

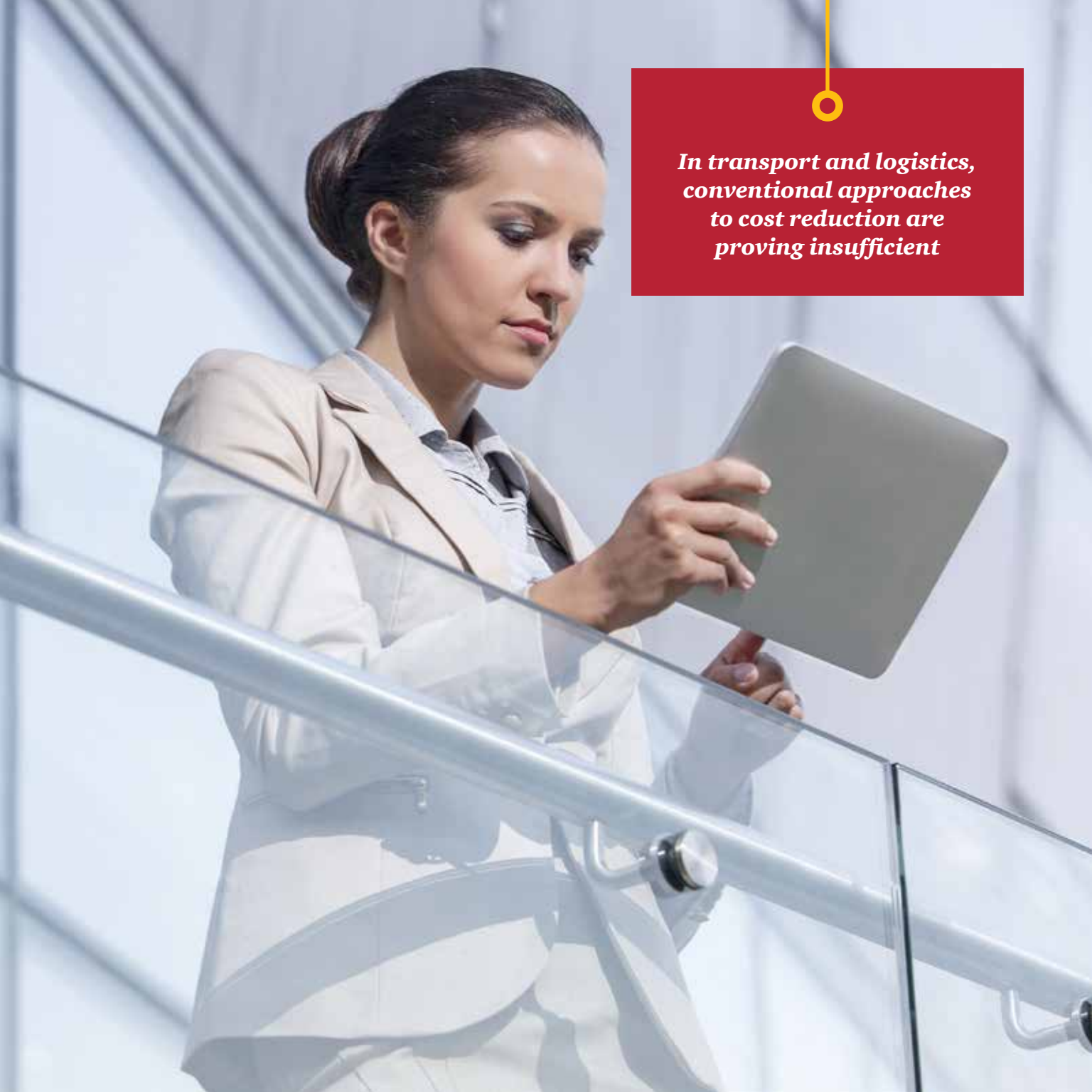
Getting in the driver's seat

Logistics and fleet management companies in Asia could drive up margins through digital solutions

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*In transport and logistics,
conventional approaches
to cost reduction are
proving insufficient*

In Asia, despite healthy increases in transport volume and the emergence of new transportation corridors, price competition has led to low revenue growth and leaner margins.

