

# **PARTNERSHIPS: FROM RHETORIC TO REALITY (A CASE STUDY IN VEHICLE THEFT PREVENTION)**

Ray Carroll  
National Motor Vehicle Theft Reduction Council



*Paper presented at the  
Crime Prevention Conference  
convened by the Australian Institute of Criminology and the  
Crime Prevention Branch, Commonwealth Attorney-General's Department  
and held in Sydney, 12-13 September 2002*

## **Organisational Context**

The National Motor Vehicle Theft Reduction Council (NMVTRC) has been established by all Australian governments and the insurance industry to implement a range of strategies to reduce Australia's unacceptably high rate of vehicle theft. The Council's membership includes senior representatives from peak national bodies of Australian police services, transport agencies, motor manufacturers, insurance industry, motor trades, motoring associations and governments. The key to the Council's progress has been its ability to identify and tap into some of the important motivators of its constituents in order to retain their focus on vehicle theft prevention. By doing so the Council is taking the rhetoric of partnerships to reality.

## **Introduction**

While the level of vehicle theft can be affected in a particular year by independent initiatives, such as concerted police attention, or particularly intensive public education campaigns, the dynamics that drive vehicle theft eventually adapt to the changed circumstances and the level seeks its own equilibrium.

These self-sustaining levels (in both opportunistic and professional theft) are able to operate in what could be loosely regarded as the equivalent to a "free market." One of the major factors that allows this free market to operate is that the infrastructure and processes of relevant government agencies and industry sectors do not adequately inhibit the environment in which vehicle theft takes place.

One of the critical infrastructure deficiencies that facilitate professional vehicle theft is the grossly inadequate way identification is applied to motor vehicles. This deficiency provides the single greatest impediment to the effectiveness of registration and police processes. The NMVTRC's charter includes assessing the feasibility of a cost effective system for vehicle and component identification and providing recommendations to Government on the whether such systems should become mandatory under Australian Design Rules. This paper outlines the Council's strategy to encourage a somewhat reluctant motor vehicle industry to address this issue.

## **The NMVTRC's Approach**

The Council was able to draw on the findings of its predecessor, the National Motor Vehicle Theft Task Force to determine its strategic approach to preventing economically motivated motor vehicle theft. The underlying assumption to the Council's strategy is that professional thieves will always find a method of stealing a vehicle provided the economic incentive exceeds the actual or perceived disincentive. Disincentives include the level of effort required to convert the vehicle to cash, the likelihood of detection, and the penalties associated with discovery. The Council's strategy is therefore based on removing the economic incentive of dealing in stolen cars and parts by making the process more difficult and in the process, increasing the likelihood of detection.

In the Australian context, thieves have been able to easily launder re-identified vehicles through the state and territory registration systems due to both the absence of real time connectivity between the systems and the ease with which vehicles can be re-identified. While in the past, the export of stolen vehicles has not been seen as a major contributor to vehicle theft it is well understood that this will become more prevalent as laundering of vehicles becomes more difficult within Australia.

The Council's initial approach to vehicle identification had been to examine three distinct areas:

- To develop an alternative to the existing aluminium compliance plate to provide a low cost, base-line improvement to the application of the primary identifier to a vehicle.
- Assessing the need for whole of vehicle and component identification and the likely barriers to the introduction of a mandated system.
- Conducting an audit of existing vehicle identification technologies and their use in overseas markets to identify the most effective vehicle identification methods.

### **Self Voiding Compliance Labels**

Australian manufacturers and importers are required to affix a plate to every vehicle certifying that the vehicle complies with the Australian Design Rules upon its release from the manufacturer. This aluminium plate bears the 17 digit Vehicle Identification Number (VIN) and is secured to the vehicle with two pop rivets.

These easily transferable plates greatly assist vehicle thieves to apply a false identity to a stolen vehicle. In recognition that whole of vehicle and component identification systems would not be immediately adopted across the motor industry, the Task Force recommended that a low cost secure alternative be developed to replace the compliance plate as an interim measure.

