



ITS – a small world

INVESTIGATION BY **LEE WOODCOCK**

As another ITS World Congress approaches, I thought it'd be a good idea to get the views of leading experts around the world. So in this Investigation, we have caught up with ITS Society leaders in all corners of the globe.

Q What major changes have you seen in your time in the ITS Industry?

SH The industry has gone through enormous changes since ITS Australia was established in 1992. Then, most people didn't know what ITS stood for, but today, it's very much part of the vocabulary for governments, industry and

“Civils people and the planners now accept us as offering an essential contribution to a well thought out transport project...”

researchers. The industry is also broader than just cars and roads, with technology advances and industry alignments widening the ITS industry to include payment providers, big data, satellite positioning, CAVs, Mobility as a Service, drones, hyperloops and much more.

PV In my 18 years as CEO of ITS South Africa, I started out talking about the potential benefits of ITS encouraging actual project deployments to happen, while now encouraging better integration and cooperation. Initially “integration” was more of a rational “ought to do” principle, now it has become the essence – the fundamental shift has been from trying to improve modal “silos” to MaaS.

JM I have been “involved” in ITS since the mid-1990s, beginning in a very humble way by working in physical proximity to the architects of the City of London’s Ring of Steel camera-

based security cordon, though I certainly had nothing to do with it. ITS has developed incredibly rapidly since the first engineer was inspired to link IT with transport some time in the late 1970s. There have been many leaps of faith as well as leaps of expertise and knowledge. Take a step back and consider unattended enforcement or smart card ticketing – the people who thought up the concepts were mould breakers, surely. Lots of these small revolutions over the last 30+ years can be summarised as one big one: the fact that it is now accepted good practice to include IT and communications technology (ITS) in just about every transport scheme.

DSA Personally, I have been involved in Intelligent Transportation for more than 15 years. Before becoming the interim President and CEO of ITS America I was the President/COO of the California-based Econolite Group Inc. Econolite is an innovator of transportation management solutions from intersections to arterial roadways. Econolite is committed to employing advanced technologies that reduce travel time, ease congestion, enhance transit operations, provide safer mobility, and improve quality of life. I have spent many years involved with ITS America on its Board of Directors, and various committees and I served as Board Chairman for two years in 2014-2015.

HA I joined the Electronic Road Pricing Demonstration project in Singapore. It



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HAJIME AMANO
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was the first ITS project I was involved in. Our focus on those days was application of electronic technologies to specific functions of transportation. Now, we are tackling fundamental societal challenges with much integrated technologies, such as Smart Cities and Mobility as a Service.

Q Are we still seen as the “poor relation” to infrastructure investment and why do you think we’re in the present situation?

DSA I think that perception is changing as the technology improves and people see the real benefits that intelligent transportation is bringing to society. We just can’t pave

our way out of the problems we’re having with congestion and worn out highways, roads and bridges. We need to improve them and at the same time make our infrastructure safer and more efficient. Intelligent Transportation is doing that, and the progress we are making is remarkable. Our government affairs team in Washington, DC and ITS America in general are making big strides in promoting the work that’s taking place and people in decision making roles are starting to understand the economic and social benefits that come with Intelligent Transportation. So overall, I’m very optimistic.

SH The Australian ITS industry has developed its own identity and voice. It connects with Federal and State Governments, regional and international partners and promotes awareness among media and the community. Australia is a world leader in ITS and continues to develop, deploy and adopt ITS solutions. There’s also been a significant support from government, for example, nearly every state now conducts CAV trials and the Federal Government has invested over \$430 million since 2013-14 to implement technology based solutions for a range of ‘smart road’ projects.

