by improving car offering effectiveness. There are various forms of car sharing, ranging from renting cars that are obtainable for independent driving to services offered by private car owners, as has been mentioned multiple times in the paper. These include ride-sharing (BlaBlaCar) and transportation services (Uber, Lyft, etc.). Different models of car sharing have been developed differently in European countries. In many countries of the European Union, such as Italy, Germany, Hungary, France, the Netherlands, extremely strict regulations governing the taxi industry make it

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<sup>33</sup> Crozet, Y. et al: *Shared mobility and MaaS: The regulatory challenges of urban mobility*, Centre on Regulation in Europe asbl (CERRE), September 2019.

<sup>34</sup> Machado, C. A. et al.: An overview of shared mobility, *Sustainability*, 10(12) 2018, pp. 4342.

<sup>35</sup> Shaheen, S. et. al.: *Definitions, industry developments, and early understanding*, Berkeley: University of California Berkeley-Transportation Sustainability Research Center, November 2015.

<sup>36</sup> Rotaris, L., Danielis, R.: The role for carsharing in medium to small-sized towns and in less-densely populated rural areas, *Transportation Research Part A: Policy and Practice*, 115(September) 2018, pp. 49-62.

<sup>37</sup> Mouratidis, K. et al.: Transportation technologies, sharing economy, and teleactivities: Implications for built environment and travel, *Transportation Research Part D: Transport and Environment*, 92(March) 2021, pp. 102716.

almost impossible for car sharing, such as Uber's business model, while ride sharing is completely allowed.<sup>38</sup>

In their work, Böcker and Meelen<sup>39</sup> analyse in detail the motives of participants in the sharing economy. The aforementioned authors made an intersectoral comparison of different sectors of the sharing economy. They came to the conclusion that the primary extraneous driving forces behind the sharing economy are financial ones that have to do with lodging and vehicle sharing. The same authors additionally discovered that inbuilt social and environmental incentives are significant in the sharing economy when it comes to the sharing of meals, tools, and rides. For example, the economy of vehicle sharing affects the reduction of traffic within the city, its congestion and reduces pollution problems.<sup>40</sup> However, the real impact of sharing economy platforms on sustainability will remain a mystery for a long time to come, as sharing economy platforms are restrictive and selective in granting access to researchers.<sup>41</sup> Some of them (Airbnb) publish the results of their research themselves, which may imply bias and non-objectivity. There is a gap when it comes to theoretical, but also empirical knowledge of the real effect of sharing economy platforms on the sustainability of the environment. The combination of public and shared transport is necessary for clean and smart mobility.<sup>42</sup>

#### 4. THE GOALS AND METHODS

The paper draws from an extensive analysis of numerous recent scientific papers, many of which are discussed and examined in detail in the sections of the paper that are most closely related to the theme. As a result, they will not be explicitly addressed here. The empirical portion of the work is based on primary data collected through research conducted in the Republic of Croatia using a

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<sup>38</sup> Lukaszewicz, A. et al.: Shared mobility: A reflection on sharing economy initiatives in European transportation sectors, in: Cesnuityt, V. et al. (eds.): *The Sharing Economy in Europe: Developments, Practices, and Contradictions*, Cham: Springer International Publishing, 2022, pp. 89-114.

<sup>39</sup> Böcker, L., Meelen, A. A.: Sharing for people, planet or profit? Analysing motivations for intended sharing economy participation, *Environmental Innovation and Societal Transitions*, 23(June) 2017, pp. 28-39.

<sup>40</sup> Cohen, B., Kietzmann, J.: Ride on! Mobility business models for the sharing economy, *Organization & environment*, 27(3) 2014, pp. 279-296.

<sup>41</sup> Frenken, K., Schor, J.: Putting the sharing economy into perspective, in: Mont, O. (ed.): *A research agenda for sustainable consumption governance*, 2019, Cheltenham: Edward Elgar Publishing, pp. 121-135.

<sup>42</sup> Kalašová, A. et al.: Public transport as a part of shared economy, *Archiwum Motoryzacji*, 85(3) 2019, pp. 49-56.

survey questionnaire that was made entirely anonymously online using Google Forms. The purpose of the questionnaire was to find out what respondents thought about the advantages and disadvantages of sharing economy public transportation services. All questions (except part A and questions 15 and 16) consist of a certain number of statements for which the respondents had to indicate the extent to which they agree or disagree on a Likert scale, where 1 indicates the highest level of agreement (Strongly agree) and 5 indicates the lowest level (Strongly disagree).

In May and June of 2022, the questionnaire was disseminated on social media platforms. This non-probabilistic convenience sample (available on social networks) was partially distributed using the snowball effect theory, in which respondents who completed the survey chose the subsequent respondents, who in turn forwarded the new respondents to others. The complete questionnaire is included in the paper's connection. Three hundred and twenty respondents completed the questionnaire in its entirety. Graphics, tabular presentations, and descriptive statistics and analysis were employed. For the overall presentation of attitudes, descriptive statistics such as arithmetic means, medians, and modes were employed. The Mann-Whitney U test was used to determine whether there was a statistically significant variance in the respondents' gender-related ratings of the measured variables. The Bonefforni criterion was applied to post hoc analysis in order to ascertain statistical differences in the research variables between the groups. The Statistica Tibco 14.0 software package and Microsoft Excel were utilized for processing the data. The Kruskal-Wallis test was also employed in the primary data analysis to determine whether there was a statistically significant variance in the respondents' assessments of the measured variables (constructs) with respect to their age distribution, employment status, monthly personal income, and level of professional education.