The Council has worked with the engineering group of the Federal Chamber of Automotive Industries to develop a specification for a secure, counterfeit protected self voiding label to replace the compliance plate. The label self voids if removal is attempted and a patented scrambled indicia technology is used to provide simple verification of an original label from a counterfeit attempt. While the labels do not identify individual components of the vehicle they will provide an initial barrier to vehicle re-birthing at less than A\$2.00 per vehicle. The Council expects the Australian motor industry will progressively introduce the label to new vehicles from the latter half of 2002.

### **Assessing Need and Identifying Barriers**

The Council was able to draw on the Task Force findings and the views of its key stakeholders to conclude that improved identification of whole vehicles, and by extension their major component parts, was a critical element of the range of strategies to prevent and detect motor vehicle theft. The single greatest barrier to effective investigation and prosecution is being able to conclusively identify the origins of re-identified vehicles and disassembled parts. Law enforcement agencies and transport inspectors worldwide support this view.

The Council was able to identify considerable barriers to the early implementation of a mandated vehicle identification system under Australian Design Rules. These included:

- Australia's trade policy of international harmonisation that precludes setting vehicle design requirements that are not compatible with EU Vehicle Standards. (This policy can be overridden but only in extraordinary circumstances.)
- The Australian Design Rule administrative process that can take up to five years to mandate a new requirement.
- The absence of comprehensive evaluations of the prevention outcome for any existing identification system that could be used to justify the considerable industry investment required.<sup>1</sup>

---

<sup>1</sup> The National Highway Transport Safety Administration report into the Auto Theft Recovery Effects of the Anti Car Theft Act of 1992 and Motor Vehicle Theft Law Enforcement Act of 1984 – U.S. Department of Transportation 1999, is the only attempt to comprehensively evaluate a component labelling system applied at a major infrastructure level.

- Insufficient “real world” experience and evaluation of any emerging technology based system that would be required to inform the preparation of the cost benefit component of a mandatory Regulatory Impact Statement.
- Strong opposition from the vehicle manufacturing and import sector who oppose mandatory marking requirements in the absence of compellingly positive cost benefit outcomes.
- A level of public apathy and lack of understanding of the dynamics of vehicle theft that would not support a strong political stance on the issue.

### **Audit of Existing Systems in Overseas Markets**

The audit was severely limited by the very few marking systems being utilised by mainstream manufacturers and the absence of properly controlled evaluations. With the exception of the U.S. mandated label system most marking systems are being promoted by commercial organisations with only limited and ad hoc OEM (original equipment in manufacturing) and after-market application.

While the commercial promoters of these marking systems make varying claims of effectiveness they are invariably unable to provide supported evidence to substantiate these claims. Commercial organisations that do try to undertake evaluations do not have access to sufficiently detailed theft data to draw meaningful conclusions.

The following systems were examined as part of the audit:

- Component labels under the U.S. Federal Motor Vehicle Theft Prevention Standard and the Motor Vehicle Theft Law Enforcement Act 1984 introduced via OEM in 1987. The system required fourteen major parts to be labelled with the vehicle identification number (VIN) utilising a label that could “not be removed without being torn or rendering the number on the label illegible” In the event they are removed they are required to leave a mark or residue. The system was initially only required to be fitted to vehicles identified as high risk but has gradually been extended so that fewer vehicle lines are excepted. Approximately 9.3 million vehicles are currently marked each year. The legislation capped the cost of marking in 1984 at US \$15.00 indexed to inflation (US \$24.86 in 2002).

Criminal penalties were included in the legislation for removing or tampering with the label and parts with their label removed were subject to seizure and forfeiture provisions.

- SmartWater Security System. This is a proprietary system manufactured under licence from SmartWater Europe Ltd by the U.K. based Forensic Science Service. The system consists of a unique chemical solution that can be painted onto surfaces and is invisible until exposed to a ultra-violet light. Small samples of the solution can be removed from suspect property and subjected to forensic examination to conclusively verify the specific batch of solution and the chain of application to a particular piece of property. The system also contains laser etched “particles” with an individual Smartwater Identification Number. The system requires the maintenance of a database to relate the marking system to the individual property. No reliable evaluations as to performance could be located.
- Microdot Identification. Initially the examination was confined to the U.K. based Alpha Scientific proprietary version of microdot identification which comprised microdots suspended in a ultra-violet light sensitive adhesive that was painted by hand onto various locations of the vehicle. These dots are laser etched with a personal identification number (P.I.N) that is related to the vehicle’s VIN number on the company’s database. The database is made available to law enforcement agencies via a free call number. At the time of examination (June 2000) the system was being applied to some models of Foden trucks, Jaguar and Suzuki passenger vehicles and some motorcycle brands in the U.K. and Europe. It was also sold as an after-market product.

