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E-bikes in urban mobility: the local and regional development perspective – a case study of Rijeka, Croatia

Abstract: Electric and e-bikes are becoming an increasingly popular means of transport, especially in cities with varied topography or over long distances. They make it easier to overcome steep hills and allow for covering greater distances than with a traditional bicycle. Increasing the share of e-bikes in city residents' daily mobility can positively impact a city's development in various way by fulfilling the principles of sustainable transport and driving the local economy. This study aims to assess the role of e-bikes in local and regional development, using the city of Rijeka as an example. The city is characterised by a mobility culture oriented towards car travel, as well as terrain unfavourable to traditional cycling while the study will consider aspects related to the development of local businesses and tourism in the city in the context of student life. To achieve this, a survey was conducted among economics students at the University of Rijeka. The results indicate that these respondents do not use either traditional bicycles or e-bikes for urban mobility. The answers however allow us to believe that the surveyed students generally have a positive or at least an indifferent attitude towards the development of e-bike mobility, but they see the highest potential for e-bikes in tourism. Respondents are also aware of the barriers to the development of this form of mobility, mentioning problems related to road safety, problems with vandalism, weather and the lack of bicycle infrastructure.

Keywords: bicycle; cycling policy; e-bike; economic development; Rijeka; students; tourism

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Introduction

The mobility of modern city residents is one of the most important challenges in planning while it also affects urban development and the economy (Bertolini, 2012). An important problem of modern urban mobility is the excessive level of motorisation, understood primarily as the significant share of passenger cars in the modal split of transport (Moeinaddini et al., 2015). The concept of sustainable mobility, which supports means

of transport that cause minimal harm to the urban environment, reduces congestion, supports the economy and addresses unequal access to transport (Banister, 2008), seems to address these problems. This is particularly important in cities with multiple functions, including university (Cattaneo et al., 2018) and tourist cities (Zientara et al., 2024). Among the means of transport considered sustainable, the bicycle is often mentioned, but not in every urban environment can this be an easy task. In densely built-up cities, there is usually no room left for a separate cycling infrastructure. On the other hand, in cities with varied terrain, like Rijeka, with large altitude differences, cycling may be too demanding for residents. In this dimension, the implementation of electrically assisted bicycles, which have been successfully developed as a means of transport in recent years, seems to be an effective solution. Their role can also be very important, as mobility shapes the presence of students and tourists.

This study aims to assess the development of e-bike-based mobility in the city of Rijeka, Croatia, as seen through the eyes of economics students, and in the context of the city's economic development. In order to achieve the objective, the following research questions were used on the impact of the development of e-bike mobility as an increase or expansion of the e-bike sharing system:

- How do students currently move around the city and what role does bicycle mobility play in this context?
- What impact can the development of e-bike mobility have on the overall economic situation, students' everyday life and in the context of tourism in the opinion of students?

The paper uses the opinion of students from economics faculties, as firstly, they are professionally interested in future economic development, and secondly, they are everyday users of the space in which the study was conducted. The city of Rijeka in Croatia in Central-Eastern Europe is used as an example. This region is characterised by a relatively low level of cycling culture (Németh, Horňák, 2026) and a high level of car ownership and use (Radzimski, Gadziński, 2019). In addition, the city is highly attractive to tourists and an important academic centre. The topographical conditions of Rijeka, located on hills, are also important for the development potential of e-bike mobility. This study assesses the potential for developing a new, underused mode of mobility, such as the e-bike, and the results will provide valuable recommendations that can be effective for other cities facing similar problems.