## **5. RESEARCH RESULTS**

### *5.1. SAMPLE DESCRIPTION WITH A BETTER UNDERSTANDING OF USED DATA ANALYSIS*

The first section of the questionnaire looked at sociodemographic traits. Table 1 summarizes the results of 320 respondents who completed the questionnaire in its entirety. The data collected clearly shows that women make up a larger proportion of participants (66.77%), compared to men (33.13%). Since the questionnaire is distributed through social media platforms, it is to be expected that a larger proportion of the younger population will be included in the group being studied.

**Table 1. Sociodemographic structure of respondents**

<b>N=320</b>		<b>N</b>	<b>%</b>
<b>GENDER</b>	Male	<b>106</b>	<b>33.13</b>
	Female	<b>214</b>	<b>66.77</b>
<b>AGE</b>	18-25	<b>128</b>	<b>40.00</b>
	26-35	<b>43</b>	<b>13.40</b>
	36-45	<b>52</b>	<b>16.30</b>
	46-55	<b>49</b>	<b>15.30</b>
	56-65	<b>40</b>	<b>12.50</b>
	65+	<b>8</b>	<b>2.5</b>
<b>WORK STATUS</b>	Employed; in a permanent employment relationship.	<b>180</b>	<b>56.20</b>
	Employed; for a certain period of time.	<b>15</b>	<b>4.70</b>
	I work part-time.	<b>6</b>	<b>1.90</b>
	Student – I work through the student service (SC).	<b>52</b>	<b>16.20</b>
	Student – I don't work.	<b>43</b>	<b>13.40</b>
	Self-employed	<b>11</b>	<b>3.40</b>
	Unemployed	<b>12</b>	<b>3.70</b>
	I work through the pupil service.	<b>1</b>	<b>0.30</b>
<b>PERSONAL MONTHLY INCOME</b>	I have no personal income.	<b>13</b>	<b>4.10</b>
	I receive pocket money.	<b>35</b>	<b>11.00</b>
	Less than 200 €	<b>12</b>	<b>3.70</b>
	200 € – 500 €	<b>33</b>	<b>10.30</b>
	501 € – 1,200 €	<b>111</b>	<b>34.70</b>
	1,201 € – 1,850 €	<b>71</b>	<b>22.20</b>
	1,851 € – 2,650 €	<b>26</b>	<b>8.10</b>
	2,650 € +	<b>19</b>	<b>5.90</b>
<b>EDUCATION</b>	No school education	<b>1</b>	<b>0.30</b>
	Finished primary school	<b>0</b>	<b>0</b>
	Completed high school up to 3 years	<b>8</b>	<b>2.50</b>
	Completed high school up to 4 years, gymnasium	<b>147</b>	<b>46.00</b>
	Student	<b>97</b>	<b>30.30</b>
	Completed bachelor's degree, collage	<b>25</b>	<b>7.80</b>
	Completed master's degree, PhD	<b>42</b>	<b>13.10</b>

Source: authors' calculation

Descriptive statistics, such as arithmetic mean, median, mode, standard deviation, etc., were created for each variable in order to provide a thorough evaluation of the findings of the empirical research that was carried out (Table 2).

**Table 2. Descriptive indicators**

VARIABLES	Mean ± SD	Median	Mod	Freq. of Mode	Quartile mod	Max-D	K-S p
Gender	1,67±0,47	2	2	214	1	0,43	p < ,01
Age	2,54±1,55	2	1	128	3	0,22	p < ,01
Work status	2,53±1,94	1	1	180	3	0,35	p < ,01
Personal monthly income	4,89±1,72	5	5	111	2	0,23	p < ,01
Education	4,82±1,09	5	4	147	1	0,26	p < ,01
The sharing economy is an excellent economic model based on sharing, lending, renting or exchanging.	1,92±0,68	2	2	187	1	0,29	p < ,01
Various forms of the sharing economy when it comes to shared mobility make extensive use.	2,68±1,07	2	2	140	1	0,27	p < ,01
Sharing economy platforms are rather used than traditional providers of the same services.	2,36±1,08	2	2	142	1	0,28	p < ,01
Sharing economy platforms are cheaper than traditional providers of the same services.	2,33±1,01	2	2	142	1	0,26	p < ,01
Gaining confidence in sharing economy platforms.	2,38±0,89	2	2	164	1	0,30	p < ,01
Using platforms due to possibilities to order and pay for the use of a car.	2,37±1,11	2	2	154	1	0,31	p < ,01
The use of car sharing model allows to use a car without having to own it or worrying about maintenance.	3,31±1,18	3	4	89	2	0,19	p < ,01

