

The briefing

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CCTV

This Police Foundation Briefing looks at existing legislation on CCTV and identifies some of the key issues arising from the growing use of cameras.

What is CCTV?

Closed Circuit Television is a camera surveillance system set up to monitor activities or areas. It is generally regarded as “any form of monitoring system that uses video cameras as a means of surveillance” (Goold, 2004). CCTV exists in order to investigate, deter or detect crime, from car theft and burglary to antisocial behaviour, and to reduce the fear of crime (Gerrard et al, 2007).

Camera technology has grown increasingly sophisticated, resulting in cameras which can tilt, pan or zoom. Some have infrared capability allowing for recording in pitch darkness and

some are able to focus in on a book or cigarette packet from over 100 metres.

CCTV cameras can be operated from a manned control room. Commonly however, images are captured and viewed after a crime has been committed. There is no legal limit on how long images can be stored, but they should not be kept for longer than is strictly necessary. Police storage of CCTV images varies from force to force from between one and sixteen months.¹ The Home Affairs Select

¹ Rt Hon Keith Vaz speaking at the Oxford Policing Policy Forum ‘Too Much Surveillance’ September 2008.

Committee recommended in 2006 that the storage time limit should allow sufficient time to analyse the information but remain in keeping with the need to avoid the excessive accumulation of data (House of Commons Home Affairs Select Committee, 2008).

Underneath the Trocadero Centre in London's West End is a control room with a wall of 120 monitors capturing images from streets and parks across the West End. Those staffing the control room check the cameras 24 hours a day, looking for suspicious and criminal activity. They retain all footage for a period of 31 days.

CCTV in the UK

Estimates of the number of CCTV cameras in the UK have varied from 1.85 million (Reeve, 2011) up to 5.9 million (Barrett, 2013).

In 2012, surveillance sector analysts estimated that the UK accounted for 5 per cent of the £1.3bn world market for CCTV and 20 per cent of the European market (Market and Business Development, 2011; Key Note, 2013). Despite a national recession, the UK CCTV industry has grown steadily since 2011. Most public-space CCTV is owned and monitored by local authorities, although 98 per cent of CCTV cameras in the UK today are operated by the commercial sector.

Analysts have attributed investment in CCTV across Britain to technological advances in surveillance and more recently, to the occurrence of major events such as the Queen's Diamond Jubilee and the London 2012 Games. A broader and more likely explanation for the proliferation of cameras in the UK, may lie in what has been referred to as the 'criminal justice arms race'; where political parties have not wanted to risk being perceived by the public as 'weak' on terror and criminality (Porter, 2009). Business has been quick to respond to

successive governments' and public support for surveillance technology. The populist view has consistently been that only criminals, or those with something to hide, would contest an increase in the use of cameras.

The huge growth in the use of CCTV cameras is certainly not confined to the UK. Video surveillance remains a booming multibillion-dollar industry in China for example, where it is estimated there are now 20-30 million surveillance cameras in place.

During the 2008 Olympic Games in China, CCTV was networked and linked together biometric information (including information on reproductive history), police data and camera footage. The cameras were disguised from the public by making them look like lampposts (Klein, 2008). 13 million cameras were installed in China in 2011 and in Beijing, 800,000 surveillance cameras have been installed, exceeding London.

Analysts estimate that surveillance installations will jump 20 per cent a year for the next five years in China (Hvistendahl, 2012). This appetite for camera technology has meant that global companies often test the limits of new surveillance systems there.

Brief history of CCTV in Britain

Closed-circuit television (CCTV) was first introduced to Britain in the 1970s, and adopted for use in public spaces in the 1980s. Consecutive governments have expressed the view that CCTV technology is an effective means of protecting the public, and invested heavily in it.

In the 1990s, the Government's enthusiasm for CCTV resulted in the public being bombarded

with pro-CCTV publicity and positive messages from a variety of sources including government ministers, the judiciary (see Goold, 2004)² and the media.³ CCTV became the new panacea and was very difficult to challenge (Davies, 1996). Public support for CCTV peaked during this time in Britain.

The 1993 case of toddler James Bulger undoubtedly fuelled this support for CCTV. James was taken from a shopping centre in Liverpool by two ten year old boys and eventually killed. The shocking CCTV footage which showed him being led away by Jon Venables and Robert Thompson was played repeatedly on television and featured heavily in the press (Yahoo News, 2013).

Prior to the Bulger murder, CCTV had been used mainly to capture traffic offenders, but this case arguably shaped the public view that CCTV could be an effective 'panacea' in the fight against crime.

The 1990s saw unprecedented investment in CCTV as both political parties vied for public support for their law and order policies. During the latter half of the 1990s, almost two fifths of the entire Home Office crime prevention budget was spent on it (Goold, 2004). The Home Office funded the Crime Reduction Programme (CRP), which resulted in an investment of £170m in CCTV. Following that, 684 CCTV schemes were installed in town centres and other public spaces. At this time, the Home Secretary, Michael Howard, expounded the virtues of CCTV, describing it as "a wonderful technological supplement" and "a real asset to communities".

² 'CCTV is of great benefit to all of us and our civil liberties' *Daily Telegraph* 7 June 1997 Judge Dennis Clark quoted in Goold, 2004.

³ Chris Tarrant's television programme 'Tarrant on CCTV' paired CCTV images of the public with humorous comments.

