



App-Based Shared Mobility: Policy Imperatives

Introduction

The new mobility services emerging in urban transport are an integration of various modes of transport via smart infrastructure—accommodating autonomous vehicles, electric vehicles, as well as integrated and shared mobility options. Globally, these new mobility services will reduce 80% of the CO₂ (carbon dioxide) emissions from urban passenger transport by 2050, and shared mobility will have a larger contribution to this reduction (Fulton et al., 2017). The number of trips made by shared mobility will grow rapidly (Shaheen, 2016), and India is expected to be the shared-mobility leader by 2030, contributing to 35% of the miles travelled (PTI, 2018). Shared mobility along with electrification strategy in India will reduce 1.5 Gt of CO₂ by 2030 (NITI Aayog, 2018). The issue of urban air quality has gained significance across Indian cities. With the expected growth of shared mobility, it is important to identify existing challenges along with policy recommendations.

Highlights

To promote app-based shared mobility (ASM) for sustainable urban mobility, the government should consider:

- Promoting clean vehicle technologies, multi-modality and high-occupancy rides
- Developing detailed regulatory guidelines for pooled rides and car sharing operations
- Setting up a Nodal Regulating Agency like the Unified Metropolitan Transport Authority (UMTA), to integrate ASM services as part of the sustainable urban mobility
- Developing guidelines for ASM data sharing to support robust decision making in transportation planning and traffic operations

Shared-mobility services include car sharing¹, carpooling², e-hailing³ (ride sharing and ride sourcing), and demand-responsive transport⁴ (Finger & Adouin, 2019). App-based shared mobility (ASM) is a form of on-demand services that promotes shared rides/vehicles through various business models and transport modes (two-, three-, four-wheelers, or mass transit modes—vans and buses).

¹ Car sharing: Sharing of vehicle among individuals

² Carpooling: Sharing of vehicle journey by vehicle driver with other people

³ E-hailing: Ride sharing and ride sourcing (driver provides rides based on passengers' needs and booking via dedicated platform)

⁴ Demand-responsive transport: Service operates when and where users demand

ASM services are rapidly evolving by offering varied mobility choices, ensuring seamless travel, and reducing vehicle ownership; they may also complement public transport, if implemented strategically. Though their impact on urban cities is still debated, ASM services—with proper regulation and incentivisation—have the potential to reduce private vehicle use, address traffic congestion, reduce air pollution, and optimise infrastructure use. Thus, ASM services can be part of low-carbon mobility strategies, reducing CO₂ emissions from urban transport.

To harness the benefits of ASM services, it is essential to enable a policy and regulatory framework considering the technological innovations and business models. However, the focus of current ASM policies is mainly on *entry regulations*, and not on *emerging concerns* such as environmental impact, public transport, traffic congestion, drivers' wage protection, and surge pricing. To address these issues, policymakers have to understand the interests of various stakeholders, identify their concerns, and develop actionable policy recommendations. The aim of the study, hence, is to articulate key policy questions relating to ASM through stakeholder engagement.

Policy Landscape

The Motor Vehicles Act (MV Act), 1988, was amended in 2019 to recognise cab aggregators as 'digital intermediaries or marketplaces which can be used by passengers to connect with a driver for transportation' rather than treating them as taxis / motor cabs. The amendment emphasises that aggregators need to obtain a license from the respective state government and comply with the Information Technology Act, 2000. This amended act provides the state governments with power to regulate the services and control their operations.

Prior to the recent amendment of the MV Act, the Ministry of Road Transport and Highways (MoRTH) introduced Taxi Policy Guidelines in 2016 (MoRTH, 2016) to lower the entry-level barriers for aggregators and encourage new urban-mobility services as alternatives to car ownership. It also detailed the terms and conditions for on-demand IT-based transportation aggregators to operate within the jurisdiction of state transport departments.

A few states have taken steps towards forming new taxi policies and bike-sharing guidelines. These policies/guidelines largely focus on license requirements, vehicle profile, driver qualification, operations, fare regulation, and data sharing.

