THE WIDESPREAD USE OF DETECTION TECHNOLOGY TO REDUCE ROAD DEATHS AND INJURY

Provided by

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Background to the writer: Len Yates has worked in local government road related engineering in Queensland for thirty years. Previously Len made submissions to the Travelsafe Committee on the introduction of speed cameras under a proposal title "Right Speed Saves Lives". Len has experience in the planning, design, construction, maintenance and operations of the road and traffic system.

This submission recommends the widespread use of technologies such as Automatic Number Plate Recognition (ANPR) so as to increase detection of traffic infringements which would lead to more responsible road behaviour.

It is time for a drastic change in THINKING AND PROCESS to reduce the expected annual 350 Queensland road deaths. Some might argue this is an acceptable number compared to the 600 deaths in 1973. It is true that deaths have been reduced due to safer cars (seatbelts) and improved medical treatment. However 350 deaths are 350 deaths too many. The flow on effects to family and communities is significant in both dollars and emotional loss. Overseas and domestic experience have shown that road deaths can be greatly reduced by the better use of public policy and technologies.

At present there is a high fear of being detected, high fear of penalties, low risk of detection, low training, low innovation and poor community support for detection.

This whole paradigm needs to be turned around by *civic leadership that builds community support* for widespread use of technologies that make detection inevitable.

With the rapidly converging improvement in the efficiency of detection there needs to be a change in paradigm regarding how the technologies are used for detection, education, policing, enforcement, punishment and changing behaviour.

We are all human and sometimes err on the on the wrong side of speed or following to close, or not indicating early enough. What changes with technology is that the detection becomes almost inevitable and penalties become almost automatic. With full deployment of black box technologies you could loose your license by lunch time. Therefore we will not need high penalties because bad habit drivers will be caught frequently.

The introduction of this Black Box Technology provides an opportunity for leading the community to a new way of engaging with safer road use.

BLACK BOX TECHNOLOGY – CONVERGENCE OF ANPR WITH OTHER TECHNOLOGIES

Black box technology is used in this report to refer to number plate recognition and detection using modern means to identify infringements.

Black box technology is also envisaged to include on board systems that monitor speed of travel, location, driver status (alcohol/fatigue) and weather conditions.

Black box technology is also envisaged to one day include a bar coding recognition that would detect stolen cars, possibly converging with toll payment systems.

Black box technology is also envisaged to include Intelligent Transport Systems such as variable message signs that give drivers real time information on dangerous conditions ahead, changed legal speed based on current conditions, or signs that inform errant drivers of their travel speed.

"CHARACTER" RECOGNITION (RATING) – using ANPR to prove you are a good driver

No longer will the community need massive penalties for infringement based on the low risk of detection. We should want to make detection almost inevitable. Hence the person will be very much identified and judged on their character. In this sense character recognition means having a driver with ten years of driving with no infringements being recognized as having a rating of 30. For each infringement the good drivers rating would be reduced by one. At level 5 the person is asked to show cause why they should not have the right to drive removed/restricted/altered/made more expensive.

External incentives to hold a high "character" rating would be encouraged, such as recognition in applying for employment or for attracting lower insurance premiums.

To increase their character rating the driver can complete driver education course, car simulator training and attending post-mortems that show the consequences of road crashes.

Anyone on rating one would have restrictions. Restriction could apply to the type of car they drive, when, where. They may only be allowed to drive cars with special "black box" technology that monitors and records their driver behaviour.

Young people may be allowed to get their license six months early if they complete driver training, are vouched for by their teachers and civic leaders, and drive cars equipped with black box technologies that monitor their speed and driver behaviour.

For bike riders, the person with a low character rating may only ride bikes that are speed limited at 110kph and have a front and back number plate.

INCREASE "CHARACTER" RATING BY

A driver, at his own expense and effort, can increase their character rating by

- attending training such as accredited driver training
- competency based assessment
- community service
- personal development, such as visiting injured drivers and passengers.

INVOLVING THE COMMUNITY

Leading the community to engage with safer road use is the key. All sections of the community can assist, including:

- School teachers and civic leaders.
- The business community to promote more responsible car use in advertisements and the use of detection technology in new cars.
- Involve volunteers in the training, particularly former police officers who have attended multiple accidents and want to avoid the inevitable wrecking of future young people's lives.
- Encourage car manufacturers to install detection technology and market new cars being driven responsibly in the community.

