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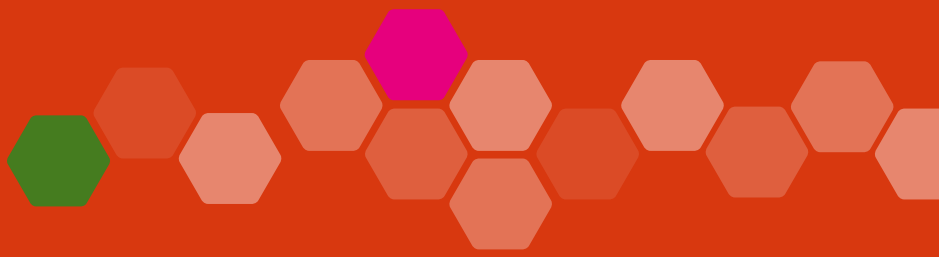
Public Space CCTV in Scotland



CRIME AND JUSTICE

social research

Public Space CCTV in Scotland

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1. Executive Summary

1.1 Overview

In 2022, the Scottish Government commissioned a study of public space closed circuit television (CCTV) in Scotland, which aimed to update baseline evidence of the provision of public space CCTV in Scotland. The study was undertaken by a team of researchers from the University of Glasgow and the University of Edinburgh, with guidance from a Research Advisory Group consisting of key stakeholders in public space CCTV in Scotland.

The study sought to answer the following research questions:

1) What is the current provision of public space CCTV in Scotland and how, and for what purposes, do local authorities and Police Scotland use public space CCTV?
2) How do communities across Scotland perceive the use, effectiveness, and value of public space CCTV in their local communities?
3) What is the provision, delivery, operation, and maintenance of public space CCTV like in similar jurisdictions, and how does this compare with Scotland?

The project involved an in-depth, mixed methods approach to better understand the current provision and use of public space CCTV across Scotland, to assess the perceived use and value of public space CCTV in local communities, and to make international comparisons.

1.2 Definitions and background

The study defined public space as 'those parts of the built and natural environment environment where the public has free access' (Carmona et al., 2004: 10), while public space CCTV is defined, for the purposes of this research, as those systems utilised on the public streets and areas across Scotland and include fixed sites as well as non-fixed and rapid deployable CCTV vehicles (Scottish Government, 2011).

Public space CCTV was first introduced in Scotland in the 1990s and has grown from a tool primarily for police crime prevention, detection and evidence, to incorporate a range of uses for local authorities across Scotland, including anti-social behaviour, public reassurance, and environmental maintenance. The development, management and operation of public space CCTV in Scotland, including compliance with legislation, is a matter for local authorities and the police, working in partnership.

Existing research indicates that CCTV use has changed in recent years, involving a broadened scope as well as the development of new technologies (Skogan, 2019;

Palace et al., 2023). The traditional fixed analogue camera is supplemented, and in many cases, replaced by digital cameras, portable and rapidly deployable cameras, CCTV vehicles, and automated number plate recognition (ANPR). However, as the national guidelines on the use of public space CCTV in Scotland are now more than a decade old, this study sought to reassess the landscape of public space CCTV across Scotland to explore how it is used, operated, managed, and perceived by both stakeholders and communities.

1.3 Methods

- This study provides an in-depth, mixed methods account of the contemporary landscape of the provision, use, and perceptions of public space CCTV in a number of geographic areas of Scotland, involving a three-stage research design: (1) online surveys; (2) qualitative interviews; and (3) a comparative analysis.
- Forty-four respondents from 18 local authorities and 10 Police Scotland divisions completed the survey, answering questions regarding: governance arrangements, funding arrangements, CCTV quantities and types, CCTV placement locations, the impact, benefits and challenges of CCTV, and future directions. Due to limits to the sampling, findings are not fully representative of all geographical regions of Scotland and cannot be generalised.
- Twenty-six participants comprising police officers, local government employees, CCTV operators, community safety partnership staff, and local residents/community groups engaged in qualitative interviews. Interviews involved questions about perceptions of community safety and CCTV, the impacts of CCTV on daily life; and future directions in public space CCTV governance, scope, practices, and technologies.
- The study incorporated an international comparative component that examined current practices of CCTV usage in England and Wales, and Denmark. Comparison with England and Wales provides valuable insight into the use of public space CCTV elsewhere in the UK. Denmark was selected as a jurisdiction of similar size but with a different approach to CCTV compared to Scotland. This involved desk-based research examining recent data and policies.
- There is a lack of precise and established data on the number of CCTV cameras in Scotland, other UK nations and Denmark, therefore this study utilises estimates where available. The comparability of such estimates is limited due to differences in time periods and coverage. Logical inferences are drawn where possible, within the parameters of the imperfect evidence base.
- The findings from the research are not representative of all local authorities or police divisions in Scotland, and therefore cannot be generalised to Scotland as a whole. In the subsequent reporting, reference to ‘Scotland’ corresponds to the geographic areas which participated in the research.

1.4 Key findings

1.4.1 Survey

- CCTV was identified as a well-established aspect of the working practices of both local authorities and police respondents. Whilst the number of cameras in each local authority ranged from 20 to 524, most respondents reported on average 20 to 80 cameras. These were reported as being mostly located in residential areas, city centres, and town high streets.
- Cameras were initially installed for the purposes of crime prevention, reducing fear of crime, and deterring anti-social behaviour, and in most areas these purposes have remained central. In a small but significant number of areas, the use of CCTV has expanded beyond these initial purposes to include housing, environmental and population management.
- Swift and easy access to high-quality public space CCTV images is central to effective policing. However, local authorities face challenges such as limited time, resources, staffing, and funding, which require them to be strategic in their assistance to other agencies.
- Nine local authority respondents in this study reported that they had had a major upgrade to their public space CCTV systems in the last three years. However, the standard of maintenance and technological specifications were concerns for police participants. This discrepancy was based on geographical factors with urban centres having reportedly better technology and more regular maintenance.

1.4.2 Interviews

- While public space CCTV in Scotland continues to play a role in crime prevention and detection, interview data with stakeholders indicates that the use and purpose of public space CCTV has widened, as have the remits of police officers and local government employees working in community safety. Data from police and local authority surveys and interviews demonstrate that community safety and security in public spaces now not only entails responding to criminal behaviour, but also mental health emergencies, missing and vulnerable persons cases, environmental issues, and traffic issues.
- Participants working for the police and local government expressed that there are disparities around governance and funding across different areas of Scotland, leading to ‘patchy’ and ad hoc arrangements that could benefit from updated, robust standards of best practice across the country. Many town and city centre police officers and local residents highlighted that there should also be a focus on the local, place-based contexts of public space CCTV where it is actually being delivered. The data in this study indicate that developments in the field of public space CCTV regulation and operation could benefit from addressing both the centralisation and localisation of public space CCTV in Scotland to enhance its strengths and mitigate its limitations and risks.

- Interview participants, particularly women, expressed the view that the presence of public space CCTV made them feel safe(r). Several women mentioned that camera placements impacted where they would walk or park their cars, particularly at night. Furthermore, the absence or removal of public space CCTV cameras was more noticeable to both men and women than the presence of them which in turn made people feel uneasy. Some residents living in local authority housing felt comforted by the perception of being watched over by an operator, describing how someone was looking out for them when they were alone or in need of assistance.
- While the study found no direct link between size or population density of an area and the effectiveness of public space CCTV coverage, there was a perception among some participants that rural areas were less well-served. In addition, one local authority respondent working in a rural area indicated that unofficial CCTV signs had been displayed in the absence of actual cameras to try and deter crime and increase feelings of safety.

1.4.3 Comparative analysis

- Comparative analyses of public space CCTV provision, usage, governance and legislation elsewhere in the UK (England and Wales) and internationally (Denmark) highlighted the lack of centralised governance and regulation in Scotland and a lack of national coordination and response around emerging issues in different parts of Scotland in relation to public space CCTV.
- The growth of the provision of public space CCTV in England and Wales in the last several years has put increased emphasis on ‘more recent innovations such as dash cams and body worn video’ (BSCC, 2021: 24).
- As in Scotland, recent survey data from England and Wales suggests that there are disparities in how different stakeholders work together with regards to streamlining CCTV practices (BSCC, 2023a). Although public funding of CCTV in England and Wales has been in decline for some time, new investment funds have recently developed, with one of the most effective being the Safer Streets Fund, which was set up by the Home Office in 2020.
- There is no equivalent position in Scotland at the moment for the Biometric and Surveillance Camera Commissioner (BSCC), the Home Office's independent oversight body for the investigation and regulation of CCTV cameras in England and Wales. While Scotland has recently established an office of the Scottish Biometrics Commissioner (2020), the role of this office does not include specific governance over CCTV and the installation of other types of surveillance technologies (Scottish Biometrics Commissioner, 2021-22: 13). Currently, Scotland remains under the jurisdiction of the Information Commissioner Office (ICO) for legislative governance, with the Data Protection Act (DPA) serving as the primary legislative reference point.
- As of 2021, Denmark had approximately 1.5 million cameras, including those owned by businesses/enterprises, private persons, and the police/local authorities (Faktalink.dk, 2021). Public space cameras are installed by police and local authorities with around 300,000 cameras placed in public spaces,

including on public transport. Moreover, Denmark's POLCAM initiative, making CCTV camera registration mandatory for private businesses, organisations, and local public authorities, allows police access to footage from non-public space cameras.

1.5 Conclusions and implications

- Survey and interview data indicates that the funding for public space CCTV systems in Scotland is complex. It appears that the funding relies on a mix of different sources such as the police, local authorities, private companies, and external funding. This has, in turn, led to divergences in technological equipment, technical capacity, and training standards, as well as perceptions of unfairness regarding funding distribution. Furthermore, there was a perception among some participants that rural areas were less well-served, with one indicating that local systems had adapted to need.
- Both police and local authorities expressed an interest in a national 'hub', or centre of best practice and in the standardisation and centralisation of both policy and practice. It was suggested that this national hub could benefit local authorities as it would offer opportunities to discuss policy issues and the standardisation of practice across councils. Such a national 'hub' could also be usefully complemented with a 'spoke' model that engages with – and learns from – diverse geographical regions of Scotland in terms of sharing good practice, training and support.
- Since its inception as a local tool of crime prevention in the 1980s, CCTV has grown exponentially and now incorporates a wide range of local, national and international priorities ranging from environmental monitoring to national security. At the same time, the technology itself has rapidly improved and its scope of action is increasingly complex. As such there is a need for clear lines of oversight and accountability that balance the needs of CCTV systems-operators with those of communities subject to surveillance.

2. Introduction

2.1 Context

In 2022, the Scottish Government commissioned a study of public space closed circuit television (CCTV) in Scotland, which aimed to update baseline evidence of the provision of public space CCTV in Scotland. The study was undertaken by a team of researchers from the University of Glasgow and the University of Edinburgh, with guidance from a Research Advisory Group consisting of key stakeholders in public space CCTV in Scotland.

The study sought to answer the following research questions:

- What is the current provision of public space CCTV in Scotland and how, and for what purposes do Local Authorities and Police Scotland use public space CCTV?
- How do communities across Scotland perceive the use, effectiveness, and value of public space CCTV in their local communities?
- What is the provision, delivery, operation, and maintenance of public space CCTV like in similar jurisdictions, and how does this compare with Scotland?

The project involved an in-depth, mixed methods approach to better understand the current provision and use of public space CCTV across Scotland, to assess the perceived use and value of public space CCTV in local communities, and to make international comparisons. The research was limited to local authorities and Police Scotland, as well as other groups including community safety partnership staff, and members of the public/users of public space. Courts and tribunals, though relevant, are of a different research focus and were not included in the research.

2.2 Definitions

A concept as broad as 'public space' is difficult to define and subject to debate (Li et al., 2022) but for this study, we sought an inclusive and dynamic definition which acknowledges the ways in which public space CCTV may be changing in terms of ownership, partnerships, hybrid arrangements, and other forms of fragmentation. In line with the definition used in the UK Department for Communities and Local Government's *Living Places: Caring for Quality* report, the study uses the following definition:

> '[a]ll those parts of the built environment where the public has free access…[encompassing] all streets, squares and other rights of way, whether predominantly in residential, commercial or community/civic uses; the open spaces and parks; and the 'public/private' spaces where public access is unrestricted (at least during daylight hours). It includes the interfaces with key internal and private spaces to which the public normally has free access' (Carmona et al., 2004: 10).

The report defines public space closed circuit television (CCTV) in line with the 2011 National Strategy for Public Space CCTV in Scotland, as those systems utilised on the public streets and areas across Scotland and include fixed sites as well as non-fixed and rapid deployable CCTV vehicles (Scottish Government, 2011). Such public space CCTV systems are operated and maintained by local authorities and Police Scotland working in partnership and are supported by the Scottish Government through joint funding.

2.3 Background

Public space CCTV has been a feature in the UK since it was first trialled in 1975 (Burrows, 1978; Hall et al, 1979). Its use and growth have historically been rooted in crime prevention as a situational deterrent, with the idea that if someone were to recognise the presence of CCTV in public space, they would either be less likely to commit an offence or assume that the risk of being caught would increase (Ariel et al., 2017; Ratcliffe and Groff, 2019; Cerezo, 2013). However, the impact of public space CCTV on crime rates is questionable and context-dependent (Piza et al., 2019). Part of the issue is that it is difficult to determine the impact of CCTV in communities in isolation from other community safety measures.

The exact number of public space CCTV cameras currently in use across the UK is subject to debate. This difficulty in quantification is due to irregularities and/or ambiguities in spatial boundaries, ICO registration issues and system ownership. One commercial security systems company, however, estimates that there are now over 7.3 million public and private CCTV cameras across the UK (see Clarion Security Systems, 2022).

