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Editorial. The Growth of CCTV: a global perspective on the international diffusion of video surveillance in publicly accessible space.

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Abstract

This editorial surveys the growth of video surveillance or Closed-Circuit Television (CCTV) throughout the world, setting the scene for this special double issue of *Surveillance & Society*, on the politics and practice of CCTV, and provides a brief introduction to the contents of the issue.

The Development of CCTV surveillance in Britain

The history of the relationship between the photographic image and crime control stretches back almost to the birth of photography itself. The first commercially viable photographic technique was patented in Paris in 1839, and by the 1840s its potential for identifying and documenting the criminal classes had already been recognised (Sekula, 1992: 334). In England and France, by the mid 1850s, the photographing of prisoners to prevent escapes and to document recidivism was being officially encouraged (Rouille, 1987: 51).

The story is similar with television images. In 1926 the first television pictures were broadcast, by the mid 1930s the technology had developed to enable a public television service, the first launched by the BBC in 1936. Just over a decade later, in 1947, an enterprising Metropolitan Police superintendent proposed that the police should be allowed 'to evaluate' the live TV footage of the BBC's coverage of the royal wedding so as to assist in the deployment of patrol officers; the request was refused on the grounds of expense (Williams, 2003: 13). But so was born the idea that live television images could play a role in routine policing. Ten years later in the1950s, "police forces (beginning with Durham in 1956) began to use CCTV to assist in the one-man operation of traffic lights" (*ibid.*: 13). In 1960 the Metropolitan police erected two pan-tilt and zoom cameras in Trafalgar Square to monitor the crowds during a State Visit to

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Parliament and, although this was a temporary installation, it was re-erected later that year to monitor the revellers on Guy Fawkes night (*ibid.*: 4). By 1969, "14 different forces were using CCTV, a total of just 67 cameras nationally" (*ibid.*: 17). However, with the video recorder becoming commercially available during the 1960s, the early growth of CCTV was largely confined to the retail sector and by 1967, one company, Photoscan, was actively marketing CCTV to deter and apprehend shoplifters. (McCahill and Norris, 2002)

For the next two decades CCTV gradually became a routine feature of security for the retail sector, and there was limited diffusion in other areas, such as the London Underground, which in 1975 installed cameras on the Northern Line in an effort to prevent assaults on staff and combat robbery. In the same year, 145 cameras were introduced to monitor traffic flow in central London streets. During the 1970s and early 1980s police use of CCTV remained limited and focussed on marginal groups such as football hooligans and political demonstrators (McCahill and Norris, 2002).

It was not until 1985 that the first large-scale public space surveillance system was erected in Bournemouth. Although the rather genteel seaside town was perhaps an unlikely candidate for the initiative, the town was hosting the annual Conservative Party Conference. The previous year's conference was marked by an attempt by the IRA to assassinate the Prime Minster and her Cabinet, by bombing the conference hotel. The explosion, while leaving Mrs Thatcher unscathed, killed five people and injured many more. As a result, additional security was provided to the conference venue by introducing CCTV along the sea front.[4]

However, rather than marking the beginning of a new trend, this seems to have been a singular event and, while the gradual diffusion of CCTV continued in the retail and transport sectors, by 1991 in the UK there were no more than ten cities with open street systems in operation. What characterised these systems was that they were small scale, locally funded and set up as the result of individual entrepreneurship, often on the part of a local police officer (Ditton and Short, 1998). It is possible that the diffusion of CCTV would have continued in this gradual manner, but in 1993, the fuzzy CCTV images of toddler Jamie Bulger being led away from a Merseyside shopping mall by his two ten-year old killers placed CCTV in the spotlight. These images were replayed night after night on the national news, achieving an iconic status in the subsequent moral panic about youth crime. While CCTV had not managed to prevent the killing, the ghostly images at least held out the prospect that the culprits would be caught (Smith, 1994).

In the context of public anxiety fuelled by the Bulger tragedy and spiralling increases in recorded crime, the then Home Secretary, Michael Howard, announced a 'City Challenge Competition' to allocate £2 million of central government money for open street CCTV. To qualify, local partnerships would have to demonstrate matched funding from other sources, particularly business contributions. The Home Office was overwhelmed by applications, bids for 480 schemes were received and although the Government contribution increased to £5 million, only 106 were funded.

4. We are grateful to Eric Töpfer for pointing this out to us. We would also like to thank Laurie Nicholls, Nigel Norris, and Dean Wilson for their help along the way.

In response to the huge demand, the Government announced three further 'City Challenge Competitions' between 1995 and 1998. In total they secured £85 million for the capital funding of CCTV systems, £31 million from central government and £54 million from partnerships. This included contributions, not just from local business but also from local authority budgets and European regeneration grants. In total, some 580 schemes were funded. By the mid 1990s CCTV dominated the Government's crime prevention programme, accounting for over three-quarters of its budget. (Welsh and Farrington, 2004: 500).

In 1997 the Conservatives lost the election, and the new Labour administration, while honouring existing commitments under the City Challenge Competition, was initially constrained from investing further in CCTV by its manifesto commitment of budgetary restraint (Labour Party, 1997). This meant that all government departments had to stay within the spending plans approved by the outgoing Government for their first two years in office. However, in 1999, as part of its ambitious crime reduction programme, the Labour government set aside £153 million to support the expansion of CCTV throughout England and Wales and a further £17 million for Scotland. Again the money was to be allocated by competition, although the partnership funding requirements were dropped. In the first round of the competition 750 bids were received and by November 2000 some 339 schemes had been awarded funding totalling £59 million. The second round of the competition resulted in bids for over 800 schemes. Again the demand was high, and a total of £79 million was awarded to the 108 successful schemes (Home Office, 2004).

