MOVING FORWARD TOGETHER

WHITE PAPER: MICROMOBILITY

SUMMARY

This publication prepared under the EU4Climate Project, funded by the European Union (EU) and implemented by UNDP, EU4Climate supports countries in implementing the Paris Agreement and improving climate policies and legislation with an ambition of limiting climate change impact on citizens' lives and making them more resilient to it. EU4Climate helps governments in the six EU Eastern Partner countries (Armenia, Azerbaijan, Belarus, Georgia, the Republic of Moldova and Ukraine) to take action against climate change and towards a low-emissions and climate-resilient economy.

The paper provides a comparison of different practices for regulating the movement of micromobility vehicles and policies regarding this type of transport in different countries; presents conclusions and recommendations of policies for determining the micromobility devices.

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INTRODUCTION

Micromobility[1] is a new type of (mainly) urban mobility that involves using light vehicles adapted for one-person travel. Currently, there is no internationally recognized universal definition of this term. In this overview, the reference to "micromobility vehicles" covers exclusively the devices fitted with an electric motor. Some countries introduce a list of acceptable types of such vehicles; however, given the emergence of new varieties every year, the more important for determining the micromobility vehicles are certain universal parameters, such as maximum speed, weight, and capacity.

The provided conclusions and policy recommendations based on a review of international experience in determining the micromobility vehicles, interviews with managers of companies providing micromobility vehicles rental services in the Ukrainian cities, and surveys of users of micromobility vehicles in Ukraine.

THE POPULARITY OF MICROMOBILITY IN UKRAINE

In previous years, Ukrainian cities did not collect data on the use of micromobility vehicles. The only data on micromobility contained in the 2020 study conducted by the U-Cycle NGO[2], according to which the number of users of micromobility vehicles in Kyiv was four times less than the number of bicycle users. However, in 2021, the electric scooter rental services plan to significantly increase the number of scooters, expand the geography of their availability, and reduce tariffs[3], which in 2020 could be compared to a taxi ride[4]. Thus, the situation is favourable for the growing popularity of micromobility in Kyiv and other cities.

OVERVIEW OF INTERNATIONAL LEGISLATION AND REGULATORY PRACTICES REGARDING MICROMOBILITY

The micromobility regulation issues are new: in the vast majority of countries under review, the following regulations were introduced in 2018-2020, in some countries the legislation is still being developed or certain transition periods are underway. Such urgency is due to the rapid spread and availability of both the micromobility vehicles and companies that provide relevant rental services. At the same time, existing regulatory practices are hindered to foresee the specifics of the use of such vehicles, or provide for ambiguous interpretations in attempting to apply them to micromobility. The main challenges that arise with the beginning of the widespread use of micromobility vehicles are related to road safety, urban infrastructure and urban development, the location of such vehicles, rental arrangements in the urban transport system and the impact on the environment. The topic is already attracting the attention of researchers[5,6].

1 https://www.itdp.org/wp-content/uploads/2019/12/ITDP_The-Electric-Assist_-Leveraging-E-bikes-and-E-scooters-for-More-Livable-Cities.pdf
2 https://u-cycle.org.ua/articles/pidrakhunok-osin-2020/
3 https://itc.ua/news/bolt-vidkriv-novij-sezon-prokatu-elektrosamokativ-u-kievi-lvovi-ta-odesi-ih-kilkist-zbilshili-a-tarifi-znizili/
4 https://hmarochos.kiev.ua/2020/10/26/u-kyyevi-z-yavyvsya-novyj-prokat-elektrosamokativ-scroll-skilky-vin-koshtuye-i-yak-pratsyuye/
5 https://kluwerlawonline.com/journalarticle/European+Energy+and+Environmental+Law+Review/29.4/EELR2020036
6 https://www.sicurstrada.it/Risorse/FERSI-report-scooter-survey.pdf

In some countries, the regulatory framework has changed several times in recent years, so one can say that the search for better policies continues. At the end of the overview there is a comparative table, which contains some key features of regulation of the use of micromobility vehicles in different countries, as well as a brief description of features that are found among the countries most often.

At the EU level, the categorization of vehicles was introduced by the relevant European Commission Directive[7] in 2013. However, new means of transportation have emerged in recent years, which are difficult to classify under the given Directive. At the same time, the rapid development of electric scooter rental systems in the European cities provided for accumulation of a significant amount of data on their use. This allows national governments and local authorities to develop a more detailed regulatory framework on the basis of the said Directive and to make informed decisions regarding further policies for regulation of micromobility vehicles in terms of improving road safety.