From 2003, local authorities continued to access Home Office funds in the form of general funding for crime reduction through a number of central government schemes, including the Safer Communities Initiative and the Building Safer Communities Fund.

Although the government has been prepared to fund the development of new CCTV systems in many British cities for decades, it has attracted criticism for having little interest in establishing CCTV's effectiveness (Goold, 2004). No body of criminological evidence exists that can "justify or support" the scale of its implementation (Welsh and Farrington, 2002).

CCTV and society

Voyeurism has increasingly become an accepted part of our society. Reality television programmes such as Big Brother have accustomed the public to the notion of being watched and websites like Facebook or Myspace allow access to private information from people all over the world. The number plates of our cars are automatically recorded and we are now filmed shopping, driving, travelling by train, at the airport, at sports stadiums and other public venues, such as London Zoo, the National Portrait Gallery and even Westminster Abbey.

The growth of the surveillance industry in Britain is an on-going source of concern for civil liberties groups, the most vocal of which have been Privacy International, No CCTV, Big Brother Watch and Liberty.

Equally, the Information Commissioner has voiced concerns over the expansion of CCTV and increased surveillance more generally. In 2006, Richard Thomas⁴ warned of the spectre of "waking up to a surveillance society" (Information Commissioner's Office, 2006a).

⁴ Christopher Graham has been in post as the Information Commissioner since 2009.

His report raised a number of concerns about the effect of the expansion of CCTV on British society, including:

- The undermining of trust in social relationships.
- Intrusion into private life.
- The lack of consent to our actions being filmed and viewed.
- The potential discrimination in the decision of whom to monitor (Information Commissioner's Office, 2006b).

"Surveillance activities can be well-intentioned and bring benefits. They may be necessary or desirable – for example to fight terrorism and serious crime, to improve entitlement and access to public and private services, and to improve healthcare. But unseen, uncontrolled or excessive surveillance can foster a climate of suspicion and undermine trust." (Information Commissioner's Office, 2006a).

Past studies of CCTV suggest that ethnic minorities are disproportionately likely to be filmed, with black men twice as likely to be filmed as white men (Norris and Armstrong, 1999). Dr Ian Forbes, in his evidence to the Home Affairs Select Committee (2008), stated that because the motive of those doing the surveillance is to prevent, monitor and punish certain behaviours, strong concerns arise over predictive profiling (Forbes, 2008).

The sensitivity around the placing of CCTV in particular geographical areas without transparency of purpose was highlighted in 2010, when 218 cameras were set up in largely Muslim areas of Birmingham by the West Midlands police. The cameras, 50 of which were covert, had been purchased with funds intended for counter terrorism. The BBC news reported that residents were angry about "a lack of consultation" while police said none of the cameras had been activated (BBC News,

2013). Independent scrutiny of the incident (via the 'Thornton report') was highly critical (Thornton, 2010).

What has always been at the heart of the debate on CCTV is the need to balance public confidence in crime detection through surveillance, with respect for the civil liberties of all.

The law on CCTV

Anyone is allowed to install a CCTV camera as long as it is in accordance with Article 8 of the European Convention on Human Rights (ECHR) and the Data Protection Act 1998⁵ however all CCTV systems that record data must be registered with the Information Commissioner's Office (ICO). This does not include private individuals or private business premises where the public have no access.

The Human Rights Act (HRA) 1998

The Act came into force on 2 October 2000, incorporating Article 8 of the ECHR into UK law. The Home Office advice for local authorities on how to comply with Article 8 is to ensure the gathering of data is proportionate, legal, accountable, necessary and likely to cause minimum invasion to privacy (Ministry of Justice, 2006).

The Data Protection Act 1998

The Data Protection Act 1998 came into force in March 2000 replacing and consolidating earlier legislations.⁶ The Act gives people the right to know what information is held about

⁵ Purely domestic use of CCTV e.g. recording of one's own children in the garden does not need to comply with the Data Protection Act.

⁶ This included the Data Protection Act 1984 and the Access to Personal Files Act 1987.

them and provides a framework to ensure that personal information is handled properly.

The CCTV market has to comply with the Act, ensuring that:

- There are clear, visible signs indicating where surveillance schemes are in operation.
- Data is gathered fairly and lawfully.
- Any images captured are relevant.
- Data is only used for the specific purpose it was recorded for.
- Data is kept for no longer than is necessary.

The Data Protection Act led to the ICO publishing a 'CCTV code of practice' (ICO, 2008) for those who operate CCTV in areas to which the public have unrestricted access. It was mainly established to ensure business compliance with the Data Protection Act when using CCTV, while reassuring the public that it is being used responsibly.

The ICO Code of Practice requires:

- Consideration of who should be responsible for viewing and analysing the data.
- Consideration of the setup of procedures for recording the captured images faithfully.

Any member of the public may request CCTV data if they believe the data includes coverage of them, with no explanation necessary. If you are captured on CCTV you have the right to view the footage under the Freedom of Information Act 2000, subject to payment of an administration fee.

Covert viewing is only allowed if criminal activity is under surveillance, while general or routine covert surveillance is illegal.

The Regulation of Investigatory Powers Act 2000 (RIPA)

The RIPA regulates surveillance, including the method of data gathering and use of the information gained. It contains a list of organisations that are able to view surveillance data, which was extended to include local councils in 2003 by the former Home Secretary David Blunkett. Historically, there has been considerable criticism of the way councils have used CCTV, from investigating dog fouling (Metro, 2010) to checking whether parents live in a particular school catchment area (BBC News, 2008).