Over the past few years, the shift in global trade flows has established new transportation corridors between emerging countries and the least developed countries. Asian economies in general and the emerging markets in particular will drive and shape the direction and future of the global transport corridors. In 2012, intra-ASEAN trade amounted to 24.3% of their total trade volume.¹ Analysts estimate that trade centred around Asia will contribute almost 40% of global trade by 2028.²

Increases in transport volumes across these corridors make them growth hotspots for transportation and logistics operators. According to a PwC Survey, China's exports to the US could be nearly three times the reverse flow in absolute value by 2030.³ Trade between China and three other Asia-Pacific economies (Malaysia, Indonesia and Thailand) is also expected to see high volume growth, according to the survey. By 2030, bilateral trade between Indonesia and Thailand is projected to be almost five times the volume in 2009.

The rapidly shifting landscape of global trade is creating new hubs for transport and logistics. For instance, Singapore's strategic location in the heart of Southeast Asia and at the nexus of major shipping lanes makes it an important conduit for world trade. The World Bank has ranked Singapore as the top logistics hub in Asia and 20 of the top 25 global logistics players (including DHL, Kuehne + Nagel, Sankyu, Schenker, Toll, UPS and Yusen Logistics) have set up regional or global HQ functions there. The city state has put smart technology at the heart of its bid to stay ahead, with its Infocomm Development Agency (IDA) working with 10 other government agencies and more than 20 private companies and start-ups to use common datasets and common connectivity infrastructure to produce applications that improve city living. One of the technologies being developed by the National University of Singapore (NUS) tests algorithms to determine vehicular and pedestrian movement, using video sensing. The technology could enable real-time optimised traffic light signalling, which would help manage traffic, people movement and improve energy efficiency in offices, buildings and car parks.

However, despite continued globalisation, declining trade barriers and an increasingly mobile workforce, the logistics and fleet management industry continues to struggle for above-average revenue growth. According to the Global Air Freight Logistics Industry report by IBISWorld, industry revenue is expected to grow at a meagre annualised rate of 2.1% in the five years through 2018.⁴ While tonnage grows healthily, industry price competition feeds low revenue and margin growth. For instance, the average net margin for Class 1 and Class 2 truck fleet carriers (includes trucks whose Gross vehicle weight rating ranges from 0-4536kg) is under 4%.⁵ As a result, fleets are under pressure to galvanise operational efficiency even further in this already cost-conscious industry. According to PwC's Global CEO Survey published in 2013, improving operational effectiveness is the top investment priority for logistics and fleet management companies. According to the report, 80% of transport and logistics CEOs surveyed are implementing cost-reduction initiatives.⁶ High insurance premiums, unregulated driving behaviour and volatile fuel prices are some of the major concerns impacting the industry's operating margins.

High insurance premiums, unregulated driving behaviour and volatile fuel prices are top of mind and IoT- and M2M-enabled digital solutions could drive additional efficiencies.

While the focus on cost is clear, transport and logistics companies are struggling to make sufficient impact through conventional cost-reduction measures. According to PwC's Global CEO Survey, transport and logistics CEOs are beginning to believe that digital transformation carries the potential to achieve more. CEOs observed improvements in fleet control, driver behaviour and the ability to deliver a better customer experience as the three key areas where digital technologies such as better data analytics could drive performance improvements. Taking road freight as an example, we explore below how IoT and M2M enabled digital technologies will help improve operational effectiveness.

Logistics and fleet management companies in Asia-Pacific could save 2-3% in operating costs through smart connected fleets, lower fuel consumption and better risk control.

Fleet managers across the globe are adopting digital technologies such as GPS-enabled fleet management and M2M-enabled telematics to improve efficiency through maintenance optimisation, intelligent routing, and insurance and fuel costs reduction (Figure 1). Vehicle tracking and monitoring sensors can generate a 20-30% cost saving in insurance claims by reducing both the frequency and severity of claims due to safer driving, resulting in lower premiums, fraud risks and deaths.⁷ Pay-as-you-drive solutions have enabled fleet managers to moderate risky driving behaviours such as speeding, idling, harsh braking and over-revving, all of which negatively contribute to total fuel spend, and all of which are key challenges to fleet managers in the Asia Pacific region.⁸ According to the US EPA, responsible driving can limit fuel consumption by as much as 30%.⁹ Intelligent routing has resulted in reduced wear and tear, increased vehicle lifetime and reduced maintenance costs. In the Asia-Pacific, the latter typically constitute between 8-10% of a fleet's operational costs.