Given that there was also substantial government investment in CCTV surveillance of schools, hospitals and transport facilities (see: McCahill and Norris, 2003) it is not unreasonable to estimate that in the last 10 years around £250 million of public money has been spent on CCTV in the UK. However, this represents only a small fraction of total spending. The industry statistics for CCTV sales during the early part of the 1990s estimate the total value of the UK CCTV market at around £100 million annually and this had risen to £361 million in 1998 (Evans 1998; Keynote, 2003: 8). By 2002, market analysts were reporting year on year growth of 14-18% for the previous decade (see: Security Installer, 2001; 2002). This means that the sales value of the UK CCTV market had increased to £1011 million by 2003 (Security Installer 2004). Given the maturity of the UK market more recent forecasts have predicted a slowing down of rate of growth to 8 percent a year, with analysts MBD suggesting that by 2008 the market will be worth around £1.1 Billion per annum (see Security Installer, 2004). On the basis of these figures during the decade 1994-2004 we would estimate that around £4-5 Billion has been spent on the installation of CCTV and maintenance of CCTV systems in the UK, and this excludes the monitoring costs associated with these systems.

How many cameras this translates to is impossible to accurately measure, although in 1999 Norris and Armstrong estimated that, in an urban environment, on a busy day, a person could have their image captured by over 300 cameras on thirty separate CCTV systems (1999: Ch.3). More recently Norris and McCahill 'guestimated' on the basis of a survey in one London borough that there may be as many as 4.2 million cameras in the UK or 1 for every 14 of the population. (McCahill and Norris, 2003)

Europe

In Europe, the proliferation of cameras in public and semi-public space has been well documented by the Urbaneye Project (Hempel and Töpfer, 2004). In their study of six European capitals they found that CCTV is now common in publicly accessible space such as shops, banks, restaurants, bars, transport termini etc. Across Europe, 29% of such publicly accessible institutions used some form of video surveillance although, as Table 1 shows, the proliferation is uneven. The Urbaneye data suggests that, in London, 40% of publicly accessible spaces were monitored by surveillance cameras, compared with only 18% in Vienna.

While these figures indicate the general diffusion of CCTV throughout European society, they hide important differences between public and private space surveillance. The Urbaneye data shows that in 2003 in Denmark and Austria there were no open street systems, there was only one in Norway (consisting of six cameras), at least 14 systems in Budapest alone and 15 in Germany. In the UK there were over 500. Thus, while in the UK there are over 40,000 open street CCTV cameras monitoring public space there are probably fewer than 1000 across the other European countries included in the survey (Urbaneye, 2004).

City	% of institutions with cameras in publicly accessible space	Country	No. of open street systems in public space
London	40	UK	Over 500
Oslo	39	Norway	1
Copenhagen	33	Denmark	None
Budapest	28	Hungry	Over 14 in Budapest alone
Berlin	21	Germany	15
Vienna	18	Austria	None

Table 1: ***Percentage of publicly accessible space under CCTV surveillance in six European capitals and number of open street systems in each country***
Source: Urbaneye, 2004: 27-34

The Urbaneye data suggest a rather limited diffusion outside of the UK. However, in other European countries not included in the Urbaneye survey, there has been a sustained growth in open street CCTV. In France, after the laws were relaxed governing public space surveillance in 1995, there has been a rapid deployment of CCTV in public space: "between 1997 and 1999 more than 200 French cities received the approval for the installation of CCTV in high risk locations and 259 for the protection of public buildings such as town halls, public libraries, schools and museums" (Hempel and Töpfer, 2002: 10). Similarly in the Netherlands the first cameras were used in public space in 1997, and "only six years later in January 2003 more than 80 of the country's 550 municipalities were using CCTV in public places" (Flight *et al.*, 2003: 93). In the Republic of Ireland, the first CCTV system was installed in Dublin in the mid 1990s, and expanded in 1997. The Minster for Justice recently announced a major expansion of open street CCTV throughout the country with plans to extend to 21 different areas (McDowell 2004). In Italy, "22 of the 33 sports premises with a capacity over 20,000 spectators are equipped with video-surveillance systems" (Council of Europe, 2002: para.5.1), and in response to rising anxieties about crime, the Ministry of the Interior has installed CCTV in the 'most

sensitive areas' of 50 Italian cities. (Calabria, 2003)

The USA

In the USA, the first national survey of CCTV carried out in 1997, "found that only 13 city police departments in the country used CCTV video surveillance systems, primarily to monitor pedestrian traffic in downtown and residential districts" (Nieto *et al.*, 2002). By 2001 some 25 US cities were using CCTV to monitor public areas; these ranged from small systems such as the Balboa Park CCTV System in San Diego with its five cameras monitoring the Mall and Museum area, to much larger systems like Washington DC which, has "established the most extensive public CCTV surveillance system in the country, linking hundreds of cameras that monitor mass transit stations, monuments and schools with new digital cameras that watch over streets, shopping areas and neighborhoods" (Nieto *et al.*, 2002: 14). However, although this might suggest the US has been relatively slow to take up CCTV technologies, like Europe the predominant growth has been in the private sector. As early as 1996 Hallberg's nationwide survey of US business expenditure discovered that 75% of businesses used CCTV (cited in Slobogin, 2002: 221-221).