E-bikes in literature

Electric bicycles have developed in recent years as an alternative mode of transport that can offer more travel options than a traditional bicycle (Rérat, 2021). This is emerging across both private e-bikes and e-bike sharing (Guidon et al., 2019; Li et al., 2024) and is a particularly important issue in the context of the search for sustainable forms of mobility and the reduction of CO2 emissions in transport (McQueen et al., 2020; Raydan, Nehme, 2026). However, e-bikes, unlike traditional bikes, give users more options. They are useful for covering longer distances than a traditional bike and for overcoming hills while also increasing accessibility among people with lower physical fitness and the elderly. In addition, e-bikes can introduce cycling culture in places where it has not been possible with traditional bicycles due to topographical conditions. Increasing the

availability of e-bikes can lead to increased mobility for residents, students and tourists, as well as a greater attractiveness of the city in its harder-to-reach areas.

E-bikes in urban mobility. E-bikes (electric bikes and pedelecs) have become increasingly popular as a form of transport in urban areas around the world in recent years (Rose, 2011; Fishman, Cherry, 2016; Kwiatkowski, Karbowiński, 2023; Emanuel-Cristian et al., 2025). In fact, studies to date have confirmed that they increase travel range (Huang et al., 2024; Yang et al., 2024) while reducing the effort required when using a bicycle. This may increase the accessibility of cycling for a larger group of users (Haustein, Møller, 2016) and the likelihood of using the bicycle for everyday mobility. Popovich et al. (2014) also emphasise in this context that e-bikes may encourage a reduction in the need to use cars. However, stereotypes about electric bikes can significantly affect perceptions and, in turn, the decision to use them. It has been shown that people who have not used e-bikes before are more likely to perceive more barriers to their use (Simsekoglu, Klöckner, 2019) and among the most important, Lee & Sener (2022) mention the availability and cost of using such a bike, the lack of infrastructure and stereotypes about those who use them. Among social barriers, the stereotype of the so-called 'cheated effort' towards the traditional cyclist is undoubtedly of great importance (Le Bris, 2016; Jones et al., 2016) while a sense of security (Yao, Wu, 2012) can be another. However, according to Fyhri et al. (2017), those who have tried an e-bike are more likely to consider buying one and using it again. E-bikes are also considered a sustainable means of mobility, especially in the context of a possible decarbonisation of transport (Hiselius, Svensson, 2017; Calan et al., 2026), but are not themselves fully inclusive (Guo et al., 2025).

Electrically assisted bicycles have also developed within e-bike sharing systems (Hosseini et al., 2024; Adorean et al., 2026). The implementation of such systems may, as Handy & Fitch (2022) indicate, affect the willingness to use e-bikes, which is especially important in cities with a less developed bicycle infrastructure (Julio, Monzon, 2022). Another well-known form of development is subsidies for the purchase of one's own e-bike (Sundfør, Fyhri, 2022; Veisten et al., 2024).

Students undoubtedly play a big role in urban mobility, and the ability to move around the city is crucial for them (Etminani-Ghsrodashti et al., 2024), both when choosing a means of mobility and the city in which they will study. As shown in previous work (Nash, Mitra, 2019; Ribeiro et al., 2020), for the most part, students use public transport or walk. Although a large role has been attributed to electric bicycles in the context of supporting the mobility of older people (Leger et al., 2019), studies by Plazier et al. (2017) and Nematchoua et al. (2020) have shown that it is among students – young adults – that there is a great potential to increase the share of e-bike users.

Electrically assisted bicycles can therefore bring several benefits – both individually and on a wider scale – to cities and regions. However, as shown, there are numerous actions and numerous barriers to overcome that will help implement this solution on a wider scale than before across the daily mobility of residents, student mobility, and tourism and recreation.