COMPARATIVE TABLE OF KEY FEATURES IN DETERMINING THE MICROMOBILITY (MM) VEHICLES AND REGULATING THEIR MOVEMENT

Country	Limited design speed of the vehicle to fall under the definition of MM, km/h	Other limitations of MM vehicle	Where is it recommended to move?	Is it allowed to move on the sidewalk?	Response to the spread of MM vehicles and their use during a pandemic
FRANCE	25	–	Cycling infrastructure, right side of the street (except for country roads)	No	Cities dedicate sides of the streets for cycling infrastructure
GERMANY	20	Capacity: maximum 500 W (1400 for self-balancing devices), presence of the steering wheel	Cycling infrastructure, roadway	No	Rapid development of cycling infrastructure
GREAT BRITAIN (test period)	25	Rental electric scooters only, weight: 55 kg, capacity: 500 W, need for a special certificate	Cycling infrastructure, roadway, the right of local authorities to regulate	No	The beginning of the test period for the rental of electric scooters (have been previously banned)
SPAIN	25	It is planned to introduce a special driver's license	Cycling infrastructure (with an additional speed limit of 15 km/h in some cities), streets with a speed limit of 30 km/h, parks (at a speed of not more than 10 km/h). Additional rules are established by local authorities.	No. Exceptions may be adopted by local authorities. For example, in Barcelona it is allowed at a speed of 10 km/h and its reduction to "pedestrian" speed when approaching pedestrians	–
AUSTRIA	25	Capacity: 600 W	Cycling infrastructure, roadway	No. Exceptions may be regulated by local authorities, but in that case the speed should not exceed the speed of a pedestrian	–

7 https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R0168&from=EN

POLAND (legislation is in preparation, there may be changes)	–	Separate limits for scooters and other vehicles	Cycling infrastructure, not faster than 20 km/h, streets with a limit of 30 km/h	Yes, at a speed of 5 or 8 km/h	Development of a regulatory framework, development of cycling infrastructure
DENMARK	20	Weight: 55 kg. Scooters, segways, gyroboards were determined. Other MM vehicles are prohibited.	Cycling infrastructure	No	Restrictions on the movement and parking of MM vehicles in the center of Copenhagen
NETHERLANDS	25	Only scooters are allowed, subject to the availability of driving license	Roadway	No	–
BELGIUM	25	–	Cycling infrastructure, roadway	Yes, at pedestrian speed	Brussels limits speed for cars in the city center to 20 km/h for cycling and micromobility safety
SWEDEN	20	Capacity: 250 W. Some more powerful vehicles are equated to mopeds, the rest are prohibited.	Cycling infrastructure, roadway	Yes, at a speed of 5-7 km/h	–
TURKEY (the Law has not yet been published, there may be changes)	25	Availability of identification number	Cycling infrastructure, streets and roads with a speed limit not exceeding 50 km/h	No	Development of legislation
ESTONIA	25	Capacity: 1 kW, a separate category “mini moped”	Cycling infrastructure, roadway	No, an exception for Segway users	Improvement of the regulatory framework
SINGAPORE	–	–	Cycling infrastructure, roadway	No	Rapid development of the cycling network
USA	16-24	Different regulations in different states, mostly covering rental scooters	Cycling infrastructure, roadway	No, local authorities may establish exceptions. For example, in Washington it s allowed outside the downtown	The situation is addressed individually in all states and cities
NEW ZEALAND	–	Capacity: 300 W	Cycling infrastructure, roadway	Yes, the pedestrians are a priority in all cases	Ban on rental during a pandemic
COLOMBIA	20	–	Cycling infrastructure, city streets (with an exception of main roads)	No	Rapid development of cycling infrastructure, inclusion of MM vehicles in the recommendations in many guidelines during a pandemic