Brentwood council published identifiable photographs taken from CCTV footage of a man named Mr Peck walking down the street at 11.30 pm with a kitchen knife. The man intended to commit suicide. Although the High Court upheld Brentwood council's decision to publicise the photograph, the European Court of Human Rights held Brentwood council had seriously interfered with Mr Peck's right to privacy under Article 8.⁷

Protection of Freedoms Act 2012

Five years after the publication of the National CCTV Strategy (Gerrard et al, 2007) which put forward 44 recommendations around the regulation of CCTV, the Protection of Freedoms Act 2012 was introduced (Protection of Freedoms Act, 2012). This act required the government to put in place a regulatory framework for surveillance camera systems comprising a code of practice and a

⁷ Peck v UK ECHR 28.1.2003.

Surveillance Camera Commissioner (see below). The Act applies to publicly-owned systems and those controlled by the police, which account for approximately two per cent of the cameras in the UK.

The Surveillance Camera Code of Practice

Both the Conservative and Liberal Democrat parties made electoral promises before the 2010 election to regulate the proliferation of CCTV cameras and to 'roll back the surveillance state'.

The Surveillance Camera Code of Practice (SCCP) was published as part of the Protection of Freedoms Act 2012, on 13 June 2013. The coalition government has widely promoted it as an antidote to a system that has been allowed to expand without any proper oversight (Hopkins, 2012).

The Code sets out guiding principles that should apply to "all surveillance cameras in public spaces". It sits alongside, but does not replace the ICO's CCTV Code of Practice (2008), the primary purpose of which is to help those involved in surveillance activities comply with the Data Protection Act. The overarching aim of the SCCP is to ensure that communities have confidence that surveillance cameras are there to protect them, not spy on them (Home Office, 2013).

This statement reflects the concerns over privacy, which pre-empted the code's enactment. In recent years, cases featuring the misuse of CCTV cameras brought the subject to the fore.⁸ According to the ministerial statement on the SCCP, the government wanted to "ensure a robust framework was in place to protect the public from any excessive

or irresponsible use of such technology" (Brokenshire, 2013).

The Code has twelve guiding principles and for the first time introduces a philosophy of *surveillance by consent*, meaning the public can be confident that the cameras are not there to spy on them, but to protect them and help in the fight against crime.

It contains guidance for system operators. 'Relevant authorities', specified in Section 33(5) of the Protection of Freedoms Act 2012, have a duty to have regard to the Code, and other system operators will be encouraged to adopt it on a voluntary basis. Police and Crime Commissioners will be a 'relevant authority' under the Act and will have to have regard for the Code when making decisions around surveillance.

For the first time, police will be forced to erect roadside signs warning motorists they are being watched by cameras. Under the Code, the public will also be given powers to complain about local authority traffic monitoring CCTV camera systems that may exist simply to generate cash for councils (Travis, 2013).

Criticism of the Code

The Code has attracted criticism for:

- Lack of breadth: it does not cover most of the CCTV cameras in the country, including those in schools, shopping centres and hospitals (Whitehead, 2013).
- Lack of teeth: local councils and police have a duty to meet the code but there is no sanction if anyone breaches it.

The Surveillance Camera Commissioner

The Protection of Freedoms Act 2012 created the first ever Surveillance Camera Commissioner to regulate CCTV. Former police

⁸ Concerns over privacy fuelled by widely publicised court cases involving 'peeping tom' council workers abusing the CCTV system / voyeurism.

officer, Andrew Rennison was the first to fill this role.⁹

The functions of the commissioner are set out in Section 34(2) of the Act. His role involves promoting compliance and wider adoption of the Code, reviewing its operation, and providing advice about it. The commissioner has no inspection or enforcement powers, nor any powers to investigate complaints. He is empowered to make independent recommendations to the government and required to publish a report about the exercise of his functions on an annual basis.

The impact of CCTV on crime

There are some pervading assumptions around CCTV and its role in crime prevention. These can be summarised as:

- **It can deter crime:** potential offenders become aware of the presence of CCTV, assess the risks of offending in this location, and may choose to offend elsewhere or not at all.
- **It can encourage feelings of personal safety,** resulting in a higher number of people on the street (which in turn is thought to deter crime).
- **It can assist in the identification of offenders** and hence detect more crimes and convict more offenders.
- **It can help in the efficient deployment of police resources** required to respond to a crime.
- **It can help remind potential victims** of the 'risk' of crime and of the need to exercise caution (Armitage, 2002).

There have been a number of important reviews into the impact of CCTV which have looked at whether it reduces crime or just displaces it to other locations, whether it assists in the detection of offenders and what impact it has on the fear of crime.

How effective is CCTV in deterring crime?

The most significant existing review on the effectiveness of CCTV was a 2008 report by the Campbell Collaboration¹⁰ which claimed CCTV has a "modest but significant desirable effect on crime" and that its use should be "more narrowly targeted" than at present (Welsh and Farrington, 2008b; Woodhouse, 2010). One widely reported finding from the Campbell review was that CCTV was most effective in car parks when targeting vehicle crime.