Regardless of the precise number, it is clear that the presence and use of public space CCTV across the UK have given rise to a new generation of CCTV technologies beyond the traditional fixed analogue camera which is now supplemented, and in many cases, replaced by digital cameras, portable and rapidly deployable cameras, CCTV vehicles, automated number plate recognition (ANPR), higher resolution video, 5G connections, and other sensors (Surette, 2005; Skogan, 2019). These new types of CCTV technology are designed to monitor dynamic environments such as motorways, airports, harbours, and large urban centres, as public space CCTV usage is also used as a tool to counter national security threats (Palace et al., 2023). There are also emerging forms of video analytics and artificial intelligence used for automatically detecting ‘unusual’ or unauthorised behaviours in public spaces (Senior, 2009; Leslie, 2020). However, automatic facial recognition and other learning or predictive tools used for CCTV present ongoing issues with function creep, bias, and accuracy (Surette, 2005; Mahmood et al., 2017; Leslie, 2020).

The use of public space CCTV is part of broader debates about the balance between privacy and safety, as well as what groups of people benefit from or are unequally impacted by public space surveillance practices (Smith, 2015; Miles, 2021). These complex issues have informed the design of this study, to frame public space CCTV as a complex network of people and objectives.

Beyond the active use of public space CCTV across the UK for monitoring community safety, it has also had extensive use as an investigative tool for police and in court. Furthermore, footage from public space CCTV is frequently used in non-criminal enquiries, including missing and vulnerable persons cases and traffic incidents.

Public space CCTV is now used to monitor antisocial behaviour, encourage the upkeep of order, environmental maintenance, public reassurance, national security, direct police resources, intelligence gathering, and for providing evidence in criminal prosecutions, though its impact is still often measured in terms of crime statistics (Webster, 2009). Some researchers have argued that this widening use/purpose of CCTV has implications in practice in terms of 'function creep' as the remits of what constitutes community safety are not always clear. For example, there is a difference between tracking someone for the purposes of security provision (e.g. someone displays suspicious behaviour) and for the abuse of power (increased surveillance of someone who is known to CCTV operatives) (Smith, 2015; Webster, 2009).

In terms of the wider policy context, this study took place amidst ongoing policy developments around criminal justice and surveillance biometrics at national and devolved levels of government in the UK and Scotland. Parliamentary reforms are underway in readressing the role and scope of the UK Biometrics and Surveillance Camera Commissioner (BSCC) and Information Commissioner Office (ICO). The BSCC is an independent body of the UK Home Office, responsible for encouraging compliance with the Surveillance Camera Code of Practice (see Home Office, 2013). The new UK Data Protection and Information Bill, according to Sampson (2023), could potentially 'scrap' the code of practice.

Scotland currently has no equivalent to the BSCC, nor is there a Scottish Surveillance Code of Practice. Scotland established a Scottish Biometrics Commissioner in 2020, however, the organisation's focus is specifically on the ethical and lawful handling of biometric data for criminal justice and police purposes[1], and does not cover public space CCTV.The primary legislation governing Public Space CCTV in Scotland is the 2018 Data Protection Act. The ICO is the responsible body for overseeing the installation and registry of public space CCTV cameras. However, with the new UK Data Protection and Information Bill being currently negotiated in Parliament, the role of the ICO may change.

2.4 Public Space CCTV in Scotland

Public space CCTV was first introduced in Scotland in the 1990s, with some of the first cameras installed experimentally in the city centre of Glasgow (see Ditton, 2000). By 2009, the number of public space CCTV cameras in Scotland exceeded 2,200 (Bannister et al., 2009). The development, management and operation of public space CCTV in Scotland, including compliance with legislation, is a matter

[1] Scottish Biometrics Commissioner Act 2020

for local authorities and the police, often in partnership. This position is set out in the 2011 National Strategy for Public Space CCTV in Scotland, which acts as the overarching guideline for the use and provision of public space CCTV in Scotland (see Scottish Government, 2011).

Previous research on the use of public space CCTV in Scotland (see Bannister et al., 2009) indicates evidence of good practice across the country, but that public space CCTV in Scotland is a 'disjointed landscape' that requires more structure, investment, efficacy, and community input (Scottish Government, 2011: 4).

Ongoing challenges to public space CCTV provision in Scotland have been identified in the intervening years, including in research commissioned by the Scottish Community Safety Network (SCSN) in 2019. The SCSN (2019) research found that many stakeholders involved in Scotland's public space CCTV landscape felt that the 2011 National Strategy was slightly outdated and more than half of the respondents that engaged with the study felt that there was no unified vision for the future of public space CCTV but agreed that there should be one.

2.5 Conclusion

It is evident that changes in the scope, technology and uses of public space CCTV require rigorous scrutiny alongside evidence of how it is used and what it is being used for. As technology evolves and the use of public space CCTV expands, it is timely to consider the current operation, management, maintenance, and funding of these systems.

3. Research Design and Methods

3.1 Research design

This study provides an in-depth, mixed-methods account of the contemporary landscape of the provision, use, and impacts of public space CCTV in a number of geographic areas of Scotland. It gathered evidence over nine months from urban, town, and rural contexts within Scotland.

The study aimed to:

- Gain an understanding of how public space CCTV is used within Scotland across different urban, town, and rural locations at the local authority level allowing for a comparison with other relevant countries with different delivery systems and governance arrangements.
- Assess the impact and effectiveness of public space CCTV throughout Scotland both quantitatively and qualitatively, through mapping the provision and implementation of CCTV and collating the perspectives of local people and key stakeholders who use community public spaces under surveillance.

The study involved a three-stage research design aligned to these research questions, including: (1) online surveys; (2) qualitative interviews; and (3) a comparative analysis. In order to understand the range of geographical diversity in the operation of public space CCTV in Scotland, the qualitative aspect of the study adopted a sampling strategy that incorporated the inclusion of urban, town and rural locations, drawing on the Scottish Government 6-Fold Urban Rural Classification (Scottish Government, 2022).

This study underwent a formal ethical review by the University of Glasgow's College of Social Science Ethics Committee and was also subject to Ethical Review by the Scottish Government. Participants in the study represented a non-random, self-selecting sample. As such, their responses to both survey and interview should be approached as a wide-ranging expert opinion, rather than representative of the wider population or organisation from which they are drawn. In the subsequent reporting, reference to 'Scotland' corresponds to the geographic areas which participated in the research.

Stage 1: Online surveying of Scottish Local Authorities and Police Scotland

The first stage of the study involved creating a baseline dataset of public space CCTV in Scotland mapping the provision, use, costs, local implementation strategies, uses of footage, and frequency of maintenance of CCTV equipment through a survey of local authorities and police divisions.

The survey was delivered online via email link to all 32 local authorities in Scotland and 13 Police Scotland divisions. Survey responses were gathered between December 2022 and February 2023.

The survey was designed after reviewing similar survey tools from Scotland and the wider UK, namely a survey carried out by the Scottish Centre for Crime and Justice Research in 2009 (Bannister et al., 2009), as well as a survey carried out by the Biometrics and Surveillance Camera Commissioner in 2022 (Biometrics and Surveillance Camera Commissioner, 2022). The survey was designed by the research team with input from the Research Advisory Group (RAG) which included representatives from Police Scotland, Scottish Community Safety Network and the Convention of Scottish Local Authorities.

Questions in both surveys covered seven areas:

- General CCTV provision
- Equipment and maintenance
- Monitoring and footage
- Purpose
- Evaluating impact, effectiveness and benefits
- Funding
- Reflections and future visions

Survey results were exported into Microsoft Excel for descriptive statistical analysis and open-ended responses were analysed thematically.

Stage 2: Qualitative interviews

In the second stage of the study (January-February 2023), we conducted qualitative interviews with a range of stakeholders involved in or impacted by public space CCTV including local authority employees, CCTV operators, police officers, and local residents, in order to better understand community-based perspectives towards the provision, use, and impact of public space CCTV.

Twenty-six interview participants took part in this stage of the research. A total of 13 interviews were conducted and these included ‘walking’ interviews, sit-down interviews, and online interviews conducted with both individuals and groups. Table 1. below details the ways in which these interviews were carried out with participants.

Table 1. Qualitative interview formats

	Sit-down, face-to-face interviews		Walking interviews		Sit-down, online interviews	
Interview type	**1-on-1**	**Group**	**1-on-1**	**Group**	**1-on-1**	**Group**
Number of interviews	3	1	2	1	4	2
Number of participants	5		5		16	

Offering participants different interview formats/options enabled the research team to widen access and participation opportunities.

'Walking interviews' (n=3) are mobile, participant-led interviews that include the sensory experience of moving through a public space to provide environmental and locational contexts to how participants reflect on the use and impact of CCTV in public spaces (Evans and Jones, 2011). Walking interviews were conducted with five participants including police officers and CCTV operators who provided a walk-through of the areas where they have worked or patrolled. This included a pair of police officers who were on shift together, as well as the CCTV operator who worked alongside them. Sit-down interviews (n=4) were conducted in CCTV operation rooms, police interview rooms, and other office spaces with 5 participants; one of these sit-down interviews was a group interview with a police officer and CCTV operator who frequently worked together.

Online interviews (n=6) were conducted with a total of 16 police officers, local government employees, CCTV operators, and residents. The total number included two large group interviews – one with seven local government employees and CCTV operators from a particular local authority area, and another with five local residents of a particular area. These were conducted opportunistically and organically. Holding group interviews enabled the research team to engage with several participants (who already knew and were comfortable with one another) at once, and was thus an appropriate and practical approach in this context. Group interviews (see Frey and Fontana, 1991) can also provide collective understandings on topics, and though this can sometimes lead to "pressure to conformity" (1991: 185), the two group interviews conducted in this project involved a diverse range of views.

Interviews involved a cross-section of respondents from a range of geographical regions in Scotland, including urban, town and rural contexts. Table 2. below details the geographical distribution of participants based on whether they worked (police, local government employees, CCTV operators) and/or lived (residents) in urban, town, or rural areas, recognising that some people participated in the study in a professional capacity and others in a personal capacity.

Table 2. Area classification and distribution of interview participants

Area classification	Urban	Town	Rural
Number of participants	7	16	3

We conducted qualitative interviews that were customised according to the capacity in which interviewees were participating. The interviews covered their perceptions on the use, impact, and effectiveness of CCTV in their lives or work, as well as their experiences with CCTV and their views on safety and security. We obtained the participants' permission to record the interviews on a handheld device, which we later transcribed and anonymised. Our research team analysed the interview transcripts thematically. To protect the participants' anonymity and privacy, we removed their names and specific locations from the report, replacing names with anonymised terms such as CCTV Operator 1; Police Supt. 2; Resident 5; and Region 4 and referring to locations/geographical areas using broad terms, such as urban, town, or rural classifications.

Stage 3: Comparative analysis

To better understand the current situation and learning opportunities for CCTV in Scotland, the study incorporated a comparative component that examined the major themes from the study in two comparable jurisdictions: England and Wales; and Denmark. England and Wales was selected due to its political and jurisdictional similarity, and Denmark because of its similar population size but different approach to CCTV.

Comparisons were made between Scotland and these jurisdictions in terms of public space CCTV policy, legislation, and contemporary debates and developments. Comparing Scottish provision with that of England and Wales allowed us to explore where legislation overlaps and differs in terms of national and devolved policy. Analytical comparisons with Denmark are strategically relevant as its geographical size and total population are comparable to Scotland, yet, Denmark’s public space CCTV landscape provides a contrast to Scotland’s in terms of the balance in public and private ownership of CCTV systems.

3.2 Conclusion

The mixed methods approach taken in this study provided a range of evidence on the topic under consideration. The combination of quantitative and qualitative data gathered in this project provides up-to-date information on public space CCTV provision in Scotland and offers insights into its impact from the perspective of experts working in the field, as well as from local communities. The addition of national and international comparison further enhance the findings of this study as they offer important insights into understanding how Scotland runs parallel to or diverges from developments elsewhere.

4. Local Authority and Police Scotland Survey Findings

This chapter discusses findings from the survey distributed to police and local authorities regarding the use of public space CCTV in Scotland. The chapter covers issues pertaining to general CCTV provision; equipment and maintenance; monitoring and footage; purpose; impact; funding, and future visions.

4.1 Survey overview and sample limitations

Eighteen responses were received across 18 local authorities, covering approximately 62% of the total Scottish population (National Records of Scotland [NRS], 2022a) representing a mix of urban, town and rural areas[2]. Responses were received from two different respondents based in one local authority area and these were both included in the analysis. One respondent provided responses on behalf of two local authorities and their responses were included in the analysis. The analysis was based on the number of respondents, rather than the number of local authorities.

- Of the 17 local authority respondents who provided their job title, eight indicated that they worked in areas related to community safety, security or anti-social behaviour. Five responses came from those in project work, management and professional services and four respondents stated they worked in property, traffic, and urban planning.
- Due to the small sample size and the limits this places on respondent anonymity, details about which local authorities and police divisions responded have not been included.
- Twenty-six responses were received across 10 police divisions; three Police Scotland divisions are not represented in the survey sample. Due to the high number of responses received from one police division, and the large number of police divisions represented by two respondents, accurate descriptive statistical analysis was not possible for many questions. Police data is therefore included only where sufficient detail was provided via questions that were open-ended.
- Twenty-five Police Scotland respondents provided details of their job title. These responses were collated into three categories – police officers, management, and CCTV operations. Thirteen respondents were police officers, seven were management and five worked within CCTV operations. One of the respondents did not indicate what their job title was.
- The survey data came from a self-selecting, non-random sample of local authorities and Police Scotland divisions. Responses have been analysed on the basis of individual responses and comparisons between specific local

[2] Given the requirement of anonymity, the areas involved cannot be identified.

authorities and/or police divisions cannot be made. Due to not all respondents answering all of the questions for both surveys, analysis is based on the number of respondents to the respective questions.

- The findings from the survey are not representative of all local authorities or police divisions in Scotland, and therefore cannot be generalised to Scotland as a whole. Rather, respondents, were able to provide detailed, technical, and specific information about the provision of public space CCTV in their local authority and/or police division, as well as their perspectives on the impact of this technology. In some cases, respondents were willing and able to provide detailed responses about specific issues in the planning, delivery, and future of public space CCTV that were not covered in the survey (via free-text answers) but had relevance and weight, nonetheless.