VARIABLES	Mean ± SD	Median	Mod	Freq. of Mode	Quartile mod	Max-D	K-S p
The ride-on-demand services are mostly used as forms of the sharing economy.	2,29±1,11	2	2	142	1	0,29	p < ,01
The ride-on-demand services are used because they replace the traditional taxi and private car.	2,35±1,09	2	2	140	1	0,28	p < ,01
On-demand professional transport services contribute to increasing traffic congestion.	3,11±1,04	3	3	108	2	0,19	p < ,01+
During the pandemic, public transport was usually used.	3,34±1,28	4	4	106	2	0,24	p < ,01
During the pandemic, using public transport was avoided.	2,60±1,27	2	2	113	2	0,25	p < ,01
Due to the pandemic, attitudes towards using public transport have changed.	2,44±1,13	2	2	126	1	0,25	p < ,01
Public transport will be used after the pandemic.	2,90±1,15	3	2	103	2	0,20	p < ,01
Because of the health reasons, the use of a private car when traveling to work has increased.	3,22±1,09	3	3	117	1	0,19	p < ,01
Public transport in the Republic of Croatia meets European standards for the prevention and detection of specific pandemic risks.	3,20±1,23	3	4	86	2	0,18	p < ,01

VARIABLES	Mean ± SD	Median	Mod	Freq. of Mode	Quartile mod	Max-D	K-S p
Switching from a private vehicle to public transport results in reduction of carbon dioxide.	3,51±1,06	4	4	106	1	0,21	p < ,01
Because of the health reasons, the use of UBER, BOLT and similar companies that use the sharing economy as their business model has increased.	3,40±1,03	4	4	119	1	0,23	p < ,01
Switching from using UBER, BOLT and similar companies that use the sharing economy as their business model to using public transport results in reduction of carbon dioxide.	3,53±0,93	4	4	116	1	0,21	p < ,01

Source: authors' calculation

As we have already mentioned in this empirical research, on the Likert scale, 5 indicates the lowest level of agreement (Strongly disagree) and 1 the highest (Strongly agree). Consequently, those statements (variables) that have the highest arithmetic mean represent the statements the respondents agree with the least or disagree with the most. Table 2 shows that the variable (statement) “Switching from using UBER, BOLT and similar companies that use the sharing economy as their business model to using public transport results in reduction of carbon dioxide.” has the highest arithmetic mean (3.53; Mode 4). Then the results of the research show that the next statement with which the respondents least agree with is “Switching from a private vehicle to public transport results in reduction of carbon dioxide.” (3.51; Mod 4). Analyzing the results of the empirical research, it is clear that the respondents will not stop using public transport companies that use the business model of digital platforms of the sharing economy (UBER, BOLT) and switch to public transport, since it pollutes the environment less with carbon dioxide

emissions. Likewise, the research results indicate that the respondents will not stop using private cars for the same reason and will not switch to using public transport. Everything indicates that the respondents will not change their decisions regarding the use of public transport in order to reduce environmental pollution with carbon dioxide emissions. Since the respondents also least agree with the statement *“Because of the health reasons, the use of UBER, BOLT and similar companies that use the sharing economy as their business model has increased.”* (3.40; Mode 4), it is evident that they do not use public transport companies that use the business model of digital platforms of the sharing economy (UBER, BOLT) for health reasons. This is precisely what additionally confirms the least agreement with the statement *“During the pandemic, public transport was usually used.”* (3.34; Mode 4). Namely, according to the results of the conducted research, it follows that the pandemic is not the reason for the use of companies in public transport that use the business model of digital platforms of the sharing economy.

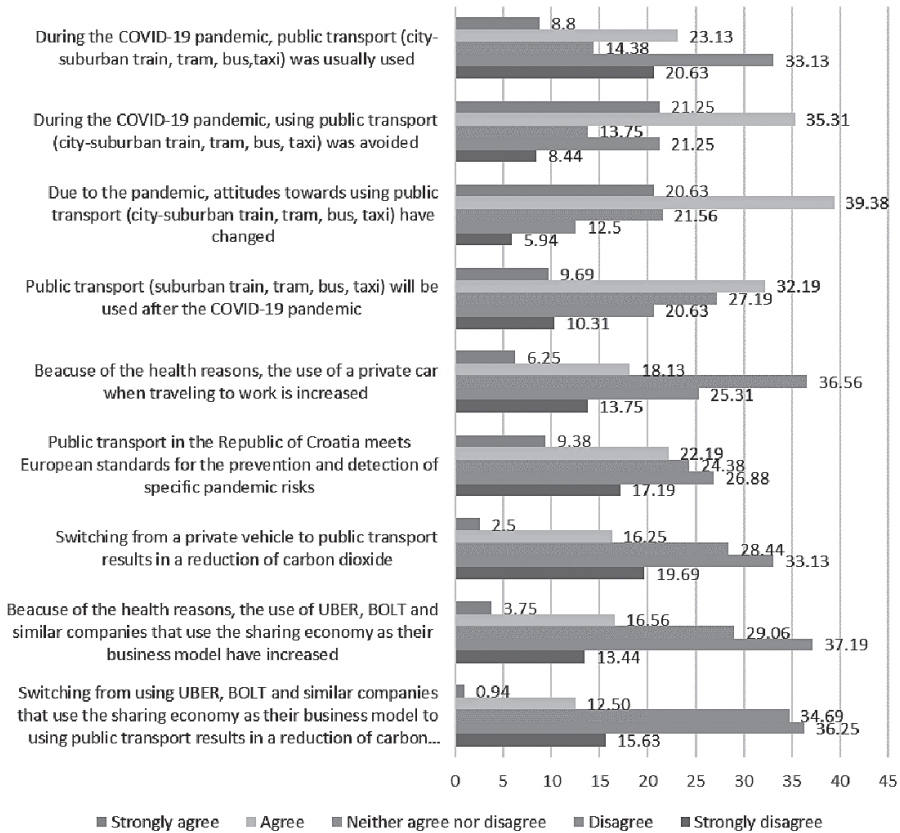
Even with a superficial analysis of the results obtained related to the use of usual public transport during the pandemic, we come to the realization that only 31.93% of respondents used public transport as usual (question number 18). We also asked a “control” question in order to get as accurate a result as possible regarding the use of public transport during the pandemic. The obtained results confirm that 56.56% of respondents avoided using public transport during the pandemic (Graph 1). That their attitude towards the use of public transport during the pandemic has changed is confirmed by the results related to question *“Due to the pandemic, my attitudes towards using public transport (city-suburban train, tram, bus, taxi) have changed”*. Namely, 60.01% of respondents stated that they had changed their attitude towards the use of public transport during the pandemic, while only 18.4% remained with the same attitude as before the pandemic. It is important to note that a relatively large part of them remained undecided (21.56%). The results of the conducted empirical research indicate the uncertainty of the use of public transport after the pandemic (question; *“I will use public transport (suburban train, tram, bus, taxi) after the pandemic.”*). Only 41.88% of respondents stated that they would use public transport after the pandemic, while 27.19% were undecided. The picture of uncertainty is completed by the obtained research results related to the question about fear for health (question; *“Because of the fear for my health, I increasingly use a private car when traveling to work”*). Only 14.38% of respondents stated that they will use a private car to travel to work after the pandemic, while 36.56% of them are undecided (Graph 1). On the other hand, only 18.75% of respondents will stop using a private car and switch to public transport in order to reduce environmental pollution by reducing carbon dioxide emissions (question; *“In order to reduce carbon dioxide pollution, I will*

