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AS THE LEADER OF AN ORGANISATION CHARGED WITH DEVELOPING SOLUTIONS TO THE EVER-INCREASING CONGESTION, IAN DISCUSSES HOW THE COMBINATION OF TECHNOLOGY AND INTEGRATED TRANSPORT OPTIONS WILL IMPACT OUR INDUSTRY.

NCR: Let's start by telling us about you and your organisation.

IC: I am the managing director of iMOVE Australia, the company that runs the iMOVE Cooperative Research Centre (CRC). A CRC is a federal government program that brings industry and researchers together to work on complex problems in a collaborative way.

Our CRC is focused on the complex challenge of moving people and freight. With the prevalence of smartphones and with many trucks having telemetry, we can now see things on the move a lot more easily than was the case five or ten years ago. We want to use this information to improve traffic flow, improve journey planning and improve supply chains so that people can make their lives easier and their businesses more productive.

NCR: That's an ambitious goal.

IC: It is ambitious, but the availability of this new information makes it possible to start doing things about traffic, about congestion, about journeys and journey planning that was neither possible nor even conceivable until recently. We are excited about addressing these problems which, until now, have been largely intractable.

NCR: This is a different approach to the traditional solution to build more roads.

IC: Yes, but it's a complementary approach. Congestion arises when there are more people wanting to take up road space than is available at a given time. Building more roads is our usual response, but there is a physical



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limitation on how many lanes you can add to, say the Tullamarine Freeway or the Sydney Harbour Bridge. We simply cannot build roads fast enough to keep up with the growth rates of our population and our vehicle fleets. It is, of course, also very expensive. Certainly, we will have to keep building, but we also we have to find other ways to optimise traffic flow.

NCR: How and why was iMOVE Australia created?

IC: Having run CRCs previously, we could see that it was a model well-suited to delivering the improvements needed in our transport systems. In a previous CRC we had developed automotive technologies such as EVs and lightweight materials and so on; however, we are now looking at the reasons why people need cars and use trucks in the first place. Fundamentally, of course, it's to get where they want to go, and have goods delivered to

a destination. The advent of new technologies creates all sorts of opportunities, not just in vehicle design, but emerging information gives us greater visibility over the movement of vehicles. We are looking at ways to combine the best parts of automation, information and data communication to make a major improvement to our transportation systems.

NCR: And what will success look like?

IC: With traffic, we aim to reduce the number of "congestion events" in our transport network and, ideally, make every day on our roads feel like the school holidays. This is a challenging goal, and the ever-growing population makes it even harder.

NCR: And the growing car population density?

IC: We doubt that the current growth in car population density is sustainable in the longer term. We think there will be an evolutionary change in who owns what cars, and the part of the trip they make with the car. We believe the congestion can be reduced, but an important aspect is people have more than one travel option, even if they have to change vehicles part way through. We want to improve the "travel experience" that people have when they make such multimodal journeys. Today, organising multimodal trips is quite clunky and difficult, but if we could make it simple, and convenient, we believe people would widen their choices and this would make it possible to improve the performance



Our rail system.

of the whole network. Additionally, some lifestyle factors, such as flexible working arrangements that allow people to avoid the rush hour peak, will be key parts of the solution.

NCR: You have a very impressive group of industry partners. What can they expect as a “return on their investment”?

IC: We have a very wide program, but we focus on doing only the things that our industry partners want to do. They have all joined the CRC to improve their businesses through new technology, new products and new services. Generally, they want to use the improving information and communication to offer better solutions to their customers. The CRC operates to help them access the skillsets and resources that they need to do these projects and, whilst they are all in it to advance their own objectives, their combined efforts contribute to the overall improvement for the community. We are pleased to include local road and transport authorities in the CRC and we welcome the evolution of more customer-focussed approaches to their operations and improvement of their network service levels.

NCR: What can you tell us about iMOVE’s three key programs?

IC: iMOVE has three significant groups of stakeholders:

- Those involved in the movement of people, predominately the public transport sector and their suppliers. These organisations are largely focussed on improving the journey experience.



Sydney Buses e-paper sign trial.

- Those involved in the movement of goods, such as freight companies, large retailers, and delivery services. Organisations in this sector are keen to improve the efficiency and reliability of their operations and their supply chains.
- Those involved in managing the road and rail networks that are used by the first two groups. This group is under pressure to maintain very high levels of network reliability and to cope with the demand for mobility from a strongly growing population.

Australia’s standard of living depends on it being internationally competitive and highly productive. Nowhere is that more important than in the transport and mobility sector. Fortunately, we can draw on our automotive heritage here and apply its “Just-in-Time” principles to the movement of people and freight.

NCR: So, what are the major transport and mobility challenges we face here in Australia?

IC: Congestion is, without doubt, the biggest single challenge we face as a community and it costs us over sixteen billion dollars of lost productivity every year. But it is not the only challenge. We also kill 1,300 people each year and injure a further 30,000 on our roads. And our delivery of goods is very poorly co-ordinated. To some extent, these things are interrelated, but whether we view them individually or combined, their impact is huge.