E-bikes in local and regional development. The use of electrically assisted bicycles can not only stimulate individual activity among different social groups but also have a wider impact on local and regional development. An increasing share of e-bikes in local development, understood as a process of strengthening the economic opportunities of cities, improving social relations and the quality of life of residents (OECD), brings local economic benefits (Gilderbloom et al., 2016). On a macro level, Mason et al. (2015)

estimated that increasing bicycle traffic could save society $24 billion by 2050. The bicycle tourism sector is also important in this context (Clifton et al., 2012; Chakraborty, 2019) because as Pirolo & Pileri (2026) point out, e-bike-based cycling has a positive impact on the local economy, while proper infrastructure preparation for e-bike tourism can affect local and regional development (Pirolo, Moscarelli, 2025). However, activities related to the development of e-bike mobility do not have to be limited to city activities but also include local entrepreneurs offering services for the rental or repair of e-bikes (Genikomsakis et al., 2021). It has also been shown that the proximity of tourist cycling routes can increase the income of businesses located along them (Luekveerawattana, 2022). Dahir & Le (2025) emphasise that in some cases, the presence of bicycle infrastructure can increase the value of the properties located next to it. Cycling mobility also increases the number of jobs in the local market (Blondiau et al., 2016), in cycling tourism (Meletiou et al., 2005) and in industries not directly related to cycling.

However, in e-bike development planning, it should be remembered that, as with other users, tourists may also experience barriers to e-bike use (Ahmad, Harun, 2024). In addition, in some cases, the development of bicycle infrastructure, especially when it is at the expense of car infrastructure, may raise concerns about its negative impact on local business development (Field et al., 2018). However, many studies have proven that the development of infrastructure for active mobility can be harmless and of no issue to business (McCoy et al., 2019) or gastronomy (Yu et al., 2026), or even bring positive economic effects to the local economy (Poirier, 2018; Volker, Handy, 2021).

In this context, e-bikes, which have been developing in recent years as technological (Zuev, 2020) and social (Seebauer, 2015; Wild, Woodward, 2019) innovations, can also successfully become an innovation in the economic dimension. However, previous research has insufficiently linked the issues of e-bike mobility with economic development. This study additionally introduces the perspective of students of economics, showing their view of the role of e-bike mobility in local and regional development.

Methods

To achieve the study's aim and determine answers to the research questions, the survey used a questionnaire conducted among students of economics at the Faculty of Economics and Business of the University of Rijeka. It was decided to select this research group, identifying it as those who will deal with local and regional development issues among their future professional interests as well. The faculty location where the selected group studies, was also important as it is located in the very centre of the city.

Rijeka case study. Rijeka is Croatia's main port and one of the most important urban centres on the northern Adriatic. According to census data, Rijeka had 144,043 inhabitants in 2001, 128,624 in 2011, and 107,964 in 2021, meaning the population fell by about 25% between 2001 and 2021. Recent estimates indicate that the decline has continued, with around 105,700 inhabitants in 2024 (Citypopulation.de).

In terms of mobility, Rijeka is a traffic-oriented city with a high number of cars (Marsanic, Krpan, 2015). The roads, especially in the city centre, are very steep, and dense buildings make it impossible to introduce separate infrastructure for cyclists without interfering with sidewalks or car lanes (Figure 1). In addition, the city has a system of electric public bikes *Ricikleta*, which includes four bicycle rental and return stations (Figure 2).

Figure 1. Streets in the centre of Rijeka

Source: Michał Adam Kwiatkowski

Figure 2. Ricikleta e-bike sharing stations in Rijeka

Source: Michał Adam Kwiatkowski

Currently, Rijeka is working to strengthen innovation, IT, creative industries, green technologies and cooperation between the economy and the University of Rijeka. Tourism, including cruise and cultural tourism, has become more prominent, but Rijeka is still less dependent on tourism than many Croatian coastal cities and remains primarily a port, transport, service and university city.

The University of Rijeka is one of the key institutions shaping the city's contemporary identity. Founded in 1973, it has helped Rijeka shift from being viewed mainly as an industrial and port city to becoming a centre for students, research and innovation. The university comprises 17 faculties and offers more than 180 accredited study programmes with approximately 16,500 students and more than 1,700 employees making it the central higher education and research institution in western Croatia. Its campus at Trsat and its cooperation with local institutions and businesses is especially important for the city's social and economic development (Uniri.hr). As mentioned earlier, tourism is one of the city's growing economic sectors (see Table 1).

