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Evaluating the impact of town centre closed circuit television surveillance systems.

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by

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EVALUATING THE IMPACT OF TOWN CENTRE CLOSED CIRCUIT TELEVISION SURVEILLANCE SYSTEMS

Chapter 1 Introduction

'...Whoever says "modernity" says "surveillance."' (Garland, D 1995:4)

'The electronic eye is capable of care and control, proscription and protection.' (Lyon 1994:214)

'You're starring in a film
Every weekend
On video and stills
With all your friends
You're there in black and white
Hundreds watch you every night.'
(The Levellers 'CCTV' from 'Mouth to Mouth')

'CCTV helps to identify Leeds murder culprits.' (Daly, M in 'The Big Issue' May 1998: 4)

Closed circuit television (CCTV) surveillance constitutes for most people an unavoidable, for some people an unsettling, but for many people a not unwelcome aspect of life in the UK in the 1990's. The community in which we live may be surveilled by cameras. We are certainly likely to encounter CCTV when we drive along roads or highways. But even if we use buses, trams or trains we are unlikely to avoid the attention of the cameras. As we wander around the town centre streets we will be under the gaze of CCTV. Even when we walk into the private space of the shopping mall we will be subjected to the scrutiny of a CCTV system. Similarly our visit to the bank will have been caught on camera. So will our visit to Tesco and Marks and Spencer. The main rationale for the installation of such systems is that they 'work.' But do they work? What does 'work' mean? How can this be established with some degree of certainty?

The first substantive theme of the thesis concerns the critical scrutiny of organised attempts to document the impact of CCTV. This takes us into the territory of evaluation research, the rationale of which is 'to assess the effects and effectiveness of something' (Robson 1993: 170). Evaluation research attempts to find out whether a programme has been effected as well as determining whether the programme has achieved the intended aims and whether there are any unintended positive or negative effects.

The territory occupied by evaluation research is of considerable topical significance and practical import. Evaluation research has become increasingly prominent in the 1990's. In part this has been 'top down' stimulated by successive Conservative administrations and their concern with value for money. This has created a role for evaluation research, which emphasises that it provides technical answers to questions of efficiency, effectiveness and economy.

But this is not all a concern with evaluation entails. On the contrary, there are various 'bottom up' social pressures or 'spurs' (Robson 1993:67) to evaluation connected to concerns about the proper use and targeting of resources. Furthermore, evaluation enables an independent and critical judgement on programmes, which may be the result of received wisdom, political knee jerk, rampant populism and inflexible political ideology. Finally, any estimate of the place of CCTV in broader social patterns depends on an understanding of its effects.

The greater social prominence of evaluation is not its only interesting feature. It is also of interest because evaluation raises a series of important methodological and theoretical questions. These cover issues about what gets evaluated, what strategies and designs are used, who evaluates and who gets consulted. They also include questions about who gets informed of the results of the evaluation, how technically competent evaluations are, and how funding impacts on the evaluation and how evaluation results influence programmes. Also

placed on the agenda by evaluation research is the question of why a particular programme has effects. Finally, evaluation raises questions about the relationship between the evaluator drawn from the 'academy' and crime control. Thus fundamental questions of interest to the social sciences are raised by the critical study of evaluation research.

The impact of CCTV systems is the second main substantive theme of the thesis. CCTV surveillance systems are composed of three related sub-systems – cameras providing pictures of the location, videotape machines to record images and human monitoring to respond to incidents seen on the control room screens and undertake other associated duties. CCTV systems are claimed to be superior to previously used preventative and intelligence gathering activities, as they are seen to be capable of achieving total vision unaffected by space and time. Furthermore such intelligence is seen to possess an incontrovertibility (seeing is believing, the camera does not lie), which human testimony lacks (Elliott 1998).

CCTV schemes are set up to achieve a range of aims. These may include speed restriction compliance on motorways and other roads, monitoring and managing traffic congestion and increasing use of shopping malls and town centres. Greater control and compliance within the work situation may also be sought.

Even where the primary aim is to impact on non-motoring crime there may still be considerable diversity of method as to how this is to be achieved. Emphasis might be placed on deterrence. The system might be seen as capable of improving detection rates. The system aims may extend to reducing fear of crime and include gaining public approval or acceptance.