4.2 General CCTV provision

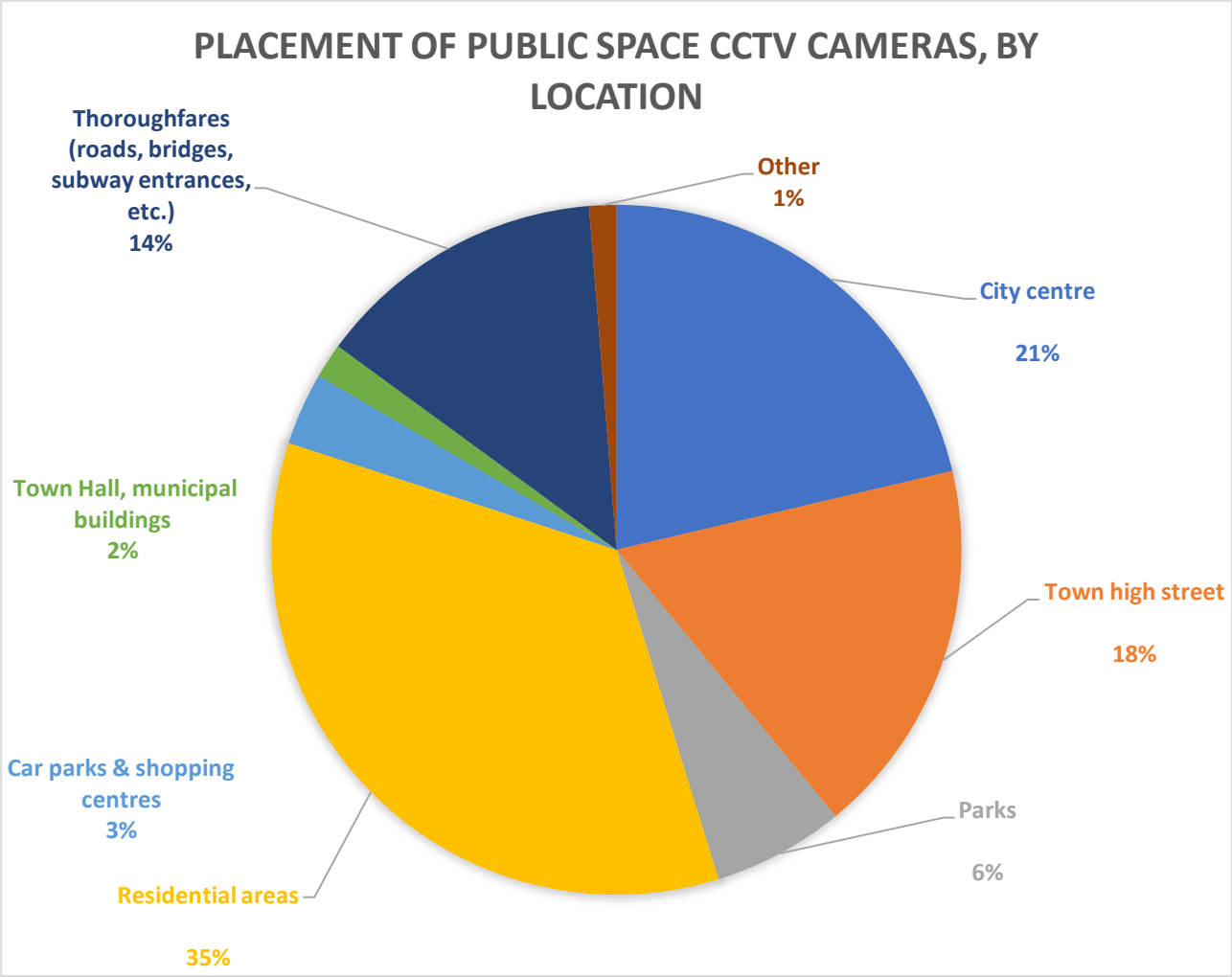
Public space CCTV is a well-established technology in the local authority areas and Police Scotland divisions surveyed – 11 out of 18 local authority respondents and 15 out of 25 Police Scotland respondents indicated that CCTV had been used in their area for more than 20 years. Two local authority respondents and five Police Scotland respondents answered 'don't know' to the question. There was only one local authority that had used public space CCTV for less than five years, but this was due to public space CCTV being contracted out to an "arm's length company" up until the last five years.[3]

When asked, "How many public space CCTV cameras are there in your area?", 13 local authority respondents provided details (excluding one respondent who answered 'zero'). The highest number of cameras reported was 524 in an urban local authority. As expected, the lowest number of public space CCTV cameras (20) was reported in a rural local authority. The majority (nine) of respondents reported having between 20-80 cameras.

Eleven local authority respondents were able to provide more detail on the placement of their public space CCTV cameras when asked to give an estimation of how many cameras were located in a provided list of 20 options. The results are displayed below in **Figure 1** and indicate that, across these local authorities, public space CCTV is primarily placed in residential areas, city centres and town high streets, accounting for 74% of cameras. CCTV can also be found in other locations, including thoroughfares and parks.

[3] Referring, here, to an administrative arrangement in which funding or oversight is divested to a third party, but with a degree of control still exerted.

Figure 1. Public space CCTV placement in 11 local authority areas



4.3 The intended purpose of public space CCTV

Eleven out of the 13 local authority respondents that answered the multi-response question, “When first installed, what was the specified purpose of public space CCTV in your area?”, stated that the specified purpose of public space CCTV was to prevent/manage crime, nine stated to prevent/manage anti-social behaviour and 11 stated to reduce the fear of crime. Only one of the local authority respondents surveyed included a purpose other than this, stating that “income generation” was an additional purpose. Two local authority respondents stated that they did not know what the specified purpose at installation was.

Though the stated purposes of public space CCTV were clearly identified by the majority of local authority respondents, in response to the question, “At the time of first installation, were these aims formally specified in policy documents?”, six out of 12 respondents did not know whether these aims were formally specified in policy documents.

When asked, “Has the purpose of use of public space CCTV changed since it was originally installed?”, eight out of the 13 of local authority respondents stated that it

had not. Three stated it had, with one local authority respondent pointing to better working relationships with Local Authority Liaison Officers (LALOs) and internal services such as “housing, community safety, public protection, enforcement teams” changing the purpose of public space CCTV.

An expansion of objectives was also identified by two local authority respondents with one stating that public space CCTV was being used to tackle “areas such as environmental incivility…[and] provide public reassurance”. For one local authority, the recent completion of a large investment project to upgrade their public space CCTV system would “help keep the city safe and moving…with video analytics by producing counts, heatmaps and desire line infographics [a type of mapping that shows how places are linked together and how people use space]” to show how the public move through the city environment. These would produce “valuable insights [for]… transport, urban planning, active travel and many more departments” and inform decision-making and daily operations.

Twelve local authority respondents answered questions about training for CCTV operators, with eight stating that operators received some kind of training and the remaining four stating that they did not know. When asked about the level and type of training offered to CCTV operators, five of the seven respondents who answered referred to Security Industry Authority (SIA) training, including two who also mentioned data protection.

Two local authority respondents who stated that the purpose of public space CCTV had changed also noted that the type and level of operator training had similarly changed and appeared to include more legislation and planning training. One local authority respondent stated that managers received training on “legislation, control room management, planning, networking and…advice from consultants”; another stated that their operators were receiving training on the Regulation of Investigatory Powers (Scotland) Act (RIPSA).

4.4 Maintenance, equipment and footage

Out of the 13 local authority respondents that answered the question, “Who owns the public space CCTV cameras in your local authority area?”, 11 reported that they were solely in local authority ownership. One stated that the local authority had owned the CCTV cameras in their area since 2018 but, for 20 years prior to this, they had been owned by an “arm’s length” company. One reported that “private businesses and residents” also owned public space CCTV cameras in their area.

When asked about the kind of specifications that public space CCTV cameras have, the 11 local authority respondents offered similar specifications (including Wired (cable) transmission, Digital, Wireless (cloud, 4G, 5G, point to point, mesh network) transmission, HD, Pan and tilt, Zoom, Video motion detection/sensor, Night vision), whilst the remaining two did not know. However, the respondent based in a local authority which had not had an upgrade for more than 12 years described technology with noticeably fewer features than in other areas. A respondent based in a local authority which had an upgrade less than a year ago,

identified technical specifications that were not offered as options on the survey ("Fixed View, 360 view").

In response to the question, "On average, how often does the CCTV system need to be serviced?", eight out of 13 local authority respondents reported that the CCTV system in their area needed to be serviced between six months and one year. One reported that the system needed servicing more often; another local authority respondent stating that they needed to service them "[c]onstantly…[as] digital systems require consistent monitoring, firmware upgrades and troubleshooting [and] [c]ameras require annual planned preventative maintenance".

Regarding camera ownership, out of the 12 local authority respondents who responded to the question, "What, in your view, are the biggest challenges in maintaining the CCTV systems in your area?"[4], seven ranked funding as the biggest challenge, with a further two respondents ranking funding in their top three. Others ranked as the biggest challenge were staffing (n=2), technical specifications/standards (n=1), sourcing spare parts (n=1), and vandalism (n=1). Whilst respondents' remaining answers were distributed across options, there was a concentration on two challenges in particular: seven ranking technical specifications/standards as the second or third biggest challenge, and five selecting staffing. Among the least challeging aspects, 'procurement' and 'battery life/power failure' are suggested. Furthermore, two local authority respondents suggested two additional challenges that were not options on the survey – "contractor's service levels" and "cybersecurity".

Ownership and overall responsibility for public space CCTV facilities is generally the remit of the local authority, with Police Scotland being the other organisation playing a key role. Ten of the 13 local authority respondents who answered questions about ownership of the public space CCTV facilities in their area stated that the local authority had ownership in some capacity, with nine having sole owenership and one respondent listing Police Scotland as also having ownership. All ten of these respondents noted that the local authoirty had responsibility for public space CCTV control and monitoring, with nine saying the local authoirty had overall responsibility and one respondent indicating this was split with Police Scotland.

Three local authority respondents reported that Police Scotland had sole ownership for the public space CCTV monitoring facilities in their areas; two of these stated that Police Scotland had overall responsibility and one stated that the local authority shared overall responsibility with Police Scotland.

All 12 of the local authority respondents that responded to questions about footage sharing stated that they shared footage with Police Scotland. Other emergency services (e.g. Scottish Fire and Rescue Service), local businesses, transport

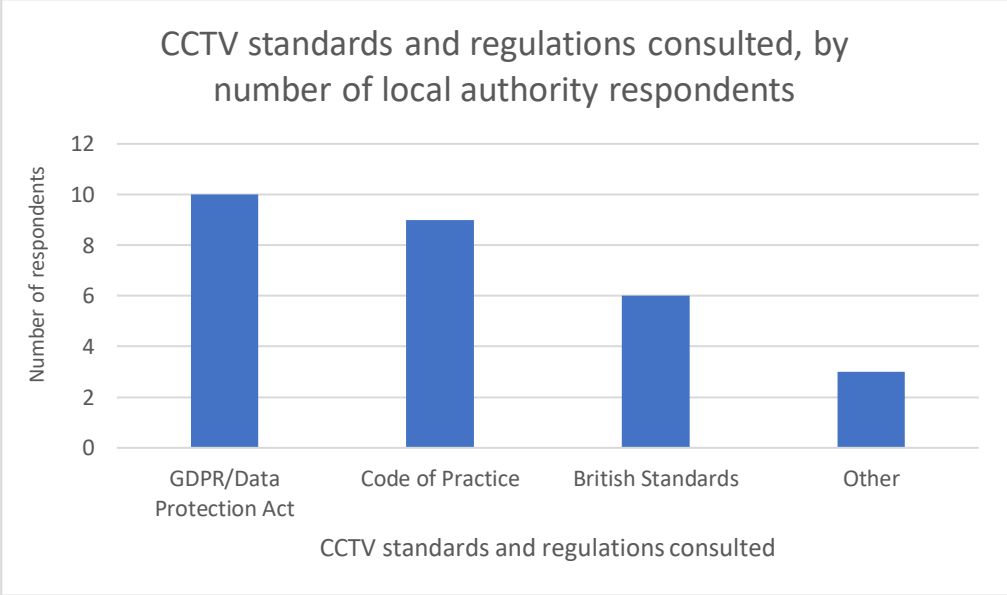
[4] Respondents were asked to rank up to five options out of nine provided answers (including 'other') in order from one to five, with one representing the most significant challenge.

agencies, and the general public were identifed as groups/agencies that share footage with local authorities.

4.5 Review and practice standards

Ten out of 12 local authority respondents who responded to the question, “Has your local authority area consulted national/international standards and regulations on the use of public space CCTV?”, stated that national/international standards and regulations had been consulted, with the remaining two answering ‘don’t know’. **Figure 2**, below, outlines the types of standards and regulations local authority respondents stated they used from a list of multiple choice options provided.[5]

Figure 2. Types of CCTV standards and regulations consulted by local authority respondents[6]



When asked, ‘Does your local authority undertake performance reviews of CCTV provision?’, five out 12 local authority respondents stated that their area undertook regular performance reviews of CCTV provision. They all provided detail on the frequency of these reviews, with one respondent stating that they undertake such reviews weekly, and one stating reviews happened monthly. Three stated that reviews were carried out on an annual/biannual basis.

[5] Question total does not sum to the total number of respondents due to multiple answers being selected.

[6] ‘Regulations and standards mentioned under ‘other’ includes local operational standards, maintenance and installation standards, and compliant policies for specific settings e.g. nurseries

4.6 Evaluating impact, effectiveness and benefits

Local authority respondents were asked, “Here are some of the uses of public space CCTV. Please rank them[7] in terms of when you think public space CCTV is most useful in your area, with 1 being the most useful”, and were provided with 20 options in addition to an ‘Other’ category with a space to provide more detail. Once again, crime prevention featured prominently with six respondents out of 12 ranking public space CCTV as most useful in this area: the most commonly selected response. Public space CCTV was also identified as most useful in aiding police investigations by three local authority respondents. The focus of responses highlighted the importance played by public space CCTV in crime prevention and control, with a less use in community focused practices such as managing facilities, missing persons cases, monitoring accidents, parking/traffic control or fly-tipping/dumping.