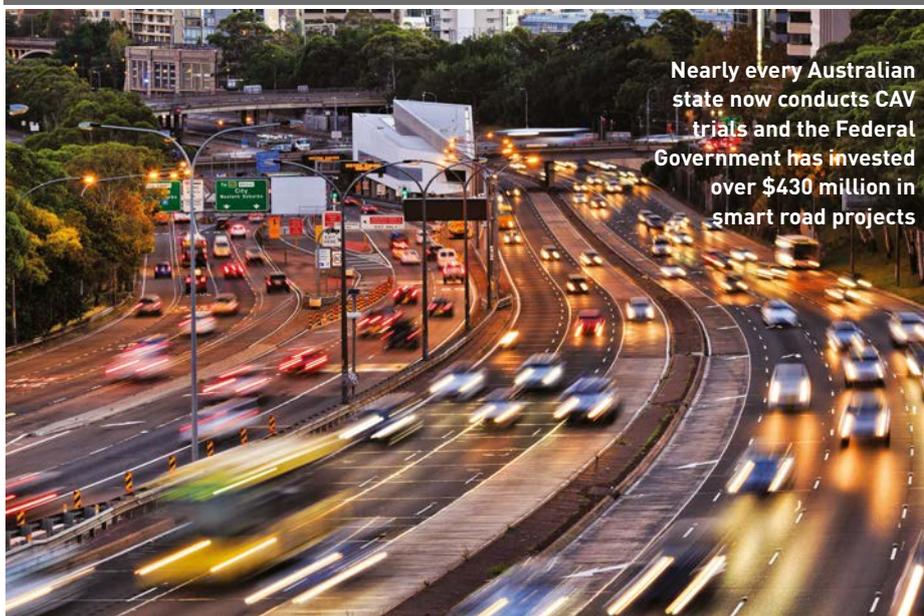
PV We have not yet reached the stage where ITS is included from the start of a project where X% is earmarked for the intelligent leveraging.

JM As I said above, I think the civils people and the planners now accept us as offering an essential contribution to a well thought out transport project.

Q What needs to change?

JM Now we have established ourselves as mainstream transport professionals, we need to think about the workforce of the future. We need to put much more effort into promoting the ITS sector as a great place to work, whether as a PhD holder working on robotics in the automated vehicle field, or as an apprentice installing traffic signals at a city junction. Not many people will get rich working in ITS but that is true of many other sectors too, and we offer a lot which we ought to be more vocal about. Career variety as well as progression, making a real contribution to the quality of life of fellow citizens, working in a field where the technology you are applying changes all the time. As a workforce which almost exclusively relies on public funds for our income we ought to

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reflect society better as well, which means more women and more ethnic minority staff. If we do not put effort into promoting ITS careers to a variety of groups of people, we are letting down what I hope we regard as our profession.

SH Consumer demand and technical advances are driving change and regulations and standards need to keep pace. ITS Australia advocates for consistency and harmonisation of regulations and encourages industry to highlight technology in submissions and reports. Governments are being encouraged to apply a technology lens across new opportunities and consider the positive impacts technology can have in future proofing our networks.

PV I think we need a better balance and a holistic view towards firstly the life-cycle approach and secondly value as opposed to (just) costs.

DSA The changes are already taking place. Look at the recent vote in the US House of Representatives where for the first time an autonomous car vehicle bill was written and passed on a bi-partisan basis. ITS America has been working on this issue for more than 20 years and now many of the goals the industry and our organisation have been fighting for are becoming a reality. This is a very exciting time to be in the Intelligent Transportation field. Also, the public is more aware than ever of the need to improve our overall infrastructure. Earlier this year the American Society of Civil Engineers gave our infrastructure a D+ grade. We can and must do better. The story was widely reported and it is helping to drive the discussion about what we need to do to improve not only our highways and bridges, but water systems, airports, schools and other major infrastructure systems.

Q What ITS advances have the most difference in your territory?

SH Australia is leading the way with a number of significant trials, on road and at test beds including Connected and Automated Vehicles, electric driverless shuttles, V2I and V2P (pedestrian) initiatives.

Australians love new tech and like to share. Australia was one of the first countries to adopt electronic tolling and the managed motorway systems. SCATS, developed by the New South Wales Government, now operates in more than 30 countries.

JM From a personal point of view, not too indulgent in my case since I am one of eight million Londoners, the principle of pay as you go ticketing.

Whether delivered via a smartcard, bank card, smartphone or wearable device, the principle of turning up and travelling without any hassle has made a great difference to our quality of life. We of course

now take it totally for granted and find tiny, hens' teeth rarity scale errors in the system to complain about.

On the national scale, the ongoing work to increase the capacity but not the footprint of our motorway network is an unsung triumph. A bit like the London congestion charge, it is instructive to think about what the situation would be like if all ITS were removed from our motorway network overnight.

HA For us in Japan, the introduction of alternative energies for vehicles, advanced driving assistance / automated driving, and communication network / connected vehicles are the major propelling technologies for dramatic changes of mobility and industries.