We know that a majority of CCTV systems rely on the deterrent effect of the cameras. However, existing research points to offenders being largely undeterred by the presence of cameras, often holding the view that cameras generate poor quality images and are monitored poorly (Hempel and Topfer, 2004). There may be a short period of initial deterrence when cameras are installed in public spaces but this is known to reduce after a period of two months (Mazerolle et al, 2002).

A number of factors are known to marginally increase the perceived risk to offenders. These are: signage and short sporadic camera deployment (Tilley, 1993), a high density of cameras, and good lighting (Gill et al, 2007; Welsh and Farrington, 2008a).

The deterrent effect of CCTV may be stronger where crimes are committed on the basis of rational choice (Felson, 1998). In crimes where alcohol is a factor for example, the deterrent effect of CCTV is relatively weak (Armitage,

⁹ Andrew Rennison, the Surveillance Camera Commissioner and Forensic Science Regulator, will step down from his job in February 2014.

¹⁰ The Campbell Collaboration (C2) is a non-profit organization that applies a rigorous, systematic process to review the effects of crime on society.

2002; Gill and Spriggs, 2005). Most evaluations of CCTV in city centres have found cameras had very little impact on violent crime (Armitage, 2002; Gill and Spriggs, 2005). One study found that CCTV can have an important role in preventing an escalation of physical injury, through more rapid police intervention for example (Sivarajasingam et al, 2003).

Interviews with convicted offenders reveal they do not worry about CCTV in general but may take precautions against cameras by wearing clothing that conceals their identity e.g. hooded tops and/or face scarves. Half of those interviewed in one study believed CCTV increased the chance of getting caught. Those who had been caught as a result of CCTV evidence were more likely to perceive it as a threat (Gill and Loveday, 2003).

Anecdotally, police say that they are increasingly scrutinising and cataloguing brand logos on clothing and paying closer attention to footwear (which often remains unchanged between crimes), as this may offer a more fruitful approach to identifying offenders.¹¹ They also report that offenders are increasingly retaining ‘trophy cuttings’ if their image is featured on publicly circulated CCTV posters. Such cuttings are often on display in offenders’ homes and these have reportedly helped secure convictions.

The riots and disorder of August 2011 across Britain raised important questions around the role of CCTV in deterring crime.

The general disregard that offenders seemed to display towards cameras during the riots was widely commented upon. In giving evidence to the commons Home Affairs Select Committee, then Justice Secretary Ken Clarke said he was shocked at how many of those involved in the riots were “casually indifferent to CCTV filming

them”. Civil liberties groups considered such disregard clear evidence that CCTV has no deterrent effect whatsoever (Doctorow, 2011).

Most criminologists do not consider CCTV to be a ‘magic bullet’ to crime, but one that works best alongside other crime prevention measures (Gill et al, 2005). Its effectiveness very much depends on where and how it is used, the type of crime committed, the quality of the images captured, and the way crime prevention is measured. CCTV systems rarely work in isolation but form part of a crime prevention strategy encompassing several elements. As such it is difficult to precisely claim the true deterrent effect of this form of surveillance.

How effective is CCTV in solving crime?

Before CCTV, police relied on public and informer co-operation to report and investigate crime and surveillance was therefore limited simply by the number of police officers and possibly other authority figures on the street (Goold, 2004). Today, CCTV helps the police to monitor and track offenders and their offences, increase their knowledge of the community and local neighbourhoods and to closely observe known crime hotspots.

Despite the lack of supportive research evidence, the police firmly believe that CCTV constitutes a vital part of the detection process. In giving evidence to the Home Affairs Select Committee, then Assistant Chief Constable Nick Gargan¹² is quoted as saying: “Very often the first investigative action, or one of the very first investigative actions that takes place in virtually any serious crime inquiry or missing person inquiry or many other types of inquiry would be to conduct a trawl of CCTV evidence and see what that tells us”.

The police say that CCTV cameras are used to deploy officers more effectively, allowing the

¹¹ Interview with Detective Chief Inspector Mick Neville, Head of VIIDO, Metropolitan Police, August 2013.

¹² Nick Gargan has been Chief Constable for Avon and Somerset since July 2013.

scale of a situation to be assessed and responded to accordingly. Anecdotal evidence suggests the police make use of the cameras more informally, using footage to train or manage the behaviour of officers, for example.

Thousands of man hours can go into viewing and processing CCTV footage but police officers feel the benefits of CCTV outweigh the resource input (Levesley and Martin, 2005). They argue that it saves time and resources by ruling suspects out, and avoiding unnecessary arrests. It can provide direction of travel information which can assist identity witnesses and potentially link to automated number plate recognition systems (ANPR). It is a highly regarded weapon in the fight against terrorism and other forms of serious crime as the following quote from the Former Assistant Commissioner for the Met, Andy Hayman, demonstrates:

***“Despite the concerns of civil liberties groups, the surveillance society of CCTV cameras, listening devices and databases recording our email and phone activity, our criminal and car records... is paying off big time when it comes to catching criminals”
(Hayman and Gilmore, 2009).***

CCTV footage is used and heavily relied upon by the courts and the simple absence of CCTV evidence may dissuade the Crown Prosecution Service from charging a suspect. Police report that the presence of high quality CCTV footage often encourages offenders to admit offences and can mean more dangerous offenders are remanded in custody rather than bailed.