While there are claims by the company of this system's deterrent effect, no evaluations have been produced.

- Window etching. The system examined was the U.K. based Retainaguard proprietary system. The system consists of etching the vehicle's VIN number onto all glass surfaces with an acid solution and recording the owner's details and any security codes pertaining to the vehicle on the company's database. Law enforcement agencies can access the database through a free call number. Again, while the company makes claims of the system's deterrent effects no evaluations have been produced.

### **Determination of an Effective Identification System**

The evaluation of the U.S. system was effectively undermined by the staggered introduction of the labels and the necessity to undertake a retrospective evaluation over a ten-year period. A major deficiency was the study's inability to determine the motivation of the theft, ie whether it was opportunistic or professional. The study concentrated on theft rates and to a lesser degree investigation and prosecution outcomes. It ignored the broader question of whether the prevailing infrastructure supported the identification system.

Not surprisingly, NHTSA's report concluded that there were too many variables of unknown influence to conclusively demonstrate that the system deterred motor vehicle theft. Only half of the law enforcement officers surveyed indicated that the labels were "helpful" in "some" investigations. Nevertheless, the need for improved marking is such that despite the inconclusive nature of the NHTSA evaluation the system will be extended to include another 3.25 million vehicles in 2006.

The absence of evaluation of all the other systems only left anecdotal assessments that were primarily sought from law enforcement, transport department and Home Office personnel in the U.K. where the systems had been most extensively utilised. It was found that there was very little confidence in any of the systems. The most common criticisms focused on the ad hoc application of various systems across the motor industry so that investigators did not know which system was supposed to be on a particular model of vehicle or whether it had been removed. There was also an across the board rejection of supplementary numbering systems that required access to a privately maintained database or the need to undertake scientific tests to verify the identification.

### **Harnessing Private Sector Involvement**

Given the less than satisfactory findings of overseas experience it became clear that it was unrealistic to expect that the Council could independently design a vehicle identification system that would address all of the potential eventualities<sup>2</sup> and meet with motor industry acceptance. While potentially there were a number of alternatives that might have been pursued, vehicle industry involvement and real world trials were seen as the key to moving this issue forward. The Council determined that its policy should therefore be to facilitate the introduction of incremental levels of vehicle marking with the primary driver being market forces. The aim was to promote a research and development approach by industry that would have the potential to lead to progressively more comprehensive component identification over time.

---

<sup>2</sup> While component identification issues such as marking of replacement parts and accommodating smash repairs etc, remained to be solved, the adoption by manufacturers of improved identification would be considered a major break through for the Council's strategy.

This would be achieved by:

- Identifying the most potentially effective technology available
- Creating market driven competition within the vehicle industry for improved vehicle identification.
- Creating the necessary awareness and support infrastructure to ensure the system is utilised by transport agencies and police services to maximum advantage.
- Ensuring the integrity and security of the system via voluntary compliance with agreed distribution protocols.
- Facilitating the progressive expansion of the system throughout the motor industry by conducting comprehensive evaluations of its deterrent and detection outcomes and publicising these widely.
- Using the real world experience of voluntary marking to inform recommendations to Government on the feasibility of developing an Australian Design Rule for compulsory vehicle and component marking.

### **Setting Performance Criteria**

The Council through consultation with its key stakeholder groups developed a broad set of criteria that described the performance requirements of what would be regarded as leading to an effective system. The purpose of these criteria was to set guidelines for commercial organisations that were seeking the Council's support for their particular proprietary system.

It was determined that an effective system should:

- Use the vehicle identification number as the primary identifier;
- Be overt in order to achieve maximum deterrence;
- Although overt, be very difficult to remove, tamper with, or duplicate;
- Be relatively inexpensive to apply to the majority of vehicle parts with an application method that was adaptable to meet differing manufacturing requirements; and
- Be easily identifiable by inspection personnel in the field without the need for expensive equipment or scientific testing.

