Policing Road Risk: New Technologies, Road Traffic Enforcement and Road Safety

Preliminary results from PACTS' research

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1. Introduction

Policing is changing. Since 1997, there have been over 60 acts of Parliament that have had a direct influence on policing. There are new types of police on the beat, including over 4,000 civilian Community Support Officers, and 24,000 CSOs are expected by 2008. Simultaneously, in terms of simple numbers of officers, roads policing numbers have been in long-term decline. Other people are doing tasks that were previously done by Police, with Local Authorities playing an increasingly important role in enforcing some traffic and parking offences. And perhaps most importantly, there are new tools and technologies that both extend the capacity of police officers and radically reshape their role and the nature of enforcement.

For many years, enforcement has been considered a key part of the road safety triumvirate of 'education, engineering and enforcement' (which sometimes also includes evaluation and encouragement).

However, in this 'brave new world' of policing, have we stepped back to ask whether these distinctions still apply? Have we have got the balance between them right? When we talk about enforcement, do we mean the same thing that we meant 10, 20 or 30 years ago? What do these changes mean for road safety and for the activities of road safety professionals?

This paper will raise questions, rather than answers. PACTS is currently conducting a research project that looks into some of these questions, and in

particular at the role of new technologies in roads policing. The project is ongoing, so instead of presenting a set of conclusions and take-home recommendations for you to implement, this paper presents some emerging ideas from the project – thorny issues and questions that we will be engaging with.

2. PACTS' Research

PACTS is an associate Parliamentary group and registered charity, advising and informing MPs and Peers on road, rail and air safety issues. It brings together technical expertise from the public, private, academic and professional sectors to promote research-based solutions to transport safety problems. Its charitable objective is to promote transport safety for the public benefit.

In practical terms, this involves providing research-based advice and campaigning on transport safety issues, organising conferences and Working Parties to share experience and best practice, and conducting primary research into key transport safety questions. Previous research projects have included 'Best Value, Local Transport Plans and Road Safety' (in 2003) and 'Road Traffic Law and Enforcement: a Driving Force for Casualty Reduction' (in 1999).

The current research project aims to provide an independent analysis of the changing role of the police service in the context of rapid and accelerating technological change, and emerging operational developments. It provides a focus on road policing, and seeks to identify where emphasis should be placed to maximise casualty reduction.

It is a two-year project ending in Autumn 2005, with publication expected to coincide with PACTS' Autumn conference on the topic of road traffic enforcement on 12 October 2005. The primary methodology of the project is in-depth stakeholder interviews with police, Local Authorities, road user groups and others, and a comprehensive literature review.

3. The changing nature of roads policing

As established at the outset, policing has been undergoing rapid change in recent years. Some changes, for example in policing tactics and cultures, may only be apparent upon closer examination or from within the force. However, there are also more visible trends that are more immediately apparent. In roads policing, these visible trends include new enforcement technologies (some, such as safety cameras, are particularly visible); increasing civilianisation and civil enforcement (and particularly obvious here are Community Support Officers and Traffic Wardens); and a long-term reduction in the overall number of designated traffic police. All of these trends have been both contentious and high-profile.

The research project concentrates on the first of these, on new enforcement technologies. However, it is important to look any possible the links between different trends, and between obvious and less obvious changes. The question of the connections between these trends will be considered later in the paper.

4. What are the new technologies?

First, it is important to consider what technologies we are talking about. New enforcement technologies include, among others:

- Speed and red light cameras
- Automatic number-plate recognition (ANPR)
- Use of CCTV for traffic enforcement
- More sophisticated and interlinked databases
- Electronic Vehicle Identification
- New methods of impairment testing; and
- Mobile data entry terminals.

Some of these are in current usage; others are on the horizon. All of them have a lot of potential to change the way that roads are policed.

5. What do technologies do?

It is also important to ask what new technologies do: both what they are meant to do and whether they have any unintended consequences that are not immediately apparent. New policing technologies are much wider than enforcement. They play a number of different roles. As Chan argued:

> Technologies extend the physical capacity of police officers to see, hear, recognise, record, remember, match, verify, analyse and communicate.
>
> [Chan, Janet. 2003. 'Police and new technologies'. In Tim Newburn (ed.) *Handbook of Policing.* Willan: Cullompton.]

Furthermore, we need to remember:

> Technology has always shaped policing – in both visible and invisible ways.

The lesson from this is that new technologies cannot be considered in isolation: they both shape and are shaped by wider trends, not only within the police service but within society as a whole.