TRANSITION DETAILS

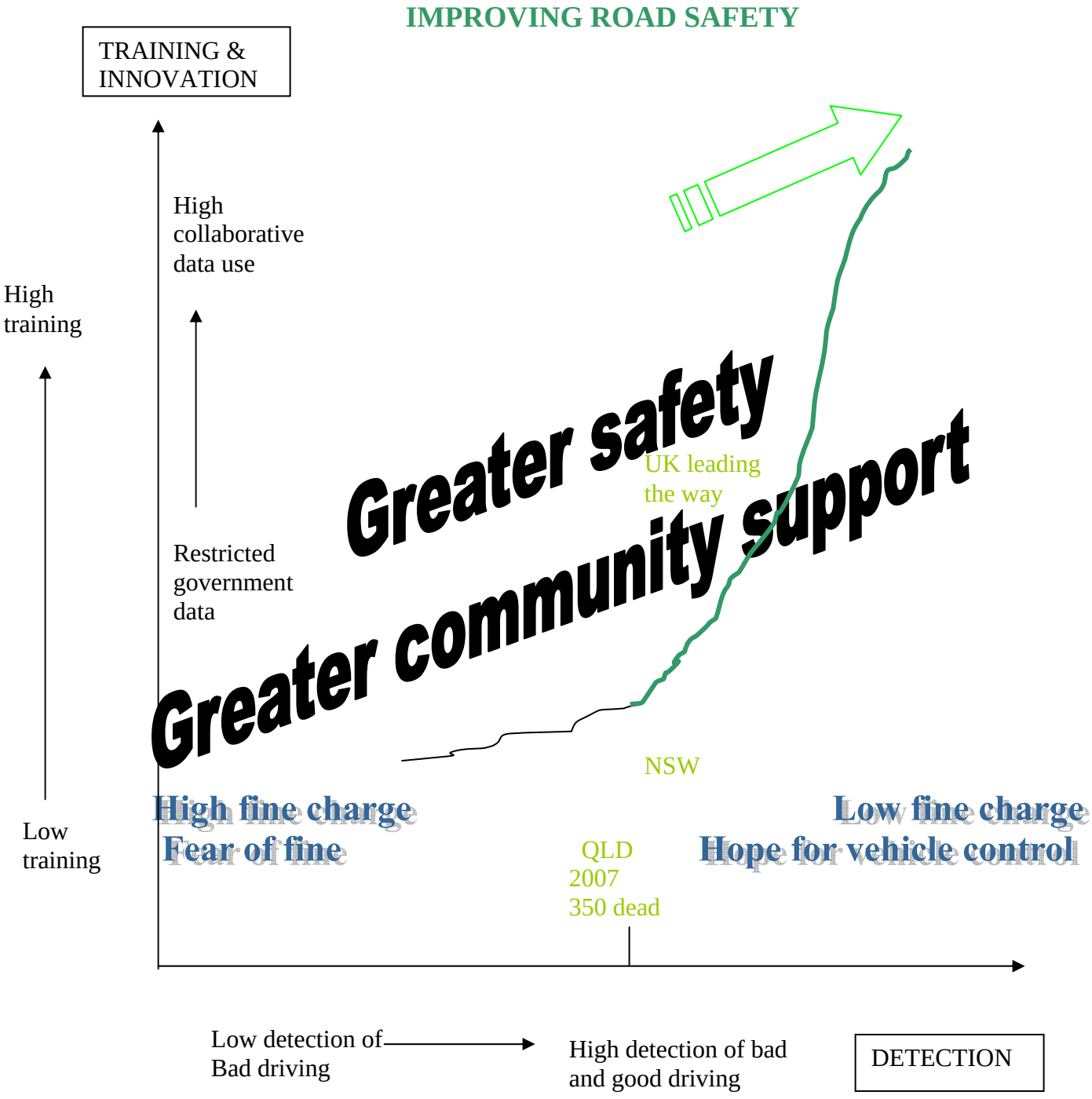
The successful implementation of black box technologies is critical. In the beginning it is recommended that any new system be introduced in addition to the existing traditional detection and penalty system.