Because of the interrelations between



Efficiency in action

congestion, accidents and unreliable deliveries, it is necessary to take a multifaceted approach to reach a solution. It will be necessary for all stakeholders, including every driver on our roads, to make use of better information to deliver tighter control, more predictable behaviour, and fewer errors.

NCR: So, let’s talk about how all of this ties in to the collision repair industry.

IC: Accidents are a major challenge on our roads and yet they are a major source of work for the collision repair industry. The tough news for the repair industry is that the number of crashes will decline over time as the vehicles themselves become better at helping drivers to avoid them. In short, the cars are being made smarter and smarter. Whereas now they have adaptive cruise control to keep a safe distance from the car in front, in the future they will have an advanced form that can keep them clear of cross traffic as well. With the installation of associated roadside technology, the new technology will enable cars to “see” around blind corners and over the crests of hills in ways that are impossible for humans.

NCR: Surely this is not too far away?

IC: Actually, the technology already exists, and interestingly, it was developed by a South Australian company, Cohda Wireless. Although other companies are now also active in this space, Cohda Wireless is the global leader in this technology, commonly referred to as V2X (“vehicle to



Bosch Highly Automated Driving test vehicle

everything”). Now it’s a question of getting it incorporated into vehicles and infrastructure, and in gaining community acceptance. The acceptance of this new technology will depend on the development of trust and confidence in a system that now “looks” over the horizon and reacts to things that you cannot yet see.

We anticipate the progressive introduction of more and more sophisticated “driver assist” technologies like V2X, which will slowly reduce the incidence of crashes. We will also see a progressive rollout of corresponding roadside infrastructure, particularly in areas that have high accident risks and high traffic throughput.

NCR: Will there really be more change in our industry in the next five years than the last fifty?

IC: Absolutely – because there are several big changes happening simultaneously. On one hand, the vehicle technology is improving and will improve driver performance and reduce crashes. On the other hand, the way that people own and use cars is also changing. The emphasis is slowly shifting from the car to the traveller, and from the vehicle to the journey. This is causing a further trend towards fleet ownership at the expense of private ownership. The effect is that cars will become part of an integrated mobility system where the focus will be on getting travellers from A to B, rather than being one mode competing for priority with other modes like buses, trains and trams. Cars are the most flexible and adaptable part of this system, so they will always have a key role in the mobility space, but it is

increasingly likely that this flexibility will be provided by a lease, or fleet or service arrangement rather than by private ownership. For the collision repairer, this means doing more business with fleet owners rather than individual drivers.

NCR: What are the challenges for a repairer when one of these V2X connected cars turns up on their doorstep?

IC: This opens the door to a new dimension of “vehicle checking”. There will still be the need to repair the physical damage and, of course, the diagnostics to ensure the electronic systems are all functioning correctly. However, the big shift will be the requirement to ensure the sensors feeding the electronic vehicle system are not damaged and are realigned and recalibrated. This will require an additional level of analysis to ensure the data that the sensors are generating is accurate.

NCR: Does this mean we will need yet another type of technician in the body shop?

IC: I’m not sure if this will be a different role or whether it is an extension of the role of the technician who is currently undertaking the electronic diagnosis. Either way, it will require additional skills to manage the increased complexity of the systems in the car. The repairer’s understanding of how the systems in a car work together will be even more important than in the past.

NCR: And what do they do next?

IC: It depends, but identifying faults will be a process of elimination. Is the sensor working, is there a communication issue

between the sensor and the onboard computer or is the computer itself malfunctioning? The remedial action may be as simple as replacing the sensor or as drastic as changing and rebooting the entire computer system.

NCR: You mentioned earlier that you believe there will be an evolutionary change in car ownership.

IC: What I’m alluding to is the possibility of a more fleet-oriented approach to vehicle ownership through actions of the car companies and/or ride-sharing organisations. It could also be that the insurance of automated vehicles is so challenging that owning the vehicle no longer makes any sense. It may be that we buy kilometres of travel from a fleet owner rather than own the vehicle itself. If we shift more to a shared arrangement like this, we potentially have fewer vehicles, but each of them doing many more kilometres. This raises the possibility of a new business where the fleet vehicle has its interior refurbished periodically, or maybe for the next customer. It may even be tailored to suit individual customers. Perhaps the body shop evolves to include detailing and repair or replacement of vehicle interiors.

NCR: So, we really could be looking at a “brave new world”!

IC: Quite possibly. Look, the average private car is stationary 95 percent of the time, so it is an expensive way to purchase mobility. Consequently, even though we are still a nation of car lovers who like to drive and enjoy the flexibility that this brings, if people have good transport options, we expect there will be a steady trend towards car sharing and fleet applications.

Will people treat shared vehicles in the same way that they treat private vehicles? If not, and if we get rougher use, more rapid deterioration and even more risky driving behaviour, that might create new business opportunities and even new business models for the body shops of the future. The existing and future generations of shop owners could well benefit from looking closely at the needs of their future customers and being on the front foot as the world of transport evolves.