Xournals

Academic Journal of Forensic Sciences

ISSN: 2581-4273 | Volume 05 | Issue 02 | October-2022

Criminological Analysis of Visual Surveillance

Risika Das[1]

Available online at: www.xournals.com

Received 30th August 2021 | Revised 14th January 2022 | Accepted 09th September 2022

Abstract:

Despite the popularity of visual surveillance, evidence of its crime prevention capabilities is inconclusive. Research has primarily reported the "mixed effect" of visual surveillance technology without explaining this. The present study makes an attempt to contribute to the literature on visual surveillance in particular and surveillance technologies in general by testing three hypothesis – Visual surveillance does not affect personal security, there is a positive correlation between installing visual surveillance and the reduction of crime in an area and there is a positive correlation between the use of visual surveillance and intercepting criminals. The study begins with an examination of what constitutes contemporary visual culture and then goes on to explain its importance as well as the necessity for conceptual clarity in order to grasp the concept of visual surveillance. Various theoretical frameworks are elaborated to offer readers an understanding of what the researcher is talking about, such as rational choice theory and routine activities theory. Research methodology of statistics and descriptive analysis has been utilised to reach conclusive results about the relationship of visual surveillance, reduction of crime, and apprehension of criminals. The researcher has brought forward correlation and regression analysis to shed light on the facts of India's current surveillance scenario. The researcher has attempted to bring forward various ideas like the CSI effect and blind camera syndrome to the forefront of people's awareness in the study's conclusion. The conclusion drawn from the research has resulted in the understanding that visual surveillance technologies have no significance in society unless it is backed by other factors like solid laws, monitoring, data storage, placement of cameras, panning of cameras, and much more, for such technologies to yield the anticipated results.

Keywords: *Surveillance, CCTV, Security Management, Criminology.*

Authors:

1. *LNJN, National Institute of Criminology & Forensic Science, Delhi, INDIA*

Introduction

From the moment we get up and go to work or school until the moment we return to our homes, we watch television, visit all kinds of websites and social networks on our computer, laptop or even mobile phone, and are being watched by CCTV cameras. At the same time, we take the railway, shop or walk through the streets. We see all kinds of advertisements in newspapers and magazines and on billboards. Hence, we live through images. Not only do we consume these images, but increasingly we are producing these images **(Bekkers and Moody, 2014)**. We take photographs or make videos with our digital camera and mobile phone, put them on YouTube or send them to our friends with whom we Twitter. We create our website or blog. This omnipresent penetration of visual events in our daily life and work has been described in terms of an emerging visual culture.

The **Charter for a Democratic Use of Video-Surveillance**, **2010** summarises a useful overview of the issues at hand as well as a set of principles and measures to ensure that citizens' rights are protected when CCTV systems are used.

These are some of them:

- *Necessity*: The usage of camera systems must be scientifically justified, ideally by a third party. It is necessary to outline goals and expected outcomes.

- *Adequacy*: CCTV equipment must be proportionate to the problem it is meant to solve. "Technology should respond to specified objectives without going beyond them," says the report. Data should be safeguarded, and the amount of time it is kept should be explicitly defined.

- *Transparency*: Citizens should know what a CCTV system's goals are, how much it costs to build and operate, what areas are being surveyed, and what the outcomes are. Reports should be issued on a frequent basis so that citizens can make well-informed decisions.

- *Accountability:* Those in control of public CCTV systems, whether administered by the Government or private companies, should be identified and held accountable to the public.

- *Independent oversight*: A third party should be in charge of ensuring that systems respect the rights of the public and fulfil their stated goals. Citizens should, in theory, have a say in the oversight process.

Risk Society and Visual Surveillance

In a risk society, Ulrich Beck notes, experience and action in the present are not determined by the past but the future, by something "non-existent, invented, fictive". This is why risk society is "particularly negative and defensive" where "one is no longer concerned with obtaining something good, but rather with preventing the worst; and self-limitation is the goal which emerges". In a risk society, non-existent, future "bad" can emerge not merely from the deviant but anyone and everyone therefore concern over security displace the traditional focus on deviance and the labelling of deviants as outsiders. This produces a corresponding shift in emphasis towards developing a risk-profile knowledge of individuals to "ascertain and manage their place in institutions". Therefore, in a risk society, preventive strategies promote a "new mode of surveillance" that is no longer concerned with individuals but with flows of populations likely to produce risk.