The black box technologies would be introduced with the aim to change behaviours and not have it tied to penalties. People detected doing the wrong thing, would be advised, warned, and made aware of their behaviour and unfavourable consequences that will result in time.

BENEFITS OF HIGH DETECTION

The benefits of widespread detection are:

- Safer roads with less idiots, bad drivers and criminals on the road.
- Less truck speeding using ANPR to monitor cross-city travel.
- Saving to government in health care costs and less hospital space needed.
- Higher productivity with a more able and living workforce.
- Saving to government in not overdesigning roads for minority illegal behaviour
- More freedom to rely on benefits of detection, for example in allowing family to use your car knowing that errant behaviour is likely to be detected.
- Unlicensed drivers and stolen cars will be readily detected.
- Good drivers involved in accidents can rely on evidence from detection technologies, possibly from their own on-board black box.
- Assistance with faster and more accurate car accident investigations resulting in less time for roads closed at accident investigations.
- Increased data to assist with helping to understand why the road system and people operate in such an unsafe way.
- Improved safety for public transport operators and travelers.
- Deny criminals the use of the road system with less unregistered/uninsured cars and less high speed car chases.
- Realistic speed limits based on 85 percentile speed reducing the risk of slow drivers. http://www.aph.gov.au/HOUSE/committee/trs/roadsafety/sub06.pdf
- Less life endangering offences for seat belts, mobile phones, road rage violence.
- Use of real time accurate information to improve incident management and congestion operations.
- Secondary benefits would improve the efficiency and effectiveness of policing, based on the United Kingdom experience where 10% of “hits” were stopped, resulting in 25% arrests for driving offences, with 55% of people arrested having a previous police record. http://police.homeoffice.gov.uk/news-and-publications/publication/operational-policing/Driving_Crime_Down_-_Denyin1.pdf?view=Binary


IMPROVING ROAD SAFETY
TRAINING & INNOVATION
High collaborative data use
High training
Restricted government data
Greater safety
Greater community support
UK leading the way
NSW
High fine charge
Fear of fine
Low fine charge
Hope for vehicle control
QLD 2007 350 dead
Low training
Low detection of Bad driving
High detection of bad and good driving
DETECTION

TRAINING COMPONENT

At present, there is arguably very little that the government does to train drivers and road users. For example the advertisement for personal number plates shows idiots in the car not even watching the roads.

The current Australian television images showing horrendous accidents to scare people into a state of fear are not training people to drive better.

Rather than a campaign of fear, what is needed is a campaign of hope. The hope that safer roads will result from better training and detection.

Images are needed that show a driver how to join a ramp safely without catepillaring, or how to change lanes and allow for the blind spot, or who has right of way, or how to give right of way to pedestrians, or when can you drive in a bike lane, or how should cyclists use the road.

Even more basic, many drivers do not even know the correct way to sit balanced in the seat to allow for a level head position when traveling around corners, or how to first apply the brakes in suspicious circumstances.

Driving is a skill that requires temperament and judgement. Training can improve performance by using similar techniques used in elite sports coaching to improve technical skills, judgement, emotional management and pre-emptive strategies.

The use of black spot technologies needs to be coupled with training. For example, a real life example of poor ramp joining behaviour could be used with video of correct procedures to show how the task should have been performed.

Learnings from black box technology could be used in driver simulator training (similar to simulators used in pilot training and soldier combat training). The high fatality rate for young drivers confirms the inadequacy of training for new drivers.

Training and education would be used to lead with community building.

Driving a car has been described as more difficult than flying a light plane by Bill Tuckey and that the average five road deaths a day regardless of holidays and long weekends. Continuing this trend will not meet the Australian Transport Council target to cut deaths by 40 percent by 2010. http://www.theaustralian.news.com.au/story/0,25197,23024712-28737,00.html . What can change the situation is improved training linked to a better understanding of how to avoid road crashes and mitigate impacts.

INNOVATION

Why so many people are killed on our roads remains a mystery. The government has a lot of data for particular accidents but very little knowledge of the whole system and hence the ways to accelerate improvements.

Innovation will allow us to create something we do not have now. The opportunity for the Travelsafe Committee is to create the environment for that change.

One of the things that would promote innovation is the release of government data between government agencies and also into the community to connect people who then can work the problem together. A national data warehouse of vehicle intelligence would bring together data from local databases.