When asked, “Have there been any evaluations of the impact or effectiveness of public space CCTV in your area in the last 10 years?”, four local authority respondents reported there had been and four others answered ‘don’t know’. These were described as internal evaluations and usually involved some form of partnership working with Police Scotland, whereby police statistics and objectives were shared to help evaluate impact.

In response to the question, “In your opinion, are the benefits of CCTV measured in your area, and if so, how?”, five out of the 13 local authority respondents identified Police Scotland data as a measure of the benefits of public space CCTV. Two local authorities also identified community safety statistics as a way that they measured the benefits of public space CCTV, with one of these stating that this was their only method used to measure this metric. Six local authority respondents reported that the benefits of public space CCTV were not measured at all but one added that it was “something we would like to explore”.

4.7 Funding

When asked, “Who funds the public space CCTV system in your area?”, the 13 local authority respondents who responded to this question identified local authorities (n=13) and Police Scotland (n=6) as contributors to the funding of public space CCTV. Local authorities were identified as the sole funder by five of these respondents. Three local authority respondents stated that their area received grant programme funding alongside local authority funding.

When asked about beneficiaries of public space CCTV that do not currently contribute to its funding, Police Scotland was identified by five out of 11 local authority respondents. For one local authority respondent, who reported that their area was in receipt of funding from Police Scotland, the suggestion was that the police’s contribution should be bigger as they “ultimately benefit the most from the outputs in terms of benefits realisation and savings on resources”. Other

[7] Respondents were asked to rank up to five options.

beneficiaries who did not contribute funding identified were businesses such as retailers and night-time economy establishments, legal firms, Crown Office and Procurator Fiscal Service (COPFS) and HMRC/DWP.

For the 11 local authority respondents who answered the question, “What does funding currently support?”, there was little variation. Funding was primarily spent on maintenance and upgrades to hardware, software, and the network as a whole. In two cases, the local authority respondents identified staffing as another key area of funding.

For five of the nine local authority respondents who provided details of development plans over the next three years, upgrades were either recently completed or planned with funding secured. One respondent stated that although they had a “very limited budget”. they would “continue to try and replace cameras one at a time and…undertake a comprehensive integration exercise”. Another explained that they had been “upgrading from analogue to digital since 2018, 60% completed. Working through this depending on budgets year on year”.

4.8 Reflections and future visions

In the final section of the survey, respondents were given the opportunity to provide more open-ended responses.

The questions asked were:

1) What are some of the biggest challenges to the implementation and use of public space CCTV in your area currently and in the near future?

   Response: 11 local authority respondents, 14 Police Scotland respondents

2) What changes to public space CCTV would improve the quality of life for local communities in your area?

   Response: 10 local authority respondents, 15 Police Scotland respondents

3) In the last 10 years, what has been the most significant impact of public space CCTV in your area?

   Response: 11 local authority respondents, 14 Police Scotland respondents

4) Please feel free to provide any additional information or comments on the use and impact of public space CCTV, including reflections on any of the following: Integration of systems (BWV, drones); covert use of overt systems; compliance with DPA; subject access requests; existence of a CoP, public awareness and trust (legitimacy); technological advancement (AI, FRT); relations with LA’s, etc.

   Response: five local authority respondents, six Police Scotland respondents

Respondents offered detailed and reflective answers that shed light on the current challenges they encounter while working in the area of public space CCTV, as well as the impact of this technology.

4.8.1 Reflections

Funding, resourcing, and being able to keep pace with changing technology were all identified by local authority respondents as key challenges to the use and implementation of public space CCTV and as avenues that offered better impacts for the community. Respondents were keen for an expansion in the areas covered by public space CCTV and for "flexibility" in the technology available to them to allow them to respond, "quickly to meet emerging trends".

A Police Scotland respondent also raised issues relating to resourcing, more specifically in the area of staffing. They indicated that there were "decreasing numbers of Council CCTV operators to control the system" and "[i]nsufficient staff and equipment deployed to maintaining the system". To improve the current landscape, respondents suggested that more cameras be installed, and more resources be directed to monitoring footage. One respondent referred specifically to a "CCTV review/investment/upgrade akin to that undertaken" in another area in Scotland as a good example of how to "optimise provision, and in so doing, maximise public safety".

One Police Scotland respondent also suggested that cameras should be upgraded to HD and suggested implementing regular cleaning and maintenance of the cameras. Reference to cleaning/maintenance of cameras was also raised by two other respondents. Issues around maintenance and, in particular, faulty cameras were described as "a huge hindrance to the effectiveness of CCTV".

Other challenges outside of staffing, equipment and technology were identified by local authority respondents, amongst them concerns about surveillance security and the need for better guidance about using technology from global manufacturers. One respondent stated that "Hikvision/Chinese Technology guidance issued by UK Government [is] both confusing and does not provide a legal framework for implementing recommendations".

A number of Police Scotland respondents suggested a need for additional resources to keep up with technological developments and upgrades of CCTV systems to better support police work. One respondent explained that "every improvement in the quality of footage assists the police with identifying and prosecuting offenders. This in turn makes the communities a safer place to live*."* Another stated that "[f]unding remains an imperative" when addressing the challenges in maintaining public space CCTV.

Alongside the calls for more funding to cover additional cameras and better technological specifications, one Police Scotland respondent remarked that cuts to funding "would create consequential impacts on service delivery for…diverse communities, and with CCTV integral to the majority of prosecution cases

submitted to the Crown and Procurator Fiscal Service, it could be argued, criminal justice outcomes."

Overall, for Police Scotland respondents, the challenges were the need for more regular maintenance, a "lack of available cameras", and upgrades of existing systems. When given the opportunity to expand on these issues, respondents described how newer systems, especially those utilising 4G networks, had been faulty and unreliable since installation. One respondent suggested that systems should revert back to being fibre-based as these provide better quality imaging.

One Police Scotland respondent also raised concerns about the varying quality of cameras across different locations, explaining that there was a "post code lottery in terms of the ability to detect offenders using public space footage". Another Police Scotland respondent indicated that large urban areas were identified as having cameras that record footage of a higher quality while outlying areas operate on standard definition cameras that receive little cleaning and maintenance.

A further issue for Police Scotland that emerged out of the survey data related to small towns and rural areas. In terms of challenges, one respondent noted that "rural stations are not linked into the 24-hour operator".

Two Police Scotland respondents gave examples of how footage in small towns is not being stored in police stations, but by local authorities, limiting the police's access to obtaining and/or viewing footage during investigations. One suggested a need for "[i]ncreased coverage in rural towns/villages which could also be remotely monitored within a single location". Another respondent suggested a change was made to link rural stations to the main hub.

For three local authority respondents, the most significant impact of public space CCTV was in the prevention or detection of crime and anti-social behaviour or reducing violence in their area. Another stated that public space CCTV provided "public reassurance". One local authority respondent suggested "expanding the functionality of the CCTV further beyond crime and antisocial behaviour", in response to the question on changes that would improve life for local communities. This was seen as offering "statistical insight to improve the built environment, urban planning and mobility".

Two local authority respondents pointed out the role that public space CCTV plays in missing persons cases. With one stating that CCTV has helped with "tracing missing persons [and] identifying homeless persons and finding safe space for them" with one remarking that, in their local authority, public space CCTV was considered "imperative" in helping with missing persons cases.

Police Scotland respondents reported predominantly on the benefits of public space CCTV when asked to reflect on significant impacts. For Police Scotland, it is clear that public space CCTV is considered "an integral part of everyday policing", supporting both crime detection and investigation. One respondent explained that

the “passive capability [of public space CCTV] was critical to achieving positive outcomes for victims/ communities/supporting criminal justice partners…offering opportunities to expedite outcomes for the benefit of victims / communities…and in so doing, keeping communities safe”.

4.8.2 Future visions

Local authority respondents shared plans for the future which were focused on technological upgrades, a better integration between legislation and practice, and a focus on and commitment to partnership working. Similarly, for Police Scotland, when reflecting on current challenges and the future of CCTV, there were calls for more streamlined operational practice, improved camera and network quality, and access to cameras/footage across the country. One respondent further suggested a “best practice hub” to both aid streamlining of practice and allow police divisions and local authorities to learn from one another.

The overall perspective offered by those responding from within the police was that public space CCTV played a significant role in crime detection and prevention. One respondent noted: “CCTV plays the biggest part while investigating major crime in Scotland” and any delay in keeping up with change could have major implications in ensuring the safety of the public and detection of violent criminals”. However, as one local authority respondent put it – “the opportunities are endless - but time and money is limited”. Certainly, funding seems a pressing and current challenge for those working in public space CCTV in Scotland but, equally, the lack of a national approach and formal standardised best practice is adding to the strains of budgets and resource allocation.

4.9 Summary

Public space CCTV is a well-established technology in the local authorities and police divisions that were surveyed. It is seen by Police Scotland and local authorities as an essential tool in the prevention of crime and anti-social behaviour, and cameras are primarily being used in city centres and residential areas to fulfil these purposes.

Both Police Scotland and local authority respondents consider public space CCTV as playing a central role in crime prevention, minimising anti-social behaviour, and promoting community safety. However, in some local authorities, public space CCTV is being used to benefit the public in other ways, including in improving urban planning, aiding missing persons enquiries, and as a form of income generation and there is ambition to expand its functionality in these areas.

In this study, most local authorities said they had significantly improved their public space CCTV systems in the past three years. However, Police Scotland expressed concern about the maintenance and technology standards. They noticed a difference in image quality and the number and placement of cameras in different locations. Police Scotland noted that these discrepancies were largely due to geographical factors, with urban centres having better technology and more frequent maintenance.

Local authorities are playing a central role in collaborating with other agencies and supporting their work. In particular, they are working closely with Police Scotland in the management and use of public space CCTV. There are clear benefits to this kind of collaborative working, especially in the sharing of data for evaluation work. However, there is a feeling from some that other agencies who are benefitting from public space CCTV and footage sharing could be providing support and resources to their local authority partners.

Funding is another area where the demands of both stakeholder groups are complicated and difficult to balance. Police Scotland respondents are keen to emphasise that local authorities need more funding but, from the local authority perspective, Police Scotland emerge as a key beneficiary of public space CCTV who either do not currently contribute to funding or could be contributing more.

Local authorities are working to ensure their equipment stays functional and useful through regular maintenance and upgrades. The main challenges in maintaining public space CCTV identified appear broadly intertwined as funding facilitates improvements in technical specifications and systems. There is evident variation across local authority areas and an appetite for better equipment and the latest technology expressed by those working in the areas.

Local authorities who responded to this survey expressed that they are invested in the improvement and upgrade of public space CCTV systems, with certain local authorities trying to utilise the technology to generate data and benefit local communities in ways that go beyond crime prevention. However, there are challenges in funding and resourcing, as well as a lack of consistency in policy and practice.

As is clear from the responses to this survey, those working in the area of public space CCTV are keen to share their experiences and make improvements. One local authority respondent explained that “progression of partnership work and collaboration on programmes” was an important part of the use and impact of public space CCTV. There is a lot of support for a more centralised and standardised approach to public space CCTV which, according to one local authority respondent, would help “reflect best practice or unity nationwide”.

Both police and local authorities expressed an interest in a national hub/centre of best practice and in the standardisation and centralisation of both policy and practice. One local authority respondent stated that “there needs to be a Scotland CCTV network group where national issues can be discussed and agreed”. Here, both “both generic and individual problems” could be shared and advised upon. Another local authority respondent explained how they had both visited and hosted other local authority representatives and “shared best practice and got advice” demonstrating that this kind of skill sharing is being proactively sought out. Given some of the issues that have emerged out of the survey data about the complications and challenges of police and local authority collaboration in the

management and operation of public space CCTV, it could be a beneficial idea to explore more formalised ways to centralise, skill share, and work together.

5. Qualitative Interview Findings

5.1 Qualitative interview overview and sample limitations

Semi-structured qualitative interview topic guides were designed by the research team with input from the Scottish Government and Police Scotland. The topic guides included themes pertaining to:

- Connections to place
- Monitoring technology
- Use, impact and effectiveness of public space CCTV
- Safety and security

Qualitative interviews were conducted between January and February 2023 with stakeholders that work with or are impacted by public space CCTV in their local communities, including: residents/community groups, CCTV operators, police officers, and local government employees.

As evident from Table 3, 26 interview participants took part in the study across 13 interviews, with each interview lasting an average of 56 minutes. Participants ranged in age from 18 – 82 years old, lived or worked in over 10 different areas of Scotland, and included 14 women and 12 men. As detailed earlier, to protect participants' anonymity, participants' names and specific locations are not included in the report and instead more general descriptions and locations are used.

Table 3. Total number of participants for qualitative interviews

Local Authority employees	Police officers	CCTV operators	Local residents/ community group members
11	7	4	4

To make participation more inclusive and accessible for all participants, interviews were offered in several formats, including: one-to-one or group interviews that could be conducted in sit-down or 'walking' interview formats. Interviews took place either in-person or online (by video call) if preferred by the participant or due to geographical constraints. See Table 1 on page 16, for a breakdown of interviews and participants by the varying formats offered.

Further qualitative engagement with participants across the public space CCTV landscape in Scotland via participant observation would be worth keeping in mind for further studies in this area. A limitation of this study was that it did not specifically seek out gendered perspectives, nor perspectives from racialised and migrant communities, as this was outside the scope of this project but would be beneficial to consider in future research.

Interviews were designed to provide a situated, place-based context to understanding how communities across Scotland perceive the use and value of public space CCTV in their local areas. This chapter details the research findings from these interviews.