Although there is little data on how open street CCTV has spread since 9/11, Nieto *et al.* argue that:

> Technological advances, declining costs, and heightened security concerns following the September 11, 2001, terrorist attacks have led to rapid diffusion of both CCTV surveillance and biometric technologies. For example, CCTV video surveillance is widely used in public schools to monitor student movement and detect illegal activity, and at street intersections to catch cars running red lights. (Nieto *et al.*, 2002: 5)

The International Association of Police Chiefs' survey (IACP, 2001) found that eighty percent of law enforcement agencies in the US already utilised CCTV in some form or other. Many American police forces had equipped their mobile units with CCTV to monitor arrest and detention procedures and others had installed it in courtrooms and other government buildings. But over half the responding agencies also used CCTV in 'high crime areas': 25% on the 'streets', 15% in 'parks' and just over 10% in 'public housing schemes' (IACP 2001: 6). Even before 9/11 the IACP survey was predicting that CCTV surveillance was set to grow dramatically in the US:

Most cities and counties throughout the US are considering using closed circuit television to give troubled down-town business districts a new lease of life, help public housing communities reduce destructive criminal elements, increase safety in public parks monitor traffic congestion and catch red light violators (IACP, 2001: 13)

After 9/11 it seems likely that many more cities will follow the city of Chicago's lead which, in September 2004, announced plans to install more than 2,000 surveillance cameras in public

places (Hunter, 2004).

These developments are reflected in the figures for the value and size of the US CCTV market. In the US, growth has been accelerating since the early 1990s with annual revenues from the sale of video surveillance cameras more than tripling from $282 million in 1990 to more than $1 billion in 2000. As Nieto *et al*. reported:

> Since 1997, the sale of CCTV surveillance equipment has surpassed the sales of burglar and fire alarm systems. (…) The Security Industry Association forecast that sales could grow to over $1.6 billion by the end of 2001 … After the terrorist attacks on New York and Washington D.C., some industry officials predicted that the sale of CCTV surveillance cameras in the U.S. could soar to nearly $5.7 billion by the end of 2001. (Nieto *et al.*, 2002: 32-33)

According to Laurin (2002) this surge did indeed take place with annual sales estimated to have reached 2 million cameras by early 2002.

Australia, New Zealand and South Africa

Sutton and Wilson, in their review of CCTV in Australia, report that the number of cities with open street CCTV systems had increased from 13 in 1996 to 33 in 2002 (Wilson and Sutton, 2003b: 1) and in New Zealand they reported that 9 cities had installed open street CCTV and 3 others were planning to do so (Sutton and Wilson, 200b: 22). CCTV is also used extensively on the Australian public transport system. In New South Wales the state railway has 5500 cameras in operation at over 300 stations, the state bus company has cameras on all its 1900 buses and around three-quarters of taxis are fitted with CCTV (ARTD, 2001: section 2.2).

In South Africa, CCTV is used in almost all "commercial venues such as hotels, casinos, banks, retail stores, airports, financial institutions (but not at ATMs), mines, garages, hospitals and shopping centers" (Van Rensburg, 2001). In March 2004 the South African Railway Commuter Corporation announced a 200 million Rand plan to introduce four CCTV cameras in each of its 4,500 train carriages. The move was prompted after the high profile murder of a passenger. The cameras will be linked to monitors housed at each station in the network (Kassiem, 2004). Cape Town had already installed 72 open street cameras by 2000 and planned a 100 million Rand ten-year expansion programme to extend the cameras citywide. (Damon, 2003; Smith, 2000)

Other cities have also introduced open-street systems, as Wilson and Sutton reported:

> Camera systems also have been established in Port Elizabeth, Cape Town and Johannesburg (…) In Johannesburg a 15-camera system was established in April 2000, with joint Provincial Government and City Council funding. By December 2001 it had expanded to 90 cameras with predictions of growth to 360 by 2003, making this 'the largest surveillance system in Africa'(2003b:22).

China and Japan

In China the implementation of the Golden Shield Project to create a national surveillance infrastructure, is leading to the deployment of video surveillance cameras on an unprecedented scale. Walton reports that the project was launched:

> to promote "the adoption of advanced information and communication technology to strengthen central police control, responsiveness, and crime combating capacity, so as to improve the efficiency and effectiveness of police work." China's security apparatus announced an ambitious plan: to build a nationwide digital surveillance network, linking national, regional and local security agencies with a panoptic web of surveillance. Beijing envisions the Golden Shield as a database-driven remote surveillance system – offering immediate access to records on every citizen in China, while linking to vast networks of cameras designed to increase police efficiency (Walton, 2001).

The effects of this policy are now starting to be seen in cities across China. In July 2004 the Hangzhou Public Security Bureau announced plans to install over 1000 observation posts through the city, each equipped with CCTV security cameras. According to one newspaper report: "Particular attention will be paid to large malls, squares, theatres, entertainment venues, transportation stations, hotels and places not yet in good order" (China Daily, 2004). Officials stated that the scheme was prompted by growing concerns over street crime and the first six hundred observation posts were expected to cost $12 million (*ibid.*). Similarly, in August 2004, Shanghai city authorities revealed plans to extend the existing small scale network of cameras so that according to one report: "By 2010, China's bustling financial centre of Shanghai will have more than 200,000 CCTV cameras installed throughout the city to deter crime and maintain social order" (Straits Times, 2004).

In Japan although public street systems are not widespread 50 surveillance cameras were installed throughout the Kabukicho adult-entertainment district in Tokyo in 2002 and a twenty-four camera system in the governmental district of Tokyo (Schreiber, 2004). According to one commentator, in the wake of a sharp increase in recorded crime, the prospect of system proliferation seems high (Matsubara, 2004).

The Middle East

Middle Eastern countries are reported to be "investing heavily in CCTV not only to protect against aggression from terrorists but also to protect their commercial establishments" (Keynote, 2003: 51). In the Iranian capital Tehran, a city-wide network of cameras has been created, with each local police station receiving images from the six or more cameras in their local area. In addition there is a centralised control capable of receiving images from the entire network as well as images from the traffic control systems. As the CCTV company responsible for installing the system proudly announced there were plans to extent the network to:

> cover the rest of the police stations in Iran outside Teheran – a further 50, to be installed throughout a country that is three times the size of Great Britain. A system that is already probably the biggest police system in the world will shortly more than double in size! (Norbain, no date).

