

# Role of Urban Mobility Management in Smart City

By:

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# Our Footprints in Smart Infra

## ASTRIKOS CONSULTING

ICT | SMART CITY | SMART INDUSTRY

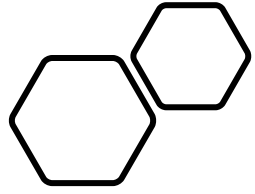
 ISO/IEC 21823-1:2019 |
  ISO/IEC 20000-1:2011 |
  ISO/IEC 27001-1:2013 |
  ISO 9001:2015

We specialise in the areas of Technology (ICT/IoT) Consulting, Implementation of Technological applicability to Public/Enterprise Policy. Areas of focus are ICT, Smart Healthcare Next Generation Data Centres, Smart Cities, Smart Infrastructure, Smart Industries and Smart Analytics.

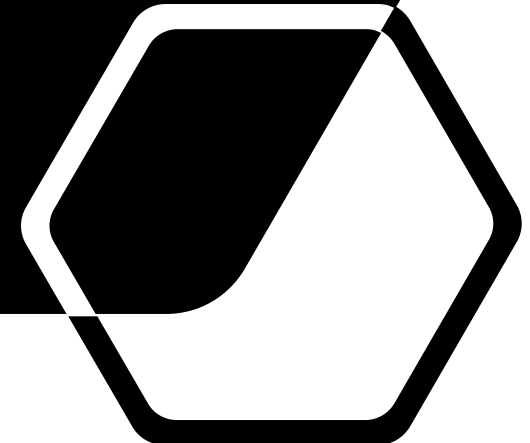
**Astrikos Consulting** provide advisory and implementation efforts to industries on migration/ implementation of Industrial Automation, Industry 5.0 and IIoT by means of cognitive intelligence and data science product lines.

- Smart Cities**
- Namchi Smart City (Sikkim)
  - Belagavi Smart City
  - Aligarh Smart City
  - PCMC Smart City – Pune
  - Gangtok Smart City
- Smart Industrial Parks**
- G&B (WIP)
  - Britannia Industries (WIP)





- Overview of Mobility Ecosystem
- Urban Mobility Challenges
- Emphasis on Safety in Urban Mobility
- Key Drivers – Need Analysis
- Elucidations and Insights
- Tackling Challenges with Technology
- Emergence of Indian Urban Management for Road Safety
- Summary
- Questions - ???



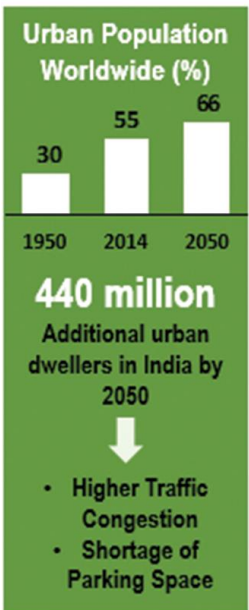


# Mobility Ecosystem and Evolution

- Urbanization Challenge
- Vehicular Density – More Accidents
- Pollutants and Air Quality
- Change in People's Behaviours
- Technological Interventions



