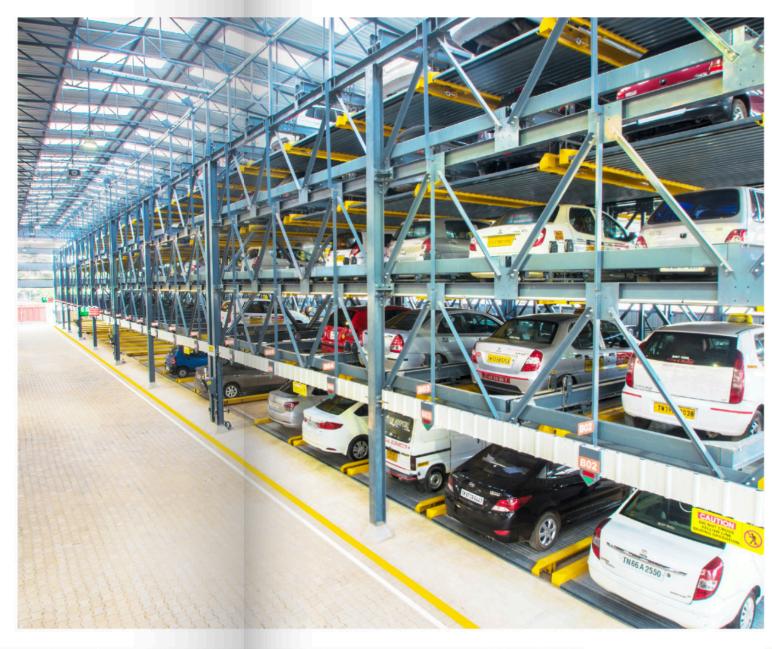# Need to move towards **Parking as a Service**

Mobility as a Service has been trending towards a shared ecosystem, but the pandemic has thrown a spanner in the works and brought up various questions. To implement MaaS on a large scale, Parking cannot be ignored. Sid Jalan talks to Industry experts to find out how PaaS can help streamline Indian parking issues



As we move towards a connected world powered by Internet of Things (IoT), transport will figure heavily in this plan through Mobility as a Service. With MaaS, everything would be integrated into a unified gateway with one single payment, allowing transit options and last mile connectivity. Your payment for the taxi, bus, rickshaw, train, and metro, would be through the single portal which would also help you to track and optimise your route.

MaaS Global has launched the Whim App in certain countries, which is an illustration of this technology. Based on a subscription model, it offers public transportation, ridesharing, bike rentals, scooter rentals, and taxi/car rentals, all on one platform. This removes the need for coordinating various points of transit. Combining autonomous vehicles with this system is how MaaS is envisioned for the future, a global market that is estimated to grow to $500 billion in revenue by 2030.

❝❝ PaaS is about analytics, revenue, occupancy and access, which are all critical components for owners, operators and building management currently. Parking demand and use will determine these priorities.

**Arvind Mayar**

❝❝ In India, large fleet operators are used to doing business treating public space as free. This is why we see large number of taxis parked on the roads in busy metros gobbling up road space. Government must clearly mandate that aggregators must have at least 50% of total vehicles with parking space provided for and approved by city authorities.

**Balajhee Soundarajen**

## Parking as a Service

At some point in the future, your autonomous vehicle will drop you off at your destination and go park itself in a designated spot, while you track the entire journey on your phone in real time. This is the basis of Parking as a Service and seems like a distant dream in India. But the trend is moving towards this form of smart parking.

At the moment, PaaS exists in the form of digitising parking spaces and making the entire process cashless. Arvind Mayar, CEO of Secure Parking says, "The definition of PaaS is not yet fully formulated and varies from the perspective of the end user. Parking as a Service is about data analytics and its application in providing ease of use to the consumer, monetising the car parks, helping in optimum utilization of the facilities, and providing ease of transaction in and out of the car park. These are all critical components for owners, operators and building management."



The intention of PaaS is to simplify and automate the entire parking experience. It is being implemented in select buildings and office complexes across the world, with robotics and automated parking systems that require no human intervention. You drive in, stop your car on the marked points, and simply swipe your key card. The system does the rest. But with a growing number of vehicles on the road and reducing parking spots, the need for aggregated systems is increasing. "Along with shared ownership/usage and electrical vehicles, PaaS will further become a necessity and all pervasive for any kind of commuting. Hence, without doubt it will soon either merge into MaaS or will be a very important part of it."

For a big bang revolution the participation of the private sector in a big way is essential. Currently the parking tariff is controlled by the Government at artificially low levels. Anyone wanting to invest in a public car park will not get a return on the investment considering the high cost of land, infrastructure and operating cost. City centres, where parking shortage is the maximum, have the highest cost of land. "For this, the Governments will have to deregulate the parking tariff, provide land on easy terms, subsidise infrastructure cost and allow for commercial activity on 2-3 floors to improve commercial viability."