As Ericson and Haggerty noted, Risk society is fuelled by surveillance, by the routine production of knowledge of populations useful for their administration. Surveillance provides biopower, the power to make biographical profiles of human populations to determine what is probable and possible for them.

Leading surveillance studies scholar David Lyon also notes that surveillance systems expand due to modern society's desire to reduce uncertainties and control outcomes. To manage risks or to "administer populations concerning risk." institutions, agencies and organisations keep track of individuals' daily activities not only as workers but also as consumers and citizens. In contemporary societies, surveillance is a "central means of social ordering or social orchestration" to classify, coordinate and control populations. It is the means of risk management and obtaining compliance, and containing threatening behaviour through knowledge about individuals. The idea of "governing at a distance" through surveillance and other risk management techniques can also be traced to the changing role of governments in the provision of public services.

Like other fields in crime control, governments find themselves compelled to cut down spending and ask the citizenry to take more responsibility to reduce crime, particularly by being cautious and avoiding risk and victimisation **(Lim *et al.*, 2013)**. They seek to "devolve responsibility for crime prevention onto

agencies, organisations and individuals which are quite outside the state and to persuade them to act appropriately" while making sure that they did not make their own decisions about risk management and act as local militia.

In light of these perspectives, it can be argued that in contemporary society, individuals are encouraged to monitor their behaviours, shun inappropriate, unwanted, unreasonable acts, and take responsibility for themselves, their loved ones and communities by using surveillance cameras or by giving consent to public/private entities that deploy cameras **(*www.cpni.gov.uk*, 2021)**. Therefore, through video surveillance, contemporary, neo-liberal society attempts to establish continuous, permanent, and effective governing of the populace at a distance **(Hallinan & Friedewald, 2012)**. In this sense, video surveillance resonates with a particular mode of governance that Foucault conceptualizes as govern mentality.

Summary and Conclusion

In the 150 most populous cities, CCTV surveillance was recently investigated by Surfshark, a VPN provider based in the British Virgin Islands. It discovered that Beijing had the most cameras: 1.15 million. With over 280,000 cameras, Chennai had the highest camera density: 657.28 cameras per square kilometre. With 300,000 and 429,000 cameras, Hyderabad and Delhi were rated second and ninth in-camera density.
However, crime in these cities, or any other Indian city, does not appear to have dropped **(Ashby, 2017)**.

The prevalence of CCTV cameras in 15 densely populated Indian cities has been compared to their crime index by Mint **(Khandekar, 2021).** The "crime index" of a city is a ranking of overall crime on a scale of one to one hundred, with the latter being the highest. Surfshark received the crime index from Numbeo.com, an online collection of user-contributed data.

Chennai and Kochi have comparable crime indices of 40.31 and 41.08, respectively. However, the density of CCTV cameras in the two cities is significantly different: 657.54 and 10.54 cameras per square kilometre, respectively. Thrissur and Jaipur have a comparable CCTV camera density of approximately 2.1 cameras per square kilometre. Despite this, the crime index is 23.17 and 34.58 **(Sangani, 2020)**.

Overall, India's crime rate increased by 1.6 per cent between 2018 and 2019, according to a report released in October by the National Crime Records Bureau. During this period, crimes against women climbed by 7.3 per cent. Analysis of the primary data gathered by the researcher points to the conclusion that there is no correlation and regression among the variables of visual surveillance, criminal apprehension, and personal security. However, it is not such an easy summation, for several factors determine the efficacy of these variables.

