

## Shared Mobility in India

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Due to its high economic growth accompanied by rapid urbanisation, India is facing problems of pollution and congestion. 14 of the top 20 polluted cities in the world are in India and ICE vehicular emissions are the main pollutants. Burgeoning import of petroleum products to meet the ever-growing energy demand and fluctuating oil prices have increased concerns about Current Account Deficient, possible Balance-of-Payment crisis and even a severe security threat to India.

Transportation sector in India accounts for 30-35% of commercial energy demanded and is highly dependent on oil imports. In 2015-16, India imported 80% of its oil paying Rs 4.2lakh-crores. Demand is growing and oil prices are going up.

It is imperative that India should take steps to reduce oil imports and vehicular pollution. The options include switching over to EVs at the earliest and decrease vehicles on the road by popularising shared-mobility. Unfortunately in India the trend is of increasing private vehicles ownership and decreasing use of public and non-motorized transport. Private vehicles, put in use for just 5% of time, gobble-up land area for parking. In Delhi vehicle parking takes-up 8–10% of the available land-pool. More vehicles mean more congestions and vehicular emissions, with very negative implications on health and environment. A shift to cleaner transport like EVs and limiting private car ownership, optimizing shared-mobility and expanding/encouraging public transit is needed now.

Switching over to shared-mobility will enable efficient asset utilization by transitioning from a model of ownership of private assets to usership of shared assets. Shared-mobility has the potential to displace private vehicle ownership that is comparatively costly, inequitable and inefficient and could open up a transportation future that is more affordable, reliable, clean, and efficient.

India is uniquely positioned to go for shared-mobility. Per capita vehicle ownership is very low here. By leveraging domestic strengths in data, connectivity, and entrepreneurship, India can develop a shared-mobility system that creates benefits for all of its citizens. This could enable bypass the private-vehicle-ownership route and thereby avoid many of the associated negative consequences and externalities and provide more efficient, equitable, and sustainable transportation systems for India.

### Shared-Mobility:

Shared-Mobility is any mode of transportation that is shared by users on a as-needed basis, from bikes to 4-wheelers to mass transit can constitute shared mobility and leads to better fleet utilization—allowing more passengers and goods to travel in the same vehicle. By increasing occupancy of passenger vehicles, India has the potential to reduce vehicle-kilometer demand by nearly 35%, accounting to 2000 billion-kilometers in 2035. This, combined with more efficient vehicle technologies, can cumulatively save above 1 gigatonne of CO<sub>2</sub> through 2030.

There are many ways of sharing- simultaneous use of an asset/vehicle or independent use of shared assets, irrespective of its ownership. In simultaneous use, multiple consumers use the same asset at the same time, along a common route. In independent use of shared assets, users get personal but temporary access to an asset to meet their mobility needs. Shared mobility services can be provided by vehicles registered for commercial use (eg taxis, auto rickshaws and buses).

Mass transit that includes high-capacity modes like buses, metros and trains that are operated by public agencies or private sector for public agencies are also examples of simultaneous use of asset. Mass transit has the highest throughput capacities; an on-street transitway (bus or rail) can move as many as 10,000–25,000 people/hour as compared to 600–1000 by private vehicles.

Publicly owned vehicles ranging from buses to ferries are important modes of transit for citizens and move people efficiently and affordably along fixed route lines. India already has a high share of public transit (buses and trains), averaging 30% of the mode share in cities with populations above 5 million. In cities like Bangalore, Pune etc, Private buses are being increasingly used for providing mobility services for IT sector and companies, using different business models. Private bus sharing e-platforms like Shuttle which provide bus sharing services aggregating independent bus owners on a common mobility platform are also emerging.

Ride-sourcing refers to on-demand services that link riders to for-hire drivers who are using their own vehicles as commercial vehicles. These services use online platforms to link drivers with riders and facilitate direct payment and operate on dynamic routes (i.e. not fixed routes like most public transit) and fares. Some examples of ride-sourcing operators, called transportation network companies or cab aggregators, include Lyft, Uber, and Ola which provide services by cars or auto-rickshaws in Indian cities.