In Israel, CCTV is widely deployed at key strategic locations vulnerable to car and suicide bombers. For instance, the Israeli parliament has extensive video surveillance including automatic tracking capabilities to protect perimeter security and at Ben Gurion Airport in Tel Aviv, CCTV is extensively used for access control (ioImage, 2003; Morgenstern, 2003).

Russia and Eastern Europe

Although covert CCTV was certainly used by some security services of the former communist bloc countries (Norris and Armstrong, 1999: 23), there is little data on how this has developed since the fall of the Berlin Wall. However, the latest Frost and Sullivan market report sees the region as a major growth area for Security products in general and CCTV in particular:

> Prospects are positive for providers of CCTV, fire detection, access control and intruder alarm systems, with the total market expected to grow from $853 million in 2003 to $2126 million in 2010. Poland and the Czech Republic, together with Slovakia, are the biggest markets currently, followed by Russia and Hungary.
>
> (cited in Security Installer, 2004c)

For instance, in Prague, the capital of the Czech Republic, two hundred cameras are reported to be deployed in the city centre streets and have recently been linked to an automatic facial recognition system (Mate, 2004). Similarly, in Russia more than seventy covert surveillance cameras are installed in Moscow Central station, and there were plans to extend the scheme to other stations (Radio Free Europe, 2001). In 2004 the Moscow Subway system announced that they were to install CCTV cameras in all 4221 carriages of the subway trains (Radio Free Europe, 2004). In the immediate aftermath of the Ossetia School Hostage tragedy, in which over three hundred people died and 700 were injured, the Russian Ministry of Education and Science bid for an extra $1 billion to provide additional security measures for schools. The money will finance the cost of alarms, fencing and the installation of security cameras (Moscow News, 2004).

India and Pakistan

In India, while there appear to be few open street systems, a recent report in the Times of India noted the use of CCTV in schools, kindergartens, supermarkets and retail stores in the provincial city of Chandigarh (Times of India, 2002a). CCTV usage is also set to increase in the banking sector as the New Delhi police urged all the city's banks to install CCTV in an effort to combat a series of robberies. (Times of India, 2004) The New Delhi Police also announced that it had

installed 42 CCTV cameras at various police stations in the city, not for the purpose of watching over the citizenry, but explicitly to monitor the behaviour of junior police officers (Times of India, 2003b).

However, it is in the transport sector that CCTV seems to be growing most rapidly. In 2003 the state owned road transport corporation announced plans to introduce CCTV in two major bus depots in order to combat pick-pocketing (Times of India, 2003a), while the Bangalore Railway Police have installed 40 cameras in the central station with plans to extend the deployment to other stations in the State. Prompted by 9/11 and fears of domestic terrorism, CCTV surveillance has recently been instigated in at least five of the country's airports (Times of India, 2002b).

In Pakistan, the Sindh police have already installed 15 covert surveillance cameras at strategic locations around the city of Karachi and a further 40 sites are to be covered in the near future. A police official stated that the cameras would be used to "monitor activities of anti-social elements that could lead to violence" (Daily Times, 2004). This move follows an initative a year earlier to install 100 traffic cameras at the busiest road junctions in the city in an effort to catch speeding motorists and others guilty of traffic violations. (Dawn, 2003)

Discussion

There has clearly been an expansion of CCTV surveillance around the world, especially in private sector surveillance, and there appears now to be an accelerating diffusion into the public realm. The globalised trends of late modernity have accelerated this growth. Increasing urbanisation has exacerbated the trend towards anonymity, leading to concerns over establishing and verifying identity. Increasing mobility, both locally and internationally, have given rise to a global 'stranger society', where social control and governance based on intimacy and face-to-face knowledge are increasingly less viable. Risk management has also become the dominant mode of reasoning for both international corporations and governments alike. In the realm of criminal justice, reformist ideals have given way to more modest preventative responses that focus on 'opportunity reduction', 'situational prevention' and 'risk management', and CCTV can be seen as part of the trend towards a New Penology based on actuarialism (c.f.: Feely and Simon, 1994).

However, given that these trends are indeed global it is interesting to ask two questions. First why did CCTV surveillance, particularly of the public realm expanded so rapidly in Britain compared to other countries? Second, will the level of CCTV surveillance found in the UK soon be reached internationally or does the expansion of CCTV in the UK represent a peculiarly British phenomenon: a deviant case, which can tell us little about the development of CCTV in other national and regional contexts? To try and answer these questions it is necessary to characterise the trends in the global diffusion of CCTV.

From the above account of the worldwide growth of CCTV surveillance there appears to be a general trend amid the messy complexity of different countries' experiences. The trend is of a four-stage diffusion.

Stage One

Private diffusion: CCTV first makes its mark in the private sector, particularly in banks and the retail sector, largely as a means to deter theft and fraud and to oversee the semi-public space of the retail mall. Such systems tend to be small and relatively unsophisticated, consisting of fixed cameras and simple time-lapse recording and there is often no continuous monitoring of the cameras by dedicated staff. Even in the UK this typifies many of the system found in the retail and commercial sectors. McCahill and Norris's survey of CCTV in one London borough found that 76% of institutions had fixed cameras only, over three-quarters had no dedicated monitoring staff, only 3% could relay the pictures to outside institutions such as the police, and only 3% used automatic detection technology (McCahill and Norris, 2003:61).

Stage Two

Institutional diffusion in the public realm: We then see the diffusion of CCTV into key institutional areas of the public infrastructure, particularly transportation facilities, but also schools, government buildings and areas of local symbolic importance. Outside of the transport sector, many of these systems are technologically simple, with fixed cameras, and limited tracking capabilities facilitated by pan-tilt and zoom cameras. Many have no dedicated personnel continuously monitoring the system.