Frequently, public opinion lacks a firm factual foundation established on knowledge of current technologies. This can be attributed partly to the novelty of new surveillance technology, which means that the public has not had time to solidify references and create templates for comprehending function and consequence, and in part to the complexity of the technology's operation (knowledge and understanding of the technologies themselves are limited), as well as the environments in which the technology operates. This appears to result in operational assumptions and a distinct lack of conceptual clarity, to the point that diverse technologies, each addressing a unique set of concerns, are frequently mixed and confused in the public mind. Thus, despite widespread acceptance of the value of surveillance technologies in certain circumstances, there is equal widespread apprehension about their adoption and use. This is partially due to a lack of technological comprehension and an awareness that the growth and seeming deterministic usage of technologies may be spawning something eviler and potentially endangering core social norms.

To begin, there is doubt over the rationale, necessity, and targeting of much surveillance technology, as well as the logic by which it is said to accomplish its stated goals. Second, there is concern about the changes in power relations that technology may bring about, both in the short term, due to lack of transparency surrounding operations and operators, and in the long term, as a result of ambiguity over the possibility for function creep and the reshaping of critical social connections. Finally, at an individual level, it appears as though generic data processing and privacy concerns, such as identity theft, cyberattacks, and data abuse, are moved into the backdrop of each technology.

Visual surveillance technology is considered a potentially beneficial tool for preventing crimes, assisting in arrests, and assisting in investigations and prosecutions. While the technology and its applications have limits, it is worth noting that stakeholders representing a diverse range of vested interests were generally supportive of visual surveillance. The analysis found that when cameras are constantly watched, they have a cost-benefit effect on crime, with no significant evidence of displacement

to nearby neighbourhoods. However, in some settings and localities, these benefits of crime reduction are not achieved to their full potential, and our research region is one of those regions.

Two possible explanations for the surveillance technology's lack of influence on crime in the study regions are that the cameras are not actively monitored regularly or that they are not correctly installed, reducing their capacity to capture crimes in progress. These are key aspects to consider when developing or adopting camera systems for both present and future surveillance technology investors.

Individuals should give significant consideration to planning and procurement activities when setting the framework for visual surveillance investment. Stakeholders from all the study sites emphasised how inexpensive the cameras are compared to the costs of installation, maintenance, and monitoring. Individuals or businesses considering investing in a public visual surveillance system should be prepared to conduct their own research rather than relying on vendor advice, as it is not in the vendor's interest to disclose all of the hidden expenses involved with camera systems in total. Individuals considering such an investment should also keep in mind that technology is constantly changing; each succeeding generation of cameras offers more resolution and potentially more beneficial functions. One caveat to this recommendation is that jurisdictions should assess the benefits and drawbacks of high-resolution cameras; images collected at a higher resolution place a more considerable strain on video storage capacity. Thus, a prudent investment strategy in visual surveillance will acquire the most cost-effective technology while allowing future updates.

When it comes to visual surveillance deployment, it is important to remember that even when hotspots of criminal activity are discovered, the ultimate positions of cameras will be determined by infrastructure (including accessibility to power sources), camera technology, and characteristics of the natural and man-made surroundings. For instance, wireless camera systems necessitate careful consideration of camera and antenna placement in respect to trees, physical impediments, and other cameras. Along with camera placement, camera movement options should be chosen carefully. Jurisdictions intending to relocate cameras in response to the relocation of hot spots should consider incorporating preparations for the procurement of additional cameras in preparation for community opposition to camera installation in their areas.

Additionally, the stakeholders assessed for this study showed a somewhat careless attitude on the manner and timing of camera monitoring. Cameras can have the most impact when they are used to monitor areas actively and intervene in real-time. Active monitoring is particularly advantageous for both investigative and prosecution purposes, as live monitors can zoom in on a scene to capture critical details that a pre-programmed camera tour would miss. On the other hand, active monitoring demands large resources that respondents are unwilling or unable to contribute and may also create public questions about how the cameras are watched. These experiences show that individuals should carefully weigh the advantages and disadvantages of active monitoring. However, without active ethical monitoring, visual surveillance technologies are made ineffective, which is one of the reasons why the research study found no association between the installation of visual surveillance, criminal apprehended, and personal security.

