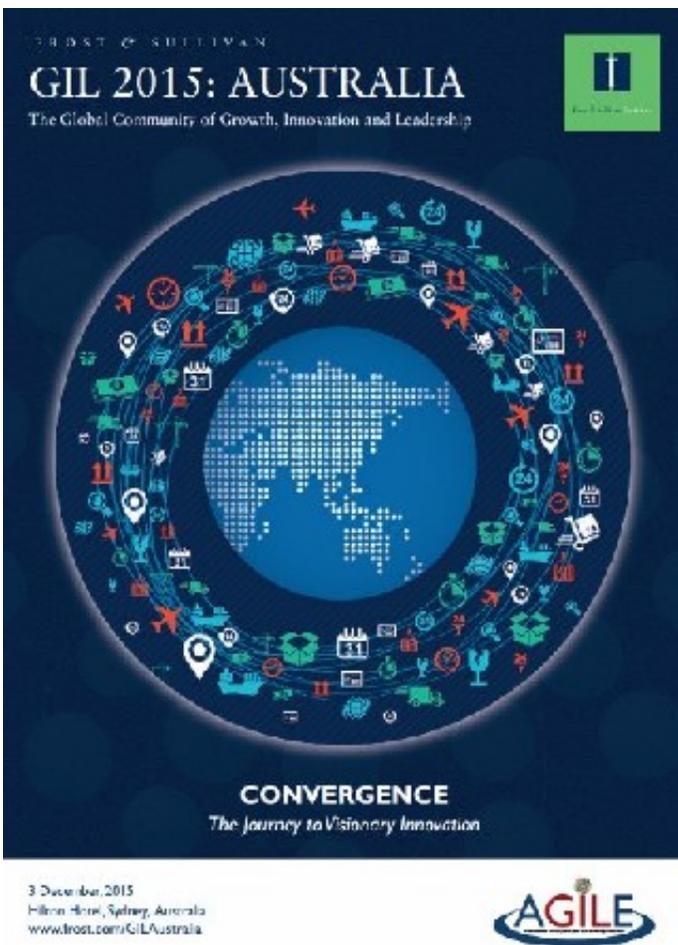


Reducing traffic congestion, carbon emissions and accidents while increasing travel speed

November 12 2015



Credit: Frost & Sullivan

Worldwide, traffic congestion is a major issue in all cities as more and more vehicles pour onto roads originally built for a fraction of the vehicles on them today. Transport authorities recognise the need for safer commuting and are constantly challenged to meet goals of reducing carbon footprint, while original equipment manufacturers (OEMs) and the automotive industry are continuously developing new vehicles for greener and safer commuting.

Intelligent Mobility is an integrated approach towards achieving the global transportation industry's three key goals of safer, cleaner and leaner mobility through creating vehicles that promote an eco-driving experience, are insulated from crash fatalities and are tuned to combat congestion. Intelligent mobility comprises of, and leverages; vehicle automation/automated driving, cooperative driving, shared mobility and new mobility models, as well as sustainable and eco-driving using alternative propulsion and traffic flow optimisation.

"Although OEMs have dedicated teams for major segments; such as vehicle automation, cooperative driving (v2x communication), [mobility services](#) or greener commuting, each of these teams work on their own solutions to fight the problem. Intelligent mobility is an approach that integrates these teams to synthesise individual efforts and reap synergies to produce solutions to reduce [traffic congestion](#) and provide multifaceted benefits for all stakeholders," said Frost & Sullivan Intelligent Mobility Research Director Vijayendra Rao.

Several stakeholders play key roles in an intelligent mobility ecosystem. The government role in implementing relevant regulations is essential to the smooth integration of new mobility solutions to the current framework. Automotive industry players are likely to have to stretch their boundaries with the development of technology seeing deployment shifting to new and existing enablers. The end user market of corporate users would be a lucrative target mobility providers could tap into during

the initial stages of deployment, subsequently moving to retail users to create sustainability. Lastly, businesses in mobility will find that it is likely to transform to a service-dominant industry with power shifting to service providers to develop a sustainable value chain.