Table 1. Number of tourists in Rijeka: 2019–2024

Year	Rijeka: tourist arrivals*	Primorje-Gorski Kotar County / Kvarner: tourist arrivals	Rijeka as % of the county total
2019	166,534	3,130,326	5.3
2020	61,675	1,464,210	4.2
2021	109,843	2,371,806	4.6
2022	182,908	3,065,846	6.0
2023	221,107	3,219,927	6.9
2024	226,940	3,229,443	7.0

* Rijeka values are approximate because they are derived from reported year-on-year growth statements, while other values are directly reported annual totals. County/Kvarner data are from Croatian tourism statistics, mainly HTZ/eVisitor annual December reports, with older years cross-checked against DZS/compiled county tourism data.

Source: authors' calculation based on: https://web.dzs.hr/Hrv_Eng/publication/2015/04-03-02_01_2015.html (access: 10.05.2026)

Compared with the county as a whole Rijeka still accounts for a relatively small share of tourism, but its share increased from around 4–5% before the pandemic to about 7% in 2024, indicating that Rijeka has become a more visible urban tourism destination within Primorje-Gorski Kotar County.

Topographically, Rijeka has a distinctive coastal and hilly form. The city developed at the mouth of the Rječina River, where the Adriatic Sea extends deeply into the European mainland, stretches along the Gulf of Rijeka, part of the wider Kvarner Gulf, while hills and mountains rise immediately behind the urban area. Because of this, Rijeka is built on a narrow coastal strip and on steep slopes above the sea, giving it a compact, terraced and visually dramatic urban landscape (enter.rijeka.hr). This makes Rijeka an attractive destination for tourists, but it is difficult to get around by bike without electric assistance.

Survey. To achieve the study's aim, an anonymous survey was conducted among students of the Faculty of Economics and Business at the University of Rijeka between May 15 and 25, 2026, with 154 responses. It was carried out in accordance with the principles of the CAWI (Computer Assisted Web Interview) technique, which meant sending a link in electronic form via the University of Rijeka's internal mail, as well as making

the QR code available to students during auditorium classes. In the survey, respondents answered questions about their general and socio-demographic characteristics, and about their perceptions of electric bicycles (and e-bike sharing) in the context of the city's economic, tourism and student development. The questionnaire consisted of 16 closed questions, including single-choice, multiple-choice and Likert-scale. The survey results were compiled as frequency analysis using IBM SPSS and Microsoft Office software and presented in this article using tables and graphs.

Results

The survey was conducted among 154 students studying at the Faculty of Economics and Business at the University of Rijeka. First, the socio-demographic characteristics of the study participants were analysed: gender, age in years, year of study and place of residence in Rijeka.

Table 2. Socio-demographic characteristics of respondents

Variable		Number of answers	%
Gender	Female	111	72.1
	Male	42	27.3
	Prefer not to disclose	1	0.6
Age	mean		22.91
Year of the study	First	31	20.1
	Second	86	55.8
	Third	22	14.3
	Fourth	5	3.2
	Fifth	10	6.5
Place of residence	In the city centre of Rijeka	39	25.3
	In another part of Rijeka	65	42.2
	On the University campus	2	1.3
	Outside Rijeka	48	31.2

Source: authors' study based on a survey *[N=154]*

According to the results (Table 2), 72.1% of female and 27.3% of male students participated in the survey. The gender structure of respondents corresponds to the gender structure of Faculty of Economics and Business students where according to data for the 2023/24 academic year, 71.7% were female and 28.3% were male (Jurić et al., 2025). The average age of the respondents was 22.91. Among them, the largest percentage were second-year students (55.8%), followed by first-year (20.1%) and third-year (14.3%). 25.3% of respondents live in the city centre where the Faculty of Economics and Business is located but the largest percentage live in other parts of Rijeka (42.2%).