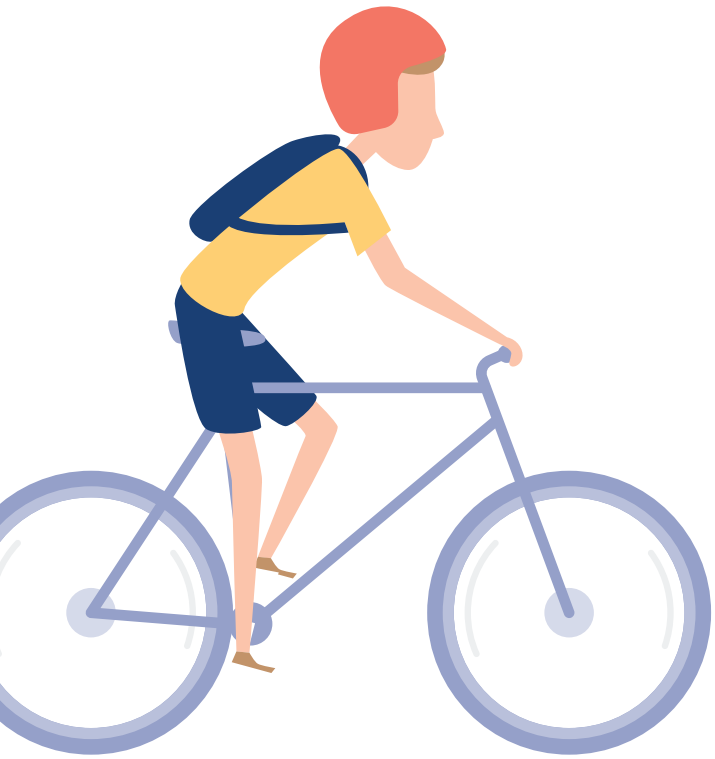
RESERVATIONS

In many countries and cities where micromobility vehicles have become very popular, there has been an increase in the number of incidents with them. This led to an introduction of stricter requirements and limitations.

Thus, the British expert organization Parliamentary Advisory Council for Traffic Safety warns against further legalization of micromobility vehicles[8], pointing out that the design of scooters is less safe than that of bicycles, they do not encourage active lifestyle, and cause serious inconveniences and threats to pedestrians.

In Denmark, in 2019, in the first six months after the update of the regulation on the movement of micromobility vehicles, more than 100 injuries involving electric scooters were registered[9]. The Danish Ministry of Transport claims that scooters are seven times more dangerous than bicycles[10]. The data on the increase in the number of incidents connected with the availability of a large number of micromobility vehicles are noted in many cities[11].

As for the environmental effect, according to the European Environment Agency[12], the use of micromobility vehicles mostly replaces walking or cycling, which can actually have a negative impact on the environment (factors: production, recycling, energy for charging, and in case of rental – regular collection/distribution of vehicles for charging and technical inspection with the use of cars).



Studies[13] confirm that there is a positive effect in case of replacement of travel by car with micromobility vehicles, as well as in case of maximum extension of the service life of micromobility vehicles, which should be taken into account when developing comprehensive transport policies. Unfortunately, currently, in European countries the opposite[14] situation is mostly observed.

8 https://www.pacts.org.uk/wp-content/uploads/e-scooters-PACTS-position-v2.pdf
9 https://www.yourdanishlife.dk/drunk-drivers-a-problem-on-electric-scooters/
10 https://www.thelocal.dk/20200227/electric-scooters-are-seven-times-more-dangerous-than-bicycles-on-danish-roads
11 https://usa.streetsblog.org/2018/12/19/deep-dive-are-e-scooters-unsafe-at-any-speed/
12 https://www.eea.europa.eu/highlights/walking-cycling-and-public-transport
13 https://iopscience.iop.org/article/10.1088/1748-9326/ab2da8/pdf
14 Table 4.6 https://www.sicurstrada.it/Risorse/FERSI-report-scooter-survey.pdf

CONCLUSIONS

Micromobility is already a reality of today, and the development of effective policies for its use can provide many benefits to society: flexible mobility, reduced emissions in cities, personal financial savings, reduced burden on the transport network, increased equality etc. At the same time, for example, electric scooters do not provide for adequate level of activity if used on a daily basis, unlike cycling and walking, and also pose certain new safety threats, which is why in all countries where their use has been regulated by law a number of restrictions on their movement were introduced. The following are summarized bullet points stemming from the overview.

1. Design features of micromobility vehicles: speed, capacity, weight. In almost all countries under review, there is a definition of micromobility vehicles, which includes limitation of the **maximum design speed** of the vehicle, usually to **20 or 25 km/h**. The upper capacity limit ranges from **250 W** (Sweden) to **1 kW** (Estonia). In some countries there is an exception for self-balancing vehicles, the highest limit for them exists in Germany (**1400 W**). Permissible weight limits range between 45 and 55 kilograms.

   An additional limitation in some countries is the mandatory presence of a steering wheel, which brings out a number of vehicles from the micromobility vehicles category. In most countries, electric scooters are defined separately, in some countries all permitted categories of vehicles are listed, and in some countries, all vehicles except scooters are prohibited in public places. In some cities and countries (Great Britain) the only micromobility vehicles that are allowed for use are rental electric scooters (individually owned MM vehicles are prohibited for use in public places).