*stop using a private vehicle and will switch to using public transport”).* On the one hand, there is low awareness of personal contribution to environmental protection. On the other hand, the poor quality of public transport certainly contributes to this, since only 31.57% of respondents believe that public transport in the Republic of Croatia corresponds to European standards (question; *“Public transport in the Republic of Croatia meets European standards for the prevention and detection of specific pandemic risks”).* Then the results of the research indicate that only 20.35% of respondents will increasingly use the services of companies in public transport (UBER, BOLT, etc.) that practice the business model of digital platforms of the sharing economy (question; *“Because of the fear for my health, I increasingly use UBER, BOLT and similar companies that use the sharing economy as their business model”).* Research results related to the last question (question; *“In order to reduce carbon dioxide pollution, I will stop using UBER, BOLT and similar companies that use the sharing economy as their business model and will switch to using public transport”).*, that only confirm the respondents’ low awareness of their personal contribution to reducing environmental pollution by carbon dioxide emissions caused by traffic. The above results indicate that only 13.44% of respondents are ready to switch to public transport and stop using public transport companies (UBER, BOLT, etc.) that practice the business model of digital platforms of the sharing economy in order to reduce environmental pollution by carbon dioxide emissions. Optimism related to the above is only inspired by the fact that there is a relatively large share of respondents who have not yet decided (34.69%) on this issue. In order to test the existence of a statistically significant difference in the ratings of the measured variables in relation to the gender of the respondents, the Mann-Whitney U test was used. The Mann-Whitney U test was important, since this is the way to test the existence of a statistically significant difference between the dependent variable measured on an ordinal scale and two independent samples measured on a nominal scale.<sup>43</sup> Similarly, the Mann-Whitney U test indicates that women changed their attitude regarding the pandemic towards public transport more significantly than men (question 20).

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<sup>43</sup> Sekaran, U.: Research for Business: A Skill-Building Approach, John Wiley, 2000.

**Graph 1. Attitudes related to the use of the sharing economy in transport during the pandemic**



Source: authors' calculation

Based on the data from Table 3, it can be concluded that there is a statistically significant difference in attitudes between women and men when it comes to the concern for environmental protection and stopping the use of private vehicles and switching to public transport (question 24). The Mann-Whitney U test also determines a statistically significant difference in the attitudes between women and men when it comes to health care and, as a result, the increased use of those companies (Uber, Bolt, etc.) that use the business model of digital sharing economy platforms in public transport. The t-test also confirms the existence of differences in attitudes according to gender in relation to the tested variables. Namely, the T-test also confirmed as well as the Mann-Whitney U test that there is a statistically significant difference in the attitude of women compared to men when it comes to health care.

## *5.2. STATISTICAL SIGNIFICANCE AND RELIABILITY*

Kruskal-Wallis analysis of variance is used to test the existence of a statistically significant difference of the dependent variable in relation to several independent samples (k) measured on a nominal scale. This test is used when the conditions for applying the ANOVA test are not met, that is, in the case when the condition of normality of data distribution is not met (Sekaran 2000). The assumption for using Kruskal-Wallis analysis of variance is that the variables are continuously distributed and that the variables are the lowest in the ordinal scale. In the analysis of primary data, the Kruskal-Wallis test was used to test the existence of a statistically significant difference in the ratings of the measured constructs in relation to the age structure, work status, personal monthly income and education of the respondents.

