

Indo-European dialogue on ICT standards & Emerging Technologies

(Growth, Profitability & Nation Building)

13-14th March 2014 • New Delhi, INDIA

IN THE FRAMEWORK OF

Project

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Intelligent Transport System

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Agenda

- ❖ ITS – Description.
- ❖ Domestic Transit Modes.
- ❖ Environmental factors creating need for ITS.
- ❖ Architecture (Proposed).
- ❖ Major Use cases.
- ❖ Challenges & Recommendations.



Few Alarming Stats

Air Pollution :

- ❖ Vehicle emission is the major contributor of Air Pollution.
- ❖ Air pollution is now the fifth largest killer in India.
- ❖ The report says that in 2010, about 620,000 premature deaths occurred in India from air pollution-related diseases.
- ❖ Globally, air pollution-related deaths have increased by 300 per cent since 2000. About 65 per cent of these deaths occur in Asia.



Average daily Commuting Time :

- ❖ Average Indian spends about 90 mins a day.
- ❖ Average Speed in metros on major roads is 5km/hr.
- ❖ Exponentially increase in vehicles w.r.t current infrastructure.

Source :

<http://cseindia.org/content/air-pollution-now-fifth-largest-killer-india-says-newly-released-findings-global-burden-dise>

<http://www.financialexpress.com/news/commuting-time-in-mumbai-the-maximum-says-study/210620/2>



Intelligent Transport System.

- ❖ ITS enables elements within the transport system such as vehicles, roads, traffic lights, message signs to become intelligent by embedding them with microchips and sensors and empowering them to communicate with each other through wireless technologies
- ❖ ITS deliver five key classes of benefits by
 - ❖ Increasing safety,
 - ❖ Improving operational performance, particularly by reducing congestion,
 - ❖ Enhancing mobility and convenience,
 - ❖ Delivering environmental benefits, and
 - ❖ Boosting productivity and expanding economic and employment growth.
- ❖ ITS connects ---- People, Infrastructure & Vehicles.



Mass Transit System

Bus Rapid Transit (BRT), metro rails and mono rails are being built in different cities to encourage the use of public transport.



Major reason for non adoption of Mass Transit System over private transport, remains the unorganized Last mile transport or Intermediate Public Transport.



Intermediate Public Transport

❖ In Indian Public transport Scenario the last mile remains a challenge to the commuters due to below major reasons

- ❖ Accessibility at last mile
- ❖ Security
- ❖ Convenience and comfort
- ❖ High Journey time
- ❖ Non integrated with Mass transit system
- ❖ Deregulated expense (Approx 40% of total travel cost)



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Other vehicles on Indian Road



