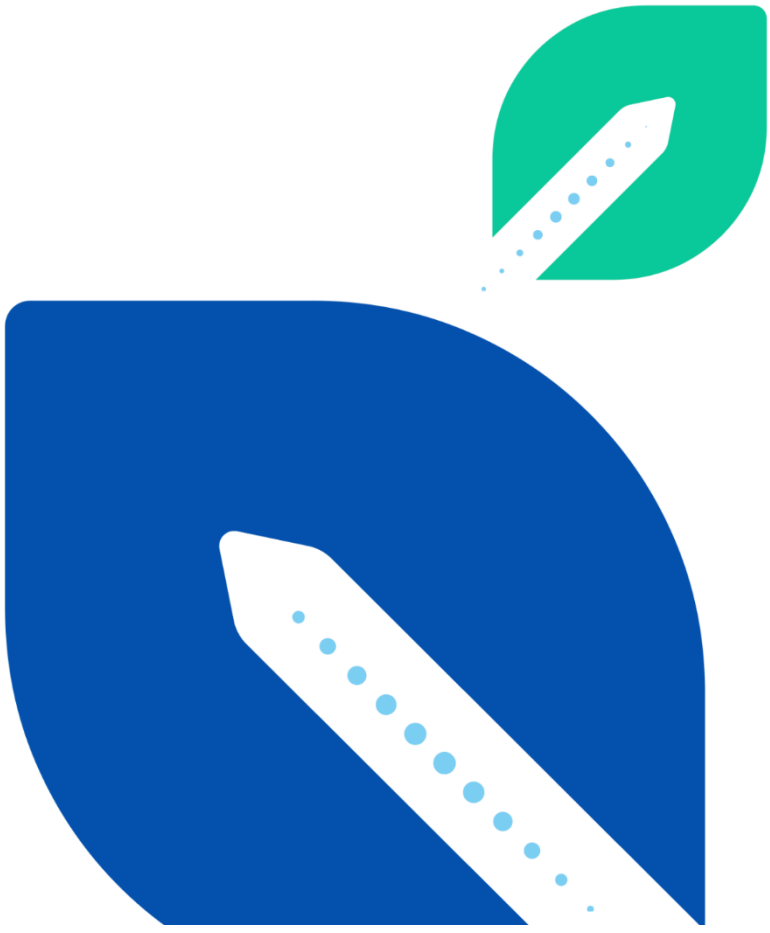
City-specific narrative scenarios

Budapest



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City-specific narrative scenarios

1.1 Budapest

1.1.1 Scenario 1- Electric is beautiful

Budapest in 2030 is bustling with people, as its streets are overrun by its growing population and an increased amount of tourists. They can be seen moving around the city on shared micromobility, which can easily be picked up and dropped off in dedicated areas all around the city. As the city has densified significantly over the past few years, the shared micromobility solutions have become the preferred modes of transport, increasing their supply as new mobility service providers have entered the market. The city has reallocated public space to create separate bike and micromobility lanes, making the use of these new solutions safer. This widespread adoption of micromobility has led the city to develop a strict regulatory framework around it, as in the early years micromobility solutions caused a significant number of accidents.

Budapest citizens have become increasingly environmentally conscious, which leads them to favour active travel modes like walking and biking. This is however not always easy, as high levels of air and noise pollution do not always make these travel modes as enjoyable. This increase in environmental consciousness has led the city to move away from favouring car use, by reducing the number of available parking spots and incentivizing alterative travel modes. This, in combination with a public space that has been reallocated in agreement with principles of sustainability, has made walking around the city more enjoyable, especially around the growing pedestrianized areas. As a result, parts of the economy like the restaurant sector are booming, as citizens and tourists alike now take the time to stroll through the streets of Budapest and sit at a restaurant or café terrace. In the city centre, as traffic has significantly decreased, sitting outside is now more enjoyable. This is especially true in the summer, as a slight increase in average temperatures turns the climate Mediterranean at times.

In order to counter the noise pollution that burdens the city, Budapest is incentivizing the electrification of mobility. This means that most vehicles on the street, be they cars, buses, or freight vehicles, are now electric. There are therefore a growing number of charging stations all over the city. The cars that can still be seen on the streets, in addition to mostly being electric, are shared cars. This mode of transport is now even more popular than public transport, as it gives users the flexibility of a car without the burden of ownership.

In 2030, there are also a number of technological developments characterizing the city. Tourists and citizens can be seen avidly using the Mobility-as-a-Service app that integrates all the new micromobility solutions with public transport, and which gives users the possibility to purchase flexible mobility packages depending on their needs. In addition, the city also favoured the development of a crowdsourcing platform, strongly involving citizens in city logistics.

All of this takes place against the backdrop of an increasingly densified city, which heightens its level of liveability, as citizens and tourists can enjoy reduced travel times.