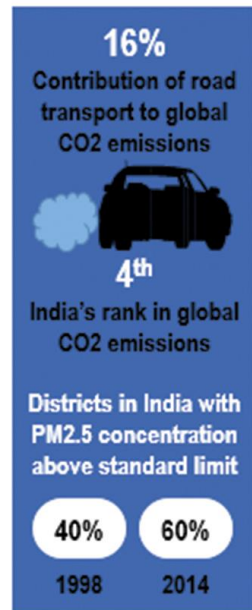
Rising Urbanization



Increase in Accidents



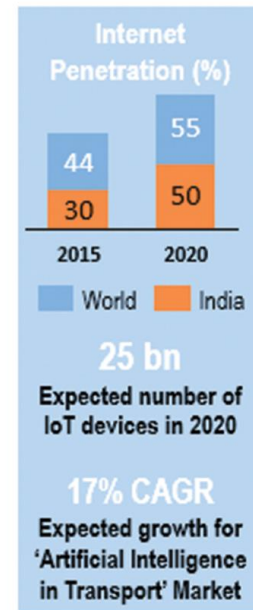
Environmental Concerns



Changing Customer

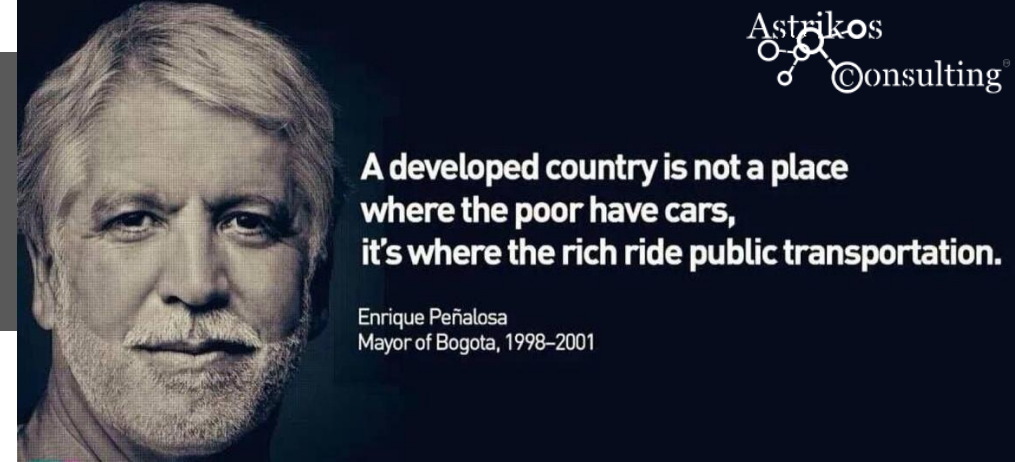


Technological Evolution



Source: <https://autotechreview.com/technology/new-trends-in-mobility-and-implications-for-oems>

# Urban Mobility Challenges



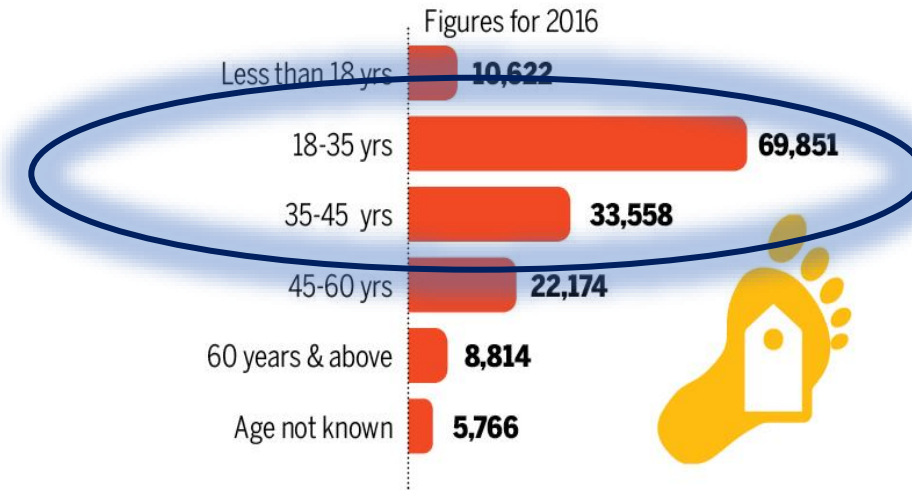
- Maintaining road infrastructure
- Maintaining seamless flow of traffic
- Encouraging citizens to use public transportation services
- Rapid Mobilization of Emergency Response Facilities
- Sustainable and Environment Friendliness



# Emphasis on Safety in Urban Mobility

- It is observed that the younger age group is prone to road accidents
- Two-wheelers and Three-wheelers are more prone to accidents
- Top Root causes for accidents are observed as :
  - Negligence of Driver
  - Impatience on the road
  - Collateral damages

