**ITS AUSTRALIA SUBMISSION TO
THE PRODUCTIVITY COMMISSION PUBLIC INQUIRY INTO POST 2005
ASSISTANCE ARRANGEMENTS FOR THE AUTOMOTIVE
MANUFACTURING SECTOR**

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ITS Australia welcomes this opportunity to present a submission to the Productivity Commission in response to the post 2005 assistance arrangements for the automotive manufacturing sector. Our submission endeavours to impress upon the Commission, the importance of the many Intelligent Transport System (ITS) automotive technologies currently available in the market, in preparing a recommendation for the future funding of assistance arrangements to the sector.

As the Commission has been asked among other areas, to "examine the impacts of changes in road safety and environmental requirements"; this submission briefly addresses a number of these automotive related issues, pertinent to the inquiry, of which we would like to make you aware.

- Intelligent Transport Systems (ITS) are deployed in all new vehicles produced in Australia and imported and they provide significant benefit to our community at large through saving lives, saving time and money, reducing automotive related emissions and increasing transport efficiency. These benefits are estimated to total, in net present value terms to 2012, at least A$14 billion, which is consistent with reducing the total cost of road accidents, congestion and vehicle emissions for the year 2012 by at least 12%, compared to the situation of not using ITS.[1]

- Australia has developed a National Strategy for Intelligent Transport Systems, also referred to as *"e-transport"*. This strategy provides a basis for the accelerated integration of these technologies within the vehicle to enhance safety and security, and reduce transport emissions.

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[1] Intelligent Transport Solutions for Australia, Technical Report, Booz Allen & Hamilton, Sydney, 1998: pp50-51. This is the most recent and comprehensive study into the potential benefits of ITS. The study describes these estimated benefits as 'highly conservative' (The National Strategy for Intelligent Transport systems, e-transport Dec 1999, p54).

- We are now experiencing diminishing return on our efforts to reduce road fatalities, reduce transport emissions and increase automotive safety. Whilst Governments are responsible for developing the policy framework for ITS and are major users, the private sector is playing a substantial role in ITS innovation, development, deployment and export. The automotive industry are therefore also saving lives, time and money and reducing transport emissions. *A competitive environment for the accelerated uptake of ITS technologies by vehicle manufacturers through concessional arrangements or rebates must be considered if the public goodwill outcomes described above are to be enhanced.*

- The EU and America are now looking toward mandating inclusion of technology in vehicles to achieve the safety, security and emission reduction targets. At the most recent ITS World Congress held in Sydney late 2001, Mr. Juhani Jaaskelainen, Director General, Information Society, European Commission cited ongoing commitment to ITS in the EU. Key actions include:
  - 50% of major European motorways are to be equipped with congestion and incident management systems by 2002.
  - Start to introduce active safety and Driver Assistance Systems in all new vehicles sold in Europe by the end of 2002;
  and to achieve by 2010 a:
  - 50% reduction of road accidents
  - 20% reduction of time spent travelling
  - 50% increase in effective road capacity through ITS
  - 20% increase in vehicle ITS utilisation and a significant reduction in vehicle CO_2 emissions

Full details of the IS EU program can be found at: http://www.cordis.lu/ist/

- One forecast proposes that by 2006 about 50% of new cars being sold in the US, Western Europe and Japan will be telematics-capable. In Japan alone 8.8 million vehicles are fitted with car navigation, and 5.0 million of these are supplied with real time traffic information free of charge.

- ITS Australia (ITSA) whilst being tasked, in conjunction with Austroads, to implement the National Strategy for ITS; is an independent not for profit organisation ideally placed to facilitate access to information about ITS matters, and is also able to provide informed advice about the latest market developments and applications of ITS technologies. ITSA recognizes that globally, Intelligent Transport Systems are playing a critical role in Safety, Emission reduction and Security through in-vehicle and extra-vehicle technologies.