“ We need to find a proper balance between the potential over the long(er) term of connected vehicles and then autonomous/ ”



Q We get a lot of publicity for driverless cars, which is good for promoting the industry but do you think there's a problem that it takes away from a lot of the other, more here-and-now things we do

DSA No, I don't think so. Autonomous vehicles are a very important part of our future transportation system. There's no question about that, but already huge strides are being made when it comes to vehicle to infrastructure projects. The improvements being made now, and those that already have been implemented are all part of a much larger picture. We'll need vehicle-to-vehicle communication, vehicle-to-infrastructure and other technology to make autonomous vehicles much safer and reliable than what is on the road now. So, the projects underway now, the here-and-now as you say, are critical to the big picture and big ideas that we are beginning to see more of, and that is very exciting.

HA When automated vehicle technologies are widely deployed, manufacturing, operations and government services will be all dramatically changed. In other words, the society itself will be in a much different shape. Therefore, we don't have to worry about winners and losers. Rather, we should creatively think about value added opportunities for all the people.

SH Driverless cars are a talking point, in particular among the media and public. The media interest in driverless cars is driving interest across the industry and opening up wider community conversations. They are an opportunity to discuss new technology, promote industry collaboration and connectivity.

PV We need to find a proper balance between the potential over the long(er) term of connected vehicles and then autonomous/driverless vehicles. There are clear "driverless" benefits to be seen everyday already, eg at transit systems between airport terminals, and the immediate/urgency of significant other challenges such as congestion, travel times, road safety (ie the lack thereof), pollution and SIGNIFICANT challenges around access to (proper) public transport systems, sustainability (financially/environmentally) etc.

JM You can't blame organisations or individuals for following the funding and in the UK this is certainly a well funded field right now. Whatever your opinion on the ultimate benefits AVs will or will not deliver to citizens, I think the best way of thinking about this is that many of the skills and technical advances which are being nurtured by the funding



The ITS industry should be trumpeting the contribution it makes to people's quality of life

bonanza have applications outside the AV field too, and will be utilised in other areas.

Q What do you think are the things we really should be trumpeting?

HA Integrated ITS technologies not only solve transportation problems but also have great potential to solve global challenges, such as global warming, social disparities and ageing society.

PV We have delivered operational efficiencies, improved ease-of-use (people friendliness) of ITS systems (such as ticketing, traveller info etc), road safety (and transport security of people and goods) and a reduction in the carbon footprint of the transport sector. Those are all well worth trumpeting.

JM We should spend more time and money on quantifying the benefits of our ITS implementations: how much more predictable car journeys became, how much easier access to transport for disabled travellers, by how much air quality increased, and so on. There is nothing like hard facts to make a case and we do not create enough of this data.

DSA Just look at the remarkable progress that has been made in just the past few years when it comes to technology for autonomous vehicles. There are now autonomous vehicles on the road in some places and we are getting real time data so that the vehicles that will be built and designed three, four, five years from now will be even that much safer. We need to tell the story of how autonomous vehicles are going to dramatically make our roads and highways safer and at the same time, improve mobility options and accessibility for millions of people.

SH I'd like to trumpet that international organisations should consider Australia as the destination of choice to test new transport technology. With a number of on-road trials

and test beds already up and running, plus government support, strong industry partners and advanced infrastructure, Australia has the support network for new innovations. Yes, it's a long way to travel, but it's well worth it as 11,500 delegates from 70 countries discovered at the 2016 ITS World Congress in Melbourne.

Q What most excites you about the industry?

SH The industry is constantly evolving, with industry, government, researchers and increasingly consumers driving change. The industry has to stay on top of a number of touch points and keep transforming to improve transport safety, efficiency and sustainability. The ITS industry is also a key contributor to smart city development and community liveability. High tech transport and infrastructure systems consistently contribute to Melbourne's reputation as the world's most liveable city.

JM The contribution we make to people's quality of life. Unpredictable, inaccessible, uncomfortable journeys are a blight on daily life and ITS does so much to improve this.

PV The continuous adaption to move towards innovation and better solutions, eg MaaS (and what may come next) and the power of Big Data.

HA Auto industries have been one of the largest sectors for many years. That position may change quickly. Industrial structure has already started changing; from engines to electric motors, mechanical to computer-control and network based mobility services. This means great opportunities for start-ups and significant challenge for established operations.

