This report is derived from an extensive secondary literature survey of the intelligent transport systems (ITS) sector in India. The primary aim of the report is to set the context for understanding the current state and future evolution of the sector in the country. Briefly, the policy framework and institutional structure as well as the challenges and opportunities within the sectors are delineated.
Background

The use of advanced technologies including information and communication technologies (ICT) or telematics, data collection and storage, navigation systems and others fall under the aegis of intelligent transport systems (ITS). The main aim of using such technologies in transport is to alleviate existing concerns including traffic congestion, air and noise pollution by enhancing data collection for addressing the transport-related concerns.

Over the past two decades, India has established itself as a leader in information technology (IT). However, the subsequent economic boom has also resulted in an exponential increase in motorisation, urban traffic congestion and deterioration of air quality in the Indian megacities. With a robust IT and telecom infrastructure in place, India stands to gain from the use of ITS to alleviate many transport related urban issues. Use of such technologies can be either at a vehicular or infrastructural level.

Some broad categories of ITS technologies are as follows:

- Automated speed enforcement.
- Incident management.
- Electronic toll collection.
- Traveller information.
- Vehicle control technologies like intelligent cruise control and speed alerts.

As the Indian economy grows and urbanisation in Indian cities increases, the use of ITS and its importance will increase commensurately. Critical areas of ITS use will be air quality, road safety, traffic congestion, and communication methodologies.

Market Assessment

With the development of the Golden Quadrilateral (a highway network connecting the four metros – Delhi, Mumbai, Chennai and Kolkata), India is seeing an increasing use of automated technologies in the transport sector. There are a few metropolitan cities such as New Delhi, Bangalore and Pune that have standalone ITS applications like automated parking systems, electronic toll collection, automated traveller information systems (ATIS) and intelligent signal control. Passenger information systems (PIS) have been implemented in some bus rapid transit (BRT) systems in India. Technologies that require immediate attention are sensors, detectors and communication devices & application of global navigation satellite system. (IIT Chennai Report, 2010)

Challenges

The ITS market is nascent in India. Even though most of the technologies have been successfully implemented in developed nations, there are major challenges in implementing such state-of-the-art technologies in India, as listed below:

- Integration of the ITS applications and introduction of standards or the framework for an international ITS architecture, and likely to face similar compatibility and inter-operability problems to the situation faced by the railway.
- Lack of definite guidelines and regulations and difficulties in physical implementation.
- Developing a nation-wide ITS data archive.
- India’s ITS can’t be entirely modelled on the existing successful ITS of other nations due to basic cultural, geographic & practical differences among the countries.
- High cost for ITS safety systems does not allow high penetration. Few people are willing to pay extra for safety systems and only few technologies are sufficient to ensure safety.
- Setting up a citywide ITS implementations with fully functional Traffic Management Centres
Key Drivers for Sector Growth

The prominent growth drivers, for the ITS market in India, are:

- Increase in number of vehicles has added to existing traffic congestion, especially in urban areas. Delhi, Mumbai, Kolkata and Bengaluru have 5% of India’s population, but 14% of the total registered vehicles which leads to traffic congestion, deterioration in air quality, and increase in noise levels in the metropolitan cities.

- €60bn of transport-related investment expected over the next five years and a massive €390bn anticipated over the next two decades. (News Report, ITS International)

- Under Government of India (GoI) support, many cities are implementing: Metro rail, BRT, monorail and other forms of public transport. Thus, opening up opportunities in passenger information systems, smart cards and integrated ticketing, and parking management. These technologies also have application in the long-distance rail industry.

- Freight is a disorganised sector in India and has huge potential for development. Use of ITS for proper vehicle tracking, vehicle emissions and fuel costs, can help reduce carbon footprint and introduce several degrees of efficiency.

Policy and Regulatory Framework

There are numerous acts that encompass the various modes of transport and regulate transport in India. These include the Motor Vehicles Act (1988), National Highways Act (1995), Major Ports Trust Act (1963), Railway Act (1989) and more. As mentioned earlier, ITS is a relatively new area of work in India, therefore no specific statutes have been enacted for the use of ITS in India.

However, the Government of India and several State governments have been taking several initiatives to encourage and popularise the use of ITS in Indian transport sectors. The GoI has instituted the National Urban Transport Policy (NUTP) that lays out the vision for making the cities of India liveable and ensures safe, affordable, quick, reliable and sustainable access for the growing number of city residents to jobs, education, recreation and such other needs within the Indian cities.

The Ministry of Road Transport and Highways (MoRTH) has started the National Road Transport Policy (NRTP) to promote road infrastructure support, public transport and quality and productivity of goods transportation and infrastructure. NRTP underlines the importance of ITS in the road and highway infrastructure including technologies in real time traffic flow management, parking availability, vehicular traffic, and a basic geographic information system (GIS). In addition, the NRTP also discusses the use of ITS technologies in transport systems in freight and cargo transport, like electronic tagging and automatic toll collection and can greatly reduce waiting/transit times and lead to increased emissions and fuel consumption. The NRTP states that the GoI will promote R&D in the use of “Intelligent Transport System for addressing the problems of transport sector,” the use of modern technology in construction and maintenance of road infrastructure as well as for rolling stock” as well as “making vehicle registration Information Technology (IT) based and creating a centralized registry/depository of all information on motorized vehicles”.

Government Initiatives:

In addition to some of the government level policy initiatives, according to a report by the Standing Committee on Urban Development, the Ministry on
Urban Development (MoUD) has set up an Inter-Ministerial Core Group on ITS for framing a National framework for it.

Under the NUTP to foster a long-term partnership between GoI and state/local governments in the implementation of a greener environment under the ambit of the NUTP, MoUD has initiated the Sustainable Urban Transport Project with the support of the Global Environment Facility (GEF), in which five demonstration cities: Indore, Mysore, Naya Raipur, Pune and Pimpri-Chinchwad, have been chosen to showcase pilot ITS infrastructure. These have been envisioned as tripartite participation agreements between the MoUD, the State and the City.

The Ministry of Heavy Industries has laid out the strategic plan for the Department of Heavy Industry (DHI) which emphasis the facilitation of the roll out of ITS and ‘End of Life’ standards in the country. DHI had provided Rs. 3 crore (€460K) to Department of Science and Technology (DST, TIFAC) for undertaking the Chennai ITS Project. The project aims at leveraging IT to provide live up-to-date information on the movement of buses being run by the state transport undertakings. Using GPS technology the system gives up-to-date information to the passengers and the transport undertaking on the running of the buses. The project has been successfully implemented and will be transferred to the State government of Tamil Nadu shortly. The DHI is expected to replicate the system in Mumbai and Delhi as well. (News Report, FADA)

The Ministry of Railways has provisioned in the Railway budget the introduction of train protection and warning systems to reduce the chances of collision.

Sources:


3. National Urban Transport Policy, Government of India

4. National Road Transport Policy, Ministry of Road Transport and Highways, Government of India


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