MICROMOBILITY

Insights from WMG’s ‘Ready for Electrification’ event series

Transport accounts for around 30% of CO2 emissions in the EU, with 72% coming from road transportation. With the world waking up to the need to decarbonise, it’s clear why transport is under the microscope.

There are several other growing problems perceived with transport on our roads too, including;

- Air quality, not just tailpipe emissions, but indirect emissions and particulates from tyres and brakes
- Congestion, costing billions of pounds and hours of efficiency every year
- Plateauing safety improvements on our roads in the developed world.

All this means there is real focus on our journeys right now, from many angles.

These issues tend to be felt most in urban areas. There’s a growing view that the majority of cars are unwelcome as they’re oversized, overpowered, noisy, harmful to health, under-utilising space and damaging the environment.

What is micromobility?

There’s several competing definitions for micromobility but, in simple terms, it refers to very small, lightweight and efficient vehicles to make journeys over short distances. Things like hover boards, bikes, e-bikes and e-scooters have long been considered micromobility vehicles, but there’s a good argument for the term encompassing anything up to a weight of 500kg, and maximum speeds of around 30mph (~48km/h). This includes vehicles like the Renault Twizy, which has been around for a while now with its unique selling point of being driveable without a full licence.

Micromobility vehicles can be privately owned, municipally owned (like ‘Boris bikes’), or part of a commercial shared-mobility scheme (like common e-scooter models around the world). In the right environment, they can save time, avoid congestion, remove parking conundrums and, crucially, use much less energy than a car journey (making them perfect for electrification from the outset). There is also evidence however, that they can replace active modes of travel such as walking, which is a risk to unilateral support and requires research to fully understand and better manage.

How big is micromobility likely to get, and Why?

The short answer is, very big! McKinsey & Co. estimate growth by 2030 of 2000%, with a global market value of £500B. A study by Ernst and Young showed the number of trips on escooters in the first two years of being available had dwarfed that of other new modes such as ride sharing, and ride hailing (e.g. Uber).

Micromobility sits at the intersection of the growing need for decarbonisation set out earlier, and a changing attitude of younger generations whose propensity to own a car and possess a license to drive has been falling since its peak in 1994. When you throw in the impressive range and reliability now possible with small vehicles (like scooters), and the channelling of latent demand provided by digitally enabled rental models (essentially meaning people can ‘try-before-you-buy’) and you have a very exciting, and rapidly growing market.
What are the main challenges for micromobility?

1. Legal definitions

In Europe, the closest existing definition covering these vehicles is “L-Category”, but this hasn’t kept up with innovation and excludes many new concepts being imagined and prototyped today.

An illustrative example would be the fact that e-scooters are currently classed as ‘motor vehicles’ in the UK (and are therefore illegal to ride*), but Electrically Assisted Pedal Cycles, or E-bikes (EAPCs) are classed as bicycles and therefore legal on roads, despite the two being quite similar in terms of mass and top speed.

[*Correct as of Jan 2021. There are currently trials across the UK for rental-only e-scooters to assess if this should be changed, and how.]

Ultimately, an effective and sufficiently flexible/agile definition is needed to replace the current L-Category, but this must also pay respect to points two and three below.

2. Where they can be used and by whom?

This is a topic that doesn’t necessarily have a one-size fits all answer. We need to consider the vehicle, the operating environment and the minimum age of the user.

There is a growing view that things like e-scooters and e-cargo bikes should be permitted to use UK cycle infrastructure. There is also a question of whether seated e-scooters, which potentially allow those unable to stand to have longer rides, should be allowed, too? If so, when does such a vehicle become classed as a moped? It’s a tricky issue, but logic dictates that top speed, power and mass are the key factors.

Then, there is a question of age. Right now, a child is expected to ride a bicycle on the road from the age of 11, but they can’t ride a powered two-wheeler until they’re 16, even if it were speed-limited. There are many inconsistencies like this that have occurred through evolution of new vehicles and technologies that were not imagined when the rules were created.

Finally, the lack of a clear legal definition for these vehicles, suitable operators and environments means that, at present, there isn’t an insurance model for them. Until policy and regulations better cater for micromobility, this will remain a key issue.

3. Behaviours

The Motorcycle Industry Association (MCIA), in association with Zemo Partnership (formerly LowCVP), recently released a document which touched on some of the points above, including proposing a category for two wheelers under 500w power output and 22mph top speed. Their proposal is that these be permitted on roads and in designated cycle lanes, from age 14, with a Compulsory Basic Training (CBT)-style training requirement. Such a move would open up a whole new market for UK manufacturers and service providers.