The mobility patterns of the students participating in the study were analysed and the means of transport they most often use when moving around the city and the purposes for which they travel most often were checked.

Table 3. Distribution of answers to the questions: "How do you move around Rijeka most often?" and "Where do you move around Rijeka most often?"

Question	Answer	%
How do you move around Rijeka most often?	By car	38.31
	On foot	31.17
	By public transport	28.57
	By motorcycle	0.65
	By taxi	0.65
	Other	0.65
	By bicycle	0.00
	By an electric bicycle	0.00
	By scooter	0.00
Where do you move around Rijeka most often?	To the university	44.16
	To restaurants/cafés	14.29
	To services	10.39
	To shops	9.09
	To friends/family	8.44
	Other	7.79
	To sports facilities	5.84

Source: authors' study based on a survey *[N=154]*

Among the means of transport used, three forms of mobility dominate (Table 3): driving a car (38.31%), walking (31.17%) and using public transport (28.57%). None of the survey participants indicated a traditional bicycle or an e-bike as a means of transport in Rijeka. Among the destinations for moving around the city, the university dominates (44.16%) while other important places for students include restaurants and cafés (14.29%) and services (10.39%).

The survey also asked whether respondents had ever had the opportunity to use an e-bike. The survey asked two questions: one was generally related to the use of an electric bike, and the other to e-bikes with the *Ricikleta* bike-sharing system (Table 4).

Table 4. Answers to the questions: "Have you ever used an e-bike or electric-assisted bicycle?" and "Have you ever used an e-bike from the Ricikleta e-bike sharing system?"

Question		%
Have you ever used an e-bike or electric-assisted bicycle?	Yes	22.08
	No	77.92
Have you ever used an e-bike from the Ricikleta e-bike sharing system?	Yes	5.84
	No	94.16

Source: authors' study based on surveys *[N=154]*

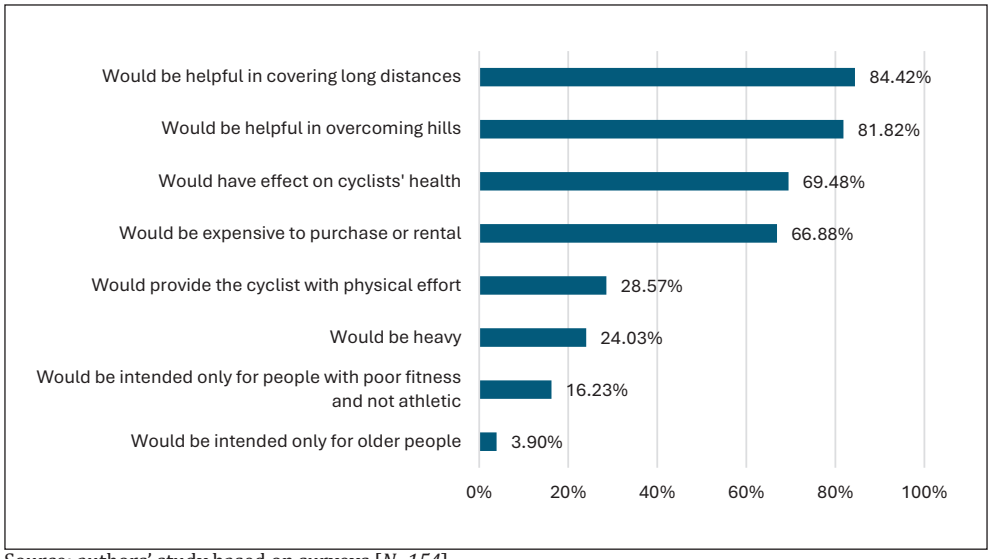
The majority of respondents have never used e-bikes, whether as private bikes or through a bicycle-sharing system. 77.92% of respondents indicated they had never used e-bikes, while in the case of the *Ricikleta* e-bike sharing system, 94.16% of respondents had not used it.