2. Restrictions for users regarding distractions. The use of vehicles under the influence of alcohol and drugs, as well as the use of electronic devices and headphones while driving, is prohibited in almost all countries. In some countries and cities, there are additional practices aimed to make it impossible to drive while intoxicated – for example, rental scooters "turn off" in the evening in city districts where there are many bars and restaurants.

3. Legal framework. In some countries, the micromobility vehicles that meet the above criteria are equated to bicycles completely or with certain specifics. The rest provide a separate definition, but some of the "cycling" rules are applied the same, for example, the need to have serviceable brakes, to move within the cycling infrastructure or in its absence – on the right side of the road, mandatory use of reflective elements and lighting in the dark.

4. Movement on the sidewalk. In almost all countries and cities under review, it is **prohibited** due to the danger for pedestrians. In countries where it is allowed, the speed of the sidewalk movement should be close to the speed of pedestrians and be **5-8 km/h**. The highest speed on the sidewalk from the considered examples is observed in Barcelona – **10 km/h** is allowed, but with the condition of slowing down when approaching pedestrians.

5. The minimum age of users is from **12 to 18 years**. In countries where this limit is lower, there are additional conditions: being accompanied by an adult or the availability of a special child license (similar to the practice of using bicycles in these countries). Unaccompanied movement is allowed from **14-16 years**.

6. Other requirements. A number of countries recommend using a helmet while driving, but nowhere is this mandatory (even in New Zealand, where helmets are mandatory for cyclists). In some countries, the helmets are mandatory for children. Certain countries are introducing mandatory vehicle identification or special licenses, but all such measures are currently in transition and are being finalized, there are no examples of effective mechanisms for such a system yet.

7. Electric scooter rental policies. In most countries, the detailed regulation of rentals is delegated to local authorities, which sign certain contracts or memoranda with service providers. Those documents stipulate the total number and technical characteristics of vehicles, zones and time frames of their operation and other conditions. Very often, the conditions include the provision to the city of depersonalized data on movement and incidents that can be used by the cities to better plan urban transport infrastructure, detailed instructions on permitted places and methods of parking vehicles, conditions for user insurance etc. The opportunities to increase traffic safety on the part of rental service providers include[15]: significant limiting of speed for new users, automatic speed reduction in case of software-detected movement of two people on one vehicle, detection of drunk driving (or a general ban on renting vehicles at night time in districts with a large number of evening drinking establishments), the creation of payment models for services that would not encourage speeding and driving through a red light in order to save money.

8. The difficulty of recording violations in many countries is offset by high fines to discourage at least the most serious and dangerous violations. Moreover, the fines can be established for both users and rental service providers.

9. In order to have a positive impact on the environment and public health, micromobility policies should promote, as far as possible, the replacement of passenger cars with micromobility vehicles; the replacement of pedestrian and bicycle trips has the opposite effect.

10. The most effective measure to promote micromobility and increase the related road safety is the development of cycling infrastructure, which was particularly well demonstrated in 2020 during the COVID-19 pandemic and related lockdowns. Cities in Europe, South and North America, Asia are rapidly developing light transport infrastructure as a tool to address transport and environmental issues, as well as improve overall road safety.

15 https://www.itf-oecd.org/sites/default/files/docs/safe-micromobility_1.pdf

RECOMMENDATIONS FOR MICROMOBILITY POLICY DEVELOPMENT

Given the review of international experience, interviews with businesses providing electric scooter rental services in the Ukrainian cities, as well as surveys of the general public, the following are suggested steps for implementation by Ukrainian authorities at different levels.

NATIONAL LEVEL

1. To define micromobility. Possible generalized names of these modes of transport can be: personal transport, light personal transport, micromobility vehicle, small electric vehicle (Germany), motorized personal vehicle (France), personal mobility vehicle (Spain), small vehicle (Austria), personal transport device/vehicle (Poland, suggestion).

   An additional categorization of such vehicles can be introduced – electric scooters, which can be defined as a two-wheeled vehicle with steering and driving wheels, and self-balancing vehicles (which include gyroboards, unicycles, segways, etc.).

   It is proposed to introduce threshold parameters for vehicles to fall into the category of micromobility vehicles in terms of speed, capacity, and weight. The maximum design speed of such vehicles is proposed to be set at 25 km/h, given their possible use in cycling infrastructure, parks and pedestrian areas. This is the highest limit for micromobility vehicles, which is found in the European countries, but given the available electric scooter rental services, it is proposed to choose it. It is also proposed to determine the maximum capacity for electric scooters in the range from 250 W to 1 kW (this is the range determined in the European countries). The initial proposed capacity could be 600 W. For self-balancing vehicles, it is proposed to set the higher capacity limit, because some of their power is used for balancing, not for forward movement, but not above 1400 W, this is the highest limit found in Europe (in Germany). It is also proposed to determine the maximum permissible weight of such vehicles in the range between 45 and 55 kilograms (the experience of the European countries).