Net margin for Class 1 and 2 truck fleet carriers



28-30%

Cost of insurance as a percentage of overall operational cost



5%

Cost of fuel as a percentage of overall operating cost



Reduce insurance claim costs by 20-30%



Reduce fuel costs by 10-15% through higher efficiency

Figure 1

Global evidence suggests that building better real-time analytics into fleet management results in a systematic increase in productivity, resulting in fleets that operate with fewer resources.

Selected from around the world, these examples have direct applicability in the Asia-Pacific to transport and logistics businesses:

- A Singaporean owned offshore support company operating at a fleet of 20 ships ensured that the vessels stayed within the required 10 knots speed limit and reduced bunkering of the fuel on the vessel through accurate and reliable fuel logging.
- SMRT Corporation, a Singapore public transport service provider with a fleet of 1,200 buses, has implemented a telematics system consisting of eco-drive sensors that monitors and analyses driver behaviour. The sensor indicators light up when a bus driver speeds for a prolonged period, accelerates or decelerates quickly, or changes lane abruptly, and provides visual cues for bus drivers to adjust their driving speed, thereby improving drivers' driving behaviour and commuters' safety.
- Sullivan Buses, a company running buses on local routes in England, reduced the number of high-risk driving manoeuvres by 53% and negotiated an improved insurance premium through its insurance broker, Belmont International.⁷
- A UK police department cut its incident rate by 34%, boosted vehicle utilisation and reduced downtime by installing reversing sensors in collision-prone vehicles. Vehicle service scheduling, smart repairs, controlling idling and intelligent deployment enabled by data analytics helped the West Yorkshire constabulary reduce one million miles of wasted journeys and cut its fleet size by 120 vehicles.¹⁰
- Safelite, a mobile glass repair and replacement company in Ohio, US, reported that intelligent routing enabled reduction in miles driven by 5-7%, resulting in significant fuel savings and reduction in vehicle maintenance costs (estimated reduction in fuel consumption of around 800,000 gallons in a year, which saved approximately 3 million USD).¹¹

Fuel is the largest expense item for fleets, as well as its most unpredictable. Across the Asia-Pacific, fuel currently constitutes 28-30% of operating cost,¹² and even a 5% reduction in fuel usage could improve margins by over 0.5%, which is by an eighth. Even though fuel prices are currently at a low, price volatility remains a challenge. Fleet managers are constantly seeking solutions to become more fuel efficient to minimise operating costs:

- Southwest Airlines is replacing 200 of its Boeing 737s with 14% more fuel-efficient Boeing 737 MAXs to reduce vulnerability to fuel costs, which currently constitute around a third of its operating costs. The airline plans to install new split-scamar winglets on all its 737-800s by the end of 2015 to reduce fuel consumption by an additional 2% on long-haul routes.¹³
- Over 45% of container operators and over 75% of oil tanker and dry bulk fleet operators have resorted to 'slow steaming' to cut their fuel bills, as cutting the average sailing speed by just 3%, the amount of fuel consumed can be reduced by more than 9%.¹⁴
- Singapore Airlines is improving its fuel efficiency by renewing its aircraft more frequently than any other airline in the industry.¹⁵