All of the audited systems failed to meet the criteria in one or more aspects although microdot technology appeared to have the greatest potential provided the logistical issues of applying the VIN to the dots could be overcome and a more efficient application method could be devised.

### **VIN Based Microdot Identification**

An Australian based company initially approached the Council and presented its microdot system which was essentially the same as the one examined in the audit. The company was advised of the areas in which it failed to meet the Council's performance criteria; primarily the requirement to use the VIN as the identifier and the need for a more efficient application process.

Following months of research and development the company returned with a proposal to use the VIN as the primary identifier and an application process involving a spray system that was capable of applying up to 10,000 microdots throughout the vehicle in a matter of minutes. Over following months the company continued to consult the Council to develop an agreed system for a secure supply chain to protect the system from manipulation by criminals.

Council then determined that VIN based microdot identification was the most effective system currently available and has since undertaken to promote its integration into vehicle manufacturing and transport and police agency practices. As a consequence Council has now developed a more detailed performance specification that sets the bench-mark for Council endorsement of VIN based microdot systems. At this point of time only the original company has been able to meet all of the requirements of this performance specification.

Since September 2001 the following manufacturers and importers have adopted the proprietary system in the Australian market:

<b>BMW -</b>	All models from 1-9-01
<b>BMW Mini –</b>	All models from 1-4-02
<b>Holden Special Vehicles</b>	All models from 22-9-01
<b>Porsche</b>	All models from 1-10-01
<b>Tickford</b>	All models from 1-10-01
<b>Ford - Mustang</b>	All models from 1-2-01
<b>Mitsubishi Ralliart Lancer – Evo 6</b>	All models 5-11-01
<b>Mitsubishi - MSV Ralliart Magna</b>	All models from 8-3-02

### **Integration with Registration and Police Practices**

Given this level of adoption by the Australian motor industry the way was clear for the Council to oversee the integration of VIN based microdots into the established processes of registration authorities and police services. This is an on-going process and includes the following:

- Utilising all agencies' internal communication mechanisms and training processes to introduce the system to all appropriate personnel.
- Inclusion of the system in all registration and police internal policy and procedures manuals.
- Specific demonstration and training sessions with all transport agencies and police services for their inspection and forensic examination sections.
- Regular distribution of information brochures to all key personnel in police, transport, motor trades, government and insurance areas. Brochures will advise of developments such as new manufacturers coming on board.
- Briefings to all police and transport ministers on the system and its benefits.
- Extensive press coverage and promotion of the system via stakeholder journals within the motor trades, motoring clubs, insurers etc.
- Undertaking an ongoing comprehensive evaluation of the system's integration into police and transport practices and its effect on professional theft activity.

### **Evaluation**

The Council has developed the Comprehensive Auto-theft Research System (CARS) which integrates quarterly data from all vehicle theft reports to Australian police services, vehicle theft claims from major insurers, the motor manufactures vehicle specification database and all state registration authority databases. CARS provides the Council with the ability to identify every individual stolen and or recovered vehicle by make and model (for post 1991 models) and provides an extremely powerful statistical tool on which to base strategy evaluation.

A comprehensive evaluation methodology to measure the impact of VIN based microdot marking on the theft of HSV (Holden Special Vehicles) and BMW vehicles has been devised. Both of these vehicle ranges are in the performance and luxury categories and are particularly attractive to professional thieves. In addition to utilising CARS data, the evaluation involves interviewing owners of stolen HSV or BMW from 1999 models onwards that have been stolen from the beginning of 2000. It is anticipated that the evaluation will be expanded to other makes of marked vehicles and will continue until at least the end of 2003.

The first interim evaluation report covers the first six months of application of VIN based microdots to these vehicle lines. Although it is still very early in the evolution of this technology and the integration of the supporting infrastructure, the fact that only one marked vehicle is missing is very encouraging.

### **Council's Interaction with Commercial Suppliers**

As a government established body the Council must balance promotion of what it believes to be effective technology and the development of supporting infrastructure with the need to be impartial and arms length from any commercial considerations. To this end the Council has a published performance specification and endorsement criteria for VIN based microdot technology and is prepared to endorse any company or organisation that can demonstrate compliance with those criteria and a desire to work in a cooperative partnership.