5.2 Community-based perceptions towards the use and value of public space CCTV

5.2.1 Public space CCTV and crime

A key theme across all interviews was the relationship between public space CCTV and crime. According to the 2011 National Strategy, public space CCTV is intended to play a significant role in the prevention, detection, and prosecution of crime (Scottish Government, 2011). The opinions of the community on this matter were divided. Most participants believed that CCTV cameras in public spaces could prevent crime. CCTV Operator 4, who worked in an urban area, felt that CCTV still played an important role in preventing, or at least displacing crime to other areas:

> 'I think there's still a deterrent there. I think it still gives an element of perceived safety. […] many of us will take routes home that we know are well-lit or have cameras there. I think we're aware that there is an element of monitoring of them and, actually, there is probably a security thing there. I still believe that if people are going to commit a crime, they're more likely to do it off camera if they can, particularly if they're planning something. I think a chance interaction could still happen on camera and people don't give much thought to that. The most serious of crimes and the ones that we really all want to avoid, I think there's probably a level of premeditation in it, and I think with that premeditation means that you're probably less likely to do it on camera [...]' (CCTV Operator 4, urban area)

Public space CCTV, according to CCTV Operator 4, can provide security and safety to monitored areas because people are less likely to commit certain kinds of crimes on-camera. This sentiment was echoed by Police Supt. 2 who, below, reflects on his previous work in a town area:

> 'Yes, so volume crime, your opportunist theft, your breach of the peace, your drinking in the street, much lower level…you know, even drug taking in the street, drug dealing in the street. These are the volume of crimes that we find. The other ones that are linked to many of these are assaults. […] Those are the kind of crimes that you would find day-in, daily that a CCTV system would identify offenders for.' (Police Supt. 2, town area)

This evolving, multi-purpose use of public space CCTV includes additional objectives around environmental issues such as fly tipping, dog fouling, littering, and other forms of wildlife and biodiversity harm. Other participants also highlighted how both police officers and CCTV operators are increasingly responding to mental health and missing person cases, in which CCTV plays an important role. For example, Police Officer 4, who works in a town, expressed that he felt 70% of the

work he did was mental health-related, as opposed to 30% which was crime-related.

While these interviews highlight the role of public space CCTV in potentially preventing and detecting certain kinds of crime including opportunist crimes, lower-level volume crime, and assault, this study has also found that the use and purpose of public space CCTV is slowly evolving outside the traditional crime-focussed remits of community safety to include assistance with vulnerable and missing persons, mental health emergencies, and environmental issues. As the use of public space CCTV expands, according to Local Government Employee 7, managing CCTV operations in an urban area, crime prevention and detection will remain its intended primary objective.

> '[CCTV] was seen as very much a positive, very much from a crime detection, prevention element. And I think that's, that is the primary requirement for CCTV. It'll never change in terms of its probably primary objective for public space CCTV. However, as time has evolved, you know, there's other concerns, there's other priorities and it's how CCTV obviously evolves with it to provide those inputs and sort of support to that sort of changing need. But its primary purpose will always be, or should be […] around crime, around crime prevention, detection, public reassurance. If we look at our objectives, the key ones as time has evolved, we've started looking more at environmental issues, environmental crimes and instability.' (Local Government Employee 7, urban area)

There is evidence that some local authorities do not have as many resources to use CCTV to responsively monitor the myriad issues they are faced with and, furthermore, that they sometimes find other ways to try and resolve problems in the community. For example, Local Government Employee 8, working in a rural area, explained that because CCTV is often not available/in place, due to funding issues, temporary CCTV signs, including laminated A4 signs, were sometimes displayed instead in an effort to prevent crime and make people feel safer in the absence of cameras. This local government participant remarked that public space CCTV signage can be as effective as mounting actual cameras in response to community issues, explaining that people may assume they are being watched and behave differently in light of the signage.

While putting up non-official CCTV signs does not represent sanctioned best practice, its use, and this account, highlight the variability of resources/funding across different regions and also how at least one local government team had responded to this challenge. CCTV signage is an important aspect of public space CCTV provision and many local residents in a different town area agreed that signage was as important as the cameras themselves in preventing crime and desired more signage and cameras in their community.

5.2.2 The use and value of public space CCTV footage as evidence

Along with crime prevention, public space CCTV also plays a significant role in evidencing and in the prosecution of crimes via the availability of footage as a form of evidence. Many police participants expressed views about the importance of

CCTV footage as potential evidence, with some arguing that it was more important than CCTV's crime prevention and detection functions. According to Police Officer 1 below, a city centre officer in an urban area, the value of public space CCTV is in its evidentiary ability to enforce judicial consequences for wrongdoing.

> 'CCTV for me is a tool to prove what's going on. I don't think it's going to alter people's behaviours as a general rule. I think the youth of today have got somewhat more of a backbone than we might have had in our…and I think as a society we're making no challenges or consequences for people […] Great tool but you need to use it to make consequences rather than changing their behaviours, as it were.' (Police Officer 1, urban area)

In Police Officer 1's opinion, CCTV is more effective as a form of evidence than as a way of preventing anti-social behaviours. Police Officer 4, a response officer working in a town area, situated CCTV footage within the typologies of evidence he works with in his job. He argued that eyewitnesses provide the best form of evidence, but that a case becomes even stronger if there is corroborative CCTV footage evidence to support the eyewitness testimony. Police Officer 4 expressed that CCTV evidence was particularly important in cases relating to the night-time economy, including those involving people under the influence of alcohol, missing persons, and mental health emergencies.

Many police participants discussed using different sources of CCTV footage including private footage from local malls and shopping centres, hospitals, and private residences, for evidence-gathering and responding to issues in the community. Using a mix of public and private footage provides police with a time-stamped narrative of someone's movements over a period of time. However, for police to be able to get the best value from public space CCTV footage, it needs to be accessible and more easily shareable across the range of actors involved in a criminal case. Police Officer 1 explained some of the technical and training issues that he faced, issues that can potentially create barriers around CCTV evidence sharing.

> 'We're at the stage where we seize footage, we can only do so much as an individual. We're not computer geniuses or scientists or operators. We hand it to the crime office, the crime office can't play it, so they hand it back to the reporting officer and we're going, well, I don't know. We haven't got that knowledge or skills or ability whereas Police Scotland should have that.' (Police Officer 1, urban area)

CCTV footage could be better used and shared by police officers by being made available in different file formats; and further technical training could enable officers to use and share CCTV footage more efficiently. Police Scotland and the Scottish Government are currently exploring new ways to diversify forms of digital evidence and how it can be shared with the courts, in addition to training support (Scottish Government, 2023). One of these new developments, as explained by Police Supt. 2 below, will change how public space CCTV footage can be shared in the criminal justice system:

> ‘So we call it from crime scene to court room. We will provide the pathway for digital evidence, vis-à-vis CCTV and others, to come in. We will expand the processes and the system itself to other forms of digital evidence going forward, that’s audio recordings, that’s documentation sets because currently, you may not know this, but when we provide a report to the Fiscal, we generate it in Word, then we print it off, then we sign it and then we lodge it as a paper copy. It’s just ridiculous so we’ve got electronic signatures approved so now all you need to do is… Well, not now, but in the future, you’ll be able to type it and then just put that straight into DESC and then that’ll be a URL link back to the Fiscal for them just to open up.’ (Police Supt. 2, town area)

This ‘crime scene to court room’ pathway for public space CCTV evidence offers potential for increasing the value and effectiveness of CCTV footage as a form of evidence. The current pathway, as highlighted by police officers in this study, involves too many intermediaries, format changes, barriers, and time, whereas the future of public space CCTV could potentially be more streamlined, centralised, and internet-based.

5.2.3 Future directions in public space CCTV usage and purpose

As already mentioned, this study has found that the use and purpose of public space CCTV is evolving across different areas of Scotland. While crime prevention, detection and prosecution remain important, public space CCTV is also being used for environmental issues such as air quality and noise management, as well as to help with missing persons. According to Local Government Employee 9 who works in an urban area, the future direction of public space CCTV should not be confined to just community safety:

> ‘CCTV to me is just a visual sensor. We now, in smart cities, talk about connected places. And we’re talking about a massive proliferation of devices across every city really, to monitor air quality, noise, other environmental conditions, sensors in housing so we can monitor, you know, dampness and energy use and things like that. So CCTV, to me, is just part of the sensing system of a smart city. But it’s quite an important one and a slightly different one to many of the other sensors because, you know, it’s about people and safety and the movement of vehicles and the people around a city, making sure that is functioning well and to everybody’s benefit, you know? So there’s an awful lot that can be gained from seeing CCTV as part of that whole city monitoring, you know.’ (Local Government Employee 9, urban area)

As part of a ‘smart city’ scheme (Scottish Cities Alliance, 2016), Local Government Employee 9 expressed that public space CCTV should be embedded in more multi-dimensional and ecological approaches to monitoring a place, as part of a wider whole city monitoring approach. This exemplifies just one of the ways that public space CCTV may evolve in the future.

5.3 Patchwork governance and ad hoc provision

5.3.1 Governance and funding

A recurring theme across this study and echoed previously in the 2011 national strategy and the Scottish Community Safety Network's 2019 review, is that the provision of public space CCTV across Scotland is a disjointed and ad-hoc landscape, as described by Police Supt. 2 below:

> 'Right across the whole of the country there are different models, different processes, different…you know, some are council-funded, some are wholly police-funded. There are police-funded CCTV systems in the country…. Some are purely council-funded and the rest are a hybrid between them both […]' (Police Supt. 2, town area)

The governance, operation, maintenance, and funding of public space CCTV across Scotland ranges from town to town, council to council, and police division to police division. These jurisdictional boundaries overlap one another, creating disparities in provision and operation between adjacent places. One police officer highlighted how the police division he oversaw had three local authorities each with their own unique CCTV governance and operation arrangements where some had 24/7 operation centres and state-of-the-art equipment networked with local authority housing associations and others had recording-only systems which meant there were a limited number of fixed cameras in the area and no local operation centre.

This variation in governance arrangements and resource provision makes it difficult to qualitatively comprehend the effectiveness of public space CCTV provision across Scotland. For example, in some communities, the recording-only models have been criticised as being less effective. Police Officer 3 reflected on working in a rural area that happens to have one of the only two operations centres in the whole local authority area:

> '[Towns 9 - 14], it's all remote and I can't…I've never worked there since it's been like that and I can't work out how it works. I can't see how it's successful. I can't see it. Surely the idea of CCTV is that somebody's watching it, I think. […] so if there's an incident in [Town 9] on a Saturday night, anything as simple as an assault they can't deal with it. Well, they can deal with it, that's a lie but they can't review that CCTV until Monday morning. But if it was a Bank Holiday, they can't review it until Tuesday morning. I just don't see how it's serving communities. I don't see how it's serving victims. I don't see how it prevents crime.' (Police Officer 3, rural area)

Governance arrangements impact the effectiveness, value, and availability of public space CCTV. They are inextricably tied up with funding and investment, which will be discussed below, and therefore, is a highly politicised issue.

According to police, CCTV operator, and local government participants, the provision of public space CCTV in Scotland can be considered an arrangement between the Scottish Government and local authorities, with Police Scotland acting somewhat as a middleman between the national government and the 32 individual local authorities. As Police Supt. 1, working in Partnerships, Prevention and Community Wellbeing (PPCW), expressed:

> ‘The division I work within at the minute is responsible for managing the payment of all CCTV systems in Scotland […] which to me doesn’t make sense. So basically, [PPCW is] the conduit between the local authorities and the Scottish Government for the payments of the money, so everything comes through [the department] in effect. Which I don’t really understand why, but that’s been the case since I became part of this division. For me, there’s no locus for Police Scotland to be involved in that. It should simply be a case of Scottish Government allocate the funding to the local authorities and that’s the relationship. I don’t know why Police Scotland is in the middle of it all.’ (Police Supt. 1, urban area)

The involvement of Police Scotland in this arbiter role for public space CCTV funding provision is considered by senior police to be a remnant of legacy arrangements before the merging of Police Scotland. However, it is unclear to some of those involved why this is still the case.

Nevertheless, funding, investments, and budgeting were important topics in police, local government, and CCTV operator interviews. CCTV Operator 1, based in an urban area, highlighted how public space CCTV has ongoing costs, not just with installation, but with maintenance as well which, he noted, can be expensive.

> ‘Unfortunately, CCTV costs money. It doesn’t make money. It costs money. People seem to assume, you’ve got a camera in place, it’s there forever. It’s a mechanical device living outside. Weather issues, rodents chewing cables, it’s just an ongoing problem basically.’ (CCTV Operator 1, urban area)

Funding public space CCTV is a complex issue. In some instances, local authorities pool resources together to fund public CCTV systems which can help to alleviate local disparities. However, this requires a great deal of cooperation and responsibility. As Police Supt. 1 describes:

> ‘There are basically three council areas and they’ve all come together to purchase CCTV equipment for [Region 8] as a whole. And said that it seems to be working very well, other than when the software doesn’t work.’ (Police Supt. 1, urban area)

On an operational level, blended governance and funding models can lead to some confusion and complications for resource sharing and operation centre housing between local authorities, police, and commercial operators. CCTV Operator 3 in a rural area, highlighted how the local council had control over use and maintenance of cameras and equipment where she worked, but the operation centre and her position were funded by the police.

However a number of benefits to blended governance and funding models were also identified. In an urban area, local city centre police operated out of a local council building, and the privately contracted CCTV operators worked in a police station on the outskirts of the city. The CCTV operation centre was imminently being transferred to the local council building despite it being operated via a police-private partnership because the city centre police officers who used it the most were also based in the council building. While there were important boundaries

between each of these agencies, partnership work and collaboration are integral to using public space CCTV. Moreover, CCTV operators negotiate relationships not just with police, but also private local businesses in the area. In turn, police, such as Police Officer 1 below, also rely on private commercial CCTV networks from local retail centres and ShopSafe/Pub Watch networks.