There are many high profile cases where CCTV footage has helped to convict a suspect for a serious offence. CCTV provided important leads and was an integral part of the investigation into the July 2005 bombings. It tracked the suspects onto the tube system, showing the offenders boarding trains carrying rucksacks and Ramzi

Mohammed attempting and failing to detonate a bomb. Even though this required thousands of hours of footage to be viewed and analysed, the images captured were circulated to the public and the jury in the criminal trial, which subsequently convicted the bombers.

More recent media coverage has included a number of high profile serious crime cases where CCTV footage has played a key evidential role in securing convictions. After the murder of teenager Aamir Siddiqi at his home in Swansea, investigators successfully used Cardiff's CCTV network to trace the movements of the suspects (Phagura, 2012). The CCTV evidence was reported as having played a significant role in the prosecution case. (Crown Prosecution Service, 2013).

The case of missing child April Jones and subsequent conviction in July 2013 of Mark Bridger for her murder also highlighted the benefits of CCTV footage as an investigative tool. The CCTV videos and stills of the suspect used by the police were featured repeatedly on television and in the press around this time (Cambrian News, 2013). Footage of the suspect's movements disproved his version of events and greatly assisted prosecutors.

Media interest in the application of CCTV evidence to high profile cases is high and may help sustain the current strong public support for CCTV and for police efforts to use it.

Policing issues

Getting the procedure and the processes right around CCTV is essential, if it is to work optimally and solve crimes. From the very beginning of the process, the proper scrutiny of CCTV footage is vital. As the case of Kate Sheedy (2004) highlighted, failure by the police to analyse footage properly can have serious consequences (BBC News, 2007). Ms Sheedy was knocked down in May 2004 by Levi Bellfield, who was subsequently convicted of

attempted murder. Police were criticised for failing to view the relevant CCTV footage and had to visit the family of the victim to apologise for the mistake.

The procedures that police have to follow when gathering CCTV evidence in general, can be lengthy. For example, they must apply for permission to view images captured by CCTV cameras belonging to private organisations.¹³ This process can take up considerable officer time and manpower. For the CCTV footage to be admissible in court, it is essential that procedures are correctly followed: date and time stamps must be accurate, the tapes must be rotated on a seven day cycle and an audit trail must be maintained.

When procedure is followed and CCTV evidence deemed admissible, CCTV can help conclusively prove a charge or encourage a guilty plea, saving court time as well as assisting with sentencing by demonstrating the severity of an incident.

CCTV footage requires specialist training to interpret. Historically, a lack of skilled operators within the police has been a hindrance and as a result, it has been argued that the majority of cases failed to maximize the opportunities offered by CCTV (Neville and Hubbard, 2006). The nature of the relationship between CCTV operators and officers on the street can greatly affect how the cameras are used. Equally, when a situation develops quickly, a good command of the technology along with geographical knowledge of an area can strongly influence the effectiveness of CCTV systems (Levesley and Martin, 2005).

Civil liberties groups argue that the presence of surveillance systems are excessive, generating a huge quantity of data on ordinary citizens. In

reality, a tiny proportion of CCTV footage gathered is ever viewed. CCTV operators do not watch cameras all the time (Haines, 2010) and the police lack time and resources to assess it. This lack of expertise around the handling of forensic imagery both by CCTV operators, owners and some police officers is viewed as its 'achilles heel'.

Street lighting is an important factor when police assess the usefulness of available footage. It can both help and hinder this process. The glare of 'low pressure sodium street lighting' for example, which produces a yellowish light, can frustrate efforts to view CCTV footage, particularly where colour images are required (Elliot and Evans, 2010).

In January 2007, The Visual Images, Identifications and Detections Office (VIIDO) was established in Southwark, London, to provide a specialist CCTV forensic team in the capital and address some of the issues above. The unit comprises a team of officers working solely on identifications through CCTV.¹⁴ It also consists of vetted community volunteers trained to scrutinise footage, and of restricted duty officers (i.e. those who have medical conditions preventing full duties). The unit has made real impact on identification rates (going from 50 to 150 positive identifications per week).¹⁵ According to the Head of VIIDO, Detective Chief Inspector Mick Neville, this increase can largely be attributed to the employment of the restricted duty officers.

Identification rates have also improved due to the assistance of a new system, the FILM (Forensic Image Linking and Management) database. This system enables officers to have a more focused approach and manage unidentified images of suspects captured on

¹³ Police chiefs can now access council owned cameras. Only five per cent of images used by the Metropolitan Police come from council CCTV however.

¹⁴ As at December 2013, the unit had five teams of two people working full time on CCTV identifications.

¹⁵ Interview with Detective Chief Inspector Neville, August 2013.

CCTV more effectively. When a suspect is named, the 'mug shot' is placed next to the CCTV image with any previous convictions or intelligence linking them to the area or crime type.

The system helps officers produce bespoke 'Caught on Camera' posters. These are now being created in a tailored way for specific areas of London. They can be themed according to crime type or crime characteristic(s). If a police 'super recogniser' or informant in any area across London has knowledge of a certain crime type, images can be produced to fit this requirement and distributed accordingly.

During the riots of 2011, the expertise of units such as the VIIDO became invaluable. The London riots of 2011 gave new momentum to the application of the FILM database.