Approach

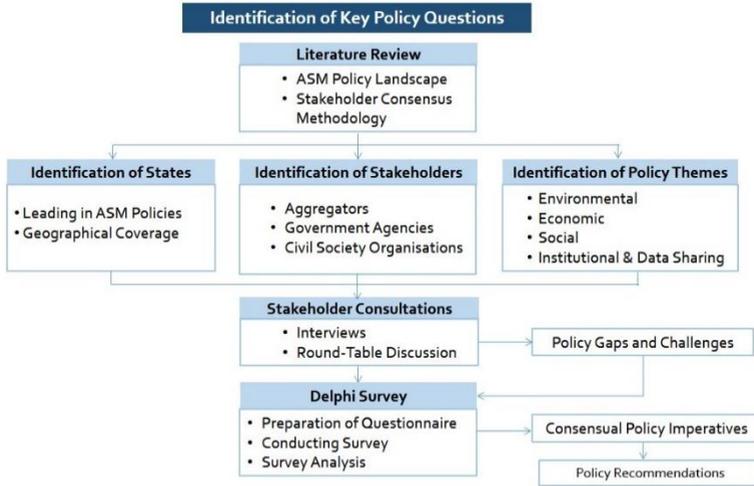


Figure 1: ASM exploratory study methodology flow chart

While analysing the existing measures to regulate ASM services and identify the policy gaps, we found it necessary to categorise the policy questions into various themes contributing to sustainable mobility. The sustainability themes identified for this study are given below:



Figure 2: Sustainability themes

From the large spectrum of stakeholders in the ASM ecosystem, we targeted the Central and state government authorities, aggregators, and civil society organisations (CSOs) for this study.

Following the review of the ASM policies in India, eight geographically dispersed states were selected for personal interviews with transport officials. The stakeholder consultation involved a round-table discussion with aggregators and interviews with state transport department officials and experts from CSOs—to identify key policy issues and challenges in the ASM ecosystem.

Based on the policy issues and challenges, we conducted a Delphi survey to empirically analyse the stakeholders' opinions.

Policy Challenges

The research team identified the following policy issues and challenges within the ASM policy landscape:

- Car-pooling/Ride-pooling trips have not been regularised; some states have even banned such trips, on account of the MV Act and lack of guidelines for permitting private car-pooling.
- There is no clarity on the registration and licensing of electric vehicles for ASM operations.
- There are inadequate guidelines to incentivise and regularise ASM for public transport first- and last-mile connectivity.
- There are no bike-taxi policy/guidelines, which poses concerns over permits, safety, and insurance.
- Several cities, such as Hyderabad, Kolkata, Delhi, and Mumbai, are being served by bus aggregators, while in some states these services are banned (as they cannot act as stage carriers⁵).
- There are no guidelines for sharing trip data with the authorities, as well as for the privacy and security of the shared data.

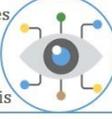
Stakeholder Consensus

Based on inputs from stakeholders, we framed a Web-based questionnaire focusing on articulating key policy questions for ASM under the four sustainability themes. For each

⁵ Stage carriage permit allows to pick passengers from one point and there can be various stages till the final destination point, whereas contract carriage is permitted to operate from one point to a fixed destination.

theme, policy statements and probable constraints to a sustainable ASM ecosystem were listed. The results from the survey are discussed below.

Policy Imperatives: Reached A Consensus

Highly Agreed		Moderately Agreed
<ul style="list-style-type: none"> • Incentivising shared/pooled rides 		<ul style="list-style-type: none"> • Government authorities promoting CVT* • <i>Lack of CVT infrastructure & battery disposing mechanism**</i> • <i>Lack of mass transit options</i> • <i>Inertia towards adopting new technologies</i>
<ul style="list-style-type: none"> • Integrating ASM with public transport • Legalising peer-to-peer car-pooling 		<ul style="list-style-type: none"> • Preferential ASM paid parking at activity centres • <i>Lack of studies to understand ASM implications</i> • <i>Insufficient land for dedicated ASM parking</i>
<ul style="list-style-type: none"> • Real-time vehicle movement sharing • Incentivising ASM for underserved area operations 		<ul style="list-style-type: none"> • Violations to be licence-based • Fair-pricing mechanism for ASM affordability • <i>Low profits for ASM in under-served areas</i>
<ul style="list-style-type: none"> • Amending acts in line with new technologies • Govt.-aggregators two-way data sharing • Designing guidelines for data sharing • Govt. capacity building for ASM data analysis 		<ul style="list-style-type: none"> • Common central agency to regulate ASM • <i>Lack of institutional setup to mobilise funds</i> • <i>Lack of operators-government collaboration in ASM</i>

*Policy Statements

**Constraints

Figure 3: Consensual policy imperatives

Figure 3 shows the policy statements and constraints that reached a consensus and the corresponding level of agreement.

Policy Imperatives: No Consensus

While the following policy imperatives have not reached a consensus among the stakeholders, they are essential for a sustainable ASM ecosystem:

- Incentivising fleet operators willing to shift to CVT's
- Levying congestion pricing on ASM services in central business districts (CBDs) and PT corridors
- Taxing and capping vehicle kilometres travelled (VKT) by ASM services
- Taxing low-occupancy rides

Similarly, concerns over privacy and security of the shared data act as an impediment to ASM operations contributing to sustainable mobility.