Private Vehicles



Radio Taxis



School Buses



Company Owned BPO
Taxis/Buses



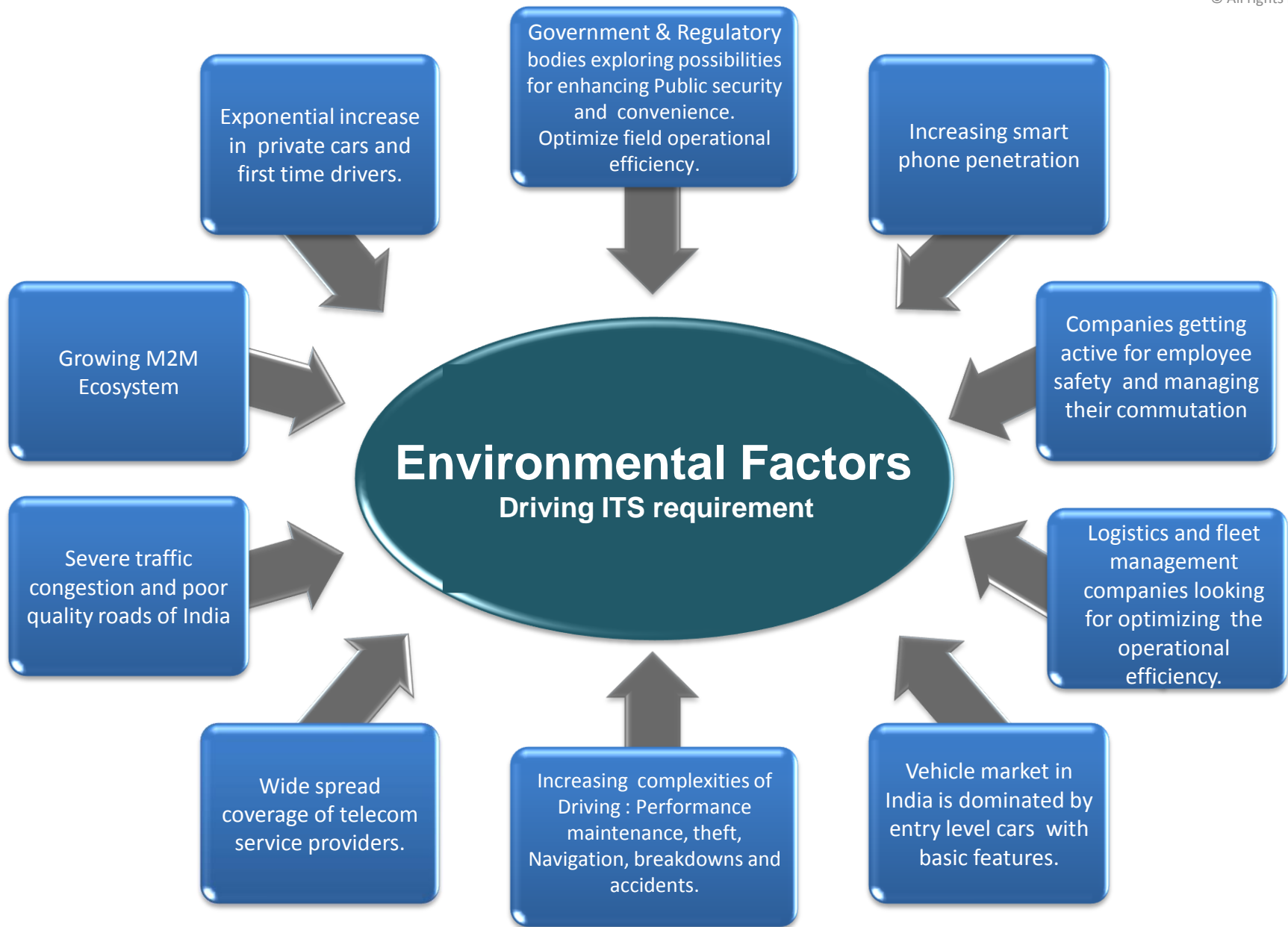
Emergency Service
Ambulances, Fire brigades and PCR VANs.