Two restrictions apply to the utility of cameras in criminal investigations and apprehending criminals. The first is the constraint imposed by what can be caught by a camera operating on a conventional pre-programmed route. The second drawback is that camera footage archives are only retained for a certain length of time before being overwritten; if the camera is connected wirelessly to the system, it can store up to 15-30 days of footage before being overwritten. If, on the other hand, the camera is recording to a localised hard disc, it is limited to three days of recording before being overwritten. This has prompted responding officers to immediately check whether a nearby camera may contain pertinent information about a crime in order to avoid the loss of possibly important information.

Watchers or investigators study video footage related to a crime event in an attempt to identify culprits and witnesses who may have been present at the time of the incident but are hesitant to volunteer their knowledge to the police. This form of evidence has aided investigators in securing witness cooperation, which is frequently difficult to get due to public distrust of police and a social convention against "snitching" (with a threat of retribution if one does). Indeed, detectives indicate that the most beneficial component of visual surveillance technology is its ability to identify witnesses who refuse to come forward and to distinguish between true and fraudulent claims. Frequently, when a detective indicates that they will be analysing video material in order to confirm a complainant's allegation, the complainant decides to dismiss the charges. Officers frequently recognise criminals or witnesses from their routine patrols and encounters and can notify the relevant unit

when they come across them on their beat. Additionally, video footage has aided in getting vehicle descriptions and finding discarded firearms following the conduct of a crime. However, all of these benefits of visual surveillance are null and void in the absence of data monitoring and storage.

One of the key reasons the current study found no association between the variables is because visual surveillance data are not properly stored. According to the data analysis, even when a crime occurs directly in front of a camera, evidence is lost owing to a lack of effective storage for the data collected by such cameras. This is true for both criminal offences against individuals and criminal offences against property. The tendency in Indian society toward avoiding excessive investment in data storage facilities for visual monitoring has rendered the technology obsolete.

Even when an occurrence is captured on camera, visibility at night or in severe weather, as well as quality limitations, can limit the footage's use as evidence. Some investigators are dissatisfied with the cameras' night vision capabilities, which are not as clear and sharp as they are during the day. This deficit has an effect on investigations into crimes that occur after dark, which could benefit from better-quality video evidence.

According to the researcher's study of the data acquired, crime trends did not significantly vary prior to and following the installation of visual surveillance. The precise explanation for this is a result of the aforementioned problems of insufficient monitoring and storage of visual surveillance data and improper placement of visual surveillance technology. While some respondents reported a decline in property crimes in their communities, the bulk of respondents stated that both property and personal crimes have been consistently present in all places where visual surveillance has been implemented.

Due to a lack of rules and unjustified assumptions about public perception, ad hoc advancements in the area of written norms of practice for visual surveillance technology have occurred. Regardless of how beneficial, such rules may be, they reflect local pressure and a sense of urgency. For instance, the Indian government's rules include specific instructions on how to store visual surveillance data for evidence purposes but do not provide significant guidance on how to ensure proper consultation before installing such equipment. Nor does the government code provide instructions on how to report occurrences involving visual surveillance, notably CCTV.

Furthermore, the research provides more support for the widely held belief that what was seen on CCTV monitors/videotapes could be misleading since incorrect inferences could be drawn from insufficient information (e.g., poor picture quality, lack of sound, small monitoring screen), which might be exacerbated further by the people monitoring the activity operating on stereotypical vision. Participants were particularly concerned about the concept of being 'guilty by association if they were spotted speaking with someone who had previously been in trouble with the police.

Another issue expressed was the possibility of tampering with videotapes and then presenting them as evidence under the banner of "the camera does not lie." There was also no statistically significant difference in terms of individuals who expressed concern about visual surveillance installations between ‘with' and ‘without' sites. One may anticipate that people working in locations with CCTV would have had some of their anxieties allayed or confirmed by experience. However, one possibility for the lack of difference is that individuals are unaware of the presence of visual monitoring at a particular location.

In summation, it is critical for people to recognize that surveillance technology is only as effective as its implementation. It is unlikely to impact crime or personal security substantially if used incorrectly, infrequently or poorly linked with other policing responsibilities.

