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Infrastructure

Effective public transportation is key to urban transformation

Prabhakar Kumar
AVP - Urban Planning
Rudrabhishek Enterprises Limited (REPL)

With rising levels of urbanisation, the public transport networks of most areas are under pressure. Developing the same is also essential for the success of cities under the National Smart Cities Mission. Components such as reliability and cost-effectiveness are crucial for the success of a public transport network.



The World Bank estimates that approximately 600 million Indians will be living in cities by 2031 as the result of rapid urbanisation. Also, considering the current rate of transformation of Indian cities and the Central Government's commitment to creating more [smart cities](#), we can estimate that most metropolises will either become smart or have similar characteristics to smart cities.

Smart cities are developed with the need for robust Information Technology (IT) and communications infrastructure in mind, where knowledge and solutions to problems are collected and shared through the Internet of Things (IoT). People are connected locally and globally at every instant. In these cities, resources are a phone call or a text message away. These cities consume minimum resources and provide the maximum utility to their citizens while minimising the environmental impact.

Having said that, many people tend to ignore the fundamental component that makes a city smarter, i.e., public transport. Besides other things, the effectiveness of public transport can be the difference between the success and the failure of any city in terms of trade, investment and development, be it a conventional city or a smart city.

No matter how developed a city is, not everybody can work from home or have their workplace within walking distance of their residences. Even in the case of the most innovative cities, people need to travel for work. If not for employment, individuals commute for leisure, shopping, medical or other reasons.

Suppose everyone starts using their private vehicles for travel. Resultantly, all streets and highways will get choked. People will be spending more time on the roads than in their homes or workplaces. Vehicles stuck in traffic jams will be burning fuel unnecessarily, leading to an exponential rise in air pollution levels. Heavy traffic snarls may also lead to supply chain delays, negatively impacting a city's economy. Such a circumstance will defeat the idea of a smart city. An effective public transport system is a prerequisite to avoid the same.

A public transport bus can substitute as many as 40 cars on the road. Tram and metro systems can replace even more. Lesser number of vehicles on the streets means faster and safer transit. It also leads to economies in fuel costs and a decline in air pollution levels. Saving time, costs, and resources, as well as reducing the overall carbon footprint lie at the core of the idea behind any smart city.

However, it is easier said than done. A public [transport system](#) needs to be convenient, punctual, and comfortable to convince citizens to use it. Several cities across the world have implemented public transport systems for their residents. But, due to one reason or the other, many of these systems have collapsed. The failure of the Delhi Bus Rapid Transit System (Delhi BRTS) is one such example. Therefore, the public transport system needs to be carefully planned, designed and operated.

An effective public transport system has four major components, comprising:

Connectivity

A public transport system needs to provide last-mile connectivity to every part of the city. This does not mean a pick-and-drop facility from every home. However, more minor modes of public transport operating between common pick-up points and major transit hubs such as metro stations or railway stations will help.

Also, the transport system could be a combination of various modes such as metro, buses, and feeder buses, among others, also referred to as a Multi-Modal Transportation System (MMTS).

Reliability

This is perhaps the most critical factor behind someone opting for public transport. Appropriate arrival and departure timings, high frequency, as well as consistent journey durations are instrumental in developing people's confidence in public conveyance modes.

The transit network should also be integrated with IoT sensors so that citizens can access the real-time location and estimated arrival time of buses or metro trains through online websites and/or mobile applications.

Safety and comfort

Public transport needs to provide a safe and comfortable travel experience to attract users and motivate them to keep using it.

Cost-effectiveness

Public transport needs to be significantly cheaper than private vehicles to incentivise users to shun their four-wheelers and two-wheelers and opt for public conveyance systems.

To conclude, any smart city that creates a public transport system with the above-mentioned characteristics is bound to be more successful relative to a place without such a system. Smart cities such as Kyoto (Japan) and Amsterdam (Netherlands) have flourished by virtue of their efficient civic transport systems, while their Indian counterparts, such as Bangalore and Hyderabad, are still struggling.

More than anything, the success of any public transport system depends on the response of citizens. Behavioural change among the masses will only be possible if they are motivated to give up their vehicles and opt for public transport without a significant loss of money, time and convenience.