

E-RICKSHAW: SHARED MICRO MOBILITY - THE GREEN REVOLUTION ON INDIAN ROADS

Shalini Vermani, Amisha Rajput, and Pushpak Sharma

Apeejay School of Management, New Delhi, India

Copyright © 2020 ISSR Journals. This is an open access article distributed under the ***Creative Commons Attribution License***, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT: In urban India, traffic and air pollution are major issues. Most of the air pollution is due to the rising number of vehicles on the road and is affecting the wellbeing of every individual. To reduce the traffic and vehicular pollution, people have to use more and more public transport but for that first and last mile connectivity is a major concern. Electric mobility is a cost effective and viable solutions to tackle poor air quality and excessive dependence on oil imports. As, e-rickshaw is an antidote to air pollution, can be seen as a viable solution for shared micro mobility.

KEYWORDS: Shared Mobility, Micro Mobility, Electric Vehicle, E-Rickshaw.

1 INTRODUCTION

India is a fastest growing economy in the world and at the same time country is facing serious social and economic challenges. India is the third largest carbon emitting country in the world. According to the WHO Global Air Pollution Database (2018), 14 out of the 20 most polluted cities of the world are in India. One third of the pollution is caused by vehicles. By 2020, 297million tons of carbon emissions are expected to arise from road transport [7]. Pollution is affecting the well-being of every individual. Air pollution is the fifth largest factor for mortality worldwide.

India's population is 1.3 billion and is expected to reach 1.5 billion in 2050. Even today, during office hours, average speed of big cities is below 6 kmph. This is due to lack of use of shared mobility.

Since 2000, India's crude oil imports have risen exponentially. The demand for oil grew by 5.1% in 2016, higher than the world's largest net importers, the US (0.7%) and China (2.9%), making India the world's third largest crude oil consumer [7]. Majority of the oil demand in India comes from the transport sector.

We can solve the problems of air pollution by using clean modes of commute, traffic by shared mobility and crude oil demand by using electric mobility. One solution to all the above problems is shared electric mobility. The transition towards electric mobility offers energy security and rising current account deficit on account of rising fossil fuel imports. Shared mobility includes the movement of both people and goods. Shared mobility leads to better fleet utilization that allows more passengers and goods to travel in the same vehicle/vehicle kilometer travelled.

Shared electric mobility is an innovative strategic concept that is gaining more and more popularity with every passing year. In the present scenario, the concept of shared electric mobility has been identified as an interception from pollution and ecological imbalance providing sustainable solutions with the growing concerns for survival of mankind. Keeping the same in view, shared electric mobility is well supported by the government.

2 MICRO-MOBILITY

It is a mode of transportation that is used for meeting the first/last mile connectivity needs of daily commuters. It is a fast-growing mode of transportation which is seen as a best and most effective solution to the growing number of cars and congestion affecting the environment in urban areas. The key to the popularity of micro-mobility is its level of convenience and

the ability to meet the last mile connectivity needs which saves time and is available at least possible cost. Under the electric vehicles' categorization, it mainly includes electric bikes, electric scooters, electric stake boards, electric-rickshaws etc.

3 MICRO-MOBILITY SCENARIO IN INDIA

A study conducted in IIT-Delhi concluded that up to 70% of the work-related trips conducted in India does not exceed the distance of 5 kilometers which is more conveniently covered with 2-wheelers. It also stated the reason why 79% vehicles sold in 2018 were 2 wheelers as people do not prefer public transport and are comfortable for using easy commutes in such shorter distances.

But with the growing number of personal vehicles, pollution and congestion has also shot up to a new extent, causing harmful effects to the environment we live in and the air that we breathe. Despite investing years to increase awareness among the masses, these issues have remained unaddressed for long. Considering the same, an urgent need to find sustainable solutions aroused to meet the commuting needs for such shorter distances lying within a radius of 5 kilometers, and this is how the concept of micro-mobility have started gaining popularity in the new age urban set ups of India.

Apart from this Niti Aayog, the planning commission body under the Government of India has also set the target for companies to produce and sell only e-vehicles by 2030 with a view to achieve e-mobility targets for a greener India. Considering the same, the new trend of micro-mobility is a great contributor to achieve the e-mobility goals and there are a number of new firms that are coming up providing the transportation services to cater the last mile connectivity of people in country.

4 E-RICKSHAW MARKET

The Indian electric rickshaw mobility counts to be the second largest electric vehicle fleet in the world leaving only China's several hundred million fleet of motorcycles and bicycles which accounts to be the largest fleet of electric vehicles around the globe.