- No schemes currently exist to provide incentives for local manufacturers or importers to include the best possible safety, security and emission reduction technologies available today. The cost down effect with higher volumes is therefore less likely to be achieved in this relatively small market, with the resultant effect that society will not reap the benefit, nor will local industry be able to participate in the rapidly expanding global ITS market.

Intelligent Transport Systems (ITS)

Intelligent Transport Systems (ITS) are being developed and deployed across the world to improve the performance of transportation, providing improved social outcomes for communities and increased economic dividends for governments and markets. ITS is defined as:

> *"The application of modern computer and communication technologies to transport systems, to increase efficiency, reduce pollution and other environmental effects of transport and to increase the safety of the travelling public."* [2]

The benefits to community and business implicit in the above definition are being produced in tangible and measurable ways in the many locations where ITS systems have been deployed. ***ITS typically return a benefit/cost of 10:1. These gains provide the political justification for investing in or supporting such technologies.***

National Strategy for Intelligent Transport Systems (e-transport)

To maximise the benefits of ITS technologies and avoid potential dysfunctional outcomes for transportation, it was recognised that a systematic and structured strategy for the identification of ITS priorities and for their development and application was needed. In November 1999, the ATC endorsed ***e-transport***, *The National Strategy for Intelligent Transport Systems.*

The ten strategic goals of ***e-transport*** are shown below.

❏ Improved transport safety and security.

❏ Improved transport efficiency, performance and quality for the movement of people (by public and personal transport) and goods, by covering all transport modes and their linkages.

❏ Reduced congestion and travel times, and improved travel demand management.

❏ Improved effectiveness of use of transport infrastructure.

❏ Improved transport environmental outcomes, including reduced environmental and energy (including greenhouse) impacts.

❏ Improved contribution to Australia's economic development, including regional, rural and remote area development.

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[2] ITS Australia, Intelligent Transport Solutions for Australia: Technical Report, 1998

❑ Improved transport contribution to sustainable development.

❑ Improved transport accessibility and equity.

❑ Enhanced transport planning, policy-making and delivery.

❑ Achievement of a growing share of the world's ITS market for Australian-based business.

The National Strategy provides a necessary reference point for all major ITS initiatives. Australia's Federal and State Transportation Ministers have made a commitment to the implementation of its vision and its individual actions. To view *e-transport* please visit the ITSA web site (www.its-australia.com.au)

Three key areas applicable to the Commissions' investigation in relation to post 2005 assistance activities and our focus on ITS are described below.

Vehicle Safety and Diminishing Returns of Existing Efforts

ITS solutions: ABS, Traction Control, Over speed Warning, Automatic Crash Notification, Adaptive Cruise Control, Fatigue detection, Intelligent Speed Adaptation, Breath Alcohol Interlocks, Active Suspension Control, Reversing sensors, Collision warning, Collision Radar, Adaptive airbags, Adaptive Head lighting, Pedestrian injury abatement, and others..

In 2001, 1,756 people died on Australian roads. In addition to the burden of personal suffering, the monetary cost of crashes is in the order of $15 billion per annum (1996 data).[3] Relative to other OECD countries Australia was ranked 12th in respect of road deaths per 100,000 population in 1998 and sits on the OECD median performance level. If deaths per 10,000 registered vehicles are considered, Australia ranks equal sixth in the OECD.[4]

The National Road Safety Strategy 2001-2010 were adopted by the Australian Transport Council in November 2000. The Strategy provides a framework which complements the road safety strategies of State, Territory and local governments.

Vehicle safety systems are recognised as an integral part of any fatality and trauma reduction program. "This technology, commonly known as Intelligent Transport Systems, will typically involve engineering systems built into the vehicle and/or the road that intervene when users suffer lapses of concentration or make unsafe decisions. It has the potential to:
– ensure that restraints are used;
– maintain safe following distances between vehicles;
– prevent speed limits being exceeded;

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[3] Australian Transport Safety Board -The National Road Safety Strategy - 2001 to 2010.
[4] (see ATSB website: www.atsb.gov.au/road/stats/benchmk.cfm)

- control cornering response to maintain adherence with lane markings and stability on wet surfaces;
- ensure that the driver's licence conditions are adhered to;
- monitor driver alertness (preventing driving while fatigued or intoxicated);
- require the driver to perform a breath test before starting a car (e.g. alcohol interlock); and
- detect the occurrence of a serious crash and automatically notify emergency services of the location and severity of the crash and the number of occupants involved."[5]

The target of the strategy is to reduce the annual number of road fatalities per 100,000 population by 40%, from 9.3 in 1999 to no more than 5.6 in 2010. Achieving this target will save an estimated 3,500 lives by 2010 and reduce the annual road toll in 2010 by approximately 700.

