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TECHNOLOGY SERIES

U.A.E. SMART MOBILITY

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BUSINESS COUNCIL REPORT

Authors

U.S. - U.A.E. Business Council

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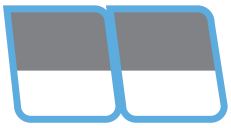
Smart Mobility in the U.A.E.

The U.A.E. has embraced the enormous potential of smart mobility and innovative transportation technologies. His Highness Sheikh Mohammed bin Rashid Al Maktoum, Prime Minister of the U.A.E. and Ruler of Dubai, has set the ambitious target of having 25% of journeys in the Emirate of Dubai be made through driverless transport by the year 2030. In conjunction with the Dubai Roads and Transportation Authority (RTA), the Dubai Future Foundation subsequently launched the "Dubai Autonomous Transportation Strategy" to realize this vision.

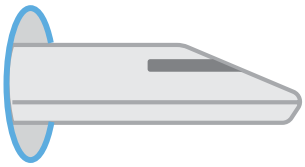
There are numerous forms of smart transportation that can help this goal become a reality. These various different technologies include smart pods, autonomous vehicles, SkyWay, hyperloop, delivery drones, and flying taxis.

This study, which is part of a larger series of reports about the impact of technology on the U.A.E.'s economy, outlines the U.A.E.'s adoption of transportation technologies that will reduce congestion, commutes, traffic accidents, and even the U.A.E.'s carbon footprint, thereby further cementing the U.A.E.'s reputation as a safe, modern, and forward-looking place to live and do business. In so doing, the report highlights the vital role of U.S. companies in helping the U.A.E. realize its smart mobility goals, and examines the impact of the Covid-19 pandemic on this important sector.

Smart Transporation Technologies

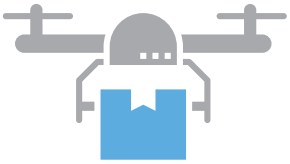


Smart Pods



Hyperloop

Autonomous Vehicles

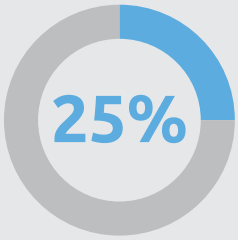


Delivery Drones

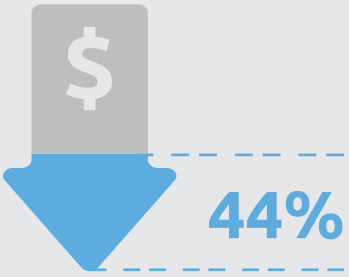
SkyWay

Flying Taxi

Dubai Autonomous Transportation Strategy



Of total transportation will be transformed to autonomous driving



Cut transportation costs

Reduce environmental pollution

Hours saved on transporation annually

Autonomous Vehicles

The U.A.E. is a center for autonomous vehicle research and development not only for the Middle East region, but worldwide. In fact, the U.A.E. government has plans to help autonomous vehicle industry leaders, such as Ford, GM, and Tesla, speed up their work in country. Recently, the U.A.E. Minister of State for Artificial Intelligence, Digital Economy, and Remote Work Applications, His Excellency Omar Al Olama, welcomed autonomous vehicle companies to expand their autonomous vehicle research and development in the U.A.E.

There is a strong market for autonomous vehicles in the U.A.E., which incentivizes autonomous vehicle makers to choose Dubai as a launching ground for their products. For example, according to a survey poll by YouGov, nearly half of U.A.E. residents said they are likely to own a self-driving car in the next five years if it is made available to them.

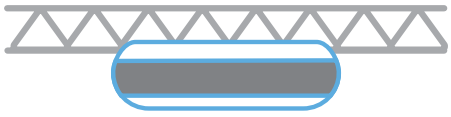
To further attract autonomous driving firms to the U.A.E., the Emirati government plans to hand out data to autonomous car startups, which could incentivize them to come to the U.A.E. Access to this data could make it much easier for autonomous car manufacturers to develop their technology.

With an official invitation from the Minister of State for Artificial Intelligence, a strong consumer market, and access to data that is crucial to autonomous vehicle companies, the U.A.E. is an ideal location for the expansion of autonomous vehicles.

