

# PREPARING FUTURE CITIES TODAY



THE URBAN MOBILITY INDEX IS A WAY FOR CITIES TO VISUALISE MOBILITY AND LEARN WHERE THEY NEED TO IMPROVE. **KAREN JANSSEN** EXPLAINS HOW IT WAS DEVELOPED AND WHAT SHE HOPES IT WILL ACHIEVE

The Smart City is a global phenomenon, synonymous with urban living in the 21st century. Governments are searching increasingly for smart solutions to address growing challenges around accessibility, sustainability and mobility. By 2050, 68% of the world's population will live in urban areas. And as urban areas balloon in size and scope, cities across the world are using technology to improve the efficiency, equality and sustainability of services and operations.

Smart solutions, however, are not possible without smart data. Cities must use intelligent data to improve decision-making and mitigate the impact that this population increase will have on urban centres, including how people and things

navigate these environments. Data analysis is essential to a city's ability to respond to urban challenges and plan for the future. Without accurate data, cities are stuck in the present.

HERE Technologies' Urban Mobility Index is a clear, effective way to analyse a city's urban mobility. This interactive tool visualises 38 cities around the world, providing a data blueprint of each city's services and operations. The cities featured stretch across the globe and include Berlin, New York, Mumbai, Sao Paulo and Melbourne.

To measure each city's performance, HERE used current research to develop an understanding of mobility and ultimately identify four key areas of examination: connectivity, affordability, sustainability and

innovation. Each theme is broken down into specific measurements, including transport efficiency, traffic flow, green spaces and air pollution. These detailed insights combine to create a comprehensive picture of each city's overall mobility performance.

The HERE Urban Mobility Index was created from an abundance of available geographic information. This largely derives from our own comprehensive global location database, which we then supplemented with a range of theme-specific, open-source data. The HERE Open Location Platform (OLP) was crucial to the development of the Mobility Index. This platform for Big Data analytics and the creation of new data services centred on location intelligence, provided a wealth of data that we could layer into a map: geospatial information, road networks, administrative boundaries, traffic, green spaces and EV charging stations. Although the OLP contains our own proprietary data, including points of interest (POIs) and traffic data, the platform also acts, in part, as a





marketplace where users can purchase and sell anonymised location-related datasets that meet GDPR and privacy requirements. The OLP is always expanding and relevant data is integrated into the Mobility Index.

### Capturing data

Capturing geospatial data required extensive use of technology. Data from drones, sensors, connected cars, cameras and chips push the boundaries of what can be captured, extending beyond roads to mountains, rivers and oceans. We have even taken the human experience into account – understanding the behaviour and relationships between people, places and things. For instance, to monitor traffic flow, we create accurate, real-time traffic information based on vehicle sensor data, commercial fleets, smartphones, PNDs and road sensors.

We realised we could use all this data to analyse some key city metrics that could, in turn, provide insights into urban development for city officials and planners. We defined 14 key indicators that measured the main aspects of a city's mobility. Once these indicators were in place and the data analysed, the Index began to take shape, creating a detailed picture of each city's mobility performance.

Compiling both internal and external data for the Index was a huge task due to the sheer volume of information and the breadth of indicators. The data had to be carefully filtered to extract only the most relevant information. The biggest challenge was collating quality data that was similar and comparable for all cities, meaning that the definitions and parameters for each dataset had to be the same for each city. This was not always easy to discern. For example, determining car ownership is complex, because vehicle registration tends to be by city in Europe and by state in the US; EV charging stations are counted differently, by plug or by number of poles depending on location.

Administrative and municipal boundaries also needed careful consideration. Exactly

where we draw a city's borders has a significant effect on an assessment of that region's mobility, but there is no singular, globally accepted methodology for how to define city borders. Moscow's borders were expanded in 2012 to include a large area of forest south of the city, whereas the region historically defined as the City of Paris only includes the city's core. Clearly, we cannot compare two such areas on a like-for-like basis.

When creating the Index, it was therefore essential that we not only selected city areas that were all broadly comparable to each other, but that all the data we used to compile the Index was drawn from the exact region we defined for each city. Ensuring that these boundaries matched was essential for the Index's consistency and accuracy.

### Helping cities with location intelligence

The Mobility Index uses intelligent location data that can help cities become smarter. The application of the Index can dramatically improve urban mobility efficiency worldwide. Cities may be collecting vast amounts of data every day, but it is impossible to comb through all of it. That's where businesses come in, each holding a piece of the Big Data puzzle. By understanding their geospatial surroundings, businesses can become the service providers of smart cities, driving the data behind innovative mobility ideas.

Cities can use the Index to contrast their mobility challenges and efforts with those of comparable cities, in size and population, around the world. Cities are continuously watching each other to ensure they learn quickly from best practices. The Index, therefore, provides a unique opportunity for cities to focus on areas of mobility in which they are both succeeding and falling short.

The vast amount of geospatial data that created the index has been neatly organised into easy-to-use datasets. Making it easy for cities to interpret this information in a meaningful way makes change much more



The Urban Mobility Index

accessible and enables the public sector to zero in on the issues that need the most improvement. Understanding the daily challenges that people face in their urban environments every day enables businesses and governments to make more informed choices for the benefit of their citizens.

### The future

We aim to update the Index regularly; the frequency will depend on how fast the data changes. We also plan to add more cities and indicators to offer an ever-expanding and ever more comprehensive analysis of urban mobility. The more precise and granular the picture of mobility becomes, the better able cities are to look at the implications these indicators have on other factors, such as air quality and liveability.

This is why visualisation is key: it illuminates a city's merits and shortcomings. Monitoring indicators over time reveals how the indicators affect each other – for example, how investment in bike sharing affects road traffic. The Index also serves as a conduit joining citizens to conversations about their city's mobility issues. Even within our own teams, how cities perform is an emotional topic; everyone had an opinion about their home city when they saw the data. More engagement drives better communication, defines goals and spurs action: the forces behind improvement.

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