A critical analysis of the impact of CCTV systems is also of topical significance and practical import. The growing interest in evaluation research has been paralleled by a huge increase in the use of CCTV systems. This can be briefly indicated by reference to the growth in numbers of CCTV systems and the expenditures involved. Only one town centre system existed in 1985 (Bournemouth). By 1990 there were 6 (Home Office Crime Prevention Centre

[HOCPC] 1990). In 1993 Bulos and Sarno (1994) found 75 local authorities with such systems. In 1995 Brown estimated that there were 200 town centre systems. Norris, Moran and Armstrong (1998) suggest that there are now 400. Of course, this takes no account of current trends relating to the spread of CCTV systems to smaller towns and villages. In the Doncaster area alone there are as many as 12 such CCTV developments (personal communication with the South Yorkshire CCTV liaison officer).

A proliferation of CCTV systems in other locations has also occurred. CCTV systems are now installed in work settings, residential areas, transport facilities, leisure and sporting venues, retail settings and industrial estates. Graham, Brooks and Heery (1996) estimate that there are some 300,000 cameras installed in private systems per year. The CCTV liaison officer for the South Yorkshire Police indicated that there are over 450 private systems in Doncaster and Sheffield alone (Private communication May 1998).

All of this growth sustains a huge industry with one-off costs incurred on installation and subsequent on-costs incurred for maintenance and other services including line rental and off-site monitoring services. In 1993 Utlely estimated that some £300 million a year was being spent on the installation of CCTV systems. *Marketing Strategies for Industry* (1994) estimated that this market was capable of 12-14% growth per annum. Norris, Moran and Armstrong (1998:256) provide a conservative estimate that the bill for maintaining town centre systems alone in 1998 was £23 million. This probably underestimates the costs for the systems concerned and does not include maintenance of all the other kinds of system.

CCTV surveillance systems have proliferated. The importance of CCTV systems does not end with the indication that they represent a significant social movement. Such systems pose important questions about human conduct and criminal action. How and why do CCTV systems deter would-be offenders? What sort of impacts do they have on would-be victims? Are some kinds of offenders and offences more affected by the cameras than others? CCTV also poses questions about the nature and directions of social control in particular why have

conventional criminal justice agents favoured it? What implications does the proliferation of CCTV systems have for debates about the future of control systems? At its broadest the study of CCTV may be located in the more general concerns about the growth of surveillance and bureaucratic control (Giddens 1985, 1987; Dandeker 1990; Lyon 1994).

The two central objects of the thesis - evaluation research and CCTV systems - are both addressed in two main ways. First, a reading of the literature is used both to critically understand evaluation research and the documented impact of CCTV systems and help construct an evaluative study of just such a CCTV system. Second, the actual, systematic evaluation of one particular 'state of the art' town centre CCTV scheme is used to shed further light on the process of evaluation research in general and the impact of CCTV in particular. Town centre systems are focused on here because they represent the most visible symbol of the use of CCTV and because my involvement in the evaluation of the Doncaster scheme provided fortuitous access. This scheme also represented a not untypical example of the general movement to town centre CCTV systems.

The critical examination of the two main themes in this manner enables the thesis to make two main contributions. A model of what constitutes an adequate evaluation account is derived from the review of the theory and practice of evaluation research. An understanding of the nature, context and impact of CCTV is derived from the critical review of existing studies and the intensive study of one such system.

The thesis is organised as follows. Chapter 2 offers a review of the available literature on evaluation research. This review is used to both construct a critical account of the nature of evaluation and to configure my own study of a large town centre system. Chapter 3 sets out to determine what is known about the impact of CCTV. The limited material on town centre systems is supplemented by evaluations of CCTV systems in other locations. Chapters 4 and 5 set out the details of the evaluation of the Doncaster CCTV system. Chapter 4 indicates the overall structure of the evaluation of the Doncaster system. In this chapter the results of the impact assessment are also presented. Chapter 5, also concerned with the Doncaster CCTV

system, sets out the results of the study of public acceptability and offers a full impact assessment. Chapters 6 and 7 attempt to provide a critical reflection on the evaluation practice undertaken. Chapter 6 offers an internal critique focusing predominantly on questions of validity. Chapter 7 goes on to offer a broader, external critique of the Doncaster study. Chapters 8 and 9 take up the implications of the evaluation of the Doncaster CCTV system. Chapter 8 considers the implications for doing evaluation research on CCTV systems. Chapter 9 considers the implications of the Doncaster study and the thesis as a whole, for the nature of CCTV surveillance systems and their place in social control.