Stage Three

Limited Diffusion in public space: CCTV then migrates into the fully public space of town centres and city streets justified primarily in terms of its capacity to deter and detect crime. These systems are funded from the public purse and are generally run by city authorities or local police. They often begin as small-scale systems, focussed on particular local problems in the central business and leisure areas of the city. They vary in technological and organisation sophistication, ranging from systems with fixed cameras, which are not continuously monitored to more sophisticated systems, with a large number of fully-functional pan tilt and zoom cameras with the potential for real time recording of the images, feeding a centralised control room, staffed with dedicated monitoring personnel who have communication links to security or police personal and can be mobilised to deal with specific incidents.

Stage Four

Towards ubiquity: the final stage heralds the creation of much larger systems, with hundreds of cameras providing blanket coverage of whole areas of a city. There is also a tendency towards large-scale system integration, with pre-existing smaller systems, both public and private, being linked together to one central monitoring station. These systems can provide a whole range of ancillary functions such as traffic control, building and access control and, increasingly, use digital technologies to enable face or automatic licence plate recognition systems linked to computerised databases held at the local or national level (see: Norris, 2003). The unique system in Washington DC typifies this emerging trend as Slobogin explains:

> Hundreds of government cameras are trained on streets, subways, school hallways, and federal facilities, in a project that 'makes Washington the first US city to be able to peer across wide stretches of the city and to create a digital record of images'. State-of-the art cameras allow operators to take advantage of 'satellite-based optics' that enable them to see in the dark, capture words on a printed page from hundreds of feet away, and peer into buildings. Only a few private cameras have been added into the mix at this point, but the head of the project states 'I don't think there's really a limit on the feeds [the system] can take,' further, he wants 'to build…. the capability to tap into not only video but databases and systems across the region', and eventually moving into any number of schools, businesses and neighborhoods. All of this is to be accomplished through a $7.000,000 central control facility, which can then relay the feeds to nearly 1000 squad cars. (Slobgobin, 2002: 219-220)

And this is the trend that characterises the current development in the UK. In Sheffield for example, the Sheffield Wide Image Switching System, or SWISS, which was launched in 2003, has a control room staffed 24 hours a day and can now control around 150 publicly funded cameras covering the city centre streets. However SWISS has also integrated other public and privately owned camera systems including those of an out-of-town shopping mall, tram system and university (Sheffield City Council, 2003). In the most recent development, digital technology is allowing still images from any of the SWISS cameras to be broadcast to police officers on the street via a hand held computer (Security Installer, 2004d). In Leeds, the 130 camera system monitoring the city centre has recently been augmented by a so called 'ring of steel' which consists of a network of 'super cameras' which will automatically record the licence plate of every vehicle entering the city and check it against various police held data bases of stolen cars. According to one report:

> The £120,000 system sounds a warning when it picks up stolen cars, people with an arrest warrant against them, and other troublemakers listed on the Police National Computer (Leeds Today, 2004).

It would be tempting to call this a four-stage evolution, but that would be too deterministic, suggesting that there is an inevitability of progression. Rather we would argue the extent to which a particular country or region will progress from one stage to another will depend on the complex interplay of four factors: the socio-economic, the legal, the fiscal and the political. In our view it is the way in which these inter-related factors played out in the UK that accounts for the exponential growth in CCTV.

The Socio-Economic Context

The impact of the aggressive politics of deregulation pursued by successive Conservative governments from 1979 onwards, coupled with the economic recession of the early 1990s combined to produce a crisis in British city centres. Deregulation had led to an exodus of retail businesses from the city centres to the out of town retail parks and shopping malls and the 40%

decline in High street spending was forcing many high street concerns to shut up shop (Cahill, 1994: Ch.5). In this context, city authorities and the local businesses that still had a stake in the town centres and high streets were keen to find ways to make their cities more attractive to consumers and inward investors (Reeve, 1996: 9). CCTV became part of the package to revitalise the city centres by mimicking the security measures found in the malls and could be used to monitor and regulate an increasingly visible underclass largely created and sustained by government policy.

It is the destabilising effects of transformation and restructuring which heighten perceptions of risk and create more visible social polarisation. This in turn facilitates a climate receptive to increased levels of surveillance especially if it promises increased security. Thus it is perhaps not surprising that, as the Urbaneye review found, CCTV was most widespread in Hungary and the UK. Both have experienced substantial dislocation untypical of other western European states: Britain under Thatcherism and Hungary with the collapse of the Soviet Bloc (Urbaneye, 2004). And perhaps this helps explain why CCTV appears to be growing at an exponential rate in China, which is undergoing a radical programme of economic liberalisation, and in South Africa, which is restructuring after the collapse of the apartheid regime. In contrast, countries which have had relatively, stable welfarist-orientated government such as Norway, Sweden, Germany and Austria, have seen very limited proliferation of open street cameras.

The Legal Context

In Britain, the legal context was, and still is, extremely permissive. This remains the fact even though CCTV now explicitly falls under the auspices of the Data Protection Act 1998. In Britain with no written constitution and, until the incorporation of the Human Rights act into British Law, no statutory provision for the protection of privacy, there was simply no legal or constitutional basis that would either inhibit potential system developers or give detractors of CCTV a weapon to challenge its deployment (see: Sharpe, 1989; Taylor, 2003). And as Gras and Gallagher argue (in this volume), both the new Data Protection and Human Rights Acts have been toothless to prevent the expansion of CCTV and very weak at regulating it once in place.

It is clear that one of the key factors which has limited the growth of open street CCTV, but not the growth of systems in private and semi-public space, in a number of countries is the legal/constitutional environment. In Germany, for instance, the Constitutional Court has declared that "the knowledge of being under surveillance, why and by whom is crucial for a democratic society and the autonomy of its citizens" (Töpfer, Hempel and Cameron, 2003: 6).