Operation Withern was launched by the Metropolitan Police Service to investigate the riots and capture suspects. CCTV images of suspects were circulated via social media and Flickr. Just over 5000 arrests were made following the riots, 4000 of which were reportedly driven by post viewing of CCTV.¹⁶

The success of Operation Withern consolidated the public view that CCTV technology can be a potent crime detection tool. During the four days of rioting and disorder, police were releasing a substantial number of images per day in an attempt to trace those involved (BBC News, 2011). At the same time, the media was publishing CCTV footage of suspects on a daily basis, and documenting many of the successful prosecutions that followed (Davey, 2011). The visible nature of the criminal justice process, captured so vividly through the media,

¹⁶ Personal communication with Detective Chief Inspector Neville 08.08.13.

increased public belief in CCTV's ability to help the police solve crime (The Independent, 2011).

The main barriers to CCTV's effectiveness

Despite the perceived usefulness of CCTV evidence, following situations such as the London riots, the hard evidence of its ability to solve crime generally, remains weak (Gill and Spriggs, 2005). Low detection rates from CCTV are still principally due to the small numbers of police nationally, who are tasked with sifting through footage on a regular basis.

Furthermore, many CCTV operators lack the skills to handle CCTV footage effectively and are often unaware of the evidential threshold necessary for CCTV footage to be used in a successful prosecution case. The Head of VIIDO has reported that a key issue hindering investigations is the inability of those recording images to download them as and when they are required. Late arrival of footage from privately owned CCTV cameras is a further factor that can hinder the progression of an investigation.

In general the quality of CCTV images has improved in recent years compared to past years, where high volumes of footage were unusable by the police.¹⁷ However, technical difficulties still exist. Anecdotally, police report that the initial retrieval process for digital images can be onerous and that digitally collated images are often incompatible with out-of-date court systems. Police systems are currently in the process of moving entirely from an analogue to a digital system. Arguably, this may help improve the quality of captured images and the speed at which evidence can be assessed.

¹⁷ During the Home Affairs Select Committee proceedings in 2007, former Assistant Chief Constable Nick Gargan acknowledged that 80 per cent of CCTV footage supplied to the police was "far from ideal".

Doubts have consistently been raised about the effectiveness of CCTV on public transport systems (Gill and Spriggs, 2005). Failings of CCTV in this setting have been highlighted in the most serious of circumstances. Following the 2005 July bombings, CCTV was a crucial tool in piecing together the terrorists' movements. However, it later emerged that no footage from the No. 30 bus bombing was available because the hard drive had been corrupted (BBC News, 2010). Evidence is emerging however that the standard of in-bus CCTV images is greatly improving. One factor in this is more effective partnership working. According to VIIDO, by working more closely with Transport for London for example, the rate of solved robberies on London buses has risen from five per cent to 40 per cent.¹⁸

The Metropolitan Police Service (MPS) strategic review into the 2011 London riots recognised the value of units such as VIIDO. The report flagged:

- How the MPS needs to do more to “harness the value of CCTV as a tactic”.
- The *ad hoc* nature of the CCTV investigative process in London. In boroughs that already had effective VIIDO facilities, identifications and arrests were made much more quickly.
- The challenges that the generation of a large quantity of forensic imagery could bring and the need for “a bespoke system to allow the efficient cataloguing of images”.

A number of steps have been taken within the MPS as a result of the review, namely that:

- Every borough has moved towards having an effective VIIDO facility comprising dedicated supervision, trained staff and IT systems.

- CCTV footage is first viewed locally via borough VIIDO units.
- An additional 83 MPS staff have been trained as CCTV viewers.
- An additional 149 CCTV viewing stations have been secured.
- MPS CCTV systems are being upgraded from analogue to digital provision (Metropolitan Police Service, 2011).

The 2011 riots were a watershed in revealing the potential CCTV has for solving crime, and the deficiencies of police systems and processes to make best use of this technology.

Automatic Number Plate Recognition (ANPR)

The UK has an extensive ANPR CCTV network. Automatic number plate recognition is a ‘surveillance capability’ that uses mobile and fixed road-side sensors to read vehicle number plates and instantaneously cross-match them with information and intelligence held on the Police National Computer and linked system (Haines, 2010). Its main purpose is to identify stolen vehicles used in crime or which are in violation of some other law.

Used originally for counter terrorism operations in Northern Ireland, it has been running in mainland Britain since 1997 when ‘a ring of steel’ was introduced into the City of London. The UK police are now world leaders in the use of this type of technology (Haines, 2010).

How it works

ANPR uses cameras to read and store the number plates of passing vehicles using pattern recognition software. It can capture the images of a large number of vehicles and alert the police to vehicles or registered owners that are wanted in connection with an offence, or where the vehicle has been linked to a crime. Images taken are stored in the National ANPR Data Centre (NADC) and then cross referenced

¹⁸ Personal communication with Detective Chief Inspector Neville, 08.08.13.

with a variety of databases including the Police National Computer (PNC), Local Force Intelligence Systems and the Driver and Vehicle Licensing Agency (DVLA). Up to 50 million licence plates a day can be stored at the NADC.

An evaluation of a year-long ANPR trial undertaken between 2003 and 2004 showed that ANPR intercept teams stopped a total of 180,543 vehicles, resulting in over 13,000 arrests for offences ranging from theft and burglary to drug offences and vehicle crime. During this period, the police also recovered or seized over 1,000 stolen vehicles (valued at £7.5 million) and £380,000 worth of drugs; issued over 20,000 fixed penalty notices for failing to display a road tax licence and a further 20,000 for offences such as not wearing a seatbelt or using a mobile phone while driving (Home Office, 2004).