The diagnosis of the basic characteristics of the surveyed group indicates that women and those living outside the city centre dominate among respondents who most often move around the city to the university and to catering and service outlets, and that they

use public transport, a car or walk. It has also been shown that the experience of using e-bikes in the studied group is very small.

In the next part, the respondents' opinions regarding perceptions of e-bikes and the possibility of developing this form of mobility in the Rijeka area were analysed. Opinions on the possible impact of e-bikes on economic development, local businesses, tourism and student life in the city were also collected. First, the study group was asked about their general perception of e-bikes and the students indicated the opinions they agreed with (Figure 3).

Figure 3. Distribution of answers to the question: "Please mark the statements with which you agree: Electric bikes / electric-assisted bicycles in Rijeka…"



Source: authors' study based on surveys [*N=154*]

Among the most frequent were those indicating that e-bikes would help cover long distances (84.42%) and overcoming hills (81.82%). A high number of indications were also received for assessing that e-bikes would have an effect on health (69.48%) but also that e-bikes would be expensive to purchase or rent (66.88%). The fewest agreed with the statement that e-bikes would be intended only for older people (3.90%). Later in the survey, students answered questions directly about the impact of e-bikes on city development. First, they assessed their impact on local businesses, tourism and students' lives (Table 5), and on the city's image (Table 6).

Table 5. Answers to the questions: "Do you think that implementing measures to simplify the ownership and use of electric bikes, or extending an electric bike-sharing system, will have an impact on local business / tourism / students"

Category	Answer	%
Local business	Will increase the turnover of current businesses	22.73
	Will introduce new businesses	34.42
	Will have no influence	39.61
	Will reduce the turnover of existing businesses	3.25

Tourism	Will increase current tourists' interest in the city	32.47
	Will increase new tourists' interest in the city	37.01
	Will have no influence	29.22
	Will reduce tourists' interest in the city	1.30
Students	Will increase current students' interest in the city	31.82
	Will increase future students' interest in the city	31.17
	Will have no influence	35.71
	Will reduce students' interest in the city	1.30

Source: authors' study based on surveys *[N=154]*

Regarding the impact on local businesses, 39.61% of students considered that the introduction or development of e-bike mobility will have no influence, 34.42% said they would introduce new business, and 22.73% said they would increase the turnover of current businesses. In the assessment of the impact on tourism, it was most often indicated (37.01%) that it will increase new tourists' interest in the city while 32.47% said they would increase current tourists' interest in the city, and 29.22% said they would have no influence. Regarding students' everyday life, 35.71% said it would have no influence, 31.82% said it would increase current students' interest and 31.17% said it would increase future students' interest.

Table 6. Distribution of answers to the question: "How can implementing measures to simplify the ownership and use of electric bikes, or extending an electric bike-sharing system, influence the image of the city?"

Answer	%
Positively	74.03
May not have an influence	22.08
Negatively	3.90

Source: authors' study based on surveys *[N=154]*

As for the overall impact of e-bikes on the city's image, 74.03% of respondents assessed that it may have a positive impact, 22.08% it may not have an influence and 3.90% that the impact may be negative (Table 6).

The next section assessed opinions on e-bikes (both private and e-bike sharing) and their impact on specific aspects of the city's economic development (Tables 7 and 8). Respondents assessed whether they agreed with the given statements using a scale from 1 to 5, where 1 means "strongly disagree" and 5 means "strongly agree." For each of the evaluated statements, the arithmetic mean of the grades given by the respondents was calculated.