Similarly, in Denmark there is a general legal presumption against the surveillance of public space by private bodies, and explicit regulation of the use of photography by the police. In Norway, where privacy rights are constitutionally enshrined, there is a strong data protection regime that has explicitly concerned itself with regulating CCTV through a licensing requirement (see: Wiecek and Saetnan, 2002: 11ff). In Canada, the Supreme Court declared in 1990 that to "permit unrestricted video surveillance by agents of the state would seriously diminish the degree of privacy we can reasonably expect to enjoy in a free society" (cited in Deisman, 2003: 18).

This ruling gave rise to the challenge by the former Privacy Commissioner of Canada, that continuous and indiscriminate monitoring (i.e.: that which is not based on probable cause) breaches the Canadian Constitutional Charter as well as the United Nation's Universal Declaration of Human Right, and the International Covenant of Civil and Political Rights (Deisman, 2003: 18).

Again, in the United States, while the use of CCTV has grown rapidly in private spaces, until recently public space surveillance has been relatively limited and, although according to Nieto (1997) in the opinion of most legal scholars, the continuous video surveillance of public areas does not present significant legal obstacles, the Constitution may still provide a resource for those who wish to challenge its use. (see: Slobogin, 2002).

In countries where there are weak constitutional guarantees of privacy, and where data protection regimes are limited in scope and application, such as in Hungry (Molnar, 2003) and UK (Taylor, 2002), or in countries with weak traditions of respecting human rights, such as China (Walton, 2001) then CCTV in public space can flourish more easily. However, it has to be remembered that the law is not immutable, and in times of perceived crisis, laws relating to civil liberties are particularly vulnerable to amendment. This was the case in France in 1995, when, amidst fears of urban unrest and terrorist attack (Anon, 1994), the laws governing surveillance in public places were significantly relaxed, and in the US with the passing of the Patriot Act in the wake of 9/11 (Nieto *et al.*, 2002).

The Fiscal Context

In the UK, the involvement of the central government in committing over a quarter of a billion pounds to facilitate the deployment of open street CCTV has been absolutely central to its exponential growth. It was not just the amount of funding that was significant, but the manner in which it was allocated. By utilising a competitive bidding process to determine which schemes should be funded, central government stimulated demand beyond that which could be funded. For the partnerships of police, local business elites and local authorities the work undertaken to enter a bid created a powerful alliance committed to the installation of CCTV, regardless of the outcome of the competitive process. Many of those who were not successful either found alternative funding strategies or lobbied for another round of competitions.

The proliferation of open-street CCTV to the level found in Britain requires a massive financial commitment from government authorities at the national and local level. It appears that until recently this commitment was largely absent outside the UK. Governments around the world were only prepared to invest in small-scale targeted schemes aimed at specific local problems. This view was perhaps best captured by the 1997 report from the Law Commission of New South Wales:

> Although the commission is not itself engaged in evaluating the efficacy of CCTV, it notes that there is little evidence from which to conclude that the enormous expense of establishing such a system will, of itself, provide local

> authorities with the panacea to crime and antisocial behaviour. (Law Reform Commission, 1997: 34)

However, the events of 9/11 have had a huge impact on the willingness of governments to spend money on security:

> Governments and other public authorities have also increased their overall spending on security in some cases quite substantially, The US Homeland Security Budget doubled from fiscal 2002/3 to it current level of well over USD 30 billion: funding for aviation security is now running at USD 4.8 Billion and for border security USD 10.6 Billion (Stevens, 2004: 13)

Thus the increasing threat of worldwide terrorism and more localised anxieties around crime and disorder have fundamentally shifted the terrain. And the CCTV industry has been one of the primary beneficiaries of this shift. In particular, there appears to be a consistent global trend to deploy CCTV at key sites of the transport infrastructure. Not only do transportation facilities associated with international borders such as airports, sea ports and major rail termini use CCTV as a deterrent against terrorist attack but also to monitor every passenger who makes an international journey (Adey, 2004).

The Political Context

The political appeal of CCTV had less to do with CCTV's proven effectiveness in reducing crime and far more to do with its symbolic value that something was being done about the problem of crime. In Britain, in the early 1990s, the mass expansion of state funded CCTV occurred prior to any systematic evaluation as to its effectiveness for preventing and detecting crime. Instead, politicians relied on the self-interested claims of practitioners and system promoters (Pawson and Tilley, 1994). While there were a number of small scale evaluations conducted during the 1990s, the results of these studies came up with mixed and often contradictory findings (see: Coleman and Norris, 2000; Phillips, 1999). The only major evaluation conducted in the UK was funded by the Scottish Office, and the results of this evaluation were equally equivocal. As Ditton and Short note:

> Put at its starkest, after the installation of open-street CCTV in Airdrie, recorded crimes and offences fell to 79% of their previous recorded levels, and detections rose from 50 to 58%. Conversely after the installation of open street CCTV in Glasgow, recorded crimes and offences rose to 109% of their previously recorded levels, and detections fell from 64% to 60%.
>
> (Ditton and Short, 1999: 212)

It was only after the commitment to spend another £170 million by the Labour administration in 1999 that the Home Office funded a large-scale systematic evaluation. The results of this study are due to be published in 2005 some ten years after the widespread public funding of CCTV systems. As Armitage (2002: 6) argues, since there was "very little substantive research

evidence to suggest that CCTV worked", we have to look to other reasons to explain the explosive growth of CCTV surveillance; and these include the common sense notion that it must work, its popularity with the public, the Government's need to be seen to be doing something about crime and the publicity surrounding CCTV in high profile cases. This view is echoed by David MacKay the former manager of the Glasgow CCTV scheme:

> The development of town centre CCTV systems has been driven by the availability of central government and other funding and a coalescing of local interests, not by any bonafide crime prevention interest.
>
> (MacKay, 2002, cited in Griffiths, 2003: 46).