## ROAD DEATHS BY AGE-GROUP

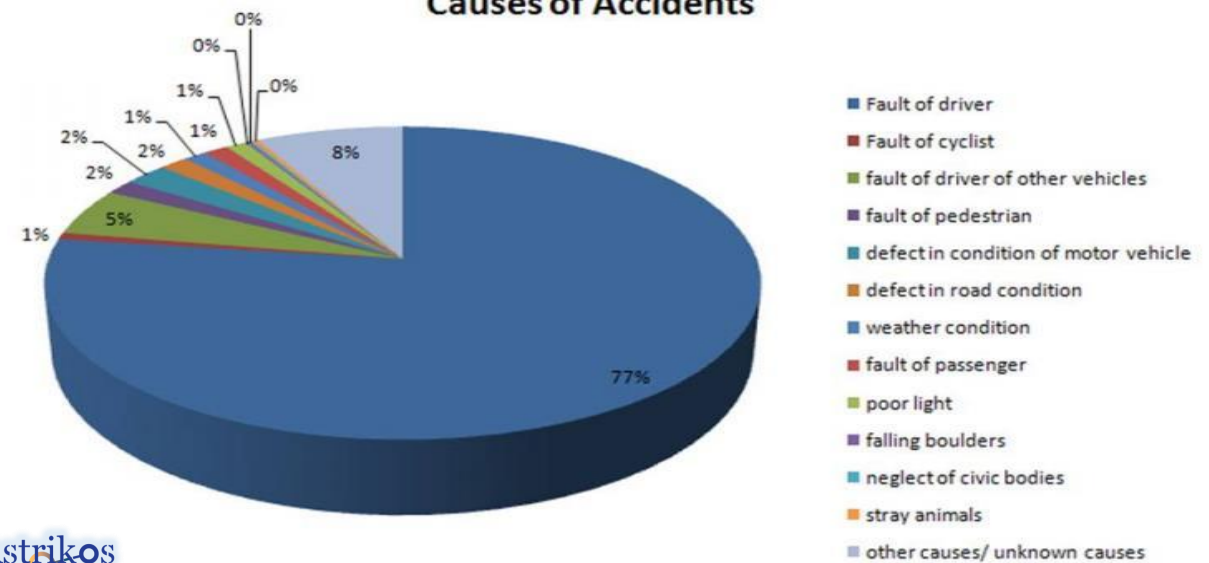


Source: Ministry of Road Transport and Highways

TOI FOR MORE INFOGRAPHICS DOWNLOAD TIMES OF INDIA APP



## Causes of Accidents



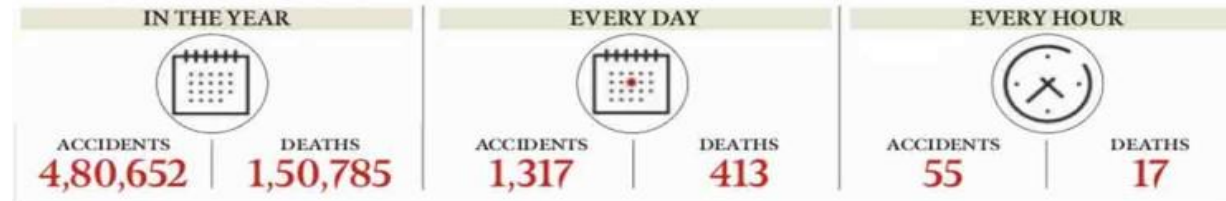


# 17 deaths on India's roads every hour, Chennai and Delhi most dangerous

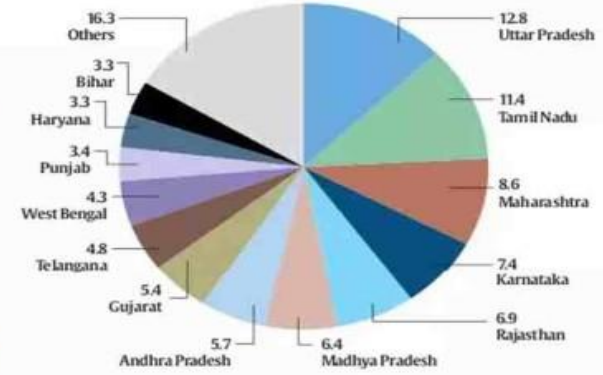
Official data show more people died on Indian roads in 2016 than in 2015; UP and Tamil Nadu accounted for the largest numbers of fatalities

# Insights & Key Drivers

## BIG NUMBERS



### 84% DEATHS IN 13 STATES, UP ON TOP



### DELHI, CHENNAI ROADS MOST DANGEROUS

**CHENNAI:**  
LARGEST NUMBER OF ROAD ACCIDENTS,  
**7,486**

**DELHI:**  
LARGEST NUMBER OF ROAD ACCIDENT DEATHS,  
**1,591**

**CHENNAI:**  
LARGEST NUMBER OF INJURED PERSONS,  
**7,349**

**LUDHIANA:**  
HIGHEST ACCIDENT SEVERITY,  
**69.9**

### FEWER ACCIDENTS, MORE DEATHS

	2015	2016	% change
Accidents	5,01,423	4,80,652	-4.1
Killed	1,46,133	1,50,785	3.2
Injured	5,00,279	4,94,624	-1.1
Severity*	29.1	31.4	7.9