In India transportation network companies are growing rapidly, disrupting traditional modes of transportation. From 2015 to 2016 Uber and Ola's ridership in India grew four-fold. Projections for 2018 suggest they will account for 66 billion vehicle-kilometers travelled.

In Ride-splitting model, drivers of privately-owned buses and cars enter into a contract for services with a passenger. The contract is also amended (often through a technology platform) to include additional riders along a route, filling empty seats in the vehicle. Since riders split fares, ride-splitting offers transportation at lower prices than ride sourcing. As algorithms improve and more riders opt into the shared offerings, the algorithms match passengers with similar destinations, reducing the inconveniences of pooling. Many transportation network companies like UberPOOL and Ola Share offer shared options.

Ride-splitting reduces vehicle-kilometers travelled and hence reduces congestion, pollution and saves fuel. (its estimated that since its launch in India in 2015, UberPOOL has saved 32 million vehicle-kilometers travelled (VKT) and led to a potential reduction of 81,22,00 kgs of CO2 emissions.) The benefits could be further enhanced, if higher occupancy vehicles like mini-buses and regular buses are promoted for use for shared mobility.

Ride-sharing (carpooling and vanpooling) is similar to ride-sourcing, in which trips are shared by travellers, but with the exception that drivers are not considered "for-hire," though they can receive some forms of compensation to recover their cost. Ridesharing can be acquaintance-based, organization-based, or ad-hoc.

Business models providing Bikes/cycles/scooter for public use—in docked, dockless, and peer-to-peer business are also emerging. This is a great low-cost option for first and last mile connectivity. Car-sharing providers rent cars on hourly/daily/monthly basis.

India is uniquely positioned to leapfrog personal vehicle ownership model, and is expected to be a leader in shared-mobility model with shared miles expected to reach 35% of all the miles travelled by 2030 and 50% by 2040. This shift from **ownership to usership** can be promoted extensively in India as personal vehicle ownership in India is very low. (India stands 144th in the list of personal car ownership per 1000 people, with a figure of 32 compared to 797 in USA, in 2015). Around 60% of the mobility demand in India is served by public transportation modes like buses and metros and non-motorized transport modes (walking and cycling). The high mode share in favour of existing forms of shared transport, including buses and intermediate paratransit modes like shared autorickshaws, can support the transition to shared-mobility solutions. Government is starting to put in place supportive policies for shared mobility and digitization and several states have developed policies to regulate the shared mobility ecosystem. In December 2016, the Ministry of Road Transport and Highways published taxi policy guidelines. National Urban Transport Policy (2014) promotes the concept of shared mobility given its vision to move people and not vehicles.

#### **Benefits of shared-mobility:**

Shared-mobility has a number of benefits, most of which arise due to increased system efficiency through higher asset utilization and improved connectivity. Whereas private vehicles often sit idle or with low occupancy, shared vehicles are better utilized, with more passengers and goods in available vehicle space and higher utilization, leading to reduction in total vehicle-kilometre travelled, lesser congestion, lower fuel consumption, reduced emissions and lower cost of transportation.

#### **Shared-mobility**

- improves travel efficiency- reducing number of vehicles on road reduces congestion, which in turn saves time, fuel and money due to fewer vehicle-kms travelled. (An experiment in New York City shows that 3000 shared 4-passenger vehicles could meet the same demand served by 13000 taxis, maintaining the quality of service.)
- reduces the cost of transportation as users pay for transportation on demand when needed. The opportunity exists to monetize currently under-utilized assets through such models as peer-to-peer car-sharing.
- creates new Jobs, as in the new paradigm the mobility system shifts from product-centric to service-centric.
- lessens pollution/fuel bill thereby impacting environment and has implications on fuel imports and national energy security. Reduced vehicle kilometers travelled, combined with electrification of fleet, translates to a reduction in CO2 emissions. India can cumulatively save up to 1.5 gigatonnes of CO2 through 2035 if sharing and vehicle electrification is promoted. An additional 100 megatons of CO2 can be saved if India meets its NDC targets by using electricity generated from renewable sources.