> '[…] [the town square], high area for us at the moment because there's a lot of antisocial behaviour, youth disorder, drinking, drug taking and all the rest of it. So, we rely on [shopping centre] to cover a lot of it. Our cameras are out there but because of the foliage of the trees it's very awkward, so we have to use a combination of both for evidence and things.' (Police Officer 1, urban area)

According to Police Officer 1, private CCTV systems can make up for gaps in public space CCTV coverage. Footage sharing requires paperwork and documentation, but many police participants expressed that commercial CCTV operators are cooperative and process requests quickly. As Police Officer 2 describes below, ShopSafe links are integral to his work, creating open communication channels with local businesses and CCTV operators.

> 'So, it does work both ways so we're always in that constant communication and that's why the ShopSafe works so effectively. All the partner agencies and all the shops and clubs and that because they've got their own CCTV, we can utilise them as well.' (Police Officer 2, urban area)

CCTV operators can notify police of things 'kicking off' and in turn, police are able to use CCTV operators as an eye in the sky during live incidents. Police use of private CCTV communication links supports the use and objectives of public space CCTV more generally. However, investments in public space systems are still necessary and have value. Upgrades to public space CCTV systems can have tangible impacts, such as in the anecdote described by CCTV Operator 1, in an urban area, below:

> 'As soon as we got the first 4K cameras we had an elderly chap with dementia from [Town 21] so we can hear that on this radio. He used to drive for a haulage company based in [City 6] and he disappeared in [Town 21], no idea where he is, cold winter time. He went out with the dog, a thin jacket or cardigan to go a quick walk and gone, nobody could find him up there […] With the new camera, 'that's him, that's his dog', sent the description back. Because we've got the equipment we've got now I could actually send it to the cop at that end, she looked at it, showed the wife, that's him […] it may have been a very different outcome but the timing was just fantastic and you're like, does it pay for itself? Hell, yes. If you ask that family, yes, absolutely.' (CCTV Operator 1, urban area)

By explaining how he had upgraded the camera resolution in the operation centre he works in, CCTV Operator 1 highlighted how public space CCTV can make a difference in people's lives. While investment is costly, those working with CCTV every day demonstrate how investments can be worthwhile, making CCTV more effective and valuable.

5.3.2 Vision, direction and standards

Ad hoc and patchy governance arrangements for public space CCTV can make it difficult to gauge where CCTV is headed in the future. Local Government Employee 9 suggested that public space CCTV lacks central vision, noting that the most recent unifying strategy is over a decade old.

> 'So [CCTV's] really, really valuable. But to me it's a bit of Cinderella service, you know, nationally we're confused about where it should sit, who's responsible for it and nobody seems to have a clear vision as to where it's going to go in the future […]' (Local Government Employee 9, urban area)

Participants such as Local Government Employee 9 above highlighted that this lack of vision is inextricably linked with the confusion over governance arrangements and other areas of CCTV responsibility. Local Government Employee 7, working in CCTV operations in a different urban area, echoed this sentiment but also highlighted the importance of community input in creating future standards.

> '[CCTV] needs governance. Technology, again as we've touched on, is changing, evolving, it's how you manage all that and be able to then sort of reap the benefits of it as well. But communities have to be at the heart of this, you know. They have to be. Otherwise, you know, you've got to build those relationships and trust in terms of what you're doing. And I think that's where, you know, benchmarking, best practice, has to, you know, come in, strategy, you know. […] How do you standardise all this? How do you capture it all and say, right, we all, this is what we should all be doing?' (Local Government Employee 7, urban area)

This local government employee makes the point that having updated benchmarks for best practice will help to improve the use of public space CCTV and its effectiveness. Accordingly, community perspectives could be integrated into best practice to maintain public reassurance and trust in the future.

As public space CCTV equipment, resolution, and staffing evolves and improves, this study has found that participants want updated resources on best practice and the overall vision for CCTV. This is particularly relevant as public space CCTV becomes more multi-purpose and evolves with changing communities.

5.4 Perceptions of safety

5.4.1 Feeling safer because of CCTV presence

Many interview participants, civilian and police alike, expressed the view that public space CCTV made them feel safer when using public spaces in their daily lives and while at work. Participants such as Local Government Employee 2, highlighted that the placement of public space CCTV often impacted where she went and how she felt about her safety.

> 'In terms of going…you know, the likes of the safety, for me, that's a big thing for me is safety with the cameras […] when you know that there's cameras round about, you know, I think it was you…it was [another group interview participant] that

> said you're looking over your back, you just don't know who's lurking about. And that's…the camera gives just that wee bit of a security. Security blanket, I suppose.' (Local Government Employee 2, town area)

The relationship between public space CCTV and women's safety was an important theme across many interviews with residents. The notion that a CCTV operator may be looking out for you was a strong, positive sentiment from some of these participants. For example, Resident 2, who lives in a housing association property networked into the local public space CCTV system, associated the safety and security she gets from public space CCTV with her sense of home.

> 'I'm on my own and what I feel about here is it's secure because there's a door entry system and it's really secure.' (Resident 2, town area)

In Resident 2's housing development, she and the other residents were able to stream public space CCTV footage from the building's entry system onto their television screens, to see who was at their doors. Many residents enjoyed this affordance, and though it appears to be an unusual use of public space CCTV as set out in the study's original conceptualisation of it, it demonstrates how public space CCTV in Scotland involves some definitional irregularities spatially and in its purpose.

Police officers and Superintendents similarly highlighted that public space CCTV and being watched by CCTV operators made them feel safer at work, particularly in risky situations. Police Supt. 2 recollects below an incident that occurred when he was an officer in a town area:

> '[…] So, a couple of things from me, there was officer safety implications in terms of me being followed by the cameras to see where I was going because I was on my own chasing an individual who could have been armed with a weapon. They weren't but could have been. The CCTV also assisted in the recovery of evidence, vis-à-vis the drugs that were discarded. A colleague was also protected as he pursued his male. Also, when he arrested his male and the cameras are on you, it reduces the opportunity for people to make complaints about any use of violence, use of force. Then bringing them back, you're holding onto them at all times, you're shown to be professional and that plays out in court as well when the public see that as a jury, if you like, because that did go to jury trial, that one.' (Police Supt. 2, town area)

The presence of public space CCTV can provide a sense of safety and a feeling of being 'looked out for'. This seems to be particularly the case for women and for people generally when in public spaces alone. Furthermore, public space CCTV coverage can provide police officers with a sense of safety, accountability, corroboration, and assistance.

5.4.2 Perceptions towards the absence of public space CCTV

While the presence of public space CCTV in Scotland made many participants feel safer, the absence of CCTV cameras made some participants feel uneasy.

According to Local Government Employee 9, who works in an urban area, this is indicative of a cultural appetite for CCTV in the UK more generally:

> 'I think the British public expect to see CCTV in their town centres and city centres […] they know there's cameras watching them. But so many incidents now that are taking place in recent years are detracting from people's feeling of safety. And in every one of those instances the first recourse is to CCTV. So people actually don't want to be where there's no CCTV 'cause they feel unsafe.' (Local Government Employee 9, urban area)

The absence or removal of public space CCTV equipment was arguably more noticeable for participants than its installation. Resident 1, living in a town area, explained how the damaging and removal of a camera at a nearby bus stop meant that she felt less safe in this space; she also believed its removal had contributed to an increase in fly tipping.

> 'Can I say…we had CCTV up at the bus stop for a while, but it stopped. I think people were climbing up and breaking it. And then they put something up to stop them climbing. But now it's not used. And it felt quite safe there because at night time, it's quite a quiet place and standing the bus stop felt safer when the camera was there. […] There's a lot of fly tipping as well and that would stop all that if we had more cameras.' (Resident 1, town area)

Many of those participants who either felt neutral about the presence of public space CCTV or did not notice it in their daily lives, also expressed the view that more cameras would be welcome in their local communities.

5.5 Benefits, limitations and risks

5.5.1 Benefits

One significant benefit of public space CCTV arrangements noted by police and CCTV operator participants in interviews was that local police maintained strong relationships in the community with local businesses and community groups in order to share information and CCTV footage. Police Officer 2, a city centre officer in an urban area, was proud of the relationships he maintained with the community this way.

> 'I think that's something we've worked at in the city centre. We go around and make these connections with people and we just always go in on our patrols and just see how everyone is and build up those relationships with businesses.' (Police Officer 2, urban area)

In a rural area on the other side of the country, Police Officer 3 and CCTV Operator 3, working together, similarly expressed that cooperation with local businesses benefitted all parties:

> 'I think the money that goes into shoplifting, the economy that loses with the amount of shoplifting, if you're getting £1,000's worth of perfume for somebody, you know, [CCTV] cuts out a lot of the losses for…' (CCTV Operator 3, rural area)

> '[Businesses] pay for the radios and the radios cost about £400, £500 a year but I can recover that in one shoplifting. So that's their radio paid for by the police recovering their shoplifted goods which wouldn't happen if we didn't have the CCTV operator going, he's gone here, she's gone there et cetera.' (Police Officer 3, rural area)

As CCTV Operator 3 and Police Officer 3's accounts highlight, ShopSafe links are an investment for local businesses, but the ability for them to potentially recover stolen product may be worth the ShopSafe investment.

Another benefit highlighted by several local government employees was multi-agency cooperation in operation centres, leading to a more joined-up approach to community safety. As Local Government Employee 7, working in CCTV operations in an urban area, stated:

> '[…] One of the biggest positives of doing this is being able to bring everybody together and having them all in one location. […] Communication is key to everything in terms of how these services are run and managed and how we respond to, you know, emergencies or, even your day to day. If you can fix those challenges and overcome some of the red tape or having to pick up a phone to someone you're not sure, that solves half the problem, so that was a big part of this thinking was, how do we bring them all together, get them in the same room?' (Local Government Employee 7, urban area)

This account highlights the potential benefits of having an integrated operation centre, where different agencies can better communicate with one another.

Local Government Employee 9, working in a different urban area, similarly expressed that while various agencies may have their own objectives, looking at the same footage and being in the same room can lead to better communication and more effective use of public space CCTV.

> 'There's some merit in having everybody viewing the same screens. They may be looking at them for different reasons, but there's a close cooperation between those different people so you can, you know, look at the same screens and pick out what you need from it for your own purposes.' (Local Government Employee 9, urban area)

When used more effectively, public space CCTV can also help to allocate resources during an incident or emergency, as CCTV operators can direct what kind of emergency response may be needed. As Local Government Employee 10, who works in CCTV operations in a town area, stated:

> 'If there is an incident happening, we have got the ability to share those images with the control room, who you would be on the phone to or anybody would be on the phone. And it actually helps them resource as well 'cause they make the decision to say, that needs X amount of officers or vans there et cetera and things like that. […] So maybe sometimes as well when the police are actually dealing with something

> that involves maybe a group of ten people, [CCTV Operator 2]'s watching the people who the police aren't dealing with either and reporting back directly. So [CCTV Operator 2] can actually phone the badge number of the officer and vice versa, they can phone direct as well, and dialogue can be made.' (Local Government Employee 10, town area)

As these accounts show, rather than functioning as a passive service, public space CCTV, when used in proactive ways, can be beneficial to other emergency and response services. Cooperation and collaboration between different community safety actors can provide a more holistic, whole systems approach towards community safety issues.

5.5.2 Limitations and risks

A significant limitation to the use and development of public space CCTV in Scotland is scarce funding and investment. While digitalisation can potentially improve the use and sharing of CCTV footage, this requires internet capability and investment from various stakeholders to put the necessary infrastructure in place. As Local Government Employee 7 stated, 'there has to be a willingness and it's, of course it's investment. Yes, it's technology, but it's also a culture change.'

This study found that there are public space CCTV funding and investment disparities across different areas of Scotland. Furthermore, as certain areas fall behind in upgrading their systems, this can impact the usefulness of public space CCTV. Police Supt. 2 remarked that most mobile phone cameras are better quality than public space CCTV:

> 'I think, for me, CCTV, because it's not keeping pace, is falling behind in terms of quality and usefulness when you see the quality of what people are providing both from Ring doorbell footage, by way of example, and by mobile phones, the cameras on mobile phones which are probably better quality cameras now than what CCTV […]' (Police Supt. 2, town area)

These limitations, which are related to funding and investments, could hinder the future potential for public space CCTV as commercial and private CCTV systems potentially outpace public ones.

5.6 Maintaining localism

Across the range of interview participants (n=26) involved in or impacted by public space CCTV in their work and personal lives, there was a contradictory tension between the desire for system integration and centralisation and the desire for maintaining public space CCTV systems as locally as possible. This finding speaks to perceptions of effectiveness and efficiency now and in the future.

Some participants, particularly those working in local government and senior police, highlighted the benefits of diversifying and integrating the various purposes and uses of public space CCTV. This is exemplified in the account of the CCTV operator below:

> ‘So, a lot of the cameras were put in in response to the crime and the landscape of what was going on in [City 1], you know, 20, 30 years ago. […] The systems were scattered in lots of different locations, managed by the police. But as [City 1] has evolved as a city, as technology has evolved, the whole CCTV network was brought together in the, I think the late 1990s and I think immediately people could see the benefits of having a joined-up CCTV estate, one location, that would then provide sort of monitoring and coverage city wide.’ (Local Government Employee 7, urban area)

While the participant above argues this integration is relevant to city-wide developments, the area he works in also absorbs footage from other areas of Scotland that do not currently have capacity for an operations centre. Local Government Employee 9, working in a different urban area, also expressed desire for a centralised, integrated CCTV service.

> ‘An integrated operation centre is really where CCTV, for me, needs to sit in the future. And that’s just where we’re on a very small scale, ’cause we have a very small number of cameras.’ (Local Government Employee 9, urban area)

As this chapter has demonstrated, public space CCTV is evidently moving beyond the traditional remits of community safety to respond to a range of issues including mental health and welfare, roads, environment, housing, other emergency response agencies. This may potentially involve the centralisation of resources and digitalisation of footage.