\*Accident Severity is the number of persons killed per 100 accidents

### HIGHWAYS NOT THE BIGGEST KILLERS

Road type	Share of accidents	Share of accident persons deaths	Share of accident persons injured
National Highways	29.6	34.5	29.6
State Highways	25.3	27.9	25.8
Other roads	45.1	37.6	44.6

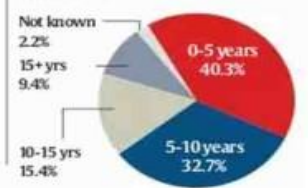
All figures in per cent

### SPEEDBUMPS & POTHOLES KILLED 15 EVERY DAY

**SPEEDBREAKERS CAUSED**  
9,583 road accidents and 3,396 people killed

**POTHOLES LED TO**  
6,424 road accidents and 2,324 fatalities

### NEWEST VEHICLES IN MOST ACCIDENTS



### 50 CITIES WITH MILLION-PLUS POPULATIONS ACCOUNTED FOR

- 18.7% of all road accidents
- 11.8% of all road accident fatalities
- 16.7% of all persons injured in road accidents

### CITIES WITH THE MOST DANGEROUS ROADS

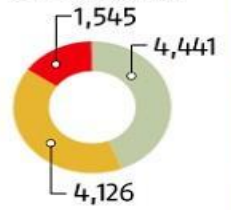
Cities	No. of accidents
Chennai	7,486
Delhi	7,375
Bengaluru	5,323
Indore	5,143
Kolkata	4,104
Mumbai	3,379

- Most of the issues indicate – “Bigger the City, Bigger the Problem !”
- High Need of Urban Mobility Management and Technological Interventions