Table 7. Average answer to the question: "Please rate the following statements about e-bikes as a sharing system on a scale of 1 to 5, where 1 means 'strongly disagree' and 5 means 'strongly agree'"

Answer	Mean
E-bike-sharing could create new business opportunities in Rijeka, such as rental, repair, charging and parking services	3.928
The economic benefits of e-bike-sharing would depend on safe cycling infrastructure, affordable prices and good integration with public transport	3.902
E-bike-sharing could support the development of sustainable tourism in Rijeka	3.772
E-bike-sharing could encourage tourists to visit local businesses outside the city centre	3.655

E-bike-sharing could make Rijeka more attractive to tourists	3.616
E-bike-sharing could make Rijeka more attractive as a university city	3.584
E-bike-sharing could encourage students to spend more time and money in different parts of Rijeka	3.571
The expansion of e-bike-sharing in Rijeka could have a positive impact on the city's overall economic situation	3.422
Source: authors' study based on surveys *[N=154]*	

In the evaluation of e-bikes within the bicycle sharing system, the highest average score was obtained for the following statements: "E-bike-sharing could create new business opportunities in Rijeka, such as rental, repair, charging and parking services" (3.928) and "The economic benefits of e-bike-sharing would depend on safe cycling infrastructure, affordable prices and good integration with public transport" (3.902). On the other hand, the respondents rated the statement "The expansion of e-bike-sharing in Rijeka could have a positive impact on the city's overall economic situation" (3.422) lowest. It should be noted, however, that all the statements evaluated in this question achieved average grades in the range of 3.422–3.928.

Table 8. Average answers to the question: "Please rate the following statements about e-bikes on a scale of 1 to 5, where 1 means 'strongly disagree' and 5 means 'strongly agree'"

Answer	Mean
E-bikes could help tourists access more locations in Rijeka, including beaches, viewpoints, cultural sites, restaurants and surrounding areas	4.019
E-bikes could strengthen the connection between student areas, university facilities and the city centre	3.850
E-bikes could improve access to local shops, cafés, restaurants, services and cultural venues in Rijeka	3.727
Increasing the number of e-bikes in Rijeka could improve residents' mobility and support local economic activity	3.701
Improved student mobility through e-bikes could support the development of student-oriented businesses and services	3.597
Investment in e-bike infrastructure could benefit local businesses	3.409

Source: authors' study based on surveys *[N=154]*

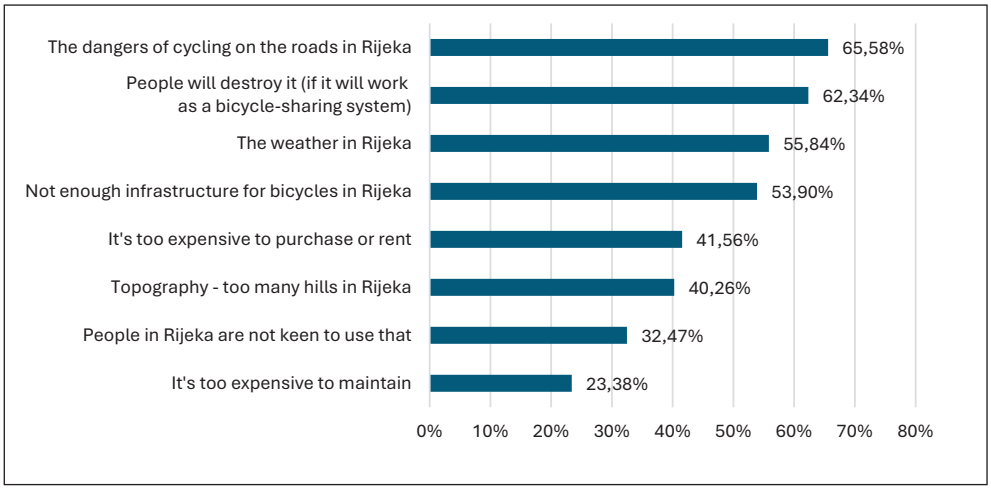
In the evaluation of e-bikes as private bikes, the highest average rating was obtained for the statement "E-bikes could help tourists access more locations in Rijeka, including beaches, viewpoints, cultural sites, restaurants and surrounding areas" (4.019), the lowest was for "Investment in e-bike infrastructure could benefit local businesses" (3.409).