6. Project hypothesis

I want to single out one of these trends in particular, which is the growing prominence of risk and risk management. Sociologists such as Ulrich Beck have argued that we have entered a 'risk society', in which the production of risk is a key source of conflict and the control of risk is a key area of concern for individuals, societies and government. Following on from this, recent studies of policing and criminal justice have also identified a change in orientation within the criminal justice system towards a risk management approach. They posit a shift from the notion of enforcement as a concentration on deviance and individual offenders to an approach based on the policing, management and control of identifiable risks. This clearly has a major application for roads policing, as the emphasis moves away from enforcing the law for the law's sake and towards controlling risks and reducing casualties.

The working hypothesis of the project can be summarised as:

> New enforcement technologies have assisted and accelerated movements in roads policing towards the policing and management of risk.

This implies a move towards an 'intelligence-led' approach based upon developing knowledge and intelligence about risk, and applying interventions to minimise its impact. New technologies play a key role here, not only in organising and managing this intelligence but also in creating mechanisms for it to be used most effectively. In short, technology helps you know where and when offending and road risk occurs, and helps to automate and streamline ways of dealing with that risk.

This approach intertwines with a number of other trends occurring within policing, including:

- Increasing information management and communication. In particular, the increasingly important role of having data or intelligence about offences, offenders and locations, and engaging communities in the enforcement effort;
- 'Diffusion' of enforcement to include other actors and agencies. The management of risk is the responsibility of a wide range of organisations and increasingly other groups are being incorporated into the enforcement task;
- The expansion of surveillance. Surveillance is increasingly recognised as a cost-effective means of controlling risk; and
- Preventative and situational means of securing compliance. Methods of enforcement include shaping the external environment and the in-car environment as well as the act of apprehending offenders.

7. Policing and risk management

To give an academic perspective on these trends, Ericson and Haggerty argued:

> "As society becomes more fragmented the focus of police work has shifted from traditional modes of crime control and order maintenance towards the provision of security through surveillance technologies designed to identify, predict and manage risks."
>
> [Ericson, Richard and Haggerty, Kevin. 1997. *Policing the Risk Society*. Oxford University Press: Oxford.]

This is summarised more succinctly in these quotes from roads police themselves:

> "The feeling from the traffic cops is that we don't do what we used to do."
>
> "I think that there has been a mental shift in the police service around enforcing the law for the sake of enforcing the law. I think traffic officers do now recognise that actually, the law isn't there for the sake of just being there, there is an end goal here, which is reducing risk and reducing death and injury."

8. Strategies of risk management

This risk management approach operates through various strategies of identifying and controlling recognisable risks. As Johnson argued:

> "[Policing] now includes a wide variety of risk-based technologies: strategies of environmental modification (designing out crime); methods for identifying high-risk individuals and groups (offender profiling, geographical information systems); and policies for reducing criminal opportunity through temporal and spatial manipulation (situational crime prevention)."

[Johnson, Les. 1997. 'Policing communities of risk', in *Policing Futures: Law Enforcement and the 21st Century*, eds. Peter Francis, Pamela Davis and Victor Jupp. Macmillan: Basingstoke.]

All of these 'technologies' or strategies are evident within road safety. Strategies of environmental modification and situational crime prevention include changes to the road environment and road engineering measures to reduce road risk and make offending more difficult. Road safety research and use of intelligence-led processes to identify local problems categorise high-risk individuals and groups. These may be classified, for example, on the grounds of road user type, age or history of offending.

Broadly speaking, in roads policing, strategies of risk management aim at controlling risk through identifying and isolating discrete groups (e.g. minor traffic offenders, young male drivers), behaviours (e.g. speeding or parking in disabled bays) and spaces (casualty and offending 'hot spots'), and developing interventions accordingly. Effort is directed towards groups/areas/behaviours that are easily identifiable or measurable, as the intervention can be targeted and the effect in some way quantifiable.

9. ANPR as risk management

ANPR is a good example of this. Automatic Number-Plate Recognition operates by taking pictures of number-plates and scanning them against databases to check whether the vehicle is taxed, MOT'ed or of interest to police. If it is, a police intercept team will stop the vehicle.

It is a simple concept, but ANPR has proven remarkably effective not only at prosecuting vehicle registration offences but also interrupting other forms of criminality. ANPR squads have ten times the arrest rate of the average police officer, and ANPR trials have led to the seizure of significant quantities of drugs

and stolen goods as well as proving effective in prosecuting vehicle registration and licensing offences.

However, ANPR is only indirectly a safety technology. Tax and insurance evasion is not a dangerous activity in itself, but drivers without tax or insurance are more likely to engage in dangerous behaviour. Research consistently shows that groups engaging in minor criminality are more likely to engage in major criminality and be involved in road crashes.