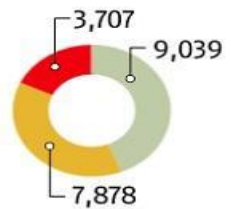
### Causes of road accidents: 2018

Accidents Injuries Deaths

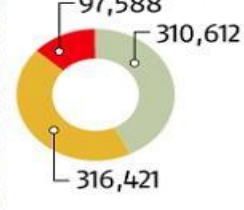
#### JUMPING RED LIGHT



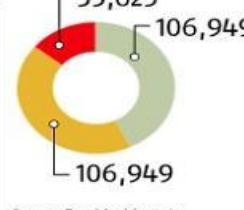
#### USE OF MOBILE PHONE WHILE DRIVING



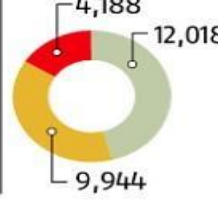
#### SPEEDING



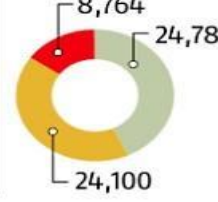
#### OTHERS



#### DRUNKEN DRIVING



#### WRONG SIDE DRIVING

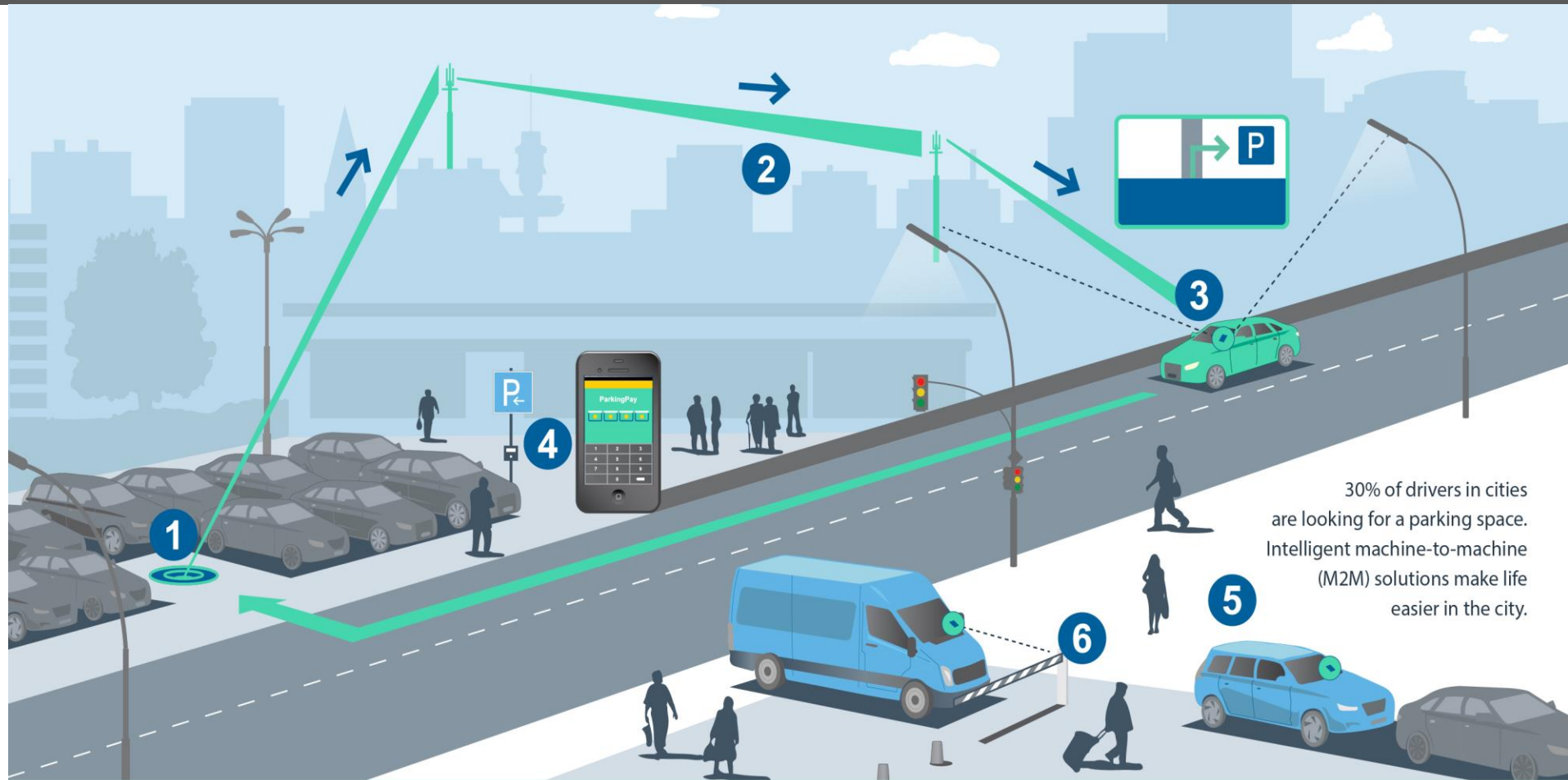


Source: Road Accidents in India, 2018

Source: Road Accidents in India, 2016, published by Transport Research Wing, Ministry of Road Transport & Highways, Government of India. Compiled on the basis of information collected from the police headquarters of various states and Union Territories and Million Plus Cities through specific designated nodal officers – DG/ADGP, Crime; ADGP, Traffic; Director, State Crime Records Bureau – in the 17-item Asia Pacific Road Accident Data (APRAD) format.

# ICT Intervention and Indian Smart Cities

- Adaptive Traffic Control
- Smart Transport and Virtual Boundaries
- GIS Enablement for Urban Administration
- Traffic Enforcement
  - RLVD and SVD
  - E-Challans
- Rapid Emergency Response Mobility
  - Ambulance
  - Fire Engines



- 1** Sensors detect whether a parking space is occupied or vacant
- 2** Sensors transmit data to the central server
- 3** Smartphone app requests a parking space and guides drivers to the free space
- 4** Parking fee is paid directly through the app
- 5** Special permit:
  - parking and local resident IDs
  - permits for taxis, coaches, deliveries
- 6** Legitimation: access control to restricted traffic areas such as loading zones, residential parking



# Use Case: Smart City Command and Control Centre

## Emergency Response Facility:

Mobilizing fire engine service to a location of Incident using Smart City Integrated Command and Control Centre Platform for Urban Management







Q & A . . . . .  
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