

Stay ahead of the curve with the smart way to manage your fleet

White paper



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Introduction



The [Malaysia Road Fatalities Index](#) says approximately 1.35 million people die in road accidents every year. On average 3,700 people lose their lives daily. In fact, [80% of road accidents](#) recorded were due to driver behaviors and not road conditions. Malaysia, being a developed country, has highways and roads that are on par with any first-world country which means the driving culture and mindset of drivers are the main factors to watch out for.

For organisations and businesses that own one or more vehicles, a solid and effective fleet management system is vital for the overall success of its daily operations. Fleet management refers to the process of overseeing and coordinating a company's vehicle fleet to optimise efficiency, reduce costs, and improve overall operations. It encompasses various tasks, including vehicle acquisition, maintenance, fuel management, route planning, and driver monitoring.

In today's fast-paced business world, efficient fleet management has become indispensable for organisations that rely on transportation to deliver goods or provide services. As businesses continue to rely on transportation as a core aspect of their operations, the importance of effective fleet management will only grow, making it a crucial component of successful and responsible enterprise management.

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The future is in connected vehicles



One effective way that ensures scenarios that cause road accidents are minimised in the future is the Connected Vehicle System (CONVES). Developed in-house by a team of researchers from TM R&D, this solution has one goal -- to improve fleet and driver productivity as well as ensure vehicle safety and compliance level.

Companies or businesses looking to gain control and visibility of vehicles will find this solution effective in optimising their fleet operations successfully, says Dr Qazi Mamoon Ashraf, Product Manager, TM R&D. "We aim to become a one-stop centre for every need a fleet manager or supervisor might have," he says.

The solution took off in 2018 after a year of testing and experimenting on TM's very own large fleet, amounting to about 2,000 vehicles that were used on a regular basis. Dr Qazi says they drew from first-hand experience here. "We looked at what were the ways our own fleet could be improved, especially with the number of vehicles we had. We initially looked at different ways to manage driver behaviours, as well as costs involved," he says. Dr Qazi adds that to do this using real-life scenarios, the team looked closely at ready user behaviour they had on hand.

"We found that the behaviours of drivers varied, some were excellent drivers, others needed some conditioning still. We found that in terms of costs and fuel, wastage was taking place because some drivers never turned off their engines when making a stop, either to deliver something or stop for breaks," he says.

"This evidently was becoming a cost to TM and so we set out to fix this. We wanted to search for ways on how to manage costs as well as decrease wear and tear."

Revolutionising fleet operation efficiency



CONVES works through the use of software and hardware that operate in tandem. It is compatible with all four-wheelers and certain two-wheelers as well. "The hardware technology used is based on telemetry, which simply means the recording and quick transmission of data," says Dr Qazi. In fact, data is sent routinely every few seconds, which means the location of a vehicle is always accurate and detectable.

Two versions of the hardware are most commonly used, a plug-and-play device that is inserted into a pod, and the second is a black box which requires wiring the hardware into the vehicles. However, both work equally as good as each other and are SIRIM certified.

"Both elements of the solution were tested in real-life to see if there were any shortcomings and how we could fix them. After conducting many experiments, CONVES is now a stable solution and can be used by any business or organisation that owns vehicles for work purposes," Dr Qazi adds.

Keeping fleets on track



There are many features within CONVES. This includes a real-time dashboard that allows fleet operators to track and monitor vehicles as they move from one point to another. This is done through the utilisation of Internet of Things (IoT) technology including big data and data analytics.

What does this mean for businesses? Managers or supervisors are able to track both the driver and vehicles when needed. This means the working hours on the clock are completely utilised as drivers now have recorded data on their whereabouts. As a result of that, businesses will no longer have to deal with drivers sitting idly by or wasting the company's time.

On top of that, CONVES saves money. The solution is able to pick up the fastest and quickest routes that fleets need to use. Even if a driver is doing multiple stops, CONVES will be able to provide drivers with the best routes possible. This not only saves fuel as the routes are properly planned, but it also saves time.



According to a [report](#) last year, fuel costs can average 60% of a fleet's total operating budget. This is not only a high number, but with the ever-increasing need to save the planet, using less fuel is one method to contribute to this cause. On top of that, fleet owners should bear in mind that whatever costs saved on fuel can actually be put forward to other needs in the fleet.

CONVES also has a feature called the driver behaviour score. This allows fleet managers or supervisors to determine how good of a driver their employees are. "If a driver takes a harsh corner or brakes suddenly, the data is all recorded and then sent back for future reviews," says Dr Qazi.