### **Infrastructure Enhancements**

Improved vehicle identification cannot provide a deterrent to professional theft unless it is subject to a secure supply process and is integrated with infrastructure that includes effective control of vehicle identification numbers, registration business rules and vehicle inspection processes by transport and police personnel. Microdot vehicle identification complements the following infrastructure enhancements currently under way in Australia:-

#### **National Exchange of Vehicle and Driver Information System (NEVDIS)**

NEVDIS provides real time connection between all state based registration databases and allows a national search on the VIN of all vehicles presented for re-registration that do not have a current home state registration history. The implementation of NEVDIS has required individual state registration databases to undergo a VIN purification process to identify duplicated and incorrect VIN entries. All states must reach and maintain a 98% accuracy rate of VIN entries as a condition of the NEVDIS contract. NEVDIS alerts authorities to VIN cloning and the interstate transfer of written-off vehicle identities. The system will be fully implemented by September 2002.

#### **National Written-off Vehicle Register (WOVR)**

All states and territories are implementing written-off vehicle registers under nationally consistent procedures that will record the status and description of vehicle damage. Vehicles that are badly damaged are identified as statutory write-offs and are prohibited from re-registration. WOVR's will be operational in all states in conjunction with NEVDIS in September 2002.

#### **Inspection of Vehicles Re-Entering the Registration System**

NEVDIS searches will identify vehicles that are either not recorded, have a current interstate registration history, a wrecks register entry, or a stolen vehicle report anywhere in the country. A vehicle with any of these records will be subject to a "third tier" inspection process by specially

trained personnel to verify its identity before re-registration will be allowed. All economic write-offs will be subjected to an identity inspection before re-registration to verify legitimate rebuilds and intercept re-identified stolen vehicles. Improved vehicle identification will be of major assistance to this process.

### **National Vehicles of Interest Database (NVOI)**

All Australian police services now have real time access to a national database of stolen vehicles. This database is also connected to NEVDIS to provide real time access to stolen vehicle reports by all registration authorities.

### **Investigative Processes**

The infrastructure improvements described above together with improved vehicle identification provide powerful tools to allow police to undertake far more cost effective investigations.

### **Insurance Industry Support**

The Australian insurance industry through the Insurance Council of Australia is a strong supporter and a major financial contributor to the Council and its strategy. While the insurance industry is perceived to have a significant financial interest in reducing motor vehicle theft, most of the cost savings will be dissipated in the premium base due to the highly competitive nature of the industry. This presents a particular challenge to the concept of insurance based incentives as a driver of improved vehicle identification.

In return for investment in improved identification technologies motor manufactures are looking for improved consumer confidence in their vehicles and a reduction, or at least levelling off of the cost of ownership for customers. Manufacturers invariably want to know what premium incentives insurers will offer if they take up the technology, while insurers want to defer that decision until they have had an opportunity to re-assess risk over a period of time.

Despite this obvious divergence of views two major insurers in the Australian market have built in a 10% - 15% discount factor in calculating premiums for models marked at the OEM level.

### **Future Challenges**

Ideally the most effective vehicle identification system would consist of one mandated universally recognised system with a strictly controlled production and supply mechanism. This would avoid the U.K. situation where competing marking systems have led to confusion and a loss of confidence in all of the present systems. Exercising control of standards in an unregulated environment remains a major challenge to ensuring that manufacturers, police, transport agencies, insurers and the motoring public develop and retain confidence in improved identification. The global nature of the motor industry presents particular challenges to the adoption of a dominant system in a single country or market and suggests an international approach will be needed in the long term.

Compatibility with mainstream vehicle production and resistance to incurring additional costs still present major challenges to further expansion of VIN based microdots in the mainstream vehicle industry. None of these issues are insurmountable provided the industry can be convinced that vehicle identification is an integral requirement of the vehicle and there is a commercial advantage to marketing more secure vehicles.

The evolution of microdot identification of whole vehicles into a full component identification system will require a massive integration of private sector practices and will only be achievable in incremental steps that are based on demonstrated cost benefit outcomes. Issues include the identification of both OEM spare parts and non OEM parts, imported parts, importation of vehicles from markets not utilising vehicle marking, the management of marked parts throughout the recycling process and the verification of legitimately repaired vehicles. These advances will ultimately be achieved through both regulation and industry codes of practice.