The motivation for this trend toward technology solutions seems to lie in the diminishing returns from existing approaches, the apparent "stalling" of the Australian crash reduction pattern in the last 3-5 years, and also that comparable countries are achieving injury and fatality rates as low as 60% of the Australian rate[6].

Manufacturers and importers should be encouraged to place more emphasis on specifying safety technology as standard. No pecuniary schemes exist to support fitment of safety technology in Australian produced vehicles or in imported vehicles. Regulatory style schemes exist (ADR compliance) however a greater emphasis on safety technologies could be made rather than witnessing the gradual filtering of technology via competitive forces and to an even lesser extent, consumer pressure.

Taking a Stance on Vehicle Security

ITS solutions: Vehicle Immobilisers, Remote Entry, Keyless Entry, Smart Card Access and Ignition, Automatic Theft Notification Systems, Vehicle Disabler Systems and others.

Motor vehicle theft remains a significant social and economic problem. Almost 139,000 vehicles were stolen in Australia during 2000/1, representing an estimated increase of around 6 per cent over the previous year. Australia recorded that one vehicle was stolen for every 92 vehicles that were registered in 2000/01 and an amazing one stolen every four minutes. In respect of vehicle theft, Australia is ranked second behind the UK.

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[5] Australian Transport Safety Board -The National Road Safety Strategy - 2001 to 2010.

[6] ATSB, 2000

The cost of motor vehicle theft continues to impact on the whole of the community including the criminal justice system, the insurance and motor vehicle industries, and individual victims of theft. With an average insurance claim cost of $8100 for theft claims finalised in 2000/1, the cost of car theft is estimated at be at around one billion dollars annually.

Late model vehicles (1992 onwards) fitted with an Australian Design Rule equivalent immobiliser as standard equipment comprised 32 per cent of Australia's late model vehicle fleet in 2000/1. Only one of these vehicles was stolen for every 304 that were registered, while late model vehicles with no immobiliser were stolen at a rate of one vehicle for every 193 registered. Interestingly, preliminary findings of a Council study into the theft of immobilised vehicles revealed that over half of the vehicles were stolen because the thief gained access to the vehicle's original key and transponder.[7]

The cost of adoption of emerging (some are now quite old) technologies by automotive manufacturers is limiting uptake of theft reduction and other safety technologies as they are not mandated nor encouraged through rebate or reward to adopt same.

The Haddon Matrix as Applied to Motor Vehicle Theft (after Haddon, 1968)
Factors

Phase	Human Factors	Vehicle Factors	Environmental Factors
Pre- theft	eg Look, lock, leave campaigns	eg Vehicle immobilisers	eg Secure parking & extensive lighting
Theft	eg Prompt assistance to those experiencing theft	eg Car Alarms	eg Automatic alerting of Police
Post-Theft	eg Prompt investigation by police	eg GPS vehicle locators	eg Nowhere to sell/dispose of stolen vehicles/parts

Note:
Pre-theft phase: all factors that determine whether the event leading to vehicle theft will take place
Theft phase: all factors that determine whether a theft will occur once the incident has been initiated
Post Theft phase: all factors that determine the final damage & permanent loss stemming from the theft

In the Haddon Matrix variant described by Christie above, the Vehicle Factors are those factors which can be rapidly influenced through appropriate financial encouragement.[8]

We have a Global Centre of Competence for Body Electronics (security systems, smart card entry etc) in Melbourne (Robert Bosch) and many other regional Headquarters in Australia.