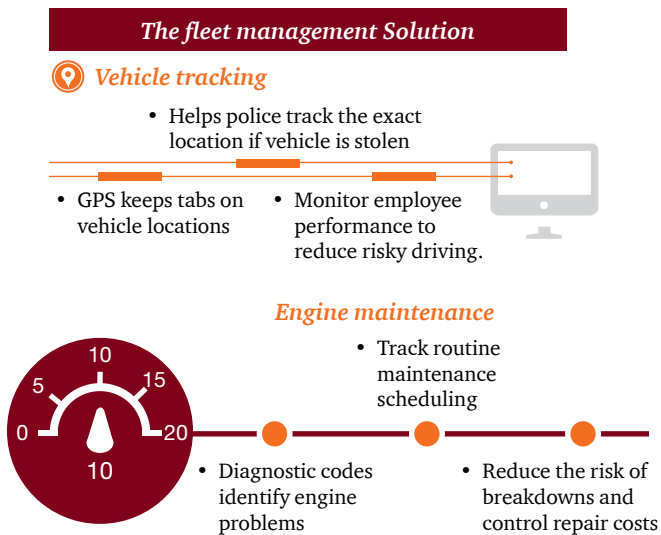
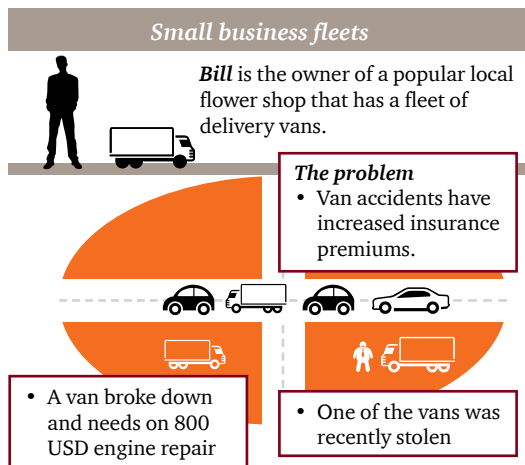
M2M-enabled telematics solutions including remote vehicle diagnostics and routing or driver productivity tools armed with wireless GPS tracking are fast emerging as an alternative to these one-off initiatives to contain fleet operating costs. Fleet managers worldwide have reported a comprehensive reduction in fuel consumption after installation of telematics solutions:

- After installing geo-fencing to monitor route adherence and sensors to monitor engine idling time, one of Carlsberg's European fleets reported a fall in fuel consumption by 4.8%, saving 200,000 litres of fuel in a year.¹⁶
- CRCS DKI, a restoration services and disaster clean up company in Canada, used telematics for three years to monitor idling and addressed driving behaviours, thereby increasing its fleet's average miles per gallon from 11.2 to 13.4.¹⁷

Vehicle telematics provides fleet managers an accurate and timely picture of fleet activity from driver behaviour by monitoring vehicle speed, location, route compliance to vehicle's mechanical condition (Figure 2). The typical process of monitoring fleet activity through vehicle telematics is described below:

- A *GPS receiver* collects real-time data about the current location and communicates it to central command centres.
- *Intelligent sensors* track the status of vehicle diagnostics such as engine, tyre pressure, emissions as well as driver performance on speed, braking and idling.
- An *onboard telematics device* takes the data and sends it via the cellular network to central computers.
- In these *central command centres*, data can be processed, converted into usable information and accessed from any computer connected to the internet.
- *Deep analytics* are run on the information over a period of time to produce customised reports and intelligence that aid fleet managers to decide on issues from the remote shutdown of vehicles in cases of theft to proactive maintenance scheduling in cases of predicted engine failure.
- *Onboard internet* ensures real-time communication with the control room, and also provides features such as audio-video teleconferencing, video streaming, instant messaging, file transfers and push-to-talk communications all using low-bandwidth connectivity.
- *Video surveillance* systems ensure equipment monitoring and driver or passenger emergency services.

For instance, a live vehicle-tracking application could include real-time positioning, detection of closest vehicle, point of interest identification and geo-fencing. Managers get regular *information about* vehicles or goods positioning, can track goods and vehicles at any time and in any circumstances, can detect off-trip movement, use historical data to determine the most risky areas and plan itineraries in the future.



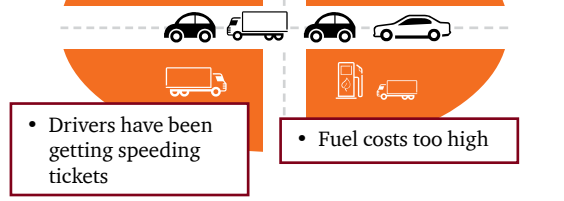
Delivering excellent services is crucial to building a successful local business. Efficient fleet management helps business owners like Bill control costs while serving more customers.

Enterprise fleets

Joanne is the COO of a major cable & internet provider with a nationwide fleet of trucks.