The ANPR strategy for the police service (2010-2013) states the main objective of this form of surveillance is to “target criminals and their use of the roads”. Police consider ANPR as an “invaluable” piece of technology for roads policing. Since its inception, it is reported to have contributed to around 50,000 arrests (Mathieson and Evans, 2012). It helps eliminate innocent vehicle owners and identify drivers using stolen vehicles on cloned plates. Police also report it is fundamental in assisting with serious and organised crime inquiries.

This was demonstrated during the investigation into the fatal shooting of police constable Sharon Beshenivski in 2005. The CCTV network was linked in to the West Yorkshire Police’s ANPR system in Bradford North. This was a crucial element in the identification of suspects in the case (Mathieson and Evans, 2012).

Despite the highly positive view of police towards ANPR technology and reported examples of its benefits to solving crimes, few studies have rigorously explored the link between ANPR and the disruption of serious criminal activity.

Criticisms and concerns around ANPR

A number of issues around ANPR technology in Britain have been identified:

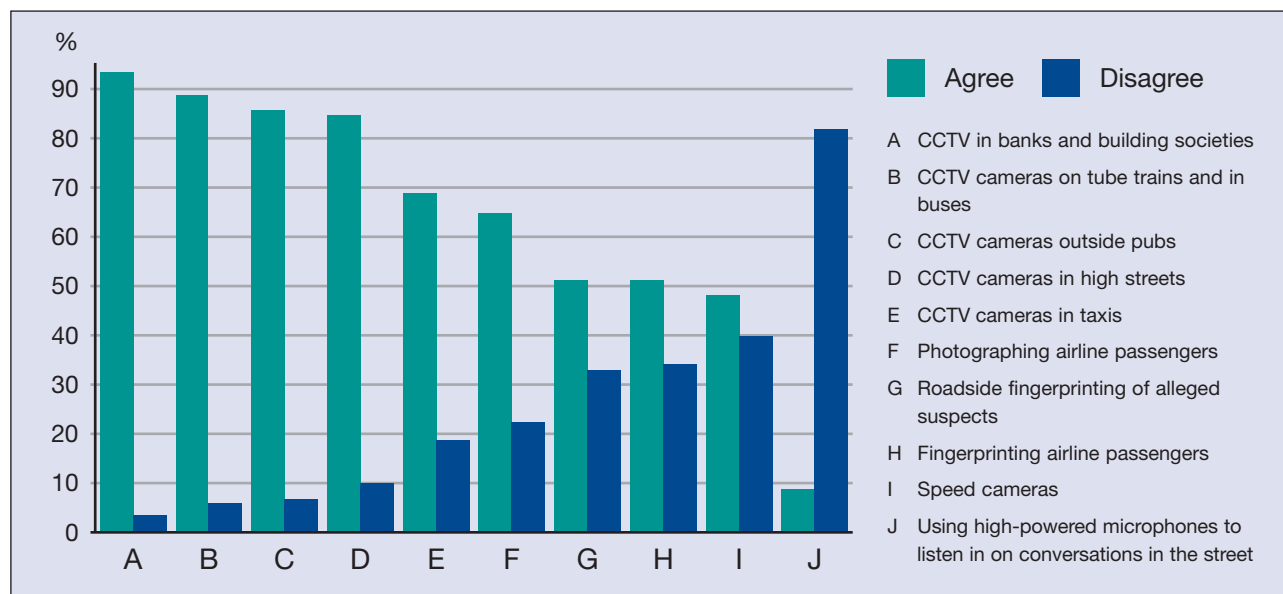
- Data inaccuracies (systems not always up to date when the system checks the information on registration plates). Some reports say these inaccuracies may account for 30 per cent of all ANPR hits (Gillard and Osley, 2010).
- Civil liberties groups argue older ANPR systems can misread number plates and generate hits on innocent drivers (Haines, 2010). They have also criticised the storage of such images without consent, for up to five years.
- There are significant gaps in coverage throughout the country.

Civil liberties groups have consistently voiced concern over ANPR recording data on **all** vehicles, not just those in which a driver has committed an offence (Lewis, 2008). The Coalition Government responded to these concerns by placing the system under statutory regulation, and enacting the Protection of Freedoms Act 2012.

A recent case involving an ANPR ‘ring of steel’ in Royston, Hertfordshire has highlighted the fact that ANPR must be used for legitimate policing purposes, and the police must be able to justify why a particular level of surveillance is necessary or proportionate. The ‘ring of steel’ in this case made it impossible for anyone to drive their vehicle in and out of Royston without a record being kept of their journey.

The ICO found that Hertfordshire Constabulary had failed to carry out “any effective impact assessment” prior to the installation of the ANPR system, and that the use of the cameras in this case was “unlawful and excessive” and in breach of the Data Protection Act (Caswell, 2013). The ruling underlines the importance of police carrying out initial assessments around the impact of cameras on the privacy of the

Figure 1: YouGov survey of public opinions on surveillance – ‘Do you agree or disagree with the following surveillance methods?’



Source: <http://yougov.co.uk/news/2010/10/27/surveillance-stats>

road-using public, before forging ahead with plans (Ministry of Justice, 2006).

Public opinion and CCTV

Public opinion has consistently been favourable towards CCTV. In 2010, a survey by YouGov highlighted a high level of public approval towards CCTV in most public spaces (Figure 1).