He adds this is beneficial for both parties – drivers and employers. "Drivers are given advisory information on how to be better or safer on the road. Those taking the advice diligently will only benefit themselves. On top of that, employers will be able to identify drivers with reckless behaviour, this is useful to avoid future accidents," he says.

According to consulting firm [McKinsey & Company](#), AI-driven solutions don't only flag employees with high attrition or absenteeism risk, but it also can help identify drivers that will bring about positive outcomes for the company.

Drivers also do not need to worry about the condition of the vehicles they're going to be using, especially for long distances. CONVES provides a maintenance schedule and engine fault alerts that drivers have access to even before leaving the ground. This prevents all kinds of breakdowns and malfunctions in vehicles. Money isn't the only thing being saved here, it also helps with planning the resources and repairs needed from the data available.

Besides all that, it has become very important these days to have a record whether in the form of data or otherwise to protect the driver and the company. Imagine being accused of running a red light and causing an accident. When CONVES is in operation, there will be data to either support or deny the claim. This can greatly help with insurance concerns, especially if you are in the right. All companies, especially ones that manage fleets, have found this difficult to manage in the past. But now, it is possible with CONVES.

Cleaner, greener and smarter



One of the more significant concerns of our time in this day and age is how fuel consumption has had a profound impact on the planet while contributing to critical environmental changes. Burning fossil fuels, such as gasoline and diesel, releases greenhouse gases like carbon dioxide (CO₂) into the atmosphere, intensifying the greenhouse effect and leading to global warming and climate change.

This, in turn, triggers extreme weather events, rising sea levels, and disruption of ecosystems, endangering both wildlife and human populations.

Additionally, vehicle emissions release harmful pollutants like nitrogen oxides and particulate matter, contributing to air pollution, smog formation, and respiratory illnesses. These pollutants not only affect the quality of air we breathe but also damage buildings and vegetation.



So how does CONVES help businesses that are looking to become greener? Managing a fleet goes hand in hand with reducing carbon emissions and pollutants to the environment. When CONVES provides the best possible routes for drivers, it not only saves time and money but fuel consumption as well. By utilising CONVES, fleet operators also have the potential to save up to 15% in fuel consumption and 10% in maintenance costs.

Additionally, the driver behaviour dashboard can pick up drivers at that speed, which in turn is not only dangerous but also uses up more fuel as well. The dashboard also makes note of drivers remaining in the vehicle for long periods of time without moving. Whether the driver is stuck in traffic or sitting idly by, fuel is being used. With the data recorded, employers can come up with solutions together with drivers to reduce fuel.

The importance of digitalization solutions like CONVES



Solutions like CONVES are vital because businesses and organisations are all moving towards digitalisation. "It is not just paperwork and administrative roles that are going online but it is across the board," says Dr Qazi.

He adds that digitalisation is not restricted to work on the ground but today, breaks barriers in how it is approached. "CONVES gives businesses an opportunity to experience what a data-driven approach looks like. With this, better, safer, and cost-effective decisions can be made without hesitation."

Dr Qazi says that despite CONVES being around since 2018, the solution continuously underwent innovation according to market conditions and user needs. "We are always looking for opportunities to improve the solutions and insert features that will meet needs as time changes," he says.

"In the next few years, looking at the entrance of electric vehicles into the country, CONVES can definitely be the solution that fleet managers will need. We can innovate it to make it compatible."

Creator of Smarter Ecosystems for a better Malaysia

Established in 2000, TM R&D is the innovation arm for TM Group focusing on creating smarter ecosystems to make business and life easier for a better Malaysia. TM R&D's solutions are clustered around four (4) pillars namely Intelligent Platforms, Data Brokerage, Connectivity/Tools and IR4.0/Digital Solutions.

Growing from strength to strength since 2016, TM R&D has won multiple global awards and generated more than 2,800 Intellectual Property Rights (IPRs) and 1,400 digital assets to-date.

TM R&D's innovations are all developed in-house and cut across multiple verticals such as Utilities, Retail, Agriculture, Healthcare and Education with safety and productivity as the top priority.

As TM R&D continues to expand beyond connectivity and into smarter digital ecosystems, its role in TM has become more prominent and exciting.

We are looking for remarkable people to join us. People who are courageous enough to push boundaries, curious enough to experiment with new technologies, and who have the determination to drive new ideas forward. A new opportunity awaits you here in TM R&D.

Be a part of our family at <https://www.tmrnd.com.my/jobs/> or email recruit@tmrnd.com.my

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