Adds Balajhee Soundarajen, Director Sales & Marketing of Sieger SpinTech Equipments "The city planning authorities are insisting on parking spaces to be provided for commercial and residential units. Similarly, licensing authorities for cab service aggregators must also insist on 50% parking space to be provided by them in each city / town on the total number of vehicles under their flag."

Incorporating sensors and camera-based recognition software is the way to achieve PaaS. Many system providers already employ a version of this, by scanning RFID tags and using guidance systems to direct the customer to their designated spot. "Exit is also cashless through RFID and the usage of FASTag is a step in this direction. Number plate recognition software, when combined with cashless meters, is picking up as an automated system," adds Mayar.

> **There are various forms and levels of parking services. Parking as a Service is a reality in today's age, but the service levels offered are still nascent. This will pick up and we will see an increase in use cases and levels.**

**Nimish Sonawala**

The other side of PaaS is with the service providers, who provide real time information about the availability of parking spaces. Like the Whim app, there are products in the market that bridge the gap between legacy infrastructure and newer solutions. Apps allow you to book your exact parking space and pay for it before you reach, providing the driver with a guaranteed spot. Chennai has implemented Parking Management System for 12,000 parking spaces across the city at a project cost of Rs.10Cr. Cameras and sensors have been installed in a majority of these spaces and are already bringing in an estimated 1lakh a day.

Mumbai has also created a Mumbai Parking Authority which plans on running a test project in three wards. The Commissioner of the Municipal Corporation has suggested the creation of a city-wide parking pool on the lines of an online aggregator with details on parking spaces. Based on land use categories, road characteristics, and congestion, variable pricing structures will be implemented to create park-only streets, no parking streets, and pedestrian only zones.

The secondary application of PMS is to open up corporate and residential parking facilities for outside vehicles. There is massive underutilisation of parking spaces in the country, and various parking lots go empty for large periods of time. This change would optimise parking across the metropolitan cities and also increase revenue for the buildings that release those spaces.

## The current parking scenario

At the moment, parking infrastructure in the major cities is quite haphazard. Pay & Park garages and open parking lots exist across the cities, but many of them go empty. The tendency is for people to park closer to their destination and these parking lots are not conveniently located. In a study done in the US, it was estimated that 63% of drivers avoided engaging with a local business if they could not find a convenient parking spot. This was shown to have a large effect on the local store economy. So even though vehicles outnumber parking spaces, the lack of optimisation leads to many of these spaces being empty.

Absence of information and confusing signage is also a contributor. This requires more intervention from local governments and municipalities to further strengthen kerbside parking usage. A question that needs to be answered is whether Kerbside parking also requires human intervention, or can it be automated with street meters that provide real time availability.

According to Nimish Sonawala, Managing Director – South Asia of Skidata, both the Government and private businesses need to be active for the industry to serve its customers the best way possible. "Without government participation to make available the land and encourage our drivers to park in the right areas, this will not happen. And without private participation in development of the land and offering of the same to attract proper competition and to excel in customer service, this offering will be sub-standard, and you will not see People Park where they should."

## The future and the shared economy

Deloitte forecasts that by 2040, half of every mile travelled in the US will be via shared autonomous vehicles. There is a shift towards shared mobility and that is expected to rise dramatically over the next decade in India as well. This will allow for better utilisation of vehicles and fleet structures.

This move towards shared mobility has also encouraged cities like Paris, Madrid, Barcelona, Portland, etc to try options that remove street spaces and parking lots, converting them into cycle lanes and recreational areas. When you consider that 40% of road space in India is taken up by parking, this becomes a concept worth exploring. But there exist concerns regarding optimisation.

There is also a difference in opinion about the effect of shared mobility. Whether the number of cars will increase or decrease, only time will tell. But parking requirements will still be high, as cars will still be on the road. At the moment fleet operators have deals signed for parking in various cities, but a large number of them occupy space on the streets, often double parking and leading to congestion.

"If we assume that Parking is a "last mile" service, then parking will always be required. PaaS approach converts customer CAPEX into OPEX, thus reducing or even eliminating the up-front investment. This concept is popular amongst fleets, where common shared-parking area is booked out by the aggregator, allowing their vehicles to park as and when required. Many municipal parking areas have rented out their parking bays/slots for this purpose. This is quite popular world-wide and will be similar to airports offering parking area to aircrafts," says Ajay Masur, Co-Founder & Director of JAAN Innovations. "Even in India, customers, be in Private or Public Sectors, are accepting PaaS concept. Many Corporates have already adopted this concept very well. We, in JAAN, have implemented projects in India for many large Corporates."

A varied pricing model can also be applied to control the flow of cars. Ranchi has implemented a zone wise pricing strategy which is intended to spread out the parking requirements. Demand based surge pricing, as implemented by Ola and Uber, could also be used as a model for parking. If integrated with MaaS, these can further promote usage of public transport. Additionally, High Occupancy Vehicles (HOV) can be given priority parking, further promoting shared transport.