93 per cent of the population approved of CCTV cameras in banks and building societies, 89 per cent on tube trains, 86 per cent outside pubs and 84 per cent approved of their usage in town high streets.¹⁹ The public were slightly more dubious regarding other forms of surveillance, although approval levels still remained considerable.

As the above survey demonstrates, despite the public's acceptance of certain surveillance techniques in an obviously public place, when it

comes to more private activities, people are more apprehensive. CCTV is generally popular with most people where it is used for what is seen as its proper purpose, to prevent and detect crime and antisocial behaviour, and catch perpetrators. Most people have confidence that public authorities will use information appropriately (Sharp Research, 2004).

The summer of 2011 riots undoubtedly strengthened public opinion towards CCTV. In one post-riots survey of two thousand adults, three quarters of respondents said they 'felt safer' in public areas knowing CCTV was in operation, two thirds wanted to see more CCTV in their area, and seven out of 10 would be 'worried' if their local council reduced CCTV coverage. 94 per cent of those surveyed backed the police using CCTV footage to identify those involved in the riots.²⁰

¹⁹ This data has been derived from <http://yougov.co.uk/news/2010/10/27/surveillance-stats/>

²⁰ Azadar Shah MD of surveillance firm 'Synthetics' commissioned ICM to do the research. It was carried out between 30 September and 2 October 2011.

In a (2013) YouGov survey which involved 6,000 adults across a range of European countries, Britain had the second highest number of people who felt that CCTV did not affect freedom, after Sweden. More than two thirds of people in Britain (67 per cent) surveyed did not think CCTV posed a problem and 81 per cent believed it helps the police to fight crime (Goldhill, 2013).

In the past, there was little evidence that CCTV could reduce fear of crime (House of Commons Home Affairs Select Committee, 2008) and some researchers have even suggested it could increase it (Gill and Spriggs, 2005). Events over recent years have encouraged the public to view CCTV as a reassuring presence, rather than a source of concern.

Advances around CCTV and crime detection

Surveillance technology is constantly evolving and being updated. It now includes digitised, algorithmic surveillance (e.g. monitoring and tracking using detection sensors around heat, light, motion) and the increased use of biometrics and advanced computer techniques (Haines, 2009). Such technological advances have allowed cameras to become a more prevalent surveillance tool.

There is appetite within the police to explore the applicability of new innovations to help detect and solve crime, and a number of current advances are of interest.

- Face recognition technology has developed to enable cameras to identify drivers and passengers in cars while comparing photos to the DVLA database. These cameras can also be linked to ANPR systems which conduct further checks on the person. This system is being used by border police in Hong Kong (Sui, 2012). While being trialled in British
- airports, facial recognition is not yet widely used in police work in the UK.²¹
- Engineers from Southampton's School of Electronics and Computer Science have been working on a system that can analyse the gait of a criminal caught on CCTV and then compare it with that of a suspect.²²
- New CCTV cameras are continually being invented and developed: the Thru Vision T5000 is a camera which can identify objects underneath clothing from a distance of 25 metres. Plenoptic cameras have also come to the attention of the surveillance market as they have implications for the re-investigation of old images. These devices can collect enough light data to recreate 3D models of suspects. They can even slightly alter the viewing angle of an image after it has been captured.
- Lastly, psychologists have begun to identify 'super-recognisers' i.e. those individuals who are able to identify people or images of people, that they will only have seen very briefly some time before.²³ Better use could be made of 'super-recognisers' more generally in policing but specifically around identification matching processes (Storr, 2013). Their most recent use has been during the Notting Hill carnival in London, August 2013 (Taylor, 2013).

²¹ Following the English riots of summer 2011 for example, only one out of 4000 CCTV facial images was positively matched using this technology.

²² See: http://www.southampton.ac.uk/research/southamptonstories/medhealthlife/walk_this_way.html#.UgYwIFJwbIU

²³ See: <http://www.uel.ac.uk/psychology/research/face-recognition/>

Conclusion

The exponential growth in CCTV in Britain has made its citizens the most watched people in the world. Historically, the laws and regulations governing CCTV have been slow to respond to concerns over what civil liberties groups and the surveillance regulator have termed a 'surveillance state' (Information Commissioner, 2006) resulting in piecemeal legislation that has failed to prevent the inappropriate or excessive use of surveillance equipment.

The Coalition government attempted to rectify this by introducing the Protection of Freedoms Act 2012, the Surveillance Camera Code of Practice, and establishing the post of Surveillance Camera Commissioner. The primary intention of these developments is to secure public confidence in the use of surveillance cameras and reassure ordinary citizens that CCTV is not a mechanism for spying on law abiding members of the public, but an important crime detection tool.

Despite the lack of concrete evidence of effectiveness, the upper echelons of the police service endorse CCTV as an effective crime-fighting tool while the public show little concern over its expansion into virtually every public space. In recent years, a number of highly publicised events have occurred that have drawn public attention to the investigative value of CCTV in police work.

For CCTV to be more effective as a police tool, greater consideration is needed of the way cameras are deployed and to the quality of the images they generate. Where high quality images are generated the police must consistently manage the images and identifications in a more systematic way akin to the management of DNA and fingerprints, to help ensure opportunities to target violent and persistent criminals are not lost.

Further research is also needed into how cost-effective CCTV is in helping to prevent crimes

in progress as well as some of the more indirect benefits of CCTV, such as helping to train police officers or locate missing children.

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