Involving people with different skills sets will provide a new dimension. Skill sets to be included would be business skills, marketing skills, sports/business coaching and behaviour modification.

At present road safety is a State Government issue dealt with by the legislative and judicial branches of government. Innovation could be used to involve the business sector using their skills in marketing, research and behaviour modification.

Local government could also be more connected with the sharing of data to assist with the enforcement of local parking and in the future with innovative measures to restrict the use of central city areas by cars at certain times to improve congestion.

Drucker says the "Best way to predict the future is to create it". The Travelsafe Committee has the opportunity to lead and provide that innovation.

The big argument against widespread detection is that government is "addicted to revenue". (Revenue being what goes into the government treasury after detection and enforcement costs. This argument can be diffused by government capping the existing revenue rate per car and reducing fine amounts and providing more detection by government and encouraging the individual to install devices, such as GPS speed limiting devices. Bad drivers would be given the choice to pay fines or install devices. This approach would decrease the Queensland $500M unpaid fine amount.

The bad driver who continues to offend will loose their licence faster and the penalties for unlicensed driving and driving unregistered cars should be increased.

Innovation means looking at the situation differently. The funding situation is an obvious question. Who will fund the black box technology and from what budget? When we know that car crashes cost Australia billions of dollars. The question should be – How can we afford <u>not</u> to use the technology to reduce road trauma and deaths.

WHAT RECOMMENDING

What is being recommended to the Travelsafe Committee is:

1 Immediate widespread introduction of Black Box Detection.

2 Couple detection with Training/Education and leading community engagement and support.

3 Foreshadow a new approach—review of policing and penalties based on community expectations and the introduction of character recognition.

THREE PHASES OF WIDESPREAD DETECTION

Widespread detection is recommended for deployment immediately. However the meshing of this new technology with existing systems is anticipated to occur in three phases, as outlined below.

Phase 1 EXISTING POLICING AND INTRODUCTION OF WIDESPREAD DETECTION

Phase 2 TRANSITION -- VOLUNTARY TRANSITION TO CHARACTER RECOGNITION

START OF SOME CONSEQUENCES – RECORD OF BAD DRIVING AVAILABLE IN COURT CASES

PEOPLE REWARDED FOR INSTALLING BLACK BOX TECHNOLOGIES IN OWN CARS –LOWER FINES, LOWER INSURANCE, LOWER CAR REGISTRATION CHARGES.

Phase 3 WIDESPREAD DETECTION, REDUCTION IN PENALITY FINES, FULL CHARACTER RECOGNITION

TARGETS AND THE FUTURE

Death targets are recommended as a means of engaging the community and linking widespread detection with saving lives. The big contributors to death by car are the THREE I'S.

I inexperience – lack of training for the vehicle and/or the conditions

I infringement – idiots and stupid behaviour

I inadequacy - roads, cars, bikes, unroadworthy, over-roadworthy (race cars/bikes)

Road crash deaths that involve one of the three I's probably are 99 percent of traffic deaths. Hence the target for deaths not involving one of the I's should be ZERO.
Then with widespread detection and wide community support for black technologies the target for I deaths can be made progressively less than 350 to a no death tolerance.
And there should be a celebration for achievement towards the goals and rewards for contributors.
While death targets are recommended, it is only to be promoted in a positive hopeful and helpful way to improve community and social consciousness.

This is in stark contrast to the multitude of fear driven television images of maimed and damaged people that tend to desensitise people to the horror of fatalities.

What we want is to get people engaged and working on solutions in a connected and hopeful way.

We want people to talk about detection and promote it without fear of penalties holding back a growing social consciousness.

No social movement has ever been successful without the grassroots support of the general population. Improvements in traffic safety will not be dramatic without a dramatic change in community support for detection.

Future generations will look at this time as a time of carnage when technologies were available to help promote more responsible social values and they will ask why did it take so long to introduce the technologies and start saving lives earlier.

This report recommends the Travelsafe Committee embrace the technologies in a spirit of new endeavour that changes behaviours by moving from fear of detection to a time of :

- **Low fear of being detected,**
- **low fear of penalties,**
- **high risk of detection**
- **high community support for detection.**
- **high training and innovation**
- **high awareness of good driving behaviours**