The wave of e-rickshaws has a huge impact on urban India because of its ability to meet the last mile connectivity needs of people. Despite a strong presence of cab services halting throughout the country, the daily travelers prefer to take public buses, local trains, metros etc because of the time and cost factor involved in it. This is where micro-mobility needs came into the picture as there is lack of proper commuting services for shorter distances especially in the urban areas where people are not willing to pay higher prices for shorter distances. Citing an example on the same, if we consider the distance between any Delhi metro station and the daily metro commuters' residences, we can observe that the distance does not exceed the radius of 5 kilometers and for such shorter distances people are only willing to pay the least possible price. This has led to a boost in the number of e-rickshaws on Indian roads as an economic times survey has also stated that about 60 million Indians hop on e-rickshaw every day and are willing to pay 10-20 rupees for a ride. For the same reason in a country with limited resources of shared transit option, e-rickshaws as a mode of micro-mobility transit has a crucial role to play for meeting shorter distance commuting requirements of the vastly increasing Indian commuters. Apart from being cheap and accessible, e-rickshaws are also seen as a sustainable solution to the increasing pollution.

5 GOVERNMENT INITIATIVES FOR E-RICKSHAW MOBILITY

Where the battery backed e-rickshaw are seen a solution to curb pollution, congestion and is boosting the last mile connectivity, over the years e-rickshaws are considered as a menace because there is no regulatory body to regulate these vehicles. But with the aim to have 100% electric transportation mobility in the country, the government have passed an amendment under the Motor Vehicles Act in March 2015 where battery-powered e-rickshaws are been approved as a valid form of commercial transport stating that the e-rickshaws running on battery power of less than 4,000 watts are allowed to carry four passengers or a luggage of up to 50 kilograms and are only allowed to cover not more than 25 kilometers in a single trip. Apart from this, in the year 2013 the government of India had announced the 'National Electric Mobility Mission Plan 2020' (NEMMP) as per which the e-rickshaw sector was given funding for developing charging infrastructure along with benefits of tax concessions and point-of-sales subsidies. Under NEMMP a target of sales was set of 6-7 million of hybrid vehicles (that run on both electricity and conventional fuel) with total electric vehicles every year from 2020 onwards. In addition, FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles scheme was launched by government to promote technological developments in the e-rickshaw sector and set up of charging infrastructure which would help e-rickshaw industry to scale up adoption by masses. In March 2019, the government allocated US\$140m to build out a public charging infrastructure for electric vehicles under FAME II.

6 ADVANTAGES OF E-RICKSHAWS AS A MEANS OF MICRO-MOBILITY

The following points highlight the advantages of e-rickshaws as a means of commute for satisfying the micro mobility needs of people:

Pollution Free: The shift to e-rickshaws as a means of commute is seen as a solution to the increasing pollution threats on Indian roads. Since e-rickshaws operate on batteries they do not need petrol, diesel, CNG or LPG making it pollution free and green in nature with zero carbon emission from it.

Minimum Investment: The cost of buying an e-rickshaw is 90,000 to 1 lakh rupees as it is made from Fiber Reinforced Plastic (FRP) and hence considered as a cheaper mode of transport in comparison to all other forms available.

Cost-Effective: In our country, auto-rickshaws are seen as a lifeline for passengers transport and hence is omnipresent. But it causes air and noise pollution. Also the prices charged by auto-rickshaws are quite high for shorter distances. This has been seen as a problem both for the environment and the daily passengers. In such a scenario where there are concerns for hazardous pollution and passengers burdened with the liability to pay higher prices for regular commutes, e-rickshaw as a shared means of transport is an effective solution to curb increasing environment concerns as well as provides people with the facility to pay minimum possible price for short rides which are within an area of 5 kilometers.

Last Mile Connectivity: E-rickshaws are meant for satisfying the last mile connectivity needs of people. Last mile or first mile connectivity is the availability of services to make movement of people to a final destination which could be their home, office or any other place. The same could be understood with the example of distance between a metro station and houses of people travelling regularly in Delhi metro. Delhi metro services are present throughout the capital city of India but it cannot meet the last mile connectivity needs as once a metro is deboarded a passenger needs to look for alternative mode of transport outside the metro station to reach their homes which are usually within a radius of 5 kilometers. For such shorter distances, e-rickshaws are present to help passengers reach their homes by paying a limited price shared by the fellow riders going towards a common destination.

Generation of Employment: Our country is still facing problems of unemployment where the unorganized sector i.e. the labor class population is struggling to generate means of livelihood. In the 2015 amendment of The Motor Vehicles Act, a new legislation has been inserted giving a recognition to the e-rickshaws as a valid commercial transport that could be used as an alternative to other means of transport. Through this the government is not only achieving its aim of generating employment where more and more labor class workers are entering e-rickshaws profession but also boosted an initial transition from cycle rickshaws to battery rickshaws. And with the increase passenger needs to travel shorter distances at affordable prices, the demand of e-rickshaws has increased immensely helping drivers witness an increase in their earnings leading to a better livelihood.