We believe it to be the government's role to provide an appropriate fiscal environment which encourages automotive manufacturers and importers to

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[7] National Motor Vehicle Theft Reduction Council. CareSafe Theft Watch Newsletter.
[8] Dr Ron Christie, RCSC Services Pty Ltd, Targeting Zero Car Theft: Lessons from the road safety field? Australian Institute of Criminology Reducing Car Theft: How Low Can We Go? Conference - 1 December 2000

accelerate specification and sales of appropriate security technology to limit theft and enhance vehicle and occupant security. The societal benefits will thereafter be easily described.

Vehicle Emissions and Accelerating Deployment of Reduction Technologies

ITS solutions: Car navigation, telematics, driver information systems, adaptive cruise control, exhaust monitoring, exhaust microwave, engine management systems, Hybrid power, low energy starters and alternators and others.

Within the transport sector, road transport is responsible for 89.3 per cent of emissions in 1998; i.e. 14.2 per cent of total national net emissions.

When quantitative comparisons are made with other countries, transport emissions per capita in Australian cities are amongst the highest in the world. The emission rates for NOx and VOCs are as high as those in the average North American city and much higher than those in European and Asian cities (Kenworthy et al. 1997).

Recent years have seen exciting developments in the evolution of transport systems around the world. Australia has taken an active, and in some cases leading, role in providing momentum to these advances. The first fully reversible road in the Southern Hemisphere is in Adelaide. Toll collection systems in Sydney and Melbourne allow drivers to pay vehicle tolls without stopping to drop money in a slot or pay an attendant. Adaptive traffic signal systems that respond to changing traffic demands and improve traffic flow along arterial routes by coordinating each signal with those adjacent have been used in Australia since the early 1970's. Such signal systems are now being widely introduced around the world.[9]

The transportation systems of tomorrow will integrate multiple components of what we know today as Intelligent Transport Systems (ITS). These will be both infrastructure based as per the above example and also in-vehicle systems. Australia have leading edge suppliers of emission reduction and telematics technologies, many of these depend on local automotive manufacture to sustain export sales.

Telematics is the technology used in two-way communications services from a moving vehicle. (Stolen car tracking, navigation, driver emergency assistance services etc) The world market in this area is forecast to grow from $7.7 billion in 2000 to $24.3 billion in 2006.[10] We have a significant share of global services in this area including a global centre of competence for telematics software in Adelaide (Motorola).

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[9] Study of Intelligent Transport Systems (ITS) Impacts on Greenhouse Gas Emissions and Air Quality Final Report prepared for Australian Greenhouse Office Commonwealth Department of Transport and Regional Services and Environment Australia
[10] Source: In-car Telematics Terminals Market, 2000-2006, Strategy Analytics

It is clear that Australian automotive suppliers can play a leading role in the future of emission reduction but only if given appropriate encouragement to commercialise leading edge technologies.

No country has yet claimed a leadership position in the renewable energy automotive market (fuel cells, hydrogen power etc) and Australia has the capacity to stake this claim given an appropriate regulatory and fiscal environment. Our vision must accommodate the long lead time the automotive environment suffers from, and these steps should be taken prior to another country doing the same.

Summary

There has been frequent reference made in the market place to the four E's of Road Safety, Security and Emission reduction

–   **Enforcement** (eg detection, punishment and deterrence of unsafe/illegal
–   behaviour such as speeding and drink driving, noise and smoky vehicles and theft)
–   **Engineering** (eg making vehicles more crashworthy through design and features such as seatbelts, airbags, collision avoidance, and more secure through immobilisers and tracking and importantly less polluting through engine management and exhaust technology)
–   **Education** (eg provision of information on how to reduce risk and exposure)
–   **Encouragement** (eg promotion of behaviours and actions that reduce risk
–   such as wearing seatbelts, using child restraints, avoiding drink driving)