Figure 1 Budapest scenario 1: Electric is beautiful

1.1.2 Scenario 2- The polluted city

Budapest in 2030 is characterized by many extreme weather events. This has turned tourists away from visiting the city, partially halting the demand for alternative micromobility solutions. In addition, the population of Budapest has also decreased over the past few years, further reducing the demand for alternative mobility solutions. The city remains therefore heavily car-dependent, especially since the increasing urban sprawl has moved citizens away from the city centre, leaving them with longer distances to travel. Because of the low adoption of micromobility, the regulatory framework for health and safety laws concerning these new alternative modes of transport has not been adapted. As a consequence, there is a lot of conflict between road users, as there are no dedicated lanes or drop-off areas for micromobility vehicles. This, in turns, leads to them being used mainly by younger residents, who are less troubled with the potential dangers these new solutions pose.

However, Budapest citizens have slightly become more environmentally conscious in their choice of transport, leading them to use active modes of traveling like walking and biking for short distances. The city's government has favoured this evolution, incentivizing the use of such active modes. The city government has worked on the reallocation of public space, increasingly pedestrianizing areas of Budapest, in order to favour this evolution. As a result, traffic and car use have slightly decreased in the central areas of the city, where distances to

be bridged are shorter. The positive effects of this are felt in the restaurant sector in the city centre, as travellers now more easily stop at a restaurant or café, fuelling economic growth.

This dependence on car use has resulted in noise and air pollution that have significantly increased. This, in part, is what has helped spark the environmental awareness in citizens' choice of transport, as it has helped them realize the effects of excessive car usage. As the electrification of mobility has increased as well, albeit more slowly than expected, it is expected that the benefits to the local environmental quality will be felt. This electrification is further fuelled by the extreme weather events that the city has sporadically been experiencing, as it has led the city government to introduce restrictions on internal combustion vehicles.

Budapest now also offers a Mobility-as-a-Service app that allows for greater flexibility when travelling. However, as the offer and adoption of micromobility is rather limited, the app focuses mainly on public transport, limiting its usefulness. In addition, no new developments have been seen in the public transport network, causing dissatisfaction with it among travellers, further reducing the use of the app. Furthermore, no reliable real-time data is available for travellers, be it in the app or in the vehicles, making public transport rather unreliable.

Figure 2 Budapest scenario 2- The polluted city

1.1.3 Scenario 3- The human-centred city

Budapest in 2030 is a city bustling with people on the streets, citizens and tourists alike. They can be seen cruising around the city on e-scooters and other types of micromobility, as this has become the main way to get around Budapest. This intense use of micromobility has led the city landscape to be changed, as new infrastructure has been developed for it. Separate bike lanes can now be found everywhere, as can dedicated parking areas to drop off the vehicles after use. The use of micromobility solutions by all has also fuelled a strong development in the public transport network: as the city is less dense now than it was 10 years ago, the synergies between public transport and micromobility have been exploited. Importantly, these new solutions are available to all layers of the population, as the city has completed its coverage of the Mobility Point Network. Thanks to this, modern and shared micromobility vehicles have become available that can easily be used by older people and the physically impaired.

The city of Budapest is now much less congested as a consequence of the developments in shared mobility and the improvements to the public transport network. Increasingly, citizens are shifting to active modes of transport like walking and cycling, enabled by the city's infrastructure and by city incentives favouring active modes of transport. Only longer journeys are still done using cars, but most of the vehicles on the street are now electric. The city has encouraged this shift by creating lots of bicycle parking infrastructure on the streets.

Further contributing to this decrease in the number of private cars in the city is the fact that the city has withdrawn parking permits, has installed zones with a reduced speed, and has strongly limited the number of available parking places around the city. Budapest has also introduced restrictions on the use of internal combustion engines, targeting older vehicles, as a reaction to the more frequent extreme weather events happening in the city. As summers are characterized by heat waves, the city has introduced the use of mandatory protective equipment when biking or when using micromobility, as there had been accidents involving users that were not adequately dressed because of the heat. During moments of extreme weather events, it also becomes clear that the air quality in Budapest is not yet optimal, as during days of extreme heat, high levels of air pollution are recorded.

Budapest now also has a Mobility-as-a-Service app in the early stages of integration, allowing for subscription packages to shared mobility and public transport. This has further reduced the rate of private car ownership among citizens and is also popular with the increasing number of tourists, as it allows them a great level of flexibility. The city has also invested greatly in the public transport network, increasing its coverage and efficiency. Passengers can now pay for their fare either through the MaaS app, or through smart payment methods installed inside vehicles. The MaaS app also has an advanced route planner, optimizing users' routes through the processing of real-time traffic data. In addition to the MaaS app, the city also developed an application for its older residents, through which they can order minibuses. This further increases senior residents' mobility.

Figure 3 Budapest scenario 3: The human-centred city