(Table 3). The Kruskal-Wallis test proved a statistically significant difference between the attitudes of respondents aged 18 to 25 and those aged 36 to 45 regarding (variable 18) the use of common forms of public transport during the pandemic (“During the pandemic, public transport (city-suburban train, tram, bus, taxi) was usually used.”), (Table 3). Respondents aged 18 to 25 used more common forms of public transport during the pandemic than those aged 36 to 45. The Kruskal-Wallis test also confirms that there is a statistically significant difference between the attitudes of respondents aged 18 to 25 and those aged 36 to 65 (age groups 3, 4 and 5) when it comes to (variable 19) the question of avoiding public transport during pandemic. This confirms the accuracy of the results of the Kruskal-Wallis test regarding the testing of the previous variable. Simply put, respondents aged between 18 and 25 were the least likely to avoid using public transport during the pandemic. Furthermore, the Kruskal-Wallis test confirms that there is a statistically significant difference between the attitudes of respondents aged 18 to 25 and those aged 56 to 65, as well as a statistically significant difference between the attitudes of respondents aged 26 to 35 and those aged 56 to 65 regarding variable 20. (“Public transport (suburban train, tram, bus, taxi) will be used after the pandemic.”). Namely, this indicates that respondents aged 56 to 65 agree more with the above statement compared to those aged 18 to 25 and those aged 26 to 35. So, they believe more that “Public transport (suburban train, tram, bus, taxi) will be used after the pandemic.”. The analysis of the Kruskal-Wallis test related to the claim that “Public transport in the Republic of Croatia meets European standards for the prevention and detection of specific pandemic risks” leads to the realization that in relation to this claim there is a statistically significant difference between the attitudes of respondents aged 18 to 25 and those aged 46 to 55, as well as those over 65. A more detailed analysis reveals that older respondents (from 46 to 55 and +65) agree with this statement more than those from 18 to

25. The Kruskal-Wallis test also confirms that there is a statistically significant difference between the attitudes of respondents aged 18 to 25 and those aged 46 to 55 as well as those older than 56 to 65 when it comes to the question of “Switching from a private vehicle to public transport results in a reduction of carbon dioxide.”. Respondents aged 18 to 25 compared to those aged 46 to 55, as well as those older than 56 to 65, agree less with the above statement.

**Table 3. Kruskal-Wallis test of statistically significant differences of using the sharing economy related to the pandemic in relation to the age structure**

VARIABLES	H	statistically significant difference in relation to age	sig.	age group between which there is a difference	p
During the pandemic, public transport (city-suburban train, tram, bus, taxi) was usually used.	15,78	Yes	0,0075	18-25 and 36-45	0,008
During the pandemic, using public transport (city-suburban train, tram, bus, taxi) was avoided.	27,77	Yes	0,0000	18-25 s 36-45; 46-55; 56-65	0,005 0,006 0,000
Due to the pandemic, attitudes towards using public transport (city-suburban train, tram, bus, taxi) have changed.	9,30	No	0,0977		
Public transport (suburban train, tram, bus, taxi) will be used after the pandemic.	21,87	Yes	0,0006	(18-25 and 56-65); (26-35 and 56-65)	0,000 0,015
Beacuse of the health reasons, the use of a private car when traveling to work is increased.	6,95	No	0,2243		
Public transport in the Republic of Croatia meets European standards for the prevention and detection of specific pandemic risks.	27,80	Yes	0,0000	18-25 s 46-55; 65+	0,000 0.016
Switching from a private vehicle to public transport results in a reduction of carbon dioxide.	25,60	Yes	0,0001	18-25 s 46-55; 56-65	0,004 0,036

<b>VARIABLES</b>	<b>H</b>	<b>statistically significant difference in relation to age</b>	<b>sig.</b>	<b>age group between which there is a difference</b>	<b>p</b>
Beacuse of the health reasons, the use of UBER, BOLT and similar companies that use the sharing economy as their business model have increased.	6,22	No	0,2855		
Switching from using UBER, BOLT and similar companies that use the sharing economy as their business model to using public transport results in a reduction of carbon dioxide.	4,20	No	0,5215		

Source: authors' calculation

The Kruskal-Wallis test proved a statistically significant difference between the attitudes of respondents of permanent employees “employed; in a permanent employment relationship, and those from educational groups (G4 and G5) “student – I work through the student service (SC)” and “student – I don’t work” in relation to clause number 18 “During the pandemic, public transport (city-suburban train, tram, bus, taxi) was usually used”. A more precise analysis revealed that respondents “student – I work through the student service (SC)” and “student – I don’t work” used public transport (city-suburban train, tram, bus, taxi) more than of employees “employed in a permanent employment relationship”, during the pandemic (Table 4).