In the not-too-distant future, Ford may boast autonomous vehicles on the streets of the U.A.E. In 2018, Ford announced that it created Ford Autonomous Vehicle LLC, which is an organization charged with moving forward the company's autonomous vehicle business and taking advantage of market opportunities. Ford invested in Argo-AI, a tech company based in Pittsburgh, in 2017. The company is developing Ford's virtual drive system and high-definition maps for the company's self-driving cars. Argo AI and Ford are testing self-driving cars in Palo Alto, Pittsburgh, Miami, Washington, DC, and Detroit. In April 2020, amidst the Covid-19 pandemic, Ford announced that they are now targeting 2022 for the launch of its autonomous vehicle service.

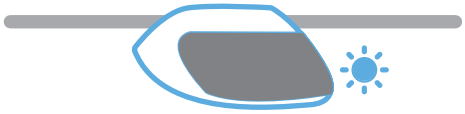
SkyWay

SkyWay Dubai is a new mode of transportation being developed that will carry passengers and freight on a specially designed elevated string-rail overpass between different skyscrapers in Dubai. With the capacity to transport up to 8,400 passengers per hour in each direction, SkyWay can greatly increase Dubai's passenger transport capacity. Having a total length of 15 kilometers with 21 stops along its route, SkyWay will connect buildings such as the Dubai International Financial Center with downtown Dubai.



8,400

Passengers per hour in each direction



20,000

Passengers per hour & powered by solar panels

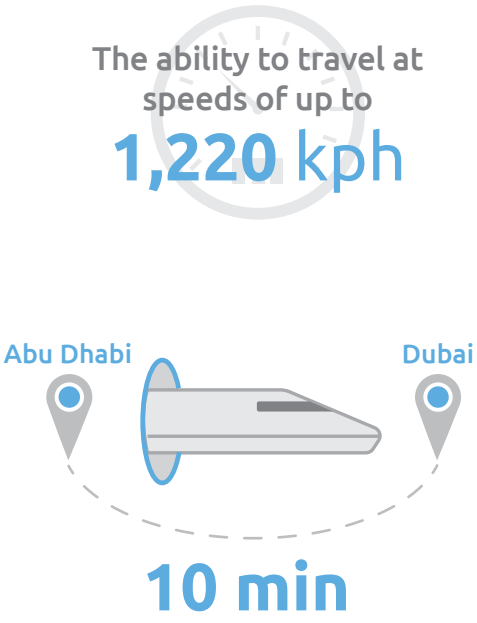
Sky pods

Another form of smart transportation being developed for Dubai is the sky pods system, designed by UK based firm BeemCar. This new system is set to connect the city's homes and businesses with its metro network. In February of 2020, BeemCar and Dubai's RTA signed a memorandum of understanding to develop this technology for Dubai. According to the CEO of BeemCar, the system should go live in Dubai in the next 3-4 years. What sets this system apart from others is that it is designed to connect a dense urban environment, not multiple cities. Able to travel at speeds of up to 50 kilometers per hour, these pods are projected to carry 20,000 passengers per hour and are fueled by solar panels.

Hyperloop

The hyperloop transportation system – which looks like a train but operates on a magnetic field in a vacuum tube and goes as fast as a jet aircraft – is getting closer to reality. With the ability to travel at speeds of up to 1,220 kilometers per hour, this advancement in transportation technology would make it possible to travel between Abu Dhabi and Dubai in 10 minutes, or from Dubai to Riyadh in 48 minutes. In addition to its speed, Hyperloop is 5-10 times more energy efficient than a commercial airliner.

Virgin Hyperloop One, of which DP World is the largest investor, is a global leader in hyperloop technology that is set to revolutionize travel in the U.A.E. and around the world. Another hyperloop company, Hyperloop Transportation Technologies (HTT), is developing a link between Abu Dhabi and Dubai, which would help slash the commute time between the two cities from over an hour to mere minutes.



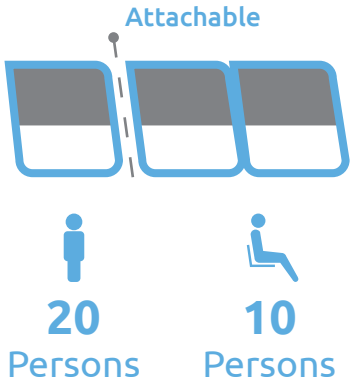
DP World Cargospeed

DP World and Virgin Hyperloop have partnered to develop the first DP World Cargospeed system. This partnership will provide hyperloop-enabled cargo systems to support efficient and fast delivery of palleted goods. DP World Cargospeed will deliver freight at the speed of flight at the cost of trucking. The system will connect with existing transport systems, road, rail, and air in an effort to expand freight transportation capacity. Virgin Hyperloop is the only company in the world that has successfully tested hyperloop technology at scale, launching the first new mode of mass transportation in over 100 years.