In their meta-analysis of 22 British and American evaluations which met their minimum requirements of scientific adequacy, Welsh and Farrington conclude "that CCTV had a significant desirable effect on crime, although the overall reduction in crime was a rather small 4%" (2003: 42-43). While this may be seen as a partial endorsement of CCTV, it is important to note that only half of the studies included showed a positive effect with the other half showing either negative or no effects. Moreover, CCTV had little or no effect on crime in public transport and city centre settings. The only statistically significant results were to be found in car parks. As the authors of this Home Office funded study note caustically in a different report:

> That substantial funding was poured into CCTV schemes on the basis of questionable research while an effective alternative in the form of improvements to street lighting –supported by high quality research- was widely known, raises serious questions about the use of pubic resources to prevent crime in Britain.
>
> (Welsh and Farrington 2004:500)

But this absence of evaluation seems not just to be a British malady. As Nieto *et al.* noted in 2002 regarding the USA:

> In general, we find that there have been very few studies of the effectiveness of the CCTV surveillance systems. Crime related statistical data are not required for use of federal grant funds, nor is there a requirement that all grantees report incidents of crime occurring where the cameras are located. Despite their increasing use, there is limited evidence that CCTV camera surveillance programs are successful crime-prevention tools (Nieto *et al.*, 2002: 13).

Four years later the international Association of Chiefs of Police in their survey of American Police forces reported that:

> Agencies were asked if they had measurement systems to evaluate CCTV's effectiveness in reducing crime. Ninety six percent of respondents do not incorporate measurement systems of any kind. Of the eight agencies using formal measurement systems, three said CCTV had a great effect on crime, four said it was moderate and one said it had a marginal effect on crime.
>
> (IACP, 200: 3)

In Australia the story is similar, as the 2001 ARTD report made clear:

> Few council owned CCTV schemes in Australia have been systematically evaluated to date, although some are in the process of doing so … The cities of Sydney and Melbourne schemes have been evaluated but findings are not publicly available (ARTD, 2001: 34)

Two years later Wilson and Sutton reported that:

> To date only two evaluations of open-street CCTV are publicly available in Australia: one of Fairfield, NSW and one of Devonport. However in both cases insufficient pre-installation data was available to assess the impact of CCTV on offending. (Wilson and Sutton, 2003a: 2)

It would appear that the global rush to install CCTV in public spaces has also been carried out with little systematic attention to the issue of evaluation. But it is the symbolic value of CCTV that is perhaps most important. In Britain at least, CCTV was a populist measure designed to send a message to the public that the Government was doing something about the crime problem at a time when, as Garland has argued, there was widespread disillusion with the welfarist criminal justice policies of the previous decades (Garland, 2002). This was reflected in the language of politicians who claimed that CCTV was a 'friendly eye in the sky' that would 'put criminals on the run'. Moreover, unlike other crime control measures, which take place away from the public gaze in prisons, drug rehabilitation centres and young offender institutions, the deployment of CCTV cameras was highly visible. The cameras were there on the streets for all to see and the public were constantly reminded of their presence by a local media hungry for a 'good news story' which could be dramatically visualised through the use of recorded images from the CCTV footage (McCahill, 2003).

The extent to which increases in public expenditure on new crime control strategies are linked to independent evidence of effectiveness in different national contexts will also influence the rate of deployment of CCTV in public space. Where, because of different political cultures, there is a stronger link between policy and evaluation, the deployment of CCTV is likely to be more cautious and limited. Thus, for instance, in Norway one of the reasons why we have may not have seen the widespread diffusion of open street systems is that Norway's first system was evaluated independently by researchers from the National Police Directorate and National Police Academy. Their evaluation report concluded:

> The Oslo Police force had great faith in CCTV when it was introduced. However, the evaluation could not document any straightforward strong effects on criminality, public order or feelings of safety
>
> (Winge and Knutsson, 2003: 138).

Conclusion

In our view, the available evidence suggests, that CCTV is set to become a global 'Fifth Utility' (Graham, 1998) and, although there will be different rates of growth in the use of open street CCTV, gradually it will become ubiquitous. In different countries, at various moments, crises, triggered by particular events such as, a child-kidnapping, a class-room murder, a terrorist outrage or rising concerns over crime, will lead to calls for the extension of video surveillance. For example, in the UK, the USA, and Russia, the response to school room killings has been the widespread introduction of CCTV in the public education system (McCahill and Norris, 2002: 13; Time Europe, 2004; Nieto, 1999). The extent to which such measures do anything to protect from further tragedies is questionable, but largely irrelevant. For politicians, there is a need to be seen to be doing something. And as the psychological, social or political conditions that give rise to such incidents are complex, and possibly intractable, technological fixes which promise the appearance, if not the reality of security are highly appealing. When such crises occur, funding will be made available, more sober judgements as to effectiveness and alternatives ignored, and legal restrictions and constitutional objections set aside, as it will be argued that the balance between civil liberties and security will have to be tilted in favour of security.

Introduction to the Issue

The origins of this special issue are tied up with the genesis of *Surveillance & Society* as a project. This journal originated in the UK Economic and Social Research Council's 1999-2000 interdisciplinary seminar series entitled 'Surveillance and Society', convened by Clive Norris, and more particularly in the discussions at the Conference in 2000 at the University of Hull, which concluded the series. In these discussions it was felt both that another conference should be held, possibly focusing more closely on CCTV, but at the same time endeavouring to widen the angle to European and global developments, and also to establish a serious academic journal of surveillance studies.

The synergy between the two projects was obvious: the networks built up in the seminar series formed the base for the journal, which then extended these networks, linking into others such as the European Commission's 'Urbaneye' project, many of whose participants are represented here. The conference, 'CCTV and Social Control: The Politics and Practice of Video-surveillance – European and Global Perspectives', was the first sponsored by *Surveillance & Society*, and was organised and hosted by the Centre for Criminological Research at the University of Sheffield between 8-9 January 2004. The journal would like to thank all those involved at Sheffield for their smooth organisation, which resulted in a very productive and exciting event.

