Intelligent Transport Systems

Harnessing Cross-Sectoral Infrastructural Synergies
Bangkok Traffic Jam

Driverless Cars Now Legal in California
Three Levers Create Value in Transportation USD720-920 Billion Per Year

Infrastructure Planning & Management

Fleet Investment & Management

Customer Decision Making

WELL BEING, PRODUCTIVITY, TRADE, RESILIENCE, SUSTAINABILITY

McKinsey Global Institute
Infrastructure – Internet of Logistics
Seamless, Coherent, Integrated Standards

[Image of a network diagram with various elements such as satellites, terrestrial broadcast, mobile communications, navigation, vehicle-to-vehicle, safety systems, traffic signs, adaptive cruise control, fleet management, passenger information, travel assistance, toll collection, and ETSI 2008 logo.]
The Internet of Things (IoT) is spurring the development of innovative technologies that are delivering new ways for cars to inform, entertain and assist drivers in a safe and comfortable way. Here’s a look at how technology is changing daily commutes, both now and in the future.

**TODAY**
Car owners and buyers want the latest technologies in their vehicles, and safety is key.

- 60% of roadway collisions could be avoided with half a second’s warning.
- 90% of collisions could be avoided with a full second’s warning.

**Intelligent Maintenance**
Local analytics could be applied to thousands of on-board sensors to flag abnormal events and take corrective action. The data may then be sent to automakers for deeper insight into trends across entire vehicle fleets.

**Data, Data Everywhere**
152 million connected cars will be on the road by 2020, generating 11 petabytes of data annually. Intelligent cars could collect and analyze data from each other, the cloud and the transportation infrastructure to provide the right information, at the right time, and in the right way to keep drivers safe.

**Smart Traffic Environments**
Smarter traffic management could reduce vehicle wait time by 40%, and travel time by 26%. Think smart street lights and roads that better manage traffic flow efficiency, and street signs that display relevant location-based data.

**TOMORROW**
Car buyers will have new demands too!

- 69% said they would like to use a semi-autonomous lane-keeping system.
- 63% would like to use car-to-car communications.
- 63% would welcome a fatigue warning device in their vehicles.

**Vehicle-to-Vehicle Communication**
Intelligent cars have the potential to reduce 79% of crashes by exchanging information about location, speed and direction. As a result, cars could then take proactive measures to keep traffic moving efficiently and safely.
Increasing Safety

WARNING
SPEED
104 KMH
TIME TO CRASH
3 SEC.
Rise of the Connected Car and Intelligent Mobility

Wireless Wheels and Smart Phones Increasingly to the Forefront
Self Driving Cars

Most Transformative for Transportation Since Introduction of Internal Combustion Engine?
Leapfrogging to Driverless Trucks
Shipping Freight

Mercedes Benz ‘Future Truck 2025’ drives itself on the highway
Smart Roads: Operational, Legal, Ethical Dilemmas
Connected/Driverless Vehicles Interaction with Other Users
Any Basic Car into a Fighter Jet with Vocal Commands
USD500 Display Launching early 2015

Accelerometer, electronic compass, light sensor, Bluetooth 4.0, Wi-Fi on Android or iOS, apps like Spotify, Google Maps, Twitter, Messaging

Navdy
Intelligent Transport Systems
Five Questions for Policy Makers

1. What are the safety issues?
2. What happens if the systems malfunction?
3. Can we become too reliant?
4. Privacy - who knows what about you?
5. What are the wider implications of algorithms?
The Dark Side
Security Experts Sounding the Alarm

‘If my PC is hit by a cyberattack, it is (just) a nuisance;
if my car is attacked (by hackers), it could kill me.’

Economist June 2014
Reimagining Transport
Societal Values and Economic Benefits

Design for People First: User Experience at the Heart

Emergence of a Collaborative Economy, e.g. Car Sharing

New Business Models for Charging

Environmental Sustainability and Carbon Reduction
Connectivity Between Transport Solutions

‘Digital Highways for Physical Highways’
Technology Infrastructure - Interoperability Challenges

Who Owns the Diverse Networks and Data Centres?

- Broadband (Fibre)
- Mobile Robotics
- Internet of Things (Sensors)
- Spectrum and Mobile xG
- Cloud
- Geographical Information /Positioning Systems
- Camera Tracking / Surveillance
Massive Leaps in Digital Content Creativity

Who Owns the Data?

- Data Gathering, Collection
- Open Data (Government, Private Sector, Individuals)
- Non-Transport Data Sets, e.g. Weather
- Social Media
- Mapping Applications
- Visualisation, e.g. Augmented Reality
Recommendation 1 for Policy Makers

Creating Centres of Excellence for Intelligent Transport Systems as NEUTRAL SPACES where World-Class PHYSICAL Testing integrates with New DIGITAL Models.
Recommendation 2 for Policy Makers

Wide Stakeholder Engagement Imperative

Transnational

Horizontalisation, Sharing, Peer Approach

Mutuality, Trust, Respect, Ethics
Recommendation 3
for Policy Makers

Advocating Innovative Approaches to Regulation

Cross-border

Requires Boldness and Transparency
Concluding Reflections
Transport Infrastructure

Why Do We Move?

Who Will Still Need Personal Vehicle Ownership?

How Should Platforms Think?
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