The problem

- Customers have been complaining about the long four-hour service windows

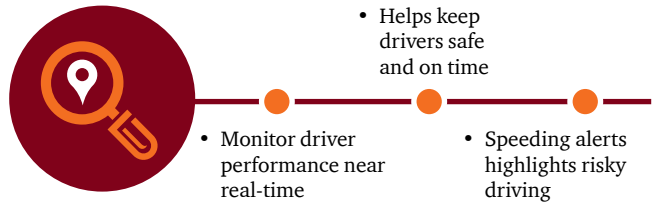


The fleet management solution

Routing and rerouting

- Web-based monitoring dashboard provides instant access to fleet information
- Reduce mileage with more efficient routing
- Route the nearest available vehicle

Driver management



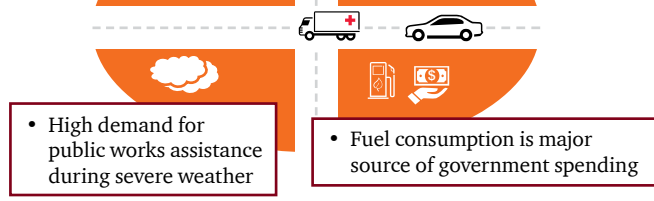
Equipped with the tools to better manage her services fleet, Joanne can reduce service windows and provide customers with faster services.

Government fleets

Ron is the Mayor of a large sub urban town and oversees the emergency and public works vehicle fleets. His goal is to reduce city spending and go green.

The problem

- Public works vehicles regularly require maintenance

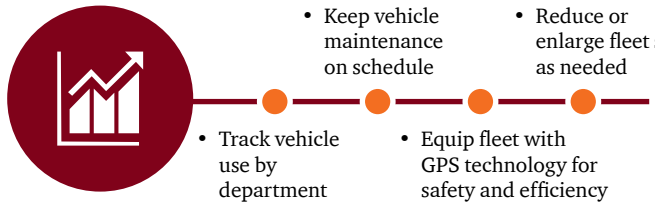


The fleet management solution

Reducing fuel costs

- Verify that vehicles are meeting emissions standards
- Track speed and idle time to limit fuel consumption
- Analyze mileage and usage for every vehicle

Improving fleet performance

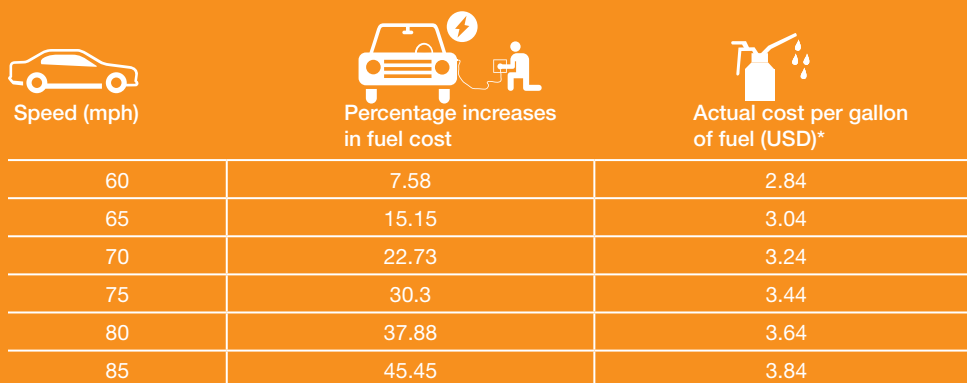


A streamlined fleet management system can help Ron keep the city running efficiently, staying on budget, and meeting its environmental goals.

Figure 2: Benefits of fleet management solutions

Intelligence collected through telematics can be used to:

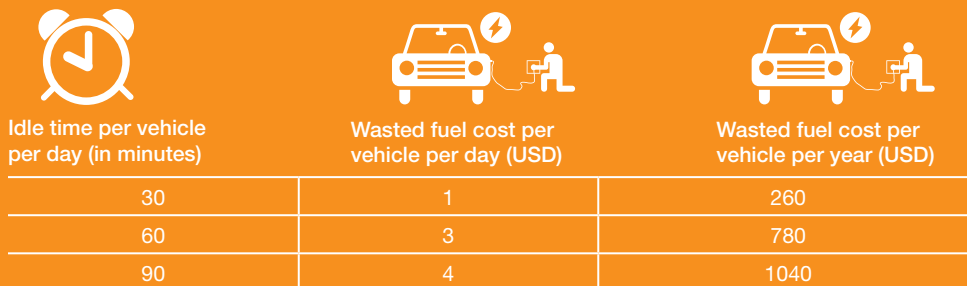
- **Eliminate unauthorised use:** Location monitoring helps in identification of instances of vehicle misuse along with selection and dispatch of vehicles closest to the next customer site, saving time and fuel.
- **Reduce idle time:** With idling monitoring, fleet managers can track fleet-wide and vehicle-specific idle time, receive alerts every time a vehicle idles past the set threshold of time and prevent wastage of fuel (Figure 3).
- **Decrease miles driven through better routing and reducing speeds:** Improved routing and reduced speeding results in a drop in daily mileage and savings in operational expenses of maintenance and fuel.
- **Manage driver behaviour:** Drivers' behaviour has a direct impact on fuel efficiency. A well-documented driver's performance can help fleet managers negotiate premiums with insurance providers, thereby reducing the cost of risk exposure.