Ride-sourcing and ride-sharing offer higher efficiency level due to multiple advantages inherent in their business model: flexible supply base, smart communication system through smart phones, dynamic pricing, network effect, dynamic routing, demand pooling (for ride share), and digital feedback and management systems.

Ride-sourcing platform in India is totally dominated by Ola and Uber though there are some local platforms like *Aamchi Driver* in Mumbai, *SEWA* in New Delhi and *HDK cabs* in Bengaluru. (MoRTH was also contemplating to wade into the \$10 billion ride-hailing market to break the monopoly of these two firms.) There is a lot good about them and some concerns. They are good because in addition to having all advantages of shared-mobility, these cab-aggregators have brought a paradigm shift in the taxi-operations in India. *From a rickety khali/peeli taxi driven by a pan-chewing unshaven driver to an efficient comfortable travel in a plush, modern, entertainment gadgets loaded cabs driven by smart, tech-savvy drivers handling cashless e-payments, they have transformed the paid-mobility ecosystem in India.*

Ola, launched in 2010, has over 550,000 vehicles in its platform in India, operates in 110 cities with about 65% market share. Uber, launched in 2013 in India, has about 350,000 vehicles operating in 29 cities. Both the cab-aggregators, funded heavily by foreign investors (Ola- Softbank, Tiger Global, DST etc and Uber- Didi Chuxing, Saudi Arabia Public fund, Baidu, Bench mark etc), give deep discounts to the customers and huge incentives to the drivers and are driving interesting innovations to entice drivers and loyal customers to their fold. The competition is very beneficial to customers, drivers, economy and environment.

From a customer's perspective these operators provide: easiness of availability, less cost and affordability, reliability, punctuality, trust-- due to automated billing, display of the shortest route-map, easiness of payment, cashless transactions ensuring no quarrel with drivers for changes and balance, increased sense of safety and security as all drivers background checked and well-behaved trained drivers, rated by passengers themselves.

As far as drivers are concerned, for the little extra trouble they take to be punctual, reliable and behave well with their riders (that translates to higher brand value for their aggregators), these aggregator-companies provides them with much higher, safe and clean income paid into their bank accounts promptly every week, (Bonuses and incentives are also provided with the monthly salary of some driver-partners reaching Rs 85000 at peaks), better fleet utilisation and reduced non-paid distances and hence reduced operating costs, better respect and self pride being techno savvy, happy customers- less fare fights and less changes-fights due to cashless e-transactions, flexibility of getting into or opting out of the live-pool in a day etc. Companies also have innovative schemes to assist the drivers to have their own the vehicles, and incentives like free medical check-ups and motivational trainings etc.

From government's view-point, these operators have helped in keeping 2 important segments- travellers (mainly the urban commuters) and drivers - happy, helped in reducing congestion in roads and air-pollution in cities, took glare off from the poor public transport systems operated under its direct responsibility, provided enhanced security to passengers particularly for women in the night, helped in raising the quality of service of cab operations in the country (also projecting a good image among tourists and foreigners), reduced fuel usage and fuel-import bills. With innovative schemes, these companies also have improved the vehicle supply eco-system- Uber and Ola have tied up with many car manufacturers to

bring down the cost of car ownership. They are the potential first partners in Government's plans for increasing E-vehicles.

But there are concerns: like the disappearance of indigenous sparrows from Delhi, the kali-peeli local taxis which provided some employment to unskilled, local drivers have disappeared. Any monopoly is always dangerous and the predatory pricing unleashed by these companies are killing individual taxi-ownership. Surge prices unilaterally decided by the companies show its ugly faces at times. They have cornered all profitable areas like metros leaving the unprofitable areas to poor local taxis. The operations are technology driven and require smart phones, which are expensive and not with everyone and needs internet connectivity. Though the companies are helping to save oil, the biggest threat posed by these foreign companies is about the oil of the future- the data. These companies have huge personal data on the habits, trends of people of India using their services. These are to be protected and should not be mis-used.

So far Uber and Ola has been good, hope they don't take India "for a ride" in the future.

India with aggressive policies should emerge as the world leader in mobility management with Electric Vehicles and Shared- Mobility.

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