The fact that the "security sector is still an emerging business" and that many new practitioners are entering this sector from other related and unrelated vocations may explain the lack of professionalism in the visual surveillance sector. The security industry's workforce, particularly its most visible representatives, security officers or guards, have a famously bad reputation. Everything appears to be contributing to the issues, from poor pay and excessive turnover to insufficient or non-existent training **(Brooks, 2003).** Consumer education is critical, but so is the need for more knowledgeable installation. It may be claimed that the industry's increased risk exposure to the consumer is mostly through salespeople within the many security disciplines rather than through security guards. These are the persons who suggest and promote the industry's products and services and set the standards. However, to receive a security license and begin working in the field, they currently do not require professional qualifications and a basic grasp of security regulations.

One could argue that both the industry and the consumer have low regard for or comprehend visual surveillance and CCTV's usefulness as a risk reducer

(James, 2020). Consumers usually lack a grasp of their security requirements and approach the procurement of security services reactively. Consumers appear to be largely uninformed. Social perceptions might shift as a result of media coverage of high crime rates and depictions of victims. This results in particular demographic groups being significantly more fearful of the possibility of crime, even when there is no basis. The media are the primary conduits for risk information. They are crucial in establishing agendas and shaping outcomes. However, the media is often more concerned with politics than with risk; it is more concerned with simplicity than with complexity, and it is more concerned with danger than with safety."

The CSI effect, often referred to as the CSI syndrome or CSI infection, refers to one of the numerous ways the exaggerated representation of forensic science on crime television shows such as CSI: Crime Scene Investigation impacts public opinion. The term was coined in a 2004 USA Today article outlining the effect television programmes emphasising forensic science had on trial juries.

The CSI effect was coined to refer to the possibility that the show's inaccurate depictions of forensic evidence could change the public perception of forensic evidence.
Individuals, victims, and judiciary members have grown to expect quick responses from highlighted techniques such as visual surveillance technology, face analysis, and fingerprinting. However, actual forensic processing frequently takes days or weeks, with no certainty of providing a "smoking gun" for the prosecution's case. District attorneys assert that the conviction rate has reduced in cases involving less physical evidence, owing mainly to the CSI effect. When considering a surveillance system, one should leave the Hollywood expectations in the living room and open their eyes to what surveillance technologies are available in the marketplace and what they truly deliver. If cost is a driver when purchasing surveillance, people may need to lower their expectations. Making a small blurry picture larger will typical give a large blurry picture.

Another issue is blind camera syndrome, where public perceptions of safety may be bolstered by the notion that each street camera is operated by a skilled operator ready to react to a situation viewed in their control room **(Kittle, 2013)**. However, as we have seen from the analysis, this is not always the case, as public and private street surveillance systems are typically huge, utilising several cameras and requiring little to no human intervention. A switcher connects a public street surveillance camera to the monitor, either manually or automatically via the sequential switcher function.

For a set dwell period, sequential switching selects one camera in sequence. The monitor then displays the selected camera. This could result in the operator not monitoring the camera or the camera being blind most of the time. This phenomenon is referred to as blind camera syndrome. However, at street level, the camera appears unchanged, as it may be in guard tour mode or panning to a predetermined point.

Some may claim that this is positive, as the criminals are unaware that they are not being observed. However, is this a reasonable argument or a reasonable risk in light of the expected outcomes? Even when CCTV is available, research indicates that "the cameras do not influence overall levels of attacks and injury, although they have been used to facilitate several arrests."

To conclude, the research findings indicate that for a visual surveillance system to be effective within an area, for crime to decrease due to its use, and for offenders to be captured, a high degree of coverage is required. Additionally, there is no guarantee that acquisitive personal crimes such as robbery will not be relocated to nearby places, particularly if both potential victims and motivated offenders frequently use these locations.