The above figure demonstrates how every five mile per hour increase in driving speed adds 20 cents per gallon to the cost of fuel.

*assuming a base price of 2.64 USD per gallon.¹³

Figure 3



The above figure demonstrates the impact of unnecessary idle time on fuel costs. For instance, 90 minutes of unnecessary idling per vehicle per day costs a 100 vehicle fleet more than 100,000 USD a year.¹³

The value of fleet management solutions is being realised with the adoption of M2M enabled telematics technology across regions and businesses.

As telematics matures, fleets and providers are finding more and more ways to take information and turn it into actionable business intelligence. Applications such as stolen vehicle recovery, automatic crash notification, prevention of theft and vehicle data recording have resulted in increased uptake of telematics systems. According to ABI Research, global fleet management and trailer tracking system subscriptions will grow from 13.3 million in 2012 to 30.4 million by 2016 as more affordable solutions begin to emerge.¹⁸ Advanced telematics systems are being deployed worldwide and across fleet management industry to provide following benefits:

- Telematics systems are enabling vehicle recovery through vehicle tracking and remote shutdown of the vehicle if located in an unauthorised area. In Brazil, where a vehicle is stolen every 12 minutes,¹⁹ Ituran, a telematics firm has helped recover more than 21,000 vehicles in the country. This translates to approximately 600 million USD of property recovered.²⁰
- eCall systems are helping save lives by cutting the emergency response times by as much as 40% in the cities and 50% in rural areas in the EU. As vehicle-to-vehicle communication is evolving, distress signals or calls are being sent to nearest vehicle in the fleet to ensure that deliveries for the day are completed.²¹ (*Taking The Leap Into Digital India*, a PwC paper commissioned by Orange Business Services, explores how digital solutions could help prevent as much as 15% of Indian urban road accident fatalities in India by making available critical trauma care to victims sooner through improved emergency response time.)
- Trucks that are transporting explosives or hazardous materials are also being tracked. For instance, in China, temperature and air quality within some trucks are now being monitored real-time.
- RFID multiple identification is enabling end-to-end solutions from measuring waste collection weight to managing accumulated collection data and maintaining resident's information.
- Connected public transport systems such as trains are being rolled out with real-time communication between control room, driver and passengers providing instant monitoring and control. Internet onboard provides passenger infotainment while video surveillance ensures equipment monitoring and passenger emergency services.
- Improved maintenance scheduling and servicing with diagnostic data is resulting in better warranty recovery on newer vehicles, lower vehicle downtime, reduced total cost of ownership, higher resale value and lesser service disruptions.



Fleet management uses a combination of advanced mobile communications technology integrated with informatics to monitor and manage logistics services in real-time for route and travel time optimisation, idling and stoppage time reduction, driver behaviour and performance observation resulting in fuel costs reduction. Adoption of fleet management solutions in smart connected fleets could help logistics and fleet management companies in Asia-Pacific save 2-3% in operating costs.

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Contacts

Singapore

Maheshwar Venkataraman

Email: maheshwar.venkataraman@sg.pwc.com

Phone: +65 9830 5063

India

Shashank Tripathi

Email: shashank.tripathi@in.pwc.com

Phone: +91 9819678900

Neeraj Katariya

Email: neeraj.katariya@in.pwc.com

Phone: +91 9910024512

Diwakar Gupta

Email: diwakar.gupta@in.pwc.com

Phone: +91 9810902746

Neetika Choudhary

Email: Neetika.choudhary@in.pwc.com

Phone: +91 9873934684

www.pwc.sg

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