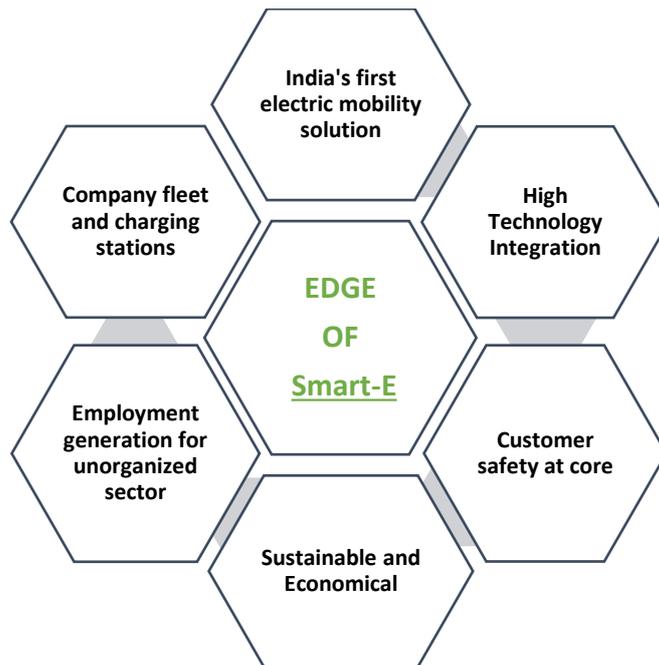
7 E-RICKSHAW SERVICE PROVIDING FIRMS IN DELHI-NCR

With the implementation of government amendments to recognize e-rickshaw as an authorized form of public transportation, there is an increase in the number of startups coming up in the e-rickshaw industry. Since the study is focused on the e-rickshaw service industry in the Delhi NCR area so the study was conducted on the e-rickshaw service startups operating within this geographical area. Through market research, information was gathered that there are two categories of startups working in e-rickshaw industry, one is working by owning and managing its fleet and the other is functioning by working as an app-based aggregator to manage the local e-rickshaw fleet present on the roads.

Following are the e-rickshaw service providing startups that were studied during this research:

SMART-E

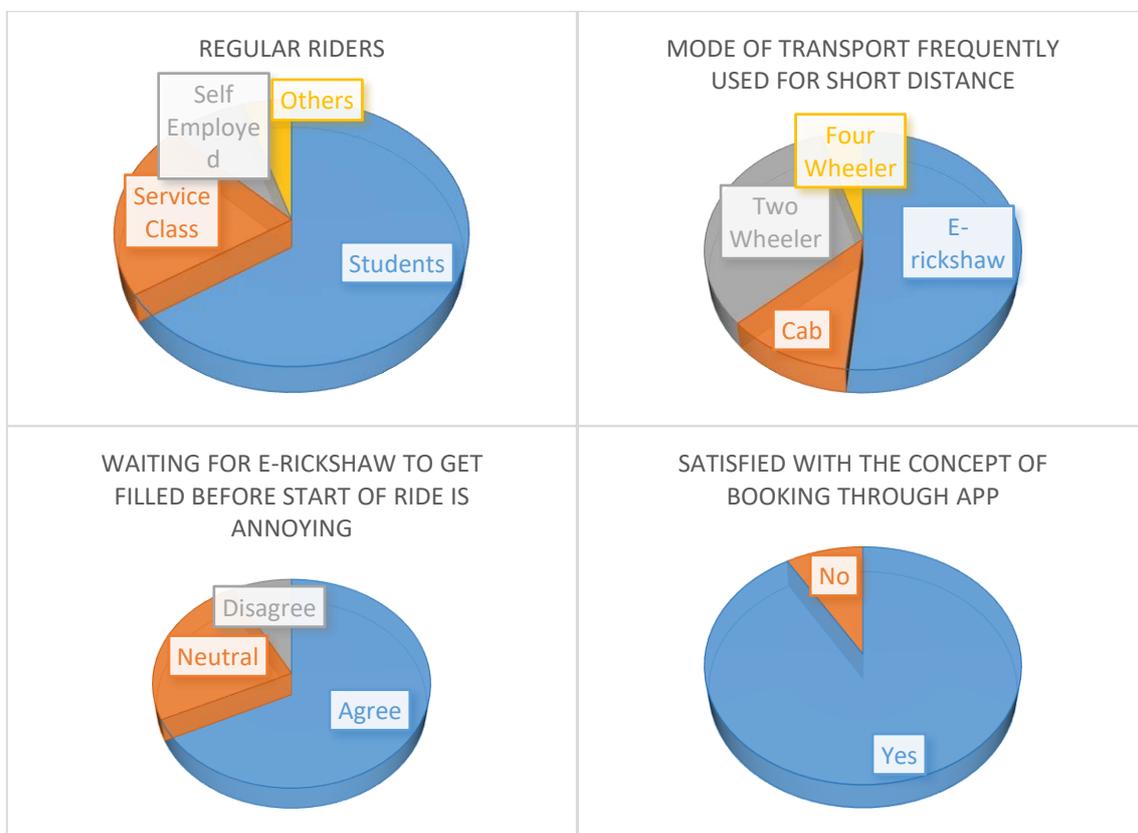
Founded by Goldie Srivastava, Smart-E was started as an eco-friendly means of transport to meet with the daily micro-mobility needs of commuters. Today Smart-e is India's first and largest electric mobility service which offers shared, affordable and convenient rides, catering the first and last mile transportation needs of urban commuters. The company has the vision to make India as a 100% electric vehicle nation by 2030 and for the same they have successfully completed 15 million pollution free rides within 30 months of its operations.