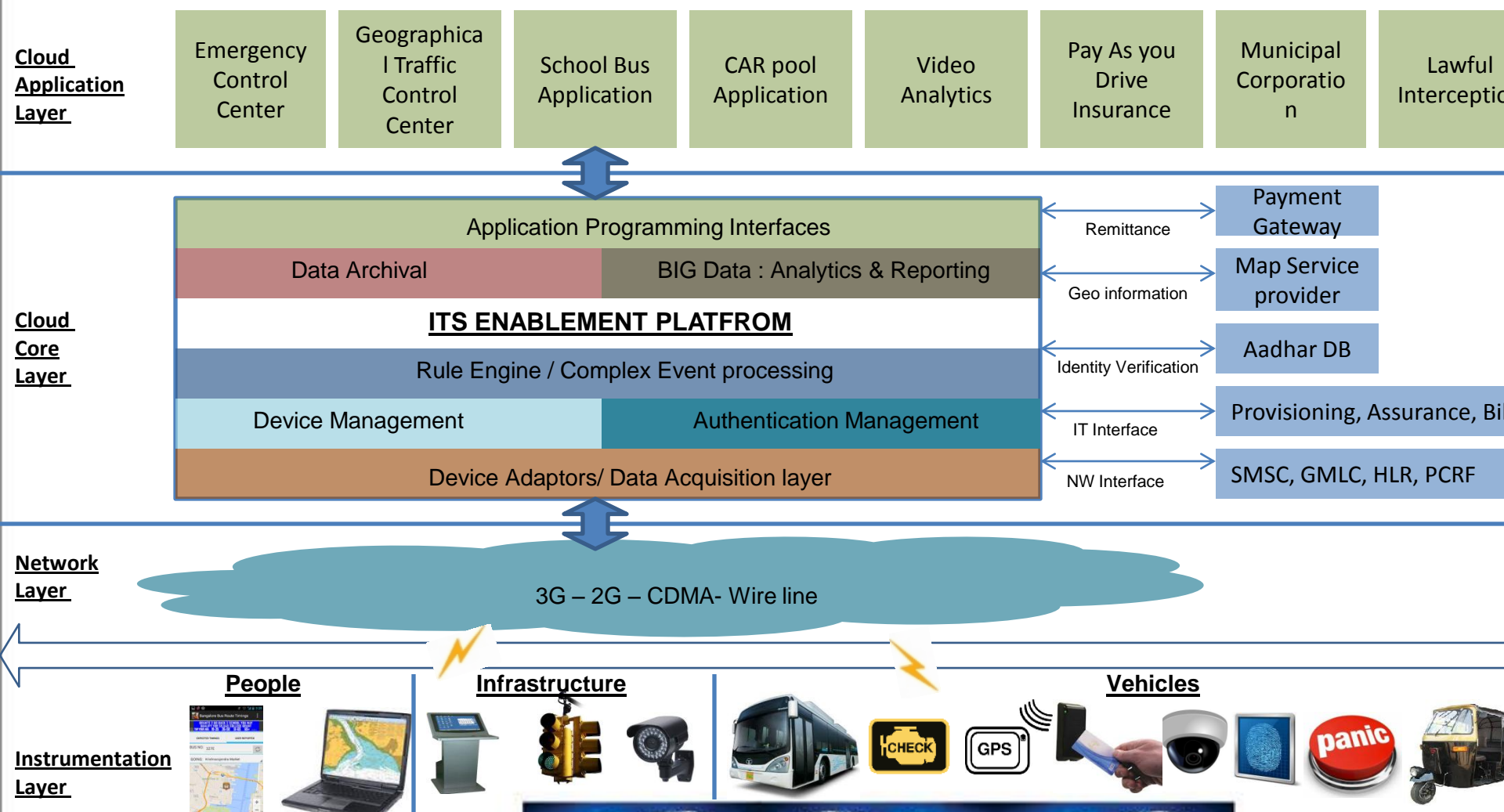
Commercial Logistics
vehicles



Municipality /Utility
Vehicles



Architecture



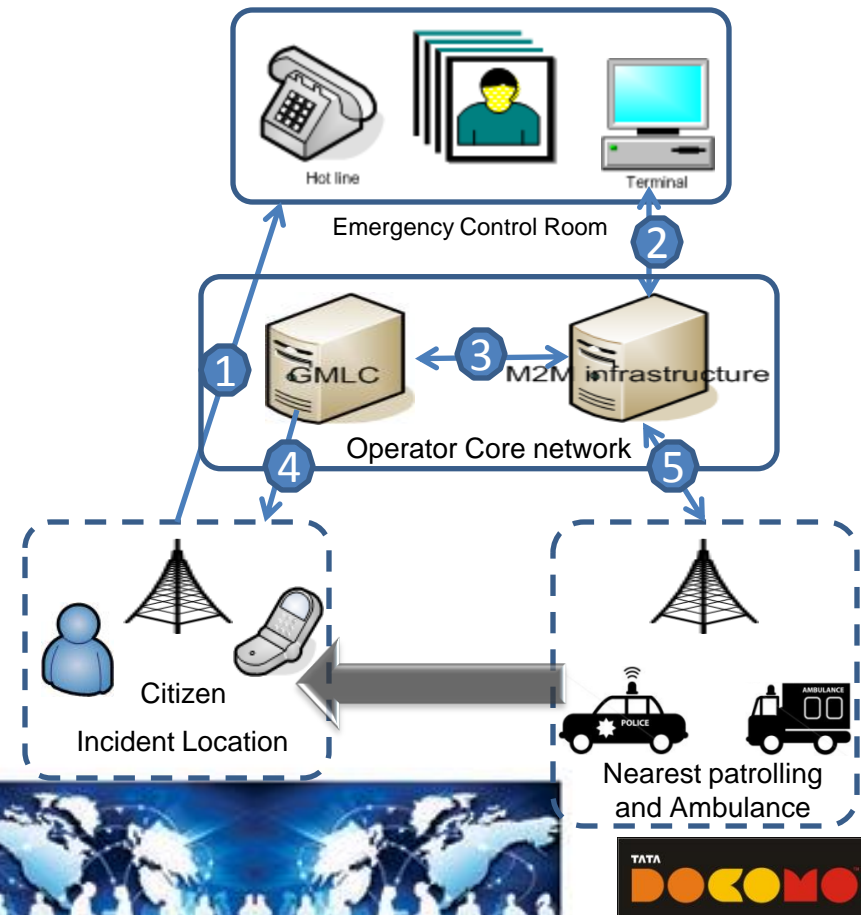
Use cases

Public Safety/Emergency :

This is a very important use case which will enhance the public security and emergency management system in India. M2M technology will enable police emergency VAN to respond to Citizens panic calls efficiently and will reduce the time to react. The framework can enable officials to manage and monitor the incident remotely.

Typical Call Flow

1. Citizen calls emergency 101 (Emergency Control Room) from incident location.
2. Control room Application interact with ITS platform to report the incident with Mobile number of the caller.
3. ITS platform send the location query request to operators GMLC.
4. GMLC uses network based ECID technology to locate the callers Location.
5. Identify the closest Fire Brigade and Ambulance to the Incident Location.
6. Send to the incident location



Use cases

Commuters Mobile Application :

Should be able to search for the end to end travel options and make booking.

Pay using electronic modes/M-wallet.

Search for Family members while transit & request Videos.

Know real time traffic conditions and get optimal route for travel.

Assist in condition of break down or accident.



Car Pool Mobile Application :

Car Owner should be able to communicate that he is taking his private vehicle to Office.

The request should travel to all the people traveling to same destination on the route. (Preferably from Same office)

The commuter can subscribe to the ride through his application.

Both Car owner and commuter can get real time location of each other with estimated time of arrival.

Reward users to encourage car pooling.



Challenges & Recommendations

Standards for ITS:

All individual R&D efforts, pilots and deployment of ITS should be initiated under one umbrella. To ensure scalability, interoperability and robustness of the solution.

