

# Shared Mobility Solutions in the Making of a Smart-City

An update from Dubai

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Dubai, the largest city in the United Arab Emirates and arguably the most famous in the region, has become a very important city globally, especially during the last two decades. The adoption of neoliberal economic policies – including economic diversification and the push towards high-end tourism- has positioned Dubai as a global hub and transformed it into a brand synonymous with luxury and extravagant living ( [www.doi.org/10.1080/13563470701486372](https://www.doi.org/10.1080/13563470701486372)). Consequently, a large number of people visit the city every year as tourists or as job seekers, and major corporations and international firms position their headquarters in Dubai due to its appeal as a business hub, its well-connected location, and the stability and quality of life it provides.

Complementing this global city image, significant efforts have been underway to transfer Dubai into a smart city starting as early as 2009. As demonstrated by the Smart Dubai initiative, the adoption of extensive smart-city policies has been a priority for the authorities. Focusing on the concept of ‘happiness,’ the initiative has improved life for the city’s residents and visitors significantly (Salem, 2016). Government-related transactions and city-wide public services are all digitally connected and provide a rather efficient and seamless experience for residents and visitors alike. Over the years, ‘spectacular’ digital infrastructure within the city enabled such digital city management, and this notion has also been tested and proven during the pandemic period, as these smart systems translated into efficient and robust emergency response and a near return to normal as of recently.

One of the areas at the core of smart city principles relates to urban infrastructure, particularly smart transportation systems ( [www.doi.org/10.1108/JSTPM-05-2017-0016](https://www.doi.org/10.1108/JSTPM-05-2017-0016)). Providing well-connected transportation systems and networks is an important ingredient for the success of any city - smart or otherwise. These technological innovations could be focused on personal automobiles and involve smart-parking solutions and digital monitoring of traffic, signals, violations, and digital licensing services. Technology-based innovations also impact public transportation systems considerably. Well-connected public transport systems (both physically and digitally) are essential elements of urban living and components of social equity and human-centric city planning. They also play a significant role in the city’s sustainability and the reduction of global CO2 emissions.

One of the obstacles to successful public transportation systems is a poorly planned or fragmented urban fabric. Historically, Gulf cities, in general, boomed during the oil discovery period of the 1960s and 70s. It was also a period of infatuation with ‘modernist’ city planning ideals, which put the automobile at the center of city planning (Khalaf, S. (2006). The evolution of the Gulf city type, oil, and globalization. In J. W. Fox, N. Mourtada-Sabbah, & M. al Mutawa (Eds.), *Globalization and the Gulf* (pp. 254–275). Routledge. ). Most of these cities have large boulevards and city blocks that neglect pedestrian scale. The rapid growth of these cities, due to the infrastructure deployed to support the oil industry, only re-enforced this car-based city planning direction ( [www.doi.org/10.4324/9780203696798](https://www.doi.org/10.4324/9780203696798)). Massive labor migrations into the region and rapid population fluctuation, and cultural considerations made it difficult for public transportation systems to be successful – if even considered at all. Government housing schemes targeting country nationals also contributed to this issue. These vast residential developments adopted a suburban-low-density residential model and created sprawling communities entirely dependent on the automobile.

Urban development patterns within Dubai also follow similar trajectories. Outside of the city’s historic core (Deira neighborhood), the urban fabric is rather fragmented and is automobile-centric for the most

part. For a number of reasons, the city evolved following a relatively linear development pattern. The city continues to grow southward parallel to the coastline, whereas some developments emerged inland in the form of sprawling, fragmented suburbs of lower urban densities. Nevertheless, in an attempt to reduce traffic congestion and boost the city's global appeal, Dubai's metro was introduced in 2009 ([www.rta.ae/wps/portal/rta/ae/public-transport](http://www.rta.ae/wps/portal/rta/ae/public-transport)). The metro was an instant success and was the first system of its kind in the region ([www.globalvisions2011.ifou.org/Index/Group\\_4/FOUA00065-00072P2.pdf](http://www.globalvisions2011.ifou.org/Index/Group_4/FOUA00065-00072P2.pdf)). Since then, the metro has changed the city, reduced some traffic, and contributed to Dubai's modern and global appeal.

Most importantly, it made it easier for tourists and residents to move around the city without using a personal automobile or a taxi. Later on, a tram system was also introduced that also carries significant numbers of riders every year. The city has a modern fleet of buses, and riders transition from one transport system to another using smart contactless payment cards. Dubai also has a large taxi fleet and has ride-sharing services such as Uber and its local subsidiary Careem. All of these systems make moving around the city a rather pleasant experience but far from ideal. Still, due to the hot and arid climate and dominant car culture, the automobile remains the main mode of transport for most of the population who can afford it. In fact, the city has some of the highest car ownership rates per capita, averaging around 514 cars per 1000 residents as of 2018 [www.khaleejtimes.com/nation/dubai/dubai-has-so-many-cars-but-what-about-parking-spaces-free](http://www.khaleejtimes.com/nation/dubai/dubai-has-so-many-cars-but-what-about-parking-spaces-free).

As of lately, in an attempt to enhance the integration of the different public transportation modes and their integration into the urban fabric, the city introduced new shared mobility solutions into different city areas. Shared mobility solutions are technologically-enabled, first/ last mile 'shared' transportation devices ([www.doi.org/10.2148/benv.42.4.573](https://www.doi.org/10.2148/benv.42.4.573)). Using digitally-enabled phone applications, residents and visitors can rent these for a small fee and use them for shorter distance travel or between transport nodes and final destinations. These usually include e-scooters, e-bikes, and in some cases, e-cars. In Dubai, the transportation authorities consider these promising solutions to address fragmented urban environments, as they enable residents to travel between public transportation points and their destination with relative ease. They are also important due to the drive towards sustainability at the urban scale ([www.rta.ae/wps/portal/rta/ae/home/news-and-media/all-news/NewsDetails/endorsing-the-first-and-last-mile-strategy-to-link-with-public-transport-network](http://www.rta.ae/wps/portal/rta/ae/home/news-and-media/all-news/NewsDetails/endorsing-the-first-and-last-mile-strategy-to-link-with-public-transport-network)). These shared mobility systems are proving to be successful within certain demographic groups, especially the younger professional classes and tourists. They are becoming a regular staple within the city's landscapes and are gaining more acceptance and prominence. They also compliment the Smart Dubai initiative perfectly as they contribute to the notion of well-connected, socially, and environmentally responsible residents.

While these shared mobility solutions are proving to be popular, they are far from optimal for several reasons, including their need for dedicated infrastructure, which is still lacking. Sidewalks and bike lanes are still rather inconsistent throughout the city, hindering the success of such systems. Furthermore, a good portion of the lower-income segments of society is instead excluded from these simply due to economic means. Although not very expensive to rent or difficult to operate, the digital aspect of these systems means that they require fancy phone applications with data plans and credit cards to operate. Such requirements are challenging to acquire for those at the lower end of the economic spectrum. This issue (and many others) demonstrates that technology alone is not sufficient to address the shortcomings of the built environment or even those of the labor market. And while Dubai and other cities in the Gulf pursue smart city initiatives, more could be done outside the realm of technology to increase the happiness and satisfaction of all their residents and truly embrace the concepts of human-centered planning.

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