

Smart mobility for India

Needs, opportunities and challenges

By Rajnish Tiwari

India finds itself in a precarious situation. While the lack of efficient and effective mediums of mobility for public-at-large outside metropolitan cities continues to cause loss of productivity and stifle economic growth in a considerable manner; the economic growth in major urban centres and the resultant growth of passenger vehicles and two-wheelers is leading to heavy traffic jams and pollution. This article argues that a viable solution to these entwined and complex challenges lies in implementing "smart mobility" solutions. This could prove to be the next growth driver and present immense opportunities for Indo-German collaboration.

An acquaintance recently posted an exasperated message on facebook after she had required a full twelve hours to cover a distance of less than 240 kilometres from Delhi to Rishikesh. Situations like this are still commonplace notwithstanding the enormous progress that has been made in the development of transport networks in recent years. The mobility challenge in India spans all mediums of transport in all spheres, be it the intra-city travel within metropolitan areas or the inter-city travel by road, railway

or air between two given places (cities, towns or villages). The lack of efficient and effective mediums of mobility is leading to loss of productivity and other socio-economic costs. For example, while a person in an industrialized country can easily travel a distance of 500 to 600 kilometres by road, rail or air, attend a business meeting and return the same day, in India it is possible that there is no airport in the town, and travel by road or rail may take two days of travel for a return-trip. Especially the frequency of connections is also thinner. That shows that a working professional would spend much more time on travelling than on his original

2001 and 2011. Even then, there is a significant scope of growth for 2- and 4-wheelers in the time to come. A study of India's national innovation system co-authored by this author discovered that firms faced negative repercussions of the mobility challenge in India. Management of several domestic and foreign firms cited long traffic jams and rush-hour travel as negatively affecting the innovative capacities of their employees. Another study of the ease of urban mobility in 66 major cities worldwide conducted by business consultancy firm A.D. Little (in 2009) ranked Indian cities in the lower half of all cities investigated.

Ownership of transport assets in India's households

Category	2001 Census		2011 Census	
	No. of households	Share	No. of households	Share
Total households	192 million	100.0%	247 million	100.0%
4-wheeler owners	4.8 million	2.5%	11.6 million	4.7%
2-wheeler owners	22.5 million	11.7%	51.9 million	21.0%
Bicycle owners	83.9 million	43.7%	110.7 million	44.8%

Source: Census of India

"productive" task. The long-distance would also require a greater period of regeneration to return to his normal level of productivity. Intra-city travel too can cause loss of productivity due to precious time lost in traffic jams. Additionally, there are also non-economic costs, e.g. working professionals have to spend a considerable part of their precious vacation time travelling, effectively reducing the period of recreation.

Historically speaking, affordable and efficient means of mobility for public-at-large have been found to be crucial enablers of economic growth. With a large population of the youth, India is a "young" and aspiring nation on the path to economic development and urbanization. Mobility is going to become a key requirement in the time to come, as India prepares to become the third largest economy of the world by 2050. As the table shows, the number of households owning a transport vehicle increased significantly, both in absolute numbers and as a percentage of all households, between

While Mumbai was best placed with a rank of 37, followed by Kolkata (41), Delhi (45) and Hyderabad (50); Bangalore (59) and Chennai (61) tailed the list. Only Bangkok, Jakarta, Manila, Tehran and Atlanta fared worse in that order.

The challenge related to smart mobility in India may be illustrated by the figure below. Continuing population growth, the high level of economic growth of the previous decade and the interrelated trend of urbanization are increasing pressure on a transport infrastructure, which was already suboptimal in the first place. "Smart mobility" solutions can enable and/or enhance affordable systems of public transport and the means of personal mobility in areas where an extensive network of public transport is not feasible; while simultaneously catering to environmental concerns. Such solutions have the potential to increase public and private welfare while unleashing a new wave of economic development. A forthcoming study by Prof. Cornelius Herstatt and

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Photo: TUHH/Jupitz

this author in academic journal “Die Unternehmung” suggests that affordability-driven frugal innovations present an excellent opportunity for Indo-German collaboration in open global innovation networks.