Enforcement and engineering measures have probably contributed most to reductions in crashes, security and emission abatement over the years as they provide more certainty and less variability than educational and/or encouragement approaches (Evans, 1991). Additionally educational and encouragement programs not tied to behavioural measures such as enforcement or to engineering measures are seldom cost effective and have little influence on road user behaviour (Elliot, 1992; 1993) (Christie 1999)

It is therefore imperative that government continues in the enforcement, education and encouragement roles, and provides the fifth silent E, the appropriate Environment for industry to be given the opportunity to provide value in the essential arena of engineering. *Safety, security and emission reduction outcomes can be readily enhanced through appropriate funding of these stable technologies which can deliver definable benefits today.*

ITS Australia would welcome the Commission's investigation into possible assistance measures for the intelligent transport technology in the automotive sector.

e-transport recognises that numerous organisations, public and private, need to work together if the National Strategy is to deliver its objectives..

Section 4.2.2 of *e-transport* details that *"Transport Ministers at Commonwealth, State and Territory levels inform other Ministers (including communications, planning, industry, science, environment and trade) and enlist their support in implementing the Strategy, including consideration of appropriate institutional mechanisms."*

Section 4.4 of *e-transport* aims to foster a Competitive Australian-based ITS Industry *"The ITS industry has many advantages - it is information-based, high technology, high value-adding and a rapidly growing sector of the global economy. The competitiveness of the Australian ITS industry can be improved by coordinating access to relevant national resources and R & D programs."*

Furthermore *e-transport* encourages *"the development of Australian-based ITS equipment and software"*(4.4.2), and to *"Promote Australia overseas as a developer of high technology ITS products, services and achievements."*(4.5.2)

Finally the linkages into the automotive sector assistance arena are demonstrated in Section 4.4.3 *"Commonwealth Government advice be sought, on the inventory of development assistance programs available to the ITS industry from all levels of government, recognising the development and export potential of the industry."*

"Many leading industrialised countries have embarked on major national ITS strategies to ensure they integrate ITS successfully into modernising their transport systems. Capturing the potential of ITS to facilitate social, safety, economic, environmental and commercial objectives is involving these countries in higher levels of cooperation, R & D and investment, across both the public and private sectors."[11]

"This Strategy will harness ITS to meet Australia's transport challenges. Estimates suggest an overall reduction in the total costs of road accidents, congestion and vehicle emissions by at least 12% by 2012 from using ITS, is achievable, and indeed should be a minimum expectation of the total gains from using ITS."[12]

The Commission is therefore encouraged to consider the National Strategy for ITS, *e-transport* and the opportunity to influence broader national outcomes in its treatment of ITS suppliers and manufacturers in post 2005 automotive assistance schemes.

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[11] E-transport The National Strategy for Intelligent Transport Systems in Australia. November 1999. pg 6
[12] Op.cit.

Intelligent Transport Systems Australia Inc (ITSA)

ITSA represents Australia's eyes on the ITS World, helping Australia to play an active role in shaping international ITS standards and providing a framework for local ITS developments to ensure that they are compatible with national and international standards.

ITSA is able to provide the Commission with further assistance as this inquiry moves through its stages of investigation. Our capacity to assist your investigations is due to the organisational attributes that we have developed since our inception. ITSA is:

1. A clearinghouse for ITS knowledge.
    ITSA has a strong membership base, and is seen by many ITS stakeholders as both a repository and conduit for ITS related information.

2. A transaction hub for ITS interaction.
    Our membership base, capability register and involvement in a number of ITS related initiatives and events provides a sound basis for ITSA to serve as a facilitator of links between industry participants.

3. The only multi-modal ITS institution.
    The ITSA charter maintains that we represent ITS issues for all modes of transport. This is an important attribute given the growing recognition of the benefits of cross-modal integration and interoperability.

4. The "Endorsed" agency for management of ITS industry growth.
    ITSA is central to the implementation of the National Strategy for Intelligent Transport Systems, and is represented in a number of important ITS forums.

ITSA would be pleased to assist the Commission further with this inquiry by providing access to information or by assisting you in making contact with other ITS stakeholders.

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