The concept of intelligent mobility also aims to bridge the gap between the different industry stakeholders. A combined approach from all stakeholders could achieve cross-cutting benefits rather than achieving one goal at the cost of another, hence delivering solutions to reduce traffic congestion that have multifaceted benefits for all stakeholders. As a unified approach, intelligent mobility reduces traffic congestion by a fifth, carbon emission by a tenth, optimises travel speed up to 60% (depending on infrastructural intelligence) and could result in a minimum of 15% to as much as a 33% in crash prevention through incident management and another ten percent by enhanced collision avoidance.

Connected Cars

The Internet of Things (IoT) has paved the way for connected vehicles that can do so much more than just being a black-box offering safety and security services. It is a confluence of smartphone integration, cloud connectivity, infrastructure connectivity, and vehicle-to-vehicle connectivity, supported by a range of comfort, convenience, entertainment, vehicle ownership, and safety-related services. "Concepts like predictive analytics are finding potential in the growing connected car market where innovation plays a critical role in creating value propositions the customer will find compelling. The connected car market has moved beyond a simple ecosystem of the traditional automotive suppliers. The Apple's and Google's of the world clearly regard the connected car market as the next big opportunity outside their existing smartphone and tablet worlds," said Rao.

Rao added, "The rapid digital transformation in the automotive industry has resulted in cars being much more intelligent and autonomous than before. Cars can customise the driving experience for individual drivers; learn preferred/typical routes and use them, make diversions where necessary on routes where there may be road works, adjust its route and driving based on weather conditions, and anticipate danger and eliminate accidents. While a few years ago the concept of self-driving car seemed far-fetched, today, digital technology has made self-driving cars a reality and has transformed the driving experience as well as the entire automotive industry."

Traditional vehicle manufacturers are using vehicle automation to eliminate human error and boost safety features. A suite of features and technologies are available for assisted driving across the scope of semi, highly, and fully-automated solutions. Forward collision warning with emergency braking already offers a level of semi-automation that has a positive impact on crash and fatality reduction, which, in turn, has a huge impact on the insurance industry, including premium design, claims frequency, accident severity and number of incidents.

Convergence sees Automotive Industry Integrate Health, Wellness, and Wellbeing into Vehicles

The automotive industry has long been introducing new and innovative features to cars on the basis of consumer trends, preferences, safety bulletins and market positioning and is now integrating health, wellness, and wellbeing (HWW) technologies into cars. It aims to achieve its zero-accident, zero-fatality goal using support from synergistic technologies that enable advances in autonomous driving and advanced driver assistance systems. Through collaborations with stakeholders from multiple industries such as healthcare and information technology, key global original equipment manufacturers (OEMs) are developing

strategies to include built-in, brought-in or cloud-enabled health monitoring systems in cars as standard, optional or advanced features.

The first wave of HWW proliferation in the automotive industry will focus on 'measuring and monitoring' to benefit drivers and passengers through early detection of ailments and assistance in emergencies. In response to the large aged population in several societies, automakers are developing cars that can anticipate a driver's heart attack or sudden disability, bring the vehicle to a safe halt, and alert doctors. Mass market OEMs like Ford and Toyota, and luxury automakers such as BMW and Audi are pioneering integration of HWW features into their next-generation products.

"Delivery of healthcare services is shifting to in-person, in-home and now in-vehicle patient interaction and support. Areas outside hospitals, smart homes and cars will clearly become new points for measuring, monitoring, basic diagnosing and communicating with individuals about their health and future cars are likely to be designed and reconfigured based on drivers' age and health conditions. While automotive HWW non-critical features such as reconfigurable seats and mood lighting are expected to be present in 30 to 40 percent of all cars by 2018, critical functionalities like blood pressure monitoring will penetrate nearly 5 percent of vehicles by 2025," concluded Rao.

Provided by Frost & Sullivan

Citation: Reducing traffic congestion, carbon emissions and accidents while increasing travel speed (2015, November 12) retrieved 19 September 2024 from <https://phys.org/news/2015-11-traffic-congestion-carbon-emissions-accidents.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.