However, even in a thesis of this length not everything can be considered. There are important areas either not dealt with or only briefly touched upon. The neglected areas include the social history of the use of photography in crime control (see Norris 1998), a thorough-going attempt to locate the CCTV phenomenon in broader patterns of surveillance (Lyon 1994) and a reading of the nature of CCTV and its implications for social theory (McCahill 1998).

Chapter 2 The conduct of evaluation research

The overall purpose of this chapter is to review the relevant evaluation literature. This review will allow for critical reflection on evaluation practice and inform the construction of the evaluation of the Doncaster CCTV system. There is a progressive narrowing of focus in the chapter. It begins with an analysis of the broader social policy literature. Attention then turns to the more specialised field connected to the evaluation of crime prevention. The last part examines the specific literature on the evaluation of CCTV systems.

Evaluation research and social policy

This section is divided into four parts. The first two parts examine the nature and development of social policy evaluation. This is followed by an analysis of key issues within the relevant evaluation literature. The final section explores the implications of this material for constructing the evaluation of the Doncaster CCTV system.

The nature of evaluation research

Some broad agreement is evident concerning the definition of evaluation as a form of applied research, which has a distinctive purpose. Patton expresses this sentiment in the following way. 'The practice of evaluation involves the systematic collection of information about the activities, characteristics and outcomes of a programme ... for use by specific people to reduce uncertainties, improve effectiveness and make decisions' (1987:15).

However, this agreement soon breaks down when consideration of the relationship between evaluation practice and research is undertaken. Some authors claim that a radical discontinuity exists between evaluation and research. Glass and Worthen (1974) and Worthen and Sanders (1987), and Macdonald (1974) separately develop this view. But the positions outlined seem to lead to contrived portrayals of both evaluation and research.

Glass and Worthen (1974) suggest that evaluation may be distinguished from research on the basis of at least eleven separate considerations. The more important of these arguments may be summarised as follows. Glass and Worthen (1974) suggest that research is driven by the desire for knowledge for its own sake and seeks well-founded conclusions, whereas evaluation is motivated by the desire to contribute to the solution of a specific, socially defined problem or issue by influencing decision-making. Research, they also argue, is primarily concerned with the search for generalities and laws and universally applicable explanations, whereas evaluation is concerned with particularities and measuring the impact of a specific policy or programme. Research, they also suggest, is autonomous, whereas evaluation is closely tied to sponsors, programme managers and policy makers. Research, in their view is not primarily concerned with whether the conclusions arrived at, or even the original topic, has any social utility, whereas evaluation is closely geared to notions of social usefulness. According to Glass and Worthen (1974) the value of research is to be assessed by reference to validity criteria, whereas for evaluation the important considerations are 'utility and credibility' (Norris 1990: 139). Finally, research is usually discipline-based, whereas evaluation is necessarily multidisciplinary in character.

There is no doubt that Glass and Worthen's work does help us to reflect on the nature of the evaluation task. But ultimately the analysis is unconvincing as it offers a misleading and stereotypical account of both research and evaluation. In this view research is only recognised if it conforms to a positivist ideal even then questioned (Dawe 1970) and now long since abandoned. The more notable problems evident with this view of research are its exclusive emphasis on causal explanation, with the presumption being that the main task is the pursuit of law-like statements and the tendency to portray research as if it was social context free. The portrait of evaluation is also inappropriate – as it is seen as a necessarily compromised activity, unconcerned with generalisation, explanation and questions of validity.

Macdonald (1974) approaches the matter from a different viewpoint but perhaps arrives at a similar conclusion. His concern is that evaluation will be restricted if understood

as research. He argues that evaluation can take one of three forms - bureaucratic, autocratic and democratic. A preference for democratic evaluation is indicated though he is aware of the difficulties in its accomplishment. Democratic evaluation, Macdonald argues, requires the evaluator (unlike the researcher) to provide consultation with appropriate audiences and feedback to these audiences in an understandable form, acting as a sort of 'broker' (Macdonald 1974). Evaluation is necessarily distinguishable from research and must be so. Sympathy for the notion of democratic evaluation should not blind us to the tendency evident here to exaggerate the need for persuasion in evaluation and underplay its role in research.