ANPR is therefore a strategy of identifying high-risk groups and targeting resources towards those groups to control the risk that they present.

ANPR and visible enforcement

ANPR may also contribute to safety in non-quantifiable ways:

- It provides a visible police presence on the roads, which serves as a deterrent and increases public confidence.
- Offences are detected through observation as well as through use of the databases. In fact 44% of vehicle stops by ANPR teams occur as a result of observation – including observed bad driving behaviour, mobile phone use, etc. In many ways, therefore, ANPR technology has led to a resurgence of traditional roads policing.

An intelligence-led approach should acknowledge this dual role that ANPR plays.

10. Speed cameras and risk management

Speed cameras are another good example of the risk management approach, in that they categorise risk by isolating a specific behaviour – exceeding the speed limit – and focusing on a particular location that has been identified as an area of particular concern.

This means that regardless of what the tabloids say, cameras are sited based on intelligence, and data on casualties and speed are used to determine their location.

In this, they have been extremely effective: KSIs have been cut at camera sites by 35%.

Most importantly, however, cameras are also successful in modifying behaviour. Not only has the number of drivers speeding at camera sites fallen by 67%, there appears to be evidence to suggest that the sanctions are working. While the number of fixed penalties for speeding skyrocketed between 1996 and 2002 – from around 260,000 to 1.4 million – the number of drivers disqualified by totting up remained more or less the same, at around 30,000. This implies that drivers who are at risk of disqualification will change their behaviour in order to avoid losing their licences, and this can only be beneficial from a road safety point of view.

Cameras also begin to blur the distinction between enforcement and modification of the road environment. They are used to treat particular sites, but are aimed at wider changes in behaviour.

11. Surveillance and deterrence

Speed cameras are particularly successful because they operate as a means of mass surveillance. As Raco argued,

> "One of the main benefits of surveillance technologies and techniques is that they maximise the effectiveness of available resources by using the actions of subjects in their own governance."
>
> [Raco, Mike. 2003. 'Remaking Place and Securitising Space: Urban Regeneration and the Strategies, Tactics and Practices of Policing in the UK'. *Urban Studies* 40(9): 1869-1887.]

In social theory terms, this follows Michel Foucault's theory of the 'panopticon'. In simpler terms, it means that surveillance is successful not by catching and prosecuting the maximum number of offenders, but by encouraging individuals to monitor their own behaviour and adjust it accordingly – in effect, to police themselves.

12. The Diffusion of Roads Policing

As mentioned earlier, a key element related to the risk-management approach is the diffusion of roads policing. As demands on police time and resources intensify, a risk-management approach will seek to identify other means of achieving the same goals, including the extension of enforcement functions to other bodies. Manifestations of this include:

- Partnership-working (e.g. Safety Camera Partnerships)
- Civilianisation (i.e. use of civilian staff to do police work – this includes not just CSOs but also 'back of house' police staff)
- Civil enforcement (i.e. enforcement by Local Authorities and other agencies); and
- In-car compliance technologies.

13. Civil enforcement

To give an example, Local Authorities have been given progressively more enforcement powers over the past 15 years. The timeline of civil (non-police) road traffic enforcement has progressed as follows:

- Parking (1991);
- Moving traffic offences in London – bus lanes, banned turns, box junctions, etc. (2001); and
- Moving traffic offences including cycle lanes (Traffic Management Act 2004).

14. In-car compliance technologies:

The diffusion of roads policing also extends to within the vehicle itself. A number of people interviewed so far expressed hope that roads policing – or at