❝ PaaS, according to me, is more of a financial modelling than any technology changes. But if we talk about end-to-end PaaS, then major technology changes in terms of sharing of S/W by multiple customer are needed and for that S/W, as a Platform, needs to be on cloud. According to me, there is no policy change required. Existing policies, SaaS (Software as a Service) do cover for it.

**Ajay Masur**

## Effect of the Pandemic

The pandemic has changed the situation when it comes to personal vehicles, shared mobility, and parking requirements. Passenger vehicle sales crashed because of a drop in disposable income and work-from-home. But this trend is being reversed and it is expected that personal vehicles sales, including two-wheelers, will rise dramatically. Says Sonawala "The pandemic has questioned the need for large office spaces and, therefore, parking associated with the same. But other than that, parking requirements will not change. People will continue going to malls and continue to go to multiplexes. Travel will not be restricted as we will always have the need to be mobile. So, the requirements will not change based on this in the mid-term basis."

According to Balajhee, Indian four-wheeler sales is about 3.5 M units per year, before the pandemic. "Even assuming a worse case 15% drop for another two years, at least three million will be registered annually. Nearly half are sold into Tier 1 or Tier 2 cities in India. At least 1/3rd of these will need to be parked properly to reduce congestion. This means at least 0.5 million mechanical parking space units each year needs to be added only in these Tier cities."

Work-from-home reduced the need for parking during the lockdowns, but most companies have already indicated a return to working in offices. Even if you include a few days of working from home, this will still lead to a rise in parking requirements as people will use their personal transport for commuting to work. This is when Parking systems will come into play. Corporates at the moment use the traditional parking structures, with designated spaces per company. A flexible parking model will work to their benefit as under-utilised parking spaces can be shared amongst different companies in the same building.

In addition, Kerbside and public parking lots will get a renewed focus to service the higher volumes. Real time space availability, feeding into online aggregator platforms with pricing data and license plate recognition software, is the need of the post-pandemic economy. A 2017 study done by INRIX showed that Americans wasted $73 billion every year looking for a parking spot. New parking strategies can mitigate this search time and even reduce parking offences.

## Electric charging and the EV revolution

As the world shifts to electric cars, a major concern is charging infrastructure and how it can be incorporated into our parking requirements. Some parking systems have already added EV charging to their infrastructure. The charging points are connected to the individual pallets and need to be plugged in manually to the cars.

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Once they reach their destination, the pallet is hooked up to the main power source. In the current iteration human intervention is required but the self-seeking Tesla robot charger shows us that plugging can also be automated.

Certain parking systems would still find it tough to implement EV charging and is fraught with additional risks. Wireless charging is thus expected to be the future of parking and charging. This removes the entire need for the charging cable and leans into the automated systems. At the moment wireless charging is not efficient enough to match a plug-in fast charger and can only transmit at a distance of 25 cm. But research is being done to transmit over a distance of two feet at high efficiency. This wireless charging market is expected to reach $27 billion by 2025.

Another point to consider is the land requirements for EV charging. EVs need about 15-30 minutes to charge and does not follow the 5 minutes model of gasoline cars. This would entail larger areas to leave the car for that period of time. Multi-level car parks with wireless charging could act as charging networks to replace the traditional Petrol stations. As the demand for electric cars increases, so will the unique solutions for charging. Countries like Netherlands have even designated kerbside EV chargers which can be tracked via an app. India first needs to reign in its kerbside parking before thinking about implementing this model.

## Autonomous and Data

The future is autonomous. No one



can deny it but the rate of adoption in emerging economies will be slower. There are major concerns regarding the implementation of autonomous vehicles in India. These vehicles work on LiDAR and sensors, creating a digital map of their surroundings. Indian streets need better markings, clearer signage, and integration with car companies to provide real time information. There is already a push towards it but there is no unified strategy regarding this.

Data is what will drive further technological advancements. If you combine IoT with real time data from individual cars and public sensors, it can form a map for the development of autonomous vehicles in India.

Even small steps like feeding in parking information to your connected cars can set the ball rolling. Newer cars have speed detection zones which indicate when you're crossing the speed limit. The same system can be implemented for parking information, and then using sensors can form a digital map of the traffic

conditions across cities. But this will require stringent regulations and deeper collaboration between the Private and Public sectors.

According to Arvind Mayar, MaaS would become the norm where the current automotive industry transforms into a service industry. "Vehicles would mostly be owned by MaaS or automotive or allied industries. The user would have on-demand facility for going from point A to B via use of shared, electrified, connected and autonomous vehicles, used for drop-off and pick-up. During off-peak demand, the vehicles would be taken out of service for cost optimization. The vehicle will itself choose the nearest car park based on its algorithm, as it's an autonomous driverless car. The algorithm could be based on a number of criteria such as parking fee, service charge, requirement of service while parked, distance, future predicted travel pattern, weekend or weekdays, service agreement with the operator, etc. This is where the PaaS – Parking as a Service would kick in."