OYE! RICKSHAW

Oye! Rickshaw, a Delhi based electric rickshaw mobility platform founded by Mohit Sharma and Akashdeep Singh in June 2017. Oye! Rickshaw is an electric rickshaw aggregation platform that connects driver partners and users works within a 5 km radius. After completing two million rides in a year, the team is now looking to expand to different cities. Oye! Rickshaw claims to complete two million rides by end of 2019.

8 MARKET RESEARCH



Regular riders of e-rickshaw are students followed by service class and e-rickshaw is the most preferred mode of transport for short distance. People are very much satisfied with the concept of app-based booking but most of the people feel annoying to wait for the e-rickshaw to fill before the start of the journey.

9 SERVICE BENEFITS OF E-RICKSHAW

BENEFITS TO CUSTOMERS AND DRIVERS		
	CUSTOMERS/COMMUTERS	E-RICKSHAW DRIVERS
1.	first and last mile transportation services to and from metro station	Empowerment of people from low socio-economic background
2.	Travel services to local areas such as local markets, residential areas etc within 5 kms	No Education barrier, only driving license needed
3.	Affordable rides starting at Rs 10 and Rs 5 (for additional kms)	On the job training provided by company
4.	Customized vehicles to provide seamless customer experience	Good income and job satisfaction
5.	Safety through GPS tracking and sensors	Company fleet with no maintenance or extra cost to be beared by drivers

10 CONCLUSION

Vehicular pollution has become a serious problem in urban India. Air pollution is at alarming rate in many of its cities. Currently, there is great demand of e-rickshaw and demand will boom in near future. In addition to that, India has young demographic. As per World Bank data, 850 million of Indian are below the age of 35 and young population may be more inclined to adopt new and innovative ideas [9]. In India, with growing awareness on environmental factors and Government initiatives, we can say that the future of micro-mobility will rely on shared assets, and be supplied by clean sources of energy.

REFERENCES

- [1] K. Cohen, Human Behavior and New Mobility Trends in United States, Europe and China, Working Paper, FEEM, FONDAZIONE ENI, October 2019.
- [2] K. Heineke, B. Kloss, D. Scurtu & F. Weing, Micromobility's 15000 mile checkup, January, 2019. Available at mckinsey.com.
- [3] A.Tiwari, Micro-Mobility: The Next Wave of Urban Transportation in India, YS Journal, January 2019. Available at.
- [4] R. Zarif, D. Pankratz & B. Kelman, Small is Beautiful: Making Micromobility work for Citizens, Cities and Service Providers, The Deloitte Center for Integrated Research, Deloitte Insights, 2019.
- [5] India to be Shared Mobility Leader by 2030, Business Today, June 3, 2018. Available at <https://www.businesstoday.in>.
- [6] Transforming Urban Mobility in India using Micro-Mobility Platform, Yulu Micromobility Platform for India, Available at.
- [7] Propelling Electric Vehicles in India Technical Study of Electric Vehicles and Charging Infrastructure, Ernst & Young LPP publishing, 2019. Available at.
- [8] The Future of Ownership, Livemint, 2017. Available at <https://www.livemint.com/Opinion/oqXSrwt7z9jXRM7D5g1DoI/The-future-of-ownership.html>.
- [9] India Set to have 530 Million Smartphone Users in 2018: Study, Indian Express, 2017. Available at <http://indianexpress.com/article/technology/india-set-to-have530-million-smartphone-users-in-2018-study-4893159/>.
- [10] Niti Aayog, Moving Forward Together: Enabling Shared Mobility in India, MOVE Global Mobility Summit, September 7-8, 2018. Available at https://niti.gov.in/writereaddata/files/document_publication/Shared-mobility.pdf.
- [11] SmartE, <https://www.getsmarte.in>.
- [12] Oye Rickshaw, <https://www.oyerickshaw.com>.