**Table 4. Kruskal-Wallis test of statistically significant differences of using the sharing economy related to the pandemic in relation to work status**

VARVARIABLES	H	statistically significant difference in relation to age	sig.	age group between which there is a difference	p
<b>During the pandemic, public transport (city-suburban train, tram, bus, taxi) was usually used.</b>	33,55	Yes	0,0000	1 with 4,5	0,000 0,009
<b>During the pandemic, using public transport (city-suburban train, tram, bus, taxi) was avoided.</b>	27,35	Yes	0,0003	1 and 4	0,000
Due to the pandemic, attitudes towards using public transport (city-suburban train, tram, bus, taxi) have changed.	18,71	No	0,1166		
Public transport (suburban train, tram, bus, taxi) will be used after the pandemic.	11,54	No	0,1166		
Beacuse of the health reasons, the use of a private car when traveling to work is increased.	12,00	No	0,1005		
<b>Public transport in the Republic of Croatia meets European standards for the prevention and detection of specific pandemic risks.</b>	23,10	Yes	0,0016	1 and 4	0,013
Switching from a private vehicle to public transport results in reduction of carbon dioxide.	8,59	No	0,2835		
Beacuse of the health reasons, the use of UBER, BOLT and similar companies that use the sharing economy as their business model have increased.	4,32	No	0,7418		
Switching from using UBER, BOLT and similar companies that use the sharing economy as their business model to using public transport results in reduction of carbon dioxide	9,23	No	0,2366		

Source: authors' calculation

The Kruskal-Wallis test related to the testing of variable 19 “During the pandemic, using public transport (city-suburban train, tram, bus, taxi) was avoided” also indicates that there are statistically significant differences between the group (1) “employed; in a permanent employment relationship” and group (4) “student – I work through the student service (SC)”. Students agree less with the statement, which means that they avoided public transport (city-suburban train, tram, bus, taxi) less.

## **6. CONCLUSION**

Given all of its nuances, the sharing economy business model for public transportation is growing daily. Car sharing has gained popularity, particularly in the preceding couple of decades. Today, it is completely clear that the crisis (pandemic) has shown everyone, and confirmed once again, the great importance and meaning of public transport when it comes to ensuring mobility from the aspect of its availability and continuity.<sup>44</sup> The pandemic triggered a few alterations in human behavior when it comes to using public transportation. The risk of contracting the virus, the need for social distancing, and solitude have caused people to rethink their prior public transportation habits and instead use shared mobility more frequently. Several signs suggest that the sharing economy for use in public transportation has responded remarkably well to the economic downturn brought on by the pandemic thanks to its robust freedom as a market framework.

The examination of the empirical inquiry’s findings makes it abundantly evident that the people who participated are going to keep using public transportation providers that follow the business models of digital sharing economy platforms (UBER, BOLT), and they will not convert to traditional public transportation options even though the latter emit less carbon dioxide into the atmosphere. Empirical research findings also show that respondents are unlikely to give up driving a private vehicle or move to public transportation for the same reason. All of the data suggests that those who participated will not be changing their minds about using public transportation to cut down on carbon dioxide emissions and consequent contamination of the environment.

Based on the conducted empirical research, it can be inferred that the respondents possess knowledge of the sharing economy. The overwhelming majority of respondents, or 83.75%, are aware of the term “sharing economy.” Furthermore, 52.81% of them utilize various public transportation services (such as UBER, BOLT, etc.) which utilise the sharing economy’s digital platform

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<sup>44</sup> UITP: Public Transport After The Coronavirus Pandemic, 2020.

business model. It is also clear that participants are cognizant of more affordable rates associated with the sharing economy's business model for public transportation. Sixty-four percent of the respondents said they do so, given that the costs are less than those of the same traditional public transportation options.

The findings of an empirical study carried out in the Republic of Croatia demonstrate that respondents would rather use digital sharing economy platforms for transportation than traditional public transportation. According to the study's findings, 65.01% of the participants would rather use online tools of the sharing economy such as UBER, BOLT, and others than traditional modes of public transportation, such as taxis and buses. This attests to the awareness of substituting traditional public transportation methods with digital platforms of the shared economy. The study's findings show that participants have knowledge of the benefits of arranging and paying for travels on digital platforms related to the sharing economy when using public transportation. Specifically, 67.82% of participants state that they utilize digital sharing economy platforms to place orders and make payments for services while using public transportation.

## LITERATURE

1. Andersson, L., Gläufke, A., Möller, T., Schneiderbauer, T.: Why shared mobility is poised to make a comeback after the crisis, Atlanta: McKinsey & Co, July 2020.
2. Ardila-Gomez A.: In the fight against COVID-19, public transport should be the hero, not the villain, *World Bank Blogs*, 23.07.2020, <https://blogs.worldbank.org/transport/fight-against-covid-19-public-transport-should-be-hero-not-villain.2020>.
3. Beck, M. J., Nelson J. D., Hensher, D. A.: Attitudes toward public transport post Delta COVID-19 lockdowns: Identifying user segments and policies to restore confidence, *International Journal of Sustainable Transportation*, 17(8) 2023, pp. 827-44.  
– DOI: <https://doi.org/10.1080/15568318.2022.2109083>
4. Böcker, L., Meelen, A. A.: Sharing for people, planet or profit? Analysing motivations for intended sharing economy participation, *Environmental Innovation and Societal Transitions*, 23(June) 2017, pp. 28-39.  
– DOI: <https://doi.org/10.1016/j.eist.2016.09.004>
5. Botsman R.: The sharing economy lacks a shared definition, 2013, <https://www.fastcompany.com/3022028/the-sharing-economy-lacks-a-shared-definition>
6. Brozović V., Hrastić F., Meštrović L., Bilić H., Naletina D., Petljak K.: Ekonomija dijeljenja: Poslovni model budućnosti?, *Zbornik Ekonomskog fakulteta u Zagrebu*, 17(1) 2019, pp. 33-61.  
– DOI: <https://doi.org/10.22598/zefzg.2019.1.33>