Additionally, several difficulties arise. The first is that visual surveillance equipment appears to perform best when used in conjunction with other security measures. Installing cameras alone does not ensure that crime will decrease in the long run. What matters is how visual surveillance technology is integrated into a comprehensive plan for policing neighbourhoods **(O'Donnell, 2016**). Second, as is the case with most forms of crime prevention, the effectiveness of packages that incorporate visual surveillance may diminish over time **(Piza & Kennedy, 2014)**. To have a lasting effect, such technology innovation must contribute to the arrest of criminals, and other conditions must be improved to maximise their potential.

Most importantly, rather than creating vast surveillance networks and militarizing our communities and personal lives **(Singh & Kumar, 2020)** we as a society should be dismantling and replacing such rogue agencies so that our civil liberties, privacy and personal security are all maintained.

References:

"Human Factors in CCTV Control Rooms: A Best Practice Guide." *www.cpni.gov.uk, www.cpni.gov.uk/resources/human-factors-cctv-control-rooms-best-practice-guide*. Accessed on 14 July 2021.

Ashby, Matthew P. J. "The Value of CCTV Surveillance Cameras as an Investigative Tool: An Empirical Analysis." *European Journal on Criminal Policy and Research*, vol. 23, no. 3, 2017, pp. 441–59. *Crossref*, doi:10.1007/s10610-017-9341-6.

Bekkers, V., and Rebecca Moody. *Visual Culture and Public Policy*. United Kingdom, Routledge, 2015.

Brooks, David Jonathan. *Public Street Surveillance: A Psychometric Study on the Perceived Social Risk*. Edith Cowan University, 2003. Accessed on 14 July 2021. Accessed from https://ro.ecu.edu.au/theses/114/

Charter for a Democratic Use of Video-Surveillance. European Forum for Urban Security, 2010.

Hallinan, Dara, and Michael Friedewald. "Public Perception of Modern Surveillance Technologies: A Selected Survey Analysis of the Public Perception and Acceptance of New Surveillance Technologies." *SSRN Electronic Journal*, 2012. *Crossref*, doi:10.2139/ssrn.2376651.

Khandekar, O. "Does Increased CCTV Surveillance Help Reduce Crime? Not Really." *Mintlounge*, 7 Jan. 2021, Accessed on 14 July 2021. lifestyle.livemint.com/news/talking-point/does-increased-cctv-surveillance-help-reduce-crime-not-really-111609944751428.html.

Kittle, Jesse Thomas. *A Study of Surveillance and Privacy Rights*. Electronic Theses and Dissertations, East Tennessee State University, 2013. Accessed from https://dc.etsu.edu

Lim, Hyungjin, et al. "The Crime-Reduction Effects of Open-Street CCTV in South Korea." *Security Journal*, vol. 29, no. 2, 2013, pp. 241–55. *Crossref*, doi:10.1057/sj.2013.10.

Moore, James. "The Video Surveillance Report 2020." *IFSEC Global | Security and Fire News and Resources*, 30 July 2021, Accessed on 14 July 2021, www.ifsecglobal.com/resources/the-video-surveillance-report-2020.

O'Donnell, Z. The Age of Surveillance. *Impulse Consulting*, 2016

Piza, Eric L., et al. "Analyzing the Influence of Micro-Level Factors on CCTV Camera Effect." *Journal of Quantitative Criminology*, vol. 30, no. 2, 2013, pp. 237–64. *Crossref*, doi:10.1007/s10940-013-9202-5.

Sangani, Pti. "Western Digital Bets Big on Growing Smart Video Surveillance Market in India." *The Economic Times*, 4 Sept. 2020, Accessed on 14 July 2021. economictimes.indiatimes.com/tech/ites/western-digital-bets-big-on-growing-smart-video-surveillance-market-in-india/articleshow/77935274.cms.

Singh, Priti, and Gaurav Kumar. "Why Am I Under CCTV Surveillance?" *The Journal of Indian Law and Society Blog*, 16 May 2020, Accessed on 14 July 2021, jilsblognujs.wordpress.com/2020/05/16/why-am-i-under-cctv-surveillance.

Vigne, Nancy G. La, et al. "Evaluating the Use of Public Surveillance Cameras for Crime Control and Prevention." *The Urban Institute*, 2011.