It was agreed from the start that all papers from the conference would be considered for a special issue if the journal. As the conference was deliberately conceived of as an active event, with a high proportion of attendees delivering papers, there were a huge number of potential contributions. This double issue has therefore had to be selective in several ways: firstly through the self-selection of presenters who felt that their presentations were nor yet in any publishable

state and whose busy schedules would prevent their working up into that form; secondly through our usually thorough refereeing process – it is hoped that many of those that did not make it into this issue might be able to bring new versions forward for future issues; and finally, in one unusual case, a post-conference collaboration ensued between two authors whose papers were complimentary enough that it was felt that a joint paper would result in an even better final article.

The result is a diverse range of papers constituting what we hope is the state-of-the-art in research into CCTV in Europe. It is by no means comprehensive, of course, and one side-effect of the selection process is that we have unfortunately lost many of the extra-European views presented at the conference. *Surveillance & Society* fully intends to trace, analyse and challenge the global spread of surveillance in future special issues, particularly in the global south: video surveillance in particular tends to thought of as a function of advanced industrial societies, but as the evidence from Iran (above) shows, it is penetrating into all kinds of societies. As the Sheffield conference agreed, the complex interplay of local and regional culture and politics around surveillance technobgies in diverse cultures needs further investigation.

However *Surveillance & Society* is likely to be kept very busy in the years ahead. There are increasing numbers of subjects that the participants at Sheffield suggested warranted more research, including: the merging of CCTV with other technologies of categorisation and control like mobile computer and communications technologies and the Internet; the links between CCTV and medicine and new genetics; strategies of regulation and resistance; better methods of fulfilling the need for security and trust than technological surveillance; personal surveillance; issues of architecture and the built environment; the development of new institutional forms around surveillance ; military surveillance (and its links to civil forms); security and surveillance as a growing economic sub-sector; the processes of invention and production of surveillance systems, and of CCTV operators and other users; and many more.

The Structure of the Issue

Any attempt to divide and order such a diverse range of papers is somewhat artificial, but certain reasonably acceptable lines can be drawn. Accordingly, the papers here have been divided into 3 categories: *Conceptualising CCTV*, which contains papers whose main focus is on establishing the categories of thought necessary for the analysis of video surveillance; *Governance and Regulation*, whose contents focus on the implementation of CCTV in policy and legal terms; and *Case Studies*, which while they all consider conceptual and governance issues, emphasise the empirical through significant case-studies. It is not our intention to describe the pieces in detail; however we will briefly introduce each paper.

In Part 1, *Conceptualising CCTV*, there are five papers. First, Heather Cameron outlines the relationship between video surveillance and the social processes of individuation, or increasingly the creation what Giles Deleuze calls 'dividuals'. The next two papers both use examples from Switzerland to set up theoretical frameworks for analysis: Francisco Klauser divides video surveillance into two different intentional categories of 'protective' and 'preservative'; Christoph Müller and Daniel Boos create a contrasting 4-fold typology of access control, conduct control, registering evidence, and flow control. Finally there are two papers about how to view particular developments in video technologies: Lucas Introna and David Wood consider the technological

politics of digital facial recognition systems in video surveillance; and Hille Koskela looks at the complex personal and social changes involved in the relationships between people and the increasingly widespread personalised forms of video surveillance like webcams and mobile phones.

Part 2, *Governance and Regulation*, is strongly biased towards the UK situation. This, as we earlier demonstrated is entirely to be expected, given the UK's pioneering and still world-leading use of CCTV. However the section begins with Marianne Gras's overview of the varied legal regulation of CCTV across Europe. There follow four pieces taking different angles on the governance and regulation of CCTV in the UK: firstly, William Webster offers a comprehensive introduction; then, Pete Fussey considers the particular role of the New Labour government; Caoilfhionn Gallagher offers a detailed study of how the legal regulation (and wider institutional and media understanding) of CCTV in Britain remains massively unsatisfactory in terms of privacy and human rights; and finally, Roy Coleman traces the political economy of CCTV in operation on the streets of Liverpool and argues that both the operation and analysis of video surveillance remains insufficiently aware of class issues. The last paper in this section gives an important international comparison – that of Australia – from Adam Sutton and Dean Wilson, that takes in many of these aspects.

Part 3, *Case Studies*, covers a very wide range, not just in geographical terms, but also in thematic approaches. Of the local area studies, Frank Helten and Bernd Fischer consider the use of CCTV in the shopping malls of Berlin; Heidi Mork Lomell looks at the targeting practices of CCTV operators and police in Oslo; Emmanuel Martinais and Christophe Bétin's paper on Lyons and Gavin Smith's on CCTV control rooms in the UK provide fascinating parallel studies to this. Next, two papers taking contrasting approaches to studying CCTV: Ann Rudinow Sætnan, Heidi Mork Lomell and Carsten Wiecek consider the question of privacy in the context of their Scandinavian studies, on the other hand, Jean Ruegg, Valérie November and Francisco Klauser take a risk-management angle on their Swiss examples. Finally there are three very different papers offering alternative ways of looking at video surveillance: Mark Cole interrogates the phenomenon of signage related to CCTV that has resulted from the belated attempts at regulation in Britain; Vibeke Jørgensen examines the use of CCTV in the safety of children in nurseries in Denmark; and finally Dietmar Kammerer considers some important cultural responses to CCTV, in analysing the portrayal of video surveillance in mainstream Hollywood films.

The twenty papers presented here reflect both the continuing massive growth of CCTV as a socio-spatial phenomenon and the parallel growth in academic response. We hope they will add to public and policy debate on surveillance, in a climate in which critical questioning of the supposedly self-evident need for social control in response to a variety of more or less real threats is ever more necessary.

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