However, a different group of participants, noticeably consisting of local police and CCTV operators, felt that public space CCTV needed to be a local service with local knowledge and expertise at the heart of it. Based in a rural area, CCTV Operator 3 attributed the quality of her work to her deep understanding of the place and people she lives amongst:

> ‘And being local as well, you know who’s not local, if that makes sense. We’ve had somebody who stole a car from up north […] We tracked him and got him down here. They’d been looking for him for two or three days. So just because I was like, oh, I don’t know him, you know like, sort of, I’m not saying I know everybody but you recognise somebody who’s not local.’ (CCTV Operator 3, rural area)

CCTV Operator 4, formerly based in an urban area, also expressed the importance of local relationship-building with residents and the familiarisation between local CCTV operators and those under surveillance.

> ‘For a lot of those people, especially the elderly, we did alarm calls from the concierge station or welfare checks as well. There was somebody just checking in that they were there. […] Somebody knew they existed and, for a lot of people who were alone and lived sheltered lives, the concierge might have been the only person that actually recognised that they weren’t there for a couple of days or any of that sort of stuff. […] I think there was something about a person physically monitoring, in real time, what was going on in that space and who could react in that space.’ (CCTV Operator 4, urban area)

This group of participants highlighted that the future of public space CCTV in Scotland should not strip away the local dynamics of each community, nor outsource the work of CCTV monitoring outside the community. Between those who envision an integrated and centralised system, and those who prefer a more local community-based vision, it is important to find a way of delivering public space CCTV in the future that is effective, efficient, and benefits local communities.

5.7 Conclusion

This chapter has detailed the research findings from qualitative interviews with 26 participants representing a diverse range of stakeholders working with or impacted by public space CCTV in their local communities, including: residents/community groups, CCTV operators, community safety partnership staff, police officers, and local government employees.

The data from these interviews provide a situated, place-based understanding of how communities across Scotland perceive the use and value of public space CCTV in their local areas. The chapter has explored perceptions towards the relationship between public space CCTV and crime prevention, detection and prosecution, governance arrangements and funding, perceptions towards safety, the benefits, limitations, and risks of public space CCTV, and the importance of local contexts.

While public space CCTV in Scotland continues to play a role in crime prevention and detection, findings indicate that perceptions towards its use and value have widened, as have the remits of police officers and local government employees working in community safety. Community safety and security in public spaces includes responding not only to criminal behaviour, but also to mental health emergencies, missing and vulnerable persons cases, environmental issues, and traffic issues.

Participants working for the police and local government expressed that there are disparities around governance and funding across different areas of Scotland, leading to ‘patchy’ and ad hoc arrangements that could benefit from updated, robust standards across the country. Many town and city centre police officers and local residents in communities highlighted that there should also be a focus on the local, place-based contexts of public space CCTV where it is actually delivered. Developments in the field of public space CCTV regulation and operation could benefit from addressing both the centralisation and localisation of public space CCTV in Scotland to enhance its strengths and mitigate its limitations.

6. Comparative Analysis: England and Wales and Denmark

To better understand the current provision and future direction for public space CCTV in Scotland, this study undertook a comparative analysis, examining public space CCTV in two comparable jurisdictions: England and Wales; and Denmark. While collecting survey and interview-based data, we conducted desk-based research simultaneously, analysing the research iteratively as our findings developed.

As detailed in Table 4, at mid-2021 Scotland's population was 5,480,000, with a density of 70 people/km^2 making it the most sparsely populated country in the UK (Office for National Statistics [ONS], 2022). However, with 91% of the population of Scotland residing in 2% of its land area in mid-2020 (NRSb, 2022), there are important geographic and demographic dynamics to consider in the provision of public space CCTV. Denmark's population is 5,932,654, which is relatively close to Scotland's but due to the smaller size of the country, it has a higher population density of 137/km^2 (Denmark Statistics [DS], 2023)

Table 4. Populations and number of CCTV cameras

	Population estimates	**Population density (pop. Per sq. km)**	**Estimated number of CCTV cameras (public and private)**	**Estimated number of public space CCTV cameras**
Scotland	5,480,000*	70*	unknown	unknown
UK	67,026,000*	276*	7.3 million**	unknown
England	56,536,000*	434*	unknown	unknown
Wales	3,105,000*	150*	unknown	unknown
Denmark	5,932,654***	137***	1.5 million*	300,000*

*Mid-2021 rounded estimates (ONS, 2022); **2022 (Clarion Security Systems, 2022); ***2023 (DS, 2023)

The exact number of CCTV cameras in Scotland, other UK nations and Denmark is unknown. In the absence of precise figures, we turn to estimates and best available evidence. As per Table 4, for the UK as whole, one security company estimated that there were over 7.3 million cameras (both public and private CCTV) in 2022,

equating to one CCTV camera for every 11 people (see Clarion Security Systems, 2022). The Danish trade association for safety and security estimates that there are approximately 300,000 public cameras in Denmark (Faktalink.dk, 2021). This number is likely to have risen since 2019 as a result of police and government co-investment of funds equal to £2 million in Danish public space CCTV - the purpose of this funding was the installation of more cameras (Ministry of Justice [Justitsministeriet], 2019; National Audit Office [Rigsrevisionen], 2021).

Overall, Denmark and Scotland have similar demographics and geography which leads to differences between urban and rural areas. England and Wales have important regulations that provide insight into the development and direction of CCTV technology in the UK. All the countries in this study rely on Public Space CCTV technology, but there is limited information about its usage.

6.1 Provision and objectives of public space CCTV in England and Wales

Although England, Wales, and Scotland are all part of the United Kingdom, there are overlapping national regulations and devolved regulations that are relevant to the provision and governance of public space CCTV across both jurisdictions. The provision of public space CCTV in England and Wales is currently under the supervision of the Biometrics and Surveillance Camera Commissioner (BSCC). This was a role established by the Home Office in 2014 with the following remit: encouraging compliance with the Surveillance Camera Code of Practice (Home Office, 2013), proving advice on the effective, appropriate, proportionate, and transparent use of surveillance camera systems; providing advice on operational and technical standards; and, reviewing how the code of practice works and advising the government where any changes may be necessary.

UK parliamentary reforms are underway in readdressing the role and scope of the UK Biometrics and Surveillance Camera Commissioner (BSCC) and Information Commissioner Office (ICO). According to the official blog for the Surveillance Camera Commissioner's Office, the new UK Data Protection and Information Bill could potentially 'scrap' the code of practice (Sampson, 2023).

Scottish local authorities and Police Scotland are obligated by the ICO to adhere to legislative requirements regarding the data captured by public space CCTV. Furthermore, under the DPA/GDPR, they have a legislative/regulatory remit for the whole of the UK, including Scotland (consisting of an independent office based in Edinburgh[8]). The ICO also provides specific guidance, updated in 2022[9], on the provision of public space systems, though this is being debated.

Scotland currently has no equivalent to the BSCC, and though there are Scottish national strategy guidelines from 2011, there is no Scottish Surveillance Code of

[8] Information Commissioner's Office- Scotland

[9] Information Commissioner's Office – CCTV and video surveillance

Practice. Scotland established a Scottish Biometrics Commissioner in 2020, however, their remit does not include public space CCTV. The primary legislation governing Public Space CCTV in Scotland is the 2018 Data Protection Act. The ICO is the responsible body for overseeing the installation and registry of public space CCTV cameras. However, with the new UK Data Protection and Information Bill being negotiated in UK Parliament, the role of the ICO may change in England, Wales, and Scotland.

National surveillance objectives in England and Wales, according to the 2017 National Surveillance Camera Strategy for England and Wales, include guidance for public space CCTV provision and usage with a focus on developing better and more robust systems and processes between Police, Local Authorities and other relevant partners. The emphasis in this national strategy has been on collaborative and efficient working practices regarding the operation of surveillance cameras that prioritises communities (Surveillance Camera Commissioner, 2017). In Scotland, recent survey findings, including this study, suggest that there are disparities in how different stakeholders work together with regards to streamlining public space CCTV practices (SCSN, 2019).

6.1.1 Operation, maintenance and funding

The role of the BSCC in England and Wales is in concomitance with the independent official of the Information Commissioner Office, that oversees the UK General Data Protection Regulation (UK GDPR) and best practices over data collecting tools, such as CCTV in public and private spaces. This involves also 'more recent innovations such as dash cams and body worn video' (BSCC, 2021: 24). Scotland has no direct equivalent role for oversight of public space CCTV such as the BSCC.

However, the latest national police survey undertaken by the UK Biometrics and Surveillance Camera Commissioner in 2022 suggests that in practice, there are disparities in how different stakeholders in England and Wales work together with regard to streamlining CCTV practices. This aligns with what has been found in practice in Scotland (see SCSN, 2019). Moreover, preliminary findings from a survey of English and Welsh Local Authorities over the use of public space CCTV in England and Wales showed overall little knowledge of the provision, manufacture and due diligence of their cameras use (BSCC, 2023b).

In 2002, the Home Office set aside £170m for public space CCTV initiatives which would be managed jointly by the Home Office, the Department of Transport, Local Government and the Regions, and the National Assembly for Wales. The partnerships included local authorities, police and businesses contributing to the arrangements. Local authorities are the primary holders of the budget expenses, managing cuts and investments of public taxpayer contributions and English and Welsh local authorities typically procure camera equipment via contracts with commercial partners.

Public funding of CCTV in England and Wales has been in decline for some time. In 2016, analysis of FOI responses from UK local authorities by Big Brother Watch (2016) found that there had been a 46.6% decrease in funding spent on the installation, maintenance and monitoring of public space CCTV by local authorities between 2012-2015 – from around £515m to approximately £277m. This disinvestment is indicative of the trend in some councils to switch off or reduce their CCTV provision (Big Brother Watch, 2016; Biometrics and Surveillance Camera Commissioner 2023a: 20).

However, new investment funds have been developed more recently to install new CCTV systems, such as the Safer Streets Fund set up by the UK Home Office in 2020 providing a '£25 million scheme to tackle burglary and theft in crime hotspots' with funding aimed towards gates, lights and CCTV (see Home Office, 2020). The North Wales Police and Crime Commissioner (PCC) has been one of the latest recipients, receiving £1.5 million from the Safer Streets initiative in 2022. This funding supports projects in three towns and cities across Wales that aim to focus on reducing 'domestic burglary, robbery, theft, vehicle crime, anti-social behaviour (ASB), and violence against women and girls (VAWG) in public spaces, including in the night-time economy' (Office of the Police and Crime Commissioner North Wales, 2022).

6.1.2 Governance arrangements and compliance

In England and Wales, the independent oversight that the BSCC offers as a mechanism for standardised practice and more protection of privacy could benefit operators of public space CCTV and the public in Scotland.

Moreover, public space CCTV operators across England and Wales (as well as Scotland) must be licensed by the Security Industry Authority (SIA), and to obtain a license they must show that they have been appropriately trained in the operation of public space surveillance – the act of guarding premises, property or people by using CCTV equipment to watch members of the public or identify particular people. Valid nationwide, the SIA license is used by both manned and unmanned services, providing legal guidance on CCTV monitoring, as well as practical lessons on equipment and usage (Security Industry Authority, 2020).

SIA training is mandatory for all private security industry CCTV operators across the UK including Scotland, however, other types of training and certification are also recognised as additional industry standards by local authorities in some areas. The updated full list of SIA licence holders is publicly available.[10]

6.2 Public space CCTV: Lessons from England and Wales

The 2017 National Surveillance Camera Strategy for England and Wales provides guidance for collaboration between police, local authorities and other stakeholders, emphasising collaborative and efficient working practices. However, evaluations of the implementation of the 2017 strategy have not been found. Similarly, findings

[10] Security Industry Authority license holders

from the SCSN (2019) survey of the public space CCTV landscape in Scotland suggested a need for streamlining of CCTV practices between stakeholders (corresponding with survey findings from this report -see Section 4.8). Moreover, the decrease in funding reported in England and Wales from 2012-2015 has resulted in the reduction of CCTV provision (see Big Brother, 2016), the consequences of which are also relevant to findings from this study's Scottish survey (see Section 4.7 and 4.8). This study's survey respondents indicated that funding is vital for the continuation of public space CCTV to function well in Scotland.

While the role of the BSCC in England and Wales is changing (BSCC, 2023c: 11), and with new UK data protection legislation calling into question the role of the ICO, having independent oversight of public space CCTV is central to offering a transparent and coherent framework and code of practice and is something Scotland could learn from. Aided by the independent contributions of the BSCC, public space CCTV systems in England and Wales have benefited from new guidelines, new recommended industry standards, provision reviews across England and Wales in the form of annual surveys, and regular communication and recommendations from an independent authority to the national government on the use of CCTV technologies.

6.3 Provision and objectives of public space CCTV in Denmark

Denmark has approx. 1.5 million public and private CCTV cameras (as per 2021) (Faktalink.dk) including cameras owned by businesses/enterprises, private persons, and the police/local authorities (ibid.; Blume 2007: 162). Approximately one million of these surveillance cameras are placed in and around business enterprises, with another quarter of a million placed in and around private properties. Public space cameras are installed by police and local authorities with around 300,000 cameras placed in public spaces. This includes CCTV on public transport thus the definition of public space differs here from the definition originally adopted for this study.

There are different categorisations of public space CCTV in Denmark, with distinctions and objectives between public and private sector CCTV systems less clear (Blume, 2007). In Denmark, public sector CCTV can be seen 'as a means to protect citizens against different kinds of crime' and private sector CCTV requires 'to protect private property and (…) create safety for people in connection with such property (consumers, employees)' (ibid.: 162).

The most influential and central actor in Denmark's public space CCTV provision is the Danish Crime Prevention Council. Founded in 1971 as an operational unit of the Danish Police Service, the Council provides assistance to police districts (Wiecek and Sætnan, 2002). The intention of the Council is to provide 'further crime prevention by carrying out security promoting initiatives, dissemination of information and so on' (ibid.). Moreover, the Council has been active in initiating debates, publishing a 'debate brochure' on situational crime prevention and, more

specifically, video surveillance, which discusses attitudes towards prevention and violation.