The last question in the survey asked students about the barriers to the development of e-bike mobility in Rijeka. The question was multiple-choice (Figure 4).

The most frequently indicated were the dangers of cycling on the roads in Rijeka (65.58%), the risk of bicycle damage (62.34%), the weather (55.84%) and the underdeveloped cycling infrastructure in the city (53.90%). The least frequently reported barrier was the cost of maintaining an electric bicycle (23.38%).

This section of the survey shows how the students perceive the possibility of developing e-bikes and how they assess the impact of this form of mobility on various aspects of the city of Rijeka's economic development. However, respondents see significant barriers that may limit the development of e-bikes in Rijeka.

Figure 4. Distribution of answers to the question: "What might be the barriers to the development of mobility based on e-bikes / electric-assisted bicycles in Rijeka? You may select more than one answer"



Source: authors' study based on surveys *[N=154]*

Summary

The study identified opportunities to increase the share of e-bikes in Rijeka, Croatia. As previously assumed, this solution could be the answer to the mobility problems in this city in many respects, especially given the topography and many steep roads, not only in the centre but also throughout the city. It was also assumed that the development of e-bike mobility could be a good solution not only for the city's permanent residents, but also for tourists and students, and could contribute to the city's economic development or even promote it on a regional scale.

Students, as one of the most important participants in the city, were asked for their opinions on the potential for e-bike mobility in Rijeka. The study was conducted on a sample of 154, which allowed for careful inferences and answers to the research questions posed in the article.

As diagnosed in the study, the most popular means of transport are public, walking and driving with the last of these modes being treated as the least desirable in the context of sustainable transport. The survey also showed that among the respondents, no one was riding a bicycle around the city. In the context of the potential impact of e-bike mobility on economic development, students recognise this potential; moreover, their most frequent travel destinations – the university, food outlets and service points – suggest that improving access to them could bring economic benefits to these businesses. Respondents rate the growth potential as high or of little consequence due to the increase in the share of e-bikes across local business, tourism and student life. However, it should be mentioned that the potential of this form of mobility in tourism was rated the highest. The students participating in the study also see opportunities to develop local businesses and increase the reach and goals of their trips, with the potential development of e-bikes.

On the other hand, the respondents' answers clearly indicate the need to increase cyclist safety on the road and to create bicycle infrastructure. These observations are

particularly important in the context of spatial planning in a densely built-up city centre. Among the mentioned barriers, infrastructure destruction, such as public bicycle systems, as well as unfavourable weather conditions for cycling, are also of great importance. Nevertheless, among the surveyed students, a mostly positive or indifferent attitude towards e-bikes was demonstrated, emphasising that the majority believe that the development of this form of mobility can have a positive impact on the city's image.

Based on the survey results, it can be concluded that, in the opinion of students in Rijeka, there is potential for an increase in e-bike mobility, and that this development can have a noticeable impact on local and regional development. However, for further development, it is necessary to take into account the potential problems and barriers identified. In this regard, the need to provide conditions for safe bicycle traffic in the city comes to the fore. At the same time, given the means of transport students use, it is necessary to promote and encourage the use of e-bikes. However, it should be emphasized that according to the results obtained the vast majority did not use an e-bike or e-bike sharing system, which may have an impact on the assessment of this form of mobility on economic development.

The limitations of the study include the specific group of respondents selected, as well as its local nature and the specific culture of mobility. Further studies can solve the limitations by taking into account the opinions of other potential bicycle users and including other case studies, also in other countries.

The results obtained can serve as a guideline for planning the development of e-bike mobility in cities struggling with high levels of car traffic, limited space for infrastructure development for other road users, and topography unfavourable to active mobility (cycling and walking). Further research on e-bike mobility and bicycle traffic planning in Rijeka and cities with similar spatial problems should focus primarily on planning bicycle infrastructure and on the possibilities of switching to mobility modes other than passenger cars.

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