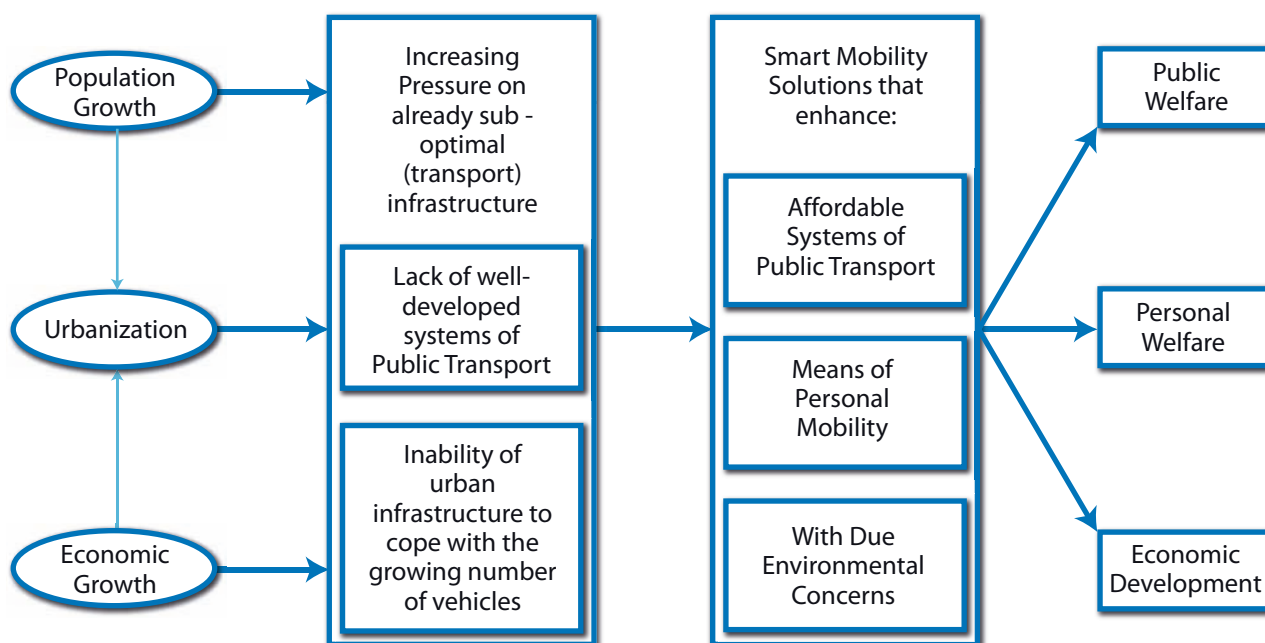
Whereas the use of term “smart mobility” “in the context of developed countries generally refers to employment of intelligent, ICT-based solutions (telematics) that can ensure ease of individual transport in megacities while attending to environmental concerns, in India’s context the term has to be redefined to include all modes of transport that can potentially enable ease of individual transport in rural and semi-urban areas as well as in urban megacities while attending to environmental concerns. Achieving this purpose requires creation of sustainable mass transportation systems, as well as a greater penetration of environment-friendly motorized vehicles for personal use, keeping in mind that the distances to be covered in India

ing nations according to studies of the Economist Intelligence Unit. German carmakers have so far failed to capture on this opportunity. The cumulated share of four large German carmakers in India, i.e. Audi, BMW, Mercedes and Volkswagen in India, languished at below four per cent at the end of FY 2010-11. This is not surprising because India’s market is dominated by small cars (80 per cent), but except for VW Polo there is no small car in the product portfolio of German carmakers in India. Whilst India’s car market boasts of nearly 60 small car models in about 250 variants. Successful examples of small cars from the stables of Hyundai and Toyota selling at around 16,000 US-Dollar show that products need not always be cheap, rather it is about the overall cost-of-ownership including fuel efficiency and maintenance costs. Accessing customer segments in the small car market could provide India with an affordable mobility while providing extremely attractive business

Manufacturers (SIAM) reveal. German manufacturers and component suppliers of commercial vehicles could try to exploit this vast opportunity as Volvo is doing, especially in the luxury and semi-luxury segments. Finally, India’s infrastructure sector provides a great opportunity for investment and private-public partnerships (PPP). According to the author’s calculations based on India infrastructure Report 2011, India’s investment in the infrastructure sector have grown three-fold in the past twelve years, from less than 30 billion US-Dollar in FY 1999-00 to more than 100 billion US-Dollar in FY 2010-11. Tapping this sector could help India expand its transport infrastructure and make it more efficient, while opening new business opportunities for German firms.

Summarizing, it may be stated that India faces an enormous challenge for ensuring smart mobility. But the other side of the coin is the enormous chance, probably not present anywhere else

The “smart mobility” challenge in India



may be large, both intra-regional and inter-regional.

Scope for Indo-German Cooperation

The challenges described above point towards possibilities of significant magnitude for Indo-German collaboration that can take place on three planes. First, India’s passenger car market is expected to continue growing in the medium to long run and is expected to outperform most other car manufactur-

opportunities for German carmakers and component suppliers. Second, the segment of commercial vehicles, especially buses, has been neglected in India. For example, the share of buses in all registered motorized vehicles in India is estimated to have stood at merely 0.9 per cent in 2011, way down from 11.1 per cent in 1951. In this same period the share of goods vehicles also went down from 26.8 to 3.8 per cent, as data from Society of Indian Automobile

in the world, a one-time opportunity. The mobility sector in India is a sunrise industry and provides for excellent growth opportunities. Solutions developed for India could be ideally used in other developing countries at a later stage. Since environmental issues concern all and have a global impact, it is imperative for everyone to strive for solutions that contribute to long-term sustainability of the ecological balance and economic welfare.