7. Burns, J., Movsisyan, A., Stratil, J. M., Coenen, M., Emmert-Fees, K. M., Geffert, K., Hoffmann, S., Horstick, O., Laxy, M., Pfadenhauer, L. M., von Philipsborn, P.: Travel-related control measures to contain the COVID-19 pandemic: a rapid review, *The Cochrane database of systematic reviews*, 2021.  
– DOI: <https://doi.org/10.1002/14651858.cd013717>
8. Cohen, B., Kietzmann, J.: Ride on! Mobility business models for the sharing economy, *Organization & environment*, 27(3) 2014, pp. 279-296.  
– DOI: <https://doi.org/10.1016/j.eist.2016.09.004>
9. Crozet, Y., Santos, G., Coldefy, J.: *Shared mobility and MaaS: The regulatory challenges of urban mobility*, Centre on Regulation in Europe asbl (CERRE), September 2019.
10. Eisenmann, C., Nobis, C., Kolarova, V., Lenz, B., Winkler, C.: Transport mode use during the COVID-19 lockdown period in Germany: The car became more important, public transport lost ground, *Transport policy*, 103(March) 2021, pp. 60-67.  
– DOI: <https://doi.org/10.1016/j.tranpol.2021.01.012>
11. European Commission: Walking and Cycling as Transport Modes Mobility and Transport, 2020, [https://transport.ec.europa.eu/transport-themes/urban-transport/active-mobility-walking-and-cycling\\_en](https://transport.ec.europa.eu/transport-themes/urban-transport/active-mobility-walking-and-cycling_en).
12. European Commission: Transport in the European Union Current Trends and Issues. Brussels: European Commission, Directorate-General Mobility and Transport, March 2019, <https://transport.ec.europa.eu/system/files/2019-03/2019-transport-in-the-eu-current-trends-and-issues.pdf>.
13. Eurostat: *Eurostat Regional Yearbook*, Luxembourg: Publications Office of the European Union, 2020, <https://ec.europa.eu/eurostat/documents/15234730/15241761/KS-HA-20-001-EN-N.pdf/63143c22-e5fe-c36e-5fc0-1b0ea9940-64d?t=1667387603708>.
14. Fielbaum, A., Ruiz, F., Boccardo, G., Rubio, D., Tirachini, A., Rosales-Salas, J.: The job of public transport, ride-hailing and delivery drivers: conditions during the COVID-19 pandemic and implications for a post-pandemic future, *Travel Behaviour and Society*, 31(April) 2023, pp. 63-77.  
– DOI: <https://doi.org/10.1016/j.tbs.2022.11.004>
15. Francetic, I., Munford, L.: Corona and coffee on your commute: a spatial analysis of COVID-19 mortality and commuting flows in England in 2020, *European journal of public health*, 31(4) 2021, pp. 901-907.  
– DOI: <https://doi.org/10.1093/eurpub/ckab072>
16. Frenken, K., Schor, J.: Putting the sharing economy into perspective, in: Mont, O. (ed.): *A research agenda for sustainable consumption governance*, 2019, Cheltenham: Edward Elgar Publishing.  
– DOI: <https://doi.org/10.4337/9781788117814.00017>

17. Gartland, N., Fishwick, D., Coleman, A., Davies, K., Hartwig, A., Johnson, S., Van Tongeren, M.: Transmission and control of SARS-CoV-2 on ground public transport: a rapid review of the literature up to May 2021, *Journal of transport & health*, 26(September) 2022, pp. 101356.  
– DOI: <https://doi.org/10.1016/j.jth.2022.101356>
18. Gobble, M. M.: Defining the sharing economy, *Research-Technology Management*, 60(2) 2017, pp. 59-63.  
a. DOI: <https://doi.org/10.1080/08956308.2017.1276393>
19. Gössling, S., Scott, D., Hall, C. M.: Pandemics, tourism and global change: a rapid assessment of COVID-19, *Journal of sustainable tourism*, 29(1) 2020, pp. 1-20.  
– DOI: <https://doi.org/10.1080/09669582.2020.1758708>
20. Habib, M. A., Anik, M. A.: Impacts of COVID-19 on transport modes and mobility behavior: analysis of public discourse in Twitter, *Transportation Research Record*, 2677(4) 2023, pp. 65-78.  
– DOI: <https://doi.org/10.1177/03611981211029926>
21. Hintermann, B., Schoeman, B., Molloy, J., Schatzmann T., Tchervenkov, C., Axhausen, K. W.: The impact of COVID-19 on mobility choices in Switzerland, *Transportation Research Part A: Policy and Practice*, 169(March) 2023, pp. 103582.  
– DOI: <https://doi.org/10.1016/j.tra.2023.103582>
22. Hossain, M.: The effect of the Covid-19 on sharing economy activities, *Journal of Cleaner Production*, 280(Part I) 2021, pp. 124782.  
– DOI: <https://doi.org/10.1016/j.jclepro.2020.124782>
23. Kalašová, A., Harantová, V., Čulík, K.: Public transport as a part of shared economy, *Archiwum Motoryzacji*, 85(3) 2019, pp. 49-56.
24. Kokkola, M., Nikolaeva, A., Brömmelstroet, M. T.: Missed connections? Everyday mobility experiences and the sociability of public transport in Amsterdam during COVID-19, *Social & Cultural Geography*, 24(10) 2023, pp. 1693-712.  
– DOI: <https://doi.org/10.1080/14649365.2022.2084148>
25. Kral, P., Janoskova, K., Klietnik, T.: Key determinants of the public transport user's satisfaction, *Administratie si Management Public*, (31) 2018, pp. 36-51.
26. Lock O.: Cycling Behaviour Changes as a Result of COVID-19: A Survey of Users in Sydney, Australia, *Findings*, June 2020.  
– DOI: <https://doi.org/10.32866/001c.13405>
27. Long, A., Carney, F., Kandt, J.: Who is returning to public transport for non-work trips after COVID-19? Evidence from older citizens' smart cards in the UK's second largest city region, *Journal of Transport Geography*, 107(February) 2023, pp. 103529.  
– DOI: <https://doi.org/10.1016/j.jtrangeo.2023.103529>
28. Lukasiewicz, A., Sanna, V. S., Diogo, V. L., Bernát, A.: Shared mobility: A reflection on sharing economy initiatives in European transportation sectors, in:

- Cesnuityt, V. et al. (eds.): *The Sharing Economy in Europe: Developments, Practices, and Contradictions*, Cham: Springer International Publishing, 2022, pp. 89-114.  
– DOI: [https://doi.org/10.1007/978-3-030-86897-0\\_5](https://doi.org/10.1007/978-3-030-86897-0_5)
29. Machado, C. A., de Salles Hue, N. P., Berssaneti, F. T., Quintanilha, J. A.: An overview of shared mobility, *Sustainability*, 10(12) 2018, pp. 4342.  
– DOI: <https://doi.org/10.3390/su10124342>
30. Mouratidis, K., Peters, S., van Wee, B.: Transportation technologies, sharing economy, and teleactivities: Implications for built environment and travel, *Transportation Research Part D: Transport and Environment*, 92(March) 2021, pp. 102716.  
– DOI: <https://doi.org/10.1016/j.trd.2021.102716>
31. Naletina, D.: Public transportation during the COVID-19 pandemic in the city of Zagreb, *InterEULawEast: journal for the international and european law, economics and market integrations*, 8(2) 2021, pp. 29-51.  
– DOI: <https://doi.org/10.22598/iele.2021.8.2.2>
32. Naletina, D., Vrkljan, M., Jurčević, M.: Consumer satisfaction with the organization of public transport during the corona crisis, in: Baković, T., Naletina, D., Petljak, K. (eds.): *Proceedings of The International Scientific Conference, Trade Perspectives 2020: The interdependence of COVID-19 pandemic and international trade*, Zagreb: Ekonomski fakultet i Hrvatska gospodarska komora, 2020, pp. 159-183.
33. Nuttah, M. M., Roma, P., Lo Nigro, G., Perrone, G.: The Short-and Long-Term Impacts of COVID-19 Pandemic on the Sharing Economy: Distinguishing Between “Symptomatic” and “Asymptomatic” Platforms, *Journal of the Knowledge Economy*, 15(2) 2024, pp. 9238-9287.  
– DOI: <https://doi.org/10.1007/s13132-023-01449-9>
34. Palm, M., Allen, J., Zhang, Y., Tiznado-Aitken, I., Batomen, B., Farber, S., Widener, M.: Facing the future of transit ridership: shifting attitudes towards public transit and auto ownership among transit riders during COVID-19, *Transportation*, 51(2) 2024, pp. 645-671.  
– DOI: <https://doi.org/10.1007/s11116-022-10344-2>
35. Pezoa, R., Basso, F., Quilodrán, P., Varas, M.: Estimation of trip purposes in public transport during the COVID-19 pandemic: The case of Santiago, Chile, *Journal of Transport Geography*, 109(May), pp. 103594.  
– DOI: <https://doi.org/10.1016/j.jtrangeo.2023.103594>
36. PwC: Assessing the size and presence of the collaborative economy in Europe, April 2016, <https://op.europa.eu/en/publication-detail/-/publication/2acb7619-b544-11e7-837e-01aa75ed71a1>.
37. Rotaris, L., Danielis, R.: The role for carsharing in medium to small-sized towns and in less-densely populated rural areas, *Transportation Research Part A: Policy and Practice*, 115(September) 2018, pp. 49-62.  
– DOI: <https://doi.org/10.1016/j.tra.2017.07.006>

38. Sekaran, U.: *Research for Business: A Skill-Building Approach*, New York: John Wiley, 2000, pp. 141- 151.
39. Shaheen, S., Chan, N., Bansal, A., Cohen, A.: Definitions, industry developments, and early understanding, Berkeley: University of California Berkeley-Transportation Sustainability Research Center, November 2015, <https://escholarship.org/uc/item/2f61q30s>
40. Smith, A.: *Shared, collaborative and on demand: the new digital economy*, Washington: Pew Internet & American Life Project, 2016.
41. UITP: Public Transport After The Coronavirus Pandemic, 2020, <<https://www.uitp.org/topics/covid-19/>>, last accessed on 12/04/2024.
42. Yildizhan, F., Bilgiç, Ş.: The financial impact of the COVID-19 pandemic on public transportation and sustainable policy recommendations: a case study of Eskişehir, *Gazi University Journal of Science*, 36(2) 2023, pp. 573-590.  
– DOI: <https://doi.org/10.35378/gujs.1022067>