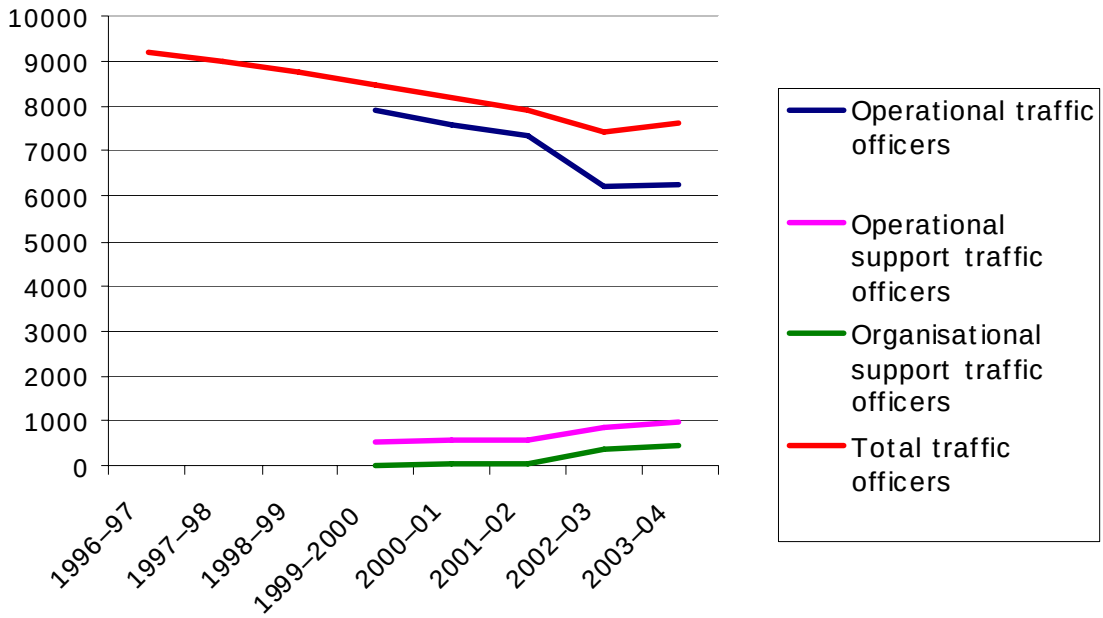
least aspects of roads policing – will eventually become obsolete, as in-car technologies help to secure compliance with the law. Examples of in-car compliance technologies include:

- Alcolocks
- Intelligent speed adaptation (ISA)
- Event data recorders (black boxes)
- Licence and insurance interlocks
- Fatigue and impairment warning systems
- Seatbelt reminders.

Collectively these technologies have a major potential for transforming the nature of roads policing as well as for casualty reduction. The enforcement of the offence occurs by preventing the opportunity for the offence to be committed.

15. Roads Policing Numbers

Traffic Officer Numbers: 1996-2004



It is in this context that the controversial question of roads police numbers should be considered. As mentioned earlier, there has been a long term decline in the overall number of roads police:

- Numbers of designated traffic officers fell from 15-20% of force strength in 1966 to 7% of force strength in 1998.
- Between 1996 and 2004, total traffic officer numbers fell by 17%
- Between 1999 and 2004, operational traffic officer numbers fell by 21%
- Support staff numbers for traffic policing have risen by 242% between 1999 and 2004

These numbers have been used by opponents of speed cameras to argue that cameras have replaced roads police, and that this makes the roads more dangerous rather than safer. If this were the case, it would be a worrying example of an unintended consequence of new technologies. However, the situation is considerably more complicated than this view would suggest.

A focus on numbers alone – and creating simple charts like the one above - can be misleading, because it ignores the restructuring and renaming that has occurred within the police service. Increasingly, other designations of police also do traffic enforcement, even if they are not named as roads police.

Somewhat counter-intuitively, the success in reducing road casualties has contributed to reducing the number of roads police, as fewer collisions means less time investigating and clearing up incidents.

As discussed, the diffusion of roads policing has meant that other agencies adopt roles that were previously within the remit of the police, and this may also be a factor.

However, two of the most important factors are targets and political priorities – both local and national. Casualty rates are included as a policing indicator in the 'Police Performance Assessment Framework', and the Police are committed to the Government's target of reducing KSIs by 40% by 2010. However, this is one target out of many, and police lack ownership of it – the actions of Local Authorities, vehicle manufacturers and road users themselves are as important to casualty reduction as the actions of the police. It is difficult to persuade

people to invest resources when a target is being met by other means. It is even more difficult when national-level support has been limited: roads policing has been appearing in progressively smaller paragraphs in the National Policing Plan, and does not seem to be integrated at all into other Home Office publications. It is time to consider not only what priority we should be giving to roads policing, but also whether other indicators that show roads policing inputs and effectiveness can be developed.

Finally, I want to ask "Is the tide turning?" The joint ACPO/DfT/Home Office 'Roads Policing Strategy', published in January of this year, fully recognises the importance of roads policing and the role it plays not only in reducing road casualties but also in combating crime and anti-social behaviour. The document also recognises the important role that new technologies play – not in replacing enforcement, but in strengthening it. I hope to see more of this joined-up thinking in future, and I hope that this document is the first indication of an intelligence-led approach to the management of road risk at a national level.

16. Conclusions

In summary, the overall conclusions of PACTS research so far are that new technologies have contributed to major changes in road traffic enforcement. Technology can play a key role in identifying, managing and reducing risk. However, effectiveness will depend on not only practical operation and but also on political priorities.

The project is ongoing. PACTS would welcome comments and suggestions on the issues raised in this paper.