General Atomics & Maglev Technology

A key enabler of hyperloop is maglev technology, produced by companies such as General Atomics. General Atomics is a leader in maglev technology, to create clean, fast, and efficient transportation solutions. The maglev-system developed by General Atomics utilizes permanent magnets for levitation, which eliminates the need for overhead powerlines or electric third rails used in traditional train-based transportation systems.

General Atomics built the first full-scale maglev system, a test track in San Diego, CA. The company's Electromagnetic Systems Group (GA-EMS) delivers design, prototyping, and manufacturing for the maglev system.



Smart Pods

Another form of smart transportation being developed in the U.A.E. is a system of "smart pods," which are completely autonomous, powered by electricity, and able to safely transfer passengers at roughly 20 kilometers per hour. Expected to be showcased at Expo 2020 Dubai, these pods can accommodate 10 passengers sitting, and 20 passengers standing. Multiple pods can be attached together to form a chain, which allows passengers to move freely between the pods. Having been tested as early as 2018, these pods will be able to efficiently and securely provide short-distance rides to the many visitors of Expo 2020.

Delivery Drones/Autonomous Delivery

The U.A.E. has long recognized the power of drones to transform the way we live. In this regard, the U.A.E. launched the Drones for Good Award, which is an international competition and award created by the government of the U.A.E. to encourage useful and positive applications for drone technology.

The Covid-19 pandemic has only accelerated the use of autonomous drones in the U.A.E. Recently, police have been using drones to remind people to stay inside. Moreover, in Dubai, drones have been used to spread disinfectant spray to stop the spread of the coronavirus.

In July of 2020, the Dubai Sky Dome project was announced, the purpose of which is to provide the infrastructure for delivery drones. This infrastructure consists of miniature helicopter pads and an air traffic control system. This new project continues to place Dubai at the forefront of aviation innovation. Moreover, the Sky Dome project paves the way for a commercial drone industry that includes both drone deliveries and flying taxis.

Dubai Sky Dome Project

Air traffic control system for delivery drones

Flying Taxis

Flying taxis are another important advancement in air transportation underway in the U.A.E. Volocopter, a German company at the forefront of researching and developing flying taxis with the goal of making urban air mobility much easier and more advanced, recently signed a deal with the Dubai Roads and Transport Authority. Under this deal, Volocopter will launch its flying taxi capable of carrying two passengers in Dubai as soon as the technology is ready.

Volocopter will launch in Dubai as soon as the technology is ready

Uber

Smart Mobility in the U.S.

The U.S. is a leader in Smart Mobility, as perhaps best evidenced by Uber. The goal of Uber's Advanced Technologies Group (ATG) is to bring reliable and safe self-driving transportation to the public. The future of transportation according to Uber is shared, sustainable, and automated. Through the creation of self-driving cars, in Uber's view, roads will be safer than ever and will help make transportation more affordable for everyone. Presently, Uber is focused on developing self-driving technology in cities in the U.S. and Canada. In addition to self-driving cars, Uber Elevate, the technology company's aerial ridesharing venture, is developing shared air transportation via their Elevate Network partners, including Boeing's Aurora Flight Sciences. Their goal is to launch small fleets of electric vertical takeoff and landing (VOTL) aircraft in Los Angeles, CA, Dallas, TX, and Melbourne, Australia.

Looking Ahead

Due to the Covid-19 pandemic, many individuals have temporarily turned away from utilizing public transportation options, and have opted instead to use personal vehicles to transport themselves between their destinations safely.

However, the U.A.E.'s visionary leadership continues to look beyond ephemeral trends to make prudent investments in futuristic smart transportation solutions that will benefit the country. Smart transportation solutions like smart pods, SkyWay, and sky pods will ease traffic congestion as they are, unlike personal vehicles, able to transport hundreds of passengers. These forms of transport will help remove personal vehicles from the road, which will in turn help lower the U.A.E.'s carbon emissions.

A key player in the future of smart transportation in the U.A.E. is the Dubai Future Accelerators (DFA) initiative at the Dubai Future Foundation. DFA helps startups and innovators boost their novel solutions. Thanks to institutions such as this, the U.A.E. will be able to continue to support growth and innovation in this sector by seeking novel forms of transportation and investing in solutions that will make the U.A.E. a global leader in smart mobility.

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