DSA The incredible opportunities that are right now in front of us. I believe this is the most exciting time to be in the transportation field since Henry Ford created the assembly

line to mass produce cars or President Dwight Eisenhower signed into law the legislation developing America's Interstate Highway System more than 60 years ago. Today, we face the same opportunity as the great industrialists and political leaders of an earlier era, and it's on us to get it right. Also, and this is very important, we can reduce the unacceptable number of deaths and injuries in automobile accidents. 94 per cent of all accidents have some degree of driver error, and about 40,000 people die in accidents each year, and many more are hurt. Sadly, the number of people being killed is increasing to levels not seen since the late 1960s. ITS America and all of us involved in this effort can feel good about the fact that the work that is being done will save many people from premature death or crippling injuries.

Q What functions of your ITS Society are most valued by your member organisations?

SH ITS Australia is the voice of the industry. We work with government to advocate for change and we ensure our 100+ members are informed of industry developments through direct communications across a number of platforms. Face to face contact is still important and we have enjoyed record attendance at all our events this year - a strong reflection of the quality of our speakers, sponsors and general support for the industry.

PV We deliver policy advocacy, knowledge-sharing and capacity building and member-specific services.

JM The access to information and contacts we offer. Each member only needs a small section of what we offer but it is essential that we have the breadth to cover all their needs.

DSA What makes ITS America unique is the fact we are multifaceted. We have a wide variety of members, from the auto manufacturers, leaders in city and state government transportation agencies, safety organisations, leading research universities and technology companies. I think the fact that we have such a diverse and deep membership, and with that diversity comes a wealth of talent from every perspective of the industry. In the last few years we have also really begun to focus on government relations within Washington, DC and with our ITS state and regional chapters. ITS America is in many respects viewed as experts when it comes to these important topics, and because we have such a wide



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variety of members, again, there is a tremendous amount of expertise that is available for members.

HA ITS Japan is a platform to discuss fundamental issues of the future for industries and the society, across the industrial sectors, across the academic domains and across the government sectors. We are always looking decades ahead.

Q We're coming up to another World Congress, what do you learn from other countries' work, and what value is that to your members?

JM Most people working in ITS see it as a fully international discipline and take a keen interest in developments outside the UK. Societies differ and what works well in one country may not work in another, but overall international experience is always informative. We maintain an excellent international network, partly through the Congresses and partly through the Network of National ITS Associations. Many members draw on this - it is far cheaper in time and money to come to us for bespoke international contacts than it is to put in the hours and travel to build and maintain them oneself.

HA Three regions of ITS activities, Europe, Americas and Asia-Pacific, share ideas and direction we are moving forward. Still, there are diversities in focuses and approaches. It is beneficial for all of us to share.

SH The annual ITS World Congress is an opportunity to hear the latest ITS developments, experience new technology and connect with global ITS leaders. The Congress is an opportunity to benchmark positions and return with new information to share with members. We are looking forward to networking with familiar faces and connecting with new industry members.

PV The current model of ITS World is outdated and caught in a rut. We tell our clients to innovate and adapt, yet we (on ITS World Congress level) are slow to listen to our professional advice to others. Here is a place to listen, learn and share.

DSA We all have the same goals and the same challenges, but each country and region of the world is unique. What works in Europe, or Asia may not work in the US or Canada, but by working together and having an open dialogue with our partners we can often find solutions and a common ground together. When you put thousands of people together and each one of them knows a lot about intelligent transportation that's a lot of intellect and we find a lot of solutions together and we have a lot of fun doing it. I'm very excited about the World Congress in Montreal, because it also gives us an opportunity to renew relationships with business colleagues and friends and make new connections as well. After all, we are all striving for the same goals.

Lee says...

I have been involved in ITS for over 25 years and it's great to hear the different perspectives from colleagues around the globe on how they see ITS has developed and the opportunities ahead. Over the last couple of years I have been helping develop Atkins' efforts around Intelligent Mobility, this has reinforced in me the critical need for ITS and ITS experts. I often hear fancy rhetoric around Intelligent Mobility that neglects to adequately address the core issues or to develop solutions that will produce real benefits for clients and customers. There is much we can learn from ITS in this instance that will allow intelligent mobility to make a real impact. ■