Within the 'debate brochure', the Danish Crime Prevention Council outlines the following five recommendations for (intended) use of public space CCTV in Denmark:

1) Conduct surveillance of things and places – not persons. The use of video surveillance is recommended in cases where it has a crime-preventing or crime detection effect and gives improved security.

2) Clear guidelines for use, storage, transfer of information to third parties, and deletion of information – already when equipment is installed.

3) Assess CCTV based on four central aspects: the preventative effect, the crime detection effect, the safety aspect, and the violation aspect.

4) Differentiate between four fields of surveillance: businesses, workplaces, private spaces, and public spaces.

5) Maintain good sense and be reflective about access to the use of CCTV surveillance.' (Det Kriminalpræventative Råd [The Danish Crime Prevention Council], 2001: 6-9), quoted in Wiecek and Sætnan, 2002: 24).

In 2019, the Danish Ministry of Justice published 16 initiatives for safety and security in public spaces to address gang-related crime (Justitsministeriet [Ministry of Justice], 2019). The initiatives were developed in collaboration with the police and the Prosecution Service ('anklagemyndigheden') with nine of the 16 initiatives related to surveillance either in the form of traditional CCTV or ANPR (ibid.). These initiatives include more CCTV to be installed in and around public buildings and extended access for local authorities, individuals and businesses to install CCTV systems. Provisions for the police include the installation of an additional 300 cameras (including CCTV vehicles) to strengthen the police's monitoring capacity in public spaces with higher crime rates (ibid.: 5-7).

Denmark introduced POLCAM, a once voluntary but since 2021 mandatory registration scheme (Angermair et al, 2022) for making CCTV cameras owned by private businesses, organisations, and public local authorities who film publicly accessible spaces available for the police to access. POLCAM allows the police access to privately owned recordings when crimes are being investigated. Mandatory registration came into effect in July 2021, with guidance stipulating that 'registration must be made within "reasonable time"," and any subsequent significant changes must be registered in POLCAM' (Angermair et al, 2022). For Danish households with domestic CCTV systems, registration remains voluntary but strongly encouraged (Politi.dk). POLCAM's purpose is to allow the police a quick overview of CCTV locations and to take over/monitor privately owned

businesses and local/public authority surveillance cameras to investigate crime-related incidents such as gang-related shootings and violent attacks (ibid.).

6.3.1 Operation, maintenance and funding

Government documents (Justitsministeriet [Ministry of Justice], 2019) show a collaboration between government bodies and police in implementing, placing, and installing public space CCTV cameras in Denmark, with surveillance being undertaken by the police.

In terms of funding, the Danish government funds public space CCTV through income tax, as Danish residents pay up to approximately 45% income tax (Skat.dk). Some of these taxed funds are then forwarded to the police for the purpose of maintenance and implementation and to limit the strain on police resources.

Between 2018 and 2020 the Danish Government spent a total of 17,600,000 DKK (equivalent to just over £2,000,000) installing additional public space cameras. This funded 150 new cameras between 2018-19 and 300 new cameras in 2020. Several new ANPR initiatives by the Danish Ministry of Justice have received funding as well, which are estimated to cost 63-77,000,000 DKK (approx. £7,500,000-£9,000,000) (Justitsministeriet [Ministry of Justice], 2019: 12).

6.3.2 Governance arrangements and compliance

The Danish Data Protection Agency [Datatilsynet] audits and advises on compliance and protection of personal data, including CCTV use and data (Datatilsynet [Danish Data Protection Agency]).

With the introduction of public space CCTV cameras in Denmark in 1982, the Surveillance Act was written into law. There have only been minor amendments to the legislation since it came into place. The Act states that:

> "Private areas such as shops to which there is public access may be surveilled provided information is given to this effect. It is only within such areas that surveillance may take place. It has accordingly not been allowed to film entrances or other areas outside a shop. Streets, parks and other freely accessible areas may not be surveilled…It has accordingly been a major policy point that areas freely used by the general public must not be surveilled by private entities." (Blume, 2007: 162).

The Danish Surveillance Act also includes regulations outlining the Police's involvement and advisory role in both private and local authority instalment of CCTV as well as the role of the Ministry of Justice in advising on laws around instalment of CCTV, e.g. that signs must be put up to advise on surveillance cameras in areas where cameras are installed (TV-overvågningsloven, 2007).

6.4 Public space CCTV: Lessons from Denmark

In Denmark, the collaborative partnership between police and government works in implementing and funding public space CCTV cameras, as does the availability of

high tax income as a consistent funding source. Implementation of public space CCTV is based on initiatives to improve safety and security from government, with police identifying key locations for the installation of cameras to improve safety and aid criminal investigation (Justitsministeriet [Ministry of Justice], 2019).

Denmark's POLCAM initiative which mandates CCTV camera registration for private businesses, organisations, and local public authorities, allows police access to footage from non-public space cameras. This enables access to areas that may not be reached by public space CCTV, but this may also raise some privacy concerns. The ICO in Scotland and the rest of the UK similarly implements a required registry of CCTV systems, however, it is not as well-enforced, and it is held by an independent body as opposed to the police.

A more robust registry, such as the Danish POLCAM registry, could provide more information to Scottish law enforcement about private CCTV availability to aid police investigations where public space CCTV footage is not available. The ability to access footage more easily could aid a collaboration between Scottish local authorities, Police Scotland, and other stakeholders, e.g., by decreasing the need for public space CCTV in residential areas and/or retail areas such as retail parks, shopping centres, and high streets by accessing footage and cameras owned by businesses and private persons. However, there would need to be detailed research into the benefits and the legality of such a system before any discussion of implementation as it would represent a significant expansion of police and state surveillance capabilities, as well as public awareness and consent.

6.5 Conclusion

Comparative analyses between Scotland with England and Wales and Denmark provide a wider context to how public space CCTV (and other CCTV systems) are used elsewhere in the UK and internationally. This desk-based analysis highlights the benefits of robust centralised governance and regulation in England and Wales and Denmark and how national coordination and response around emerging issues in these other jurisdictions in relation to CCTV could inform a new approach in Scotland. Two significant findings from this analysis include the role of the UK Biometrics and Surveillance Commissioner in England and Wales and the POLCAM CCTV camera registry in Denmark.

There is no equivalent position in Scotland at the moment for the UK Biometric and Surveillance Camera Commissioner, the Home Office's independent oversight body for the investigation and regulation of CCTV cameras in England and Wales. While Scotland has recently established an office of the Scottish Biometrics Commissioner (2020), the role of this office does not include specific governance over CCTV. Currently, Scotland remains under the jurisdiction of the Information Commissioner Office (ICO) for legislative governance, with the DPA serving as the primary legislative reference point. If a similar role were to be introduced in Scotland which could provide encouragement and enforcement to a Scottish public space CCTV code of practice, current CCTV policy and practice in Scotland could become more responsive to the needs of Scottish public space CCTV operators

and to those of the Scottish public and best integrate the data concerns in the remit of the ICO.

Responding to emerging issues around the availability of private and citizen CCTV footage, Denmark's POLCAM registry represents a unique solution to making private CCTV systems available for police investigatory use. While questions remain about the mandatory registration process for the Danish police-operated registry, as well as the quality and efficacy of footage rendered available for police use, this approach to regulating CCTV registration may be more robust and impactful than similar registries in Scotland, however, evaluations of these initiatives and their implementation are yet to be carried out.

7. Conclusions and Implications

This study has provided an in-depth, mixed-methods account of the contemporary landscape of the provision, use, and impacts of public space CCTV in a number of geographic areas of Scotland. It has gathered quantitative and qualitative data from urban, town, and rural contexts across Scotland, and involved national and international comparative analyses to provide a baseline evidence of public space CCTV in Scotland. In doing so, this study has provided a broader picture of how public space CCTV policy and practice intersects with community perceptions of its role, purpose and efficacy. Conclusions, and their corresponding implications for policy and practice, are summarised below.

7.1 National hub

Despite efforts to clarify the process[11], findings from our study suggest that funding procurement for public space CCTV systems in Scotland remains ambiguous and reliant on a patchwork of funding encompassing police, local authority, private and external funding sources. This uneven development has led to divergences in technological equipment, technical capacity, and training standards and, for some of our respondents, perceptions of unfairness. The study has also identified variations in the operation, management and practice standards in different geographical regions of Scotland. These standards vary according to resource, cost, and governance arrangements.

Both police and local authority participants expressed an interest in a national hub/centre of best practice and in the standardisation and centralisation of both policy and practice similar to the BSCC in England and Wales. This national hub could benefit local authorities internally as it would offer opportunities to discuss policy issues and the standardisation of practice across councils. In areas where there are disparities in CCTV provision or training, the national hub could leverage capacity building and partnerships through shared experience and the pooling of resources, training materials, standardise procurement and maintenance, ultimately making it more affordable. This hub could also include expert oversight over cybersecurity, specifications, procurement, and training, something which is practised already in England and Wales under the safeguard of the BSCC and the ICO.

A national hub could also enable opportunities for more effective communication between stakeholders, with an emphasis on shared practice and understanding priorities and challenges. Funding information could be shared, and collaborative funding bids could be developed alongside other national and international

[11] The current funding landscape for public space CCTV in Scotland is approved via the Partnerships Preventions Committee and Wellbeing Division of Police Scotland. This division was created in 2021 and acts as the conduit between Local Authorities and the Scottish Government for CCTV funding and investment with the responsibility of authorising payments.

initiatives. Concerns, challenges, and debates, such as those raised by survey respondents and interview participants in this study, could be discussed in the hub and group concerns could be addressed to Government and other stakeholders for input and resolution. The tight-knit nature of the CCTV community in Scotland would lend itself well to the smooth set-up of a hub of this kind, with adequate support.

7.2 'Hub and spoke'

Alongside the suggestion for a national hub for public space CCTV in Scotland, it might also be beneficial to explore a 'spoke' model that engages with – and learns from – diverse geographical regions of Scotland. Compared to previous research reports that detailed aging CCTV estates across Scotland (Bannister et al. 2009; SCSN, 2019), this study found that those working with public space CCTV reported well-established systems and comparable technological specifications across the country, with upgrades either completed or ongoing as funding allowed. The study found no clear relationship between the size and density of population and the quality of public space CCTV coverage. One interview participant perceived that rural areas were comparatively underserved and spoke of finding alternative ways to adapt.

However, there are still disparities around governance and funding across different areas of Scotland, leading to 'patchy' and ad hoc arrangements that could benefit from updated, robust standards of best practice across the country. The centralisation of resources and practices in the form of a national hub could also benefit from appreciating the local, place-based contexts of public space CCTV where it is actually being delivered. Developments in the field of public space CCTV regulation and operation could benefit from addressing both the centralisation and localisation of public space CCTV in Scotland to enhance its strengths and mitigate its limitations and risks.

Although the governance arrangements of public space CCTV are diverse, these systems have often been adapted to local needs and future arrangements should build on these existing practice networks. A 'hub and spoke' network could provide a robust, dynamic strategy for Scotland's public space CCTV network to facilitate knowledge exchange and empower local stakeholders to tailor the provision and use of public space CCTV to local needs, informed by updated guidance and standards of best practice.

7.3 Oversight

Since its inception as a local tool of crime prevention in the 1980s, public space CCTV has grown exponentially and now incorporates a wide range of local, national and international priorities ranging from environmental monitoring, to missing persons, to national security. The study found the uses of CCTV in Scotland to be dynamic and responsive to changes in demand from local authorities and police. However, with advanced technology, its actions have become more complex and difficult to regulate, resulting in instances of unmonitored "function creep." As such there is a need for clear lines of oversight

and accountability that balance the needs of public space CCTV systems-operators with those of communities subject to surveillance.

The current Biometric and Surveillance Camera Commissioner in England and Wales, covering an independent commission for the retention and use of biometric material and use of surveillance cameras, currently has no specific equivalent in Scotland. While Scotland established an Office of the Scottish Biometrics Commissioner in 2020, its remit does not cover governance over CCTV. Public space CCTV systems may opt to comply with regulatory principles set out in the Scottish Biometrics Commissioner's certification scheme as a gesture, but a specific scheme for public space CCTV could drive up standards. Current public space CCTV policy and practice in Scotland could become more responsive to the needs of operators and to the needs of local communities if better oversight mechanisms could be implemented.

Public space CCTV now takes its place among a wide range of video evidence, including both private and residential footage. In Denmark, for example, a mandatory CCTV camera registry allows for access to footage and/or livestreams of privately owned cameras enabling access to areas that are not reached by publicly owned CCTV. A system similar to the Danish POLCAM registry could provide access to cameras to aid police investigations by allowing quick access to recordings in areas where public CCTV is not implemented, e.g., residential areas or private businesses. Further research and evaluation in this area would be required.

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Annex A: List of Acronyms

4G (4th generation Mobile Communication Standard)
5G (5th generation Mobile Communication Standard)
AI (Artificial Intelligence)
ANPR (Automated Number Plate Recognition)
ASB (Antisocial Behaviour)
BSCC (Biometric and Surveillance Camera Commissioner)
BWV (Body Worn Video)
CCTV (Closed Circuit Television)
CoP (Community of Practice)
COPFS (Crown Office and Procurator Fiscal Service)
DCLG (Department for Communities and Local Government)
DKK (Danish Kroner)
DPA (Data Protection Act)
DS (Denmark Statistics)
DWP (Department of Work and Pension)
EU (European Union)
FOI (Freedom of Information)
FRT (Facial Recognition Technology)
GDPR (General Data Protection Regulation)
HMRC (His/her Majesty Revenue Customs)
ICO (Information Commissioner office)
LA (Local Authorities)
LALO (Local Authority Liaison Officer)
NRS (National Records of Scotland)
ONS (Office for National Statistics)
POLCAM (Danish Police Camera Register)
PS (Police Scotland)
RAG (Research Advisory Group)
RIPSA (Regulation of Investigatory Powers (Scotland) Act)
SCSN (Scottish Community Safety Network)
SIA (Security Industry Authority)
UK (United Kingdom)

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