Retrofitting as per Indian condition :

Global ITS models needs to be studied and amended as per Indian road conditions, which is non-lane based, chaotic where mostly cars, trucks, two- wheelers and auto-rickshaws share the same road.

Organize para-transit modes:

There is strong need to organize and integrate para-transit modes with MRT by enabling it with technologies which can make it, highly reliable, secure, convenient & time saving. This will provide alternate options to travel, without private vehicles.

Mandate to connect all vehicle types :

Initiatives should be taken to make all type of vehicles connected. CBSE has mandated to connect all school buses. Introduce “Pay As you Drive Insurance”

Create Device Manufacturing expertise :

Polices and schemes to promote connecting all vehicles in domestic market will create huge demand of Device. So its required to create manufacturing expertise with in the country to meet the demand and Quality requirements.



Challenges & Recommendations

Geographical Traffic Control centers:

Regional traffic control center should be established for all major cities which should have contact centers, live view of the city road, traffic condition and manage emergency alerts.

Network Reliability:

The wireless access network should be made reliable to address mission critical and zero tolerance use case to support emergency calls and public security.

Dynamic QoS:

M2M Packet Core Network should support dynamic toggle B/W 2G & 3G packet core network, based on certain event trigger.

E.g. “In-car Surveillance” Camera switches on and starts sending feed to the Monitoring Applications as soon as the “PANIC Button” is pressed in a Connected CAB.

Security & Privacy:

The architecture should have highest standard of security as its expected to carry critical information related to locations & public security etc.



Intelligent Transport System

Interconnected Transport System

Sustainable Transport System