Recommendations

For Government Stakeholders

Promoting Clean Vehicle Technologies (CVT): The government (at various levels) shall undertake and strategise the adoption of various CVTs in the ASM ecosystem. This could be done through monetary incentives or operational benefits like dedicated parking and easy licensing processes. Supporting infrastructure for new vehicles is to be developed to enable rapid and widespread adoption. Proper means for battery replacement/resale and disposal should also be considered.

Improving Multimodality: The state transport departments should collaborate with ASM service providers for first- and last-mile connectivity to improve multimodality. Provision of dedicated parking in transit stations and major activity areas, integrating the fare systems, and incentivising the last-mile connectivity from PT could be good initiatives.

Regularising Pooled Rides: Pooled rides (carpooling and ride pooling)—even though currently a small percentage of the total trips—can significantly increase if they were regularised. Understanding the importance of high-occupancy rides in low-carbon mobility, the authorities should regularise and incentivise these options. For private car-pooling, safety measures need to be formulated. As bike taxis and bus aggregators are already operational in a few states, a common set of guidelines at the national/state levels needs to be formed.

Regularising and monitoring these high-occupancy services will have a positive impact on travel pattern, congestion, and pollution.

Regulating Operations: Policy instruments such as congestion charging and capping of VKT have been proven to control congestion in several cities (Li et al., 2016). As these services have a higher VKT and dead kilometres⁶, means such as congestion pricing could reduce their contribution to congestion and pollution.

Data Sharing and Capacity Building: The authorities should mandate service providers to share the data (trip details, travel pattern, vehicle movement, driver details, etc.) in the required format. This data can help city authorities understand the travel demand, improve existing transportation systems, ensure passenger safety, and monitor aggregator operations. This requires capacity building for the officials and proper rules to maintain data privacy and security.

Setting up a Nodal Regulating Agency: A regulatory authority, like the Unified Metropolitan Transport Authority (UMTA), shall be constituted to integrate services,

⁶ Dead kilometres - No passenger on board

recommend amendments to regulations, and provide solutions for future issues within the ecosystem.

Other Recommendations:

- A control on surge pricing is essential to ensure affordability of the services.
- Individual license data shall be made accessible to ASM service providers to facilitate the background check of drivers and commuters.
- Authorities shall consider incentivising ASM in underserved areas.
- Violation shall be license based, not vehicle based.
- Regulations need to be devised to address new technologies and incorporate further developments.

For Operators/Aggregators

Promoting Clean Vehicle Technologies: ASM should be a pioneer in introducing new technologies in urban transport—to achieve the benefits of better fleet utilisation. Given the scope for mass adoption of CVT, aggregators may consider collaborating with manufacturers to explore financial viability.

Incentivising Pooled Rides: Pooled rides can play a significant role in reducing energy consumption and emissions per passenger kilometre travelled. Acknowledging this, aggregators could promote pooled rides through discounts and other service benefits. Addressing the safety concerns of commuters in pooled and bike rides could also encourage increased ridership in these services.

Incentivising First- and Last-Mile Rides: Most commuters refrain from using PT owing to the lack of first- and last-mile connectivity. Aggregators could consider prioritising these trips, thus contributing to increased public-transport ridership, leading to low-carbon mobility.

Reducing Dead km: To enable a greater contribution to sustainable mobility, ASM services shall ensure a reduction of dead kilometres travelled to pick up commuters.

For Civil Society Organisations

Promoting Sustainable Shared Mobility: CSOs can play a substantial role in promoting sustainable shared mobility by designing and popularising guidelines and policy solutions. Extensive studies need to be carried out to understand the impact of shared mobility and support decision-making for transitioning to low-carbon mobility. Guidelines for the transition should be designed considering the technological innovations and business models. As shared mobility innovations and business models are evolving, there is a need to promote safe, efficient, and clean mobility services via effective policy solutions to the government.

Way Forward

Ride sharing should be encouraged in all states as they can help reduce traffic congestion and improve the air quality. Moreover, states need to proactively develop new policies in line with technological innovations in urban mobility. These mobility policies should focus on commuter safety, driver welfare, and data security, as well as contribute to sustainable low-carbon urban mobility. Further studies are needed to understand the impact of shared mobility on the environment, public transport, vehicle ownership, societal cost, fleet size, labour, equity, and infrastructure.

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