The MCIA document also recommends wearing helmets is made mandatory, as opposed to current standards that vary depending on the top speed/power output of the vehicle. This is encouraged for micromobility use, but really needs to be included in legislation to strengthen the safety argument around micromobility.
As well as legislation, we need to consider behaviours. Imagine a 22mph scooter on cycle lanes or children of 14 years old on our roads. Would a 14-year-old know how to signal correctly? Will vehicles be vulnerable to cars? And so on. The need to run trials and learn at scale is crucial, such as the current e-scooter trials supported by the Department for Transport.

In addition to good old driving standards training and assessment, there are many new and novel ways to enforce and incentivise ‘good’ behaviour through emerging technology, as well as innovation around training itself. For example, e-scooter hire service provider Tier has partnered with The AA to produce an online test where riders get credit for undertaking a voluntary test.

Another option is specific micromobility training similar to the old cycling proficiency test, which has merit, particularly for younger users.

Ultimately, clarifying expected behaviours in regulation, and then informing and training the public on how to minimise risk is crucial.

**What’s the opportunity for UK businesses?**

Changes that support new modes of transport are already being debated in Government and transport stakeholder groups, and there is real opportunity now, which is set to grow exponentially as policy and regulation catches up.

Mike Waters, Policy and Strategy Director at Transport for West Midlands confirms that whilst we are still learning about how best to integrate Micromobility in our cities, it has a key role to play; “Micromobility may well be the path to other solutions, joining up to tramways, railways, Automated Taxis and so on. On the path to cleaner air in our cities, and the most seamless transport system in the country, we are working as part of our Future Transport Zones work and beyond, to understand how to best integrate Micromobility for movement of people and goods and to positively influence policy and regulation which will be crucial to the best outcome. The ‘answer’ is not yet known, but we are certain Micromobility has a key role to play and is here to stay”.

There is a clamour for on-demand, shared personal mobility as rates of car ownership in younger generations plummet relative to older generations. ‘Millennials’ cite factors such as cost and inconvenience (e.g. parking and servicing) as reasons to either get an Uber, ride a hired scooter/bike, or perhaps hire a car. This is a major market shift which presents opportunities for businesses offering micromobility vehicles, whether that be e-bikes, e-mopeds, or even new light quadricycles like Citroen’s new “Ami”, which does not require a full driving licence, (like the Twizy, but with door and windows!).

Don’t believe this is all escooters and light cars; the market for so called ‘final-mile’ logistics vehicles that are tailpipe emission-free and compact has also gathered significant pace, with manufacturers moving to produce e-cargo bikes with increasing range, payload and practicality (there are even emerging EU standards for such vehicles, in development now).

There are opportunities for high-tech systems developers in micromobility too, as features like Emergency Braking begin to make their way onto e-scooters. Public perception and safety are key, so the industry is experimenting with new ways to achieve object detection for avoiding accidents and even identifying antisocial behaviour.

It would be remiss not to reference the ‘e’ that precedes most forms of transport mentioned in this article. There is much opportunity for innovation in electrification, including battery design, manufacture and application, all the way to disposal, reuse and recycling.
The UK should be able to play a major role in this multi-billion pound industry; particularly at the ‘premium’ end of the spectrum in terms of quality, and satisfying customer needs with exceptional design. There are still many major ‘pain’ points with escooters and ebikes for example. At a recent ‘Ready for Electrification’ event at WMG, Carsten Astheimer, founder and Head of Astheimer Ltd. demonstrated some provocative concept sketches of micromobility vehicle designs which are immediately more inclusive and offer greater utility, through the incorporation of three wheels (instead of two), and luggage space. The UK can lead through innovation like this, industrialising new concepts and features which delight users and solve often unspoken pain points.

WMG is equipped with expertise in areas that are key to the micromobility revolution, and is already helping businesses and transport authorities make the most of the opportunity to reduce our impact on the environment through tackling carbon emissions and ultimately improving air quality. Some examples include:

- Helping an innovative new cargo bike concept to market with Pashley Cycles
- Human Factors research with e-scooter provider SPIN
- We’re leading the Midlands Future Mobility Programme, and partnering closely with Transport for West Midlands on other initiatives like the Future Transport Zones initiative, to promote the shift to electric and sustainable modes of transport
- Our SCAV MSc course already includes content on micromobility to teach the next generation about the technology
- We are lucky enough to have a ‘mini-city’ available for use as a “Living Lab” right here on campus; with thousands of people commuting to and from our campus every day. There are residences, shops, bars, a bus interchange, multi-storey parking, and logistics operations all taking place in our bustling environment. We’re trialling e-scooters, novel energy storage and Vehicle-to-Grid (V2G), as well as autonomous pods. We also have trials of other vehicles and technologies in the pipeline to support businesses with developing their products and services.

GET IN TOUCH WITH US:

It is an exciting space. If you would like to know more, please get in touch.

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