2. In regulating the movement of micromobility vehicles, it is proposed to equate them to bicycles in terms of rights and responsibilities of users, thus creating clear rules that are obvious to all road users and automatically envisaging the liability for violations already established by the Code of Ukraine on Administrative Offenses for cyclists. Such experience is similar to the experience of EU countries, a few differences in the use of bicycles and micromobility vehicles can be set out in additional paragraphs. Regardless of whether it is decided to equate the micromobility vehicles to bicycles or not, it is proposed to include the following paragraphs in the rules of their movement (in case of equating to bicycles, they will automatically apply to this category):

   - Restrictions for users regarding distractions. Prohibition of using headphones and mobile phones while traveling. Prohibition of driving under the influence of alcohol and drugs.
   - Requirement on serviceable brakes.
   - Requirement to use lighting devices (white in front, red in the back) in the dark, and a recommendation to use reflective elements on the vehicle and clothing.
   - Independent, unaccompanied movement from the age of 14 (16 and 18 in some countries).

- Movement on a sidewalk is prohibited in almost all countries; the maximum speed limit on the sidewalk is 10 km/h. In case of equation to bicycles, this rule will be automatically enforced. An exception may be the movement on a sidewalk for children aged under 14. In case of permission of the movement on a sidewalk, it is proposed to set the speed not higher than 10 km/h, referring to the European experience.

3. To develop strategic documents that would envisage measures aimed at developing micromobility infrastructure, allocation of appropriate funding, holding of information campaigns on the positive effects of the use of bicycles and micromobility vehicles as transport, introduction of changes in related documents, etc. An example of such a document could be the National Cycling Strategy, which contains a separate section on micromobility.

4. To develop the rules for transportation of bicycles and micromobility vehicles in public transport, both urban and interurban (primarily by rail). Increasing the inclusiveness of public transport, arrangement of special places for transportation of such vehicles.

5. To improve road safety, to implement in Ukraine of practices based on the Vision Zero concept – sound policies on speed limits (in particular, reduction of the maximum speed in cities), the use of infrastructure solutions that improve road safety, implementation and dissemination of automatic recording of traffic rules violations, development of pedestrian and bicycle-pedestrian zones in cities, the introduction of training programs on the basics of road safety in educational facilities, the introduction of control over the use of lighting devices on bicycles and micromobility vehicles in the dark.

6. To reduce or abolish import duties on bicycles and micromobility vehicles for a certain period, to stimulate local production of such vehicles.

7. To continue improving the State Construction Norms and SSUs, to envisage in them the modern means of calming and regulating traffic.

LOCAL LEVEL

1. Establish a coherent and safe cycling infrastructure. This is happening in all the countries under review; it was the main wish of the businesses. The need for a coherent and convenient infrastructure was indicated in the survey by the vast majority of its participants. Stable allocation of funding (could be a certain percentage in the budget), creation of barrier-free space, introduction of a separate position or department in the structure of local executive authorities, which would aim to develop cycling infrastructure and increase barrier-free movement.

2. Involve the public in decision-making and discussion of infrastructure projects and urban spaces.

3. Develop the rules of transportation of micromobility vehicles in public transport, consider integrating bicycle and electric scooter rental services in the uniform city ticket for transport.

4. Restrict the entry of cars into the central part of the city; to avoid chaotic car parking; to create bicycle and pedestrian spaces and streets without cars. To positively impact the environment and public health, micromobility policies should facilitate the maximum possible replacement of passenger cars with micromobility vehicles; the replacement of pedestrian and bicycle trips has the opposite effect. According to the survey, most users choose a micromobility vehicle instead of public transport or a bicycle, so the situation requires change.

5. Develop policies on electric scooter and bicycle rental; to establish cooperation between local authorities and companies that provide rental services. To develop common conditions indicating the total number and technical characteristics of the vehicles, the zones and time frames of their operation, and the city of depersonalized data on the movement and incidents that cities can use to plan urban transport infrastructure better. The recommended method of parking is stationless in designated areas. The encouragement of users for proper parking may be envisaged. The city and service providers should take steps to avoid the chaotic parking of rental vehicles.

6. To hold information campaigns to promote sustainable modes of transport, their positive impact on the environment, health, urban economy.