Thus the view that there is a radical discontinuity between research and evaluation is rejected. Attempts to argue the radical discontinuity thesis are faced with an unenviable and probably impossible task. Nevertheless, the debate is useful in that it alerts us to the need for a critically self-aware practice. However, rejection of a strict separation of research and evaluation and subscription to what Norris (1990:97) calls the 'continuity thesis' does not avoid all contradictions and questions. Some of these may be listed. First, it does place the contribution to effective policy and practice at the heart of evaluation. Second, it does expose presumptions about policy-making being both rational and open in character. Third, it does assume that the voice of evaluation research can speak with some authority licensed perhaps by some claims to disinterested knowing. Fourth, it does not absolve evaluative enquiry from the methodological problems of research. Finally, it does suggest a particular, not undisputed role, for the Social Sciences.

The development of evaluation research in the 20th century.

Many authors in the field of social policy, though making some slight nod towards the nineteenth century, generally trace the emergence of evaluation proper to the early twentieth century. Norris (1990) and Worthen and Sanders (1987) both see the emergence of evaluation as linked to psychometric testing in education and more generally, with a drive to social efficiency. Perhaps too it is part of the early ambitions of social science disciplines

versed in positivism to explain the world and control it. Furthermore, perhaps the desire to examine is, as Garland (1995) suggests, firmly inscribed into the heart of modernity.

A number of authors concur with the idea that there has been a growth in interest in and use of, evaluation in the late twentieth century. This has been variously attributed to a number of factors. One factor is the growth of managerialism based on 'calculative and contractual' accountability rather than democratic forms (Reiner 1993: 23). Clearly changes in organisational style are related to broader political and ideological contexts, not the least the 'top down' drive by successive Conservative governments to place the expanded public sector within a framework similar to that thought to govern private profit making enterprises. Perhaps too, recognising that the drive toward 'value for money' was not entirely imposed from above, there was a 'bottom up' concern with ensuring programme effectiveness for example over the impact of AIDS education programmes in the 1980's (Freudenberg 1990).

Issues and debates in evaluation research.

Attention will now focus on issues and debates within evaluation research. The purpose of this exploration is to provide a critical approach to the conduct of evaluation research and inform the study of the Doncaster CCTV system. It has already been established that evaluation research is in a state of conflict and debate. This has been illustrated by the consideration of the disparate views on the notion of 'evaluation research'. Worthen and Sanders (1987:43) express this state of contestation: 'Like many ... young emerging fields evaluation is troubled by definitional and ideological disputes.'

A similar point is made by Connor, Altman and Jackson (1984) and echoed by many others who respond by constructing typologies to capture the variety of views (Berk and Rossi 1990; House 1978; Patton 1981). There can be little doubt that the field of evaluation is characterised by conflicting and competing voices. But to attribute this to the comparative youth of the field is to assume an evolutionary development for evaluation enquiry, which is not credible as it assumes an eventual return to the metanarrative of 'science' when maturity

is achieved. Such a return is unlikely in late modern society. This does not mean that a relativistic and ultimately conservative anything goes philosophy is justified. But we have to recognise that the fragmentation signalled by ideological disputes is not peculiar to evaluation research and, in short, it is a chronic not acute condition (Ericson and Carriere 1994; Giddens 1987; Lyotard 1984). Finally, without necessarily subscribing to the extremes of postmodernist relativism, such contestation is of positive value in the reflexivity it creates.

Table 1 is derived from a reading of the social policy evaluation literature. It identifies the main issues connected with the conduct of evaluation research. The discussion that follows is organised around these main issues exploring their meaning and implications.

Table 1 Critical issues in evaluation research

Issue	Essential questions and useful concepts
1. 'Policy space' (Berk and Rossi 1990)	Why is this policy or programme evaluated? Why now?
2. Programme aspects evaluated	How is the evaluation targeted? If outcomes, whose outcomes? Is attention given to non-outcome related factors (unintended consequences, problems of system realisation)? 'Outcomes'/ 'objectives' approaches V 'process' studies.
3. Evaluation strategy and design	Is an experimental strategy used? What design is used to effect this strategy? Interrupted time series with or without comparison groups/ Pre-test/ Post-test single group/ comparison group design.
4. The 'stakeholder' context	Who is to be consulted? Who is informed? Which stakeholders should be consulted, how and why? Bureaucratic/ autocratic/ democratic (Macdonald 1974)
5. The choice of evaluator	Who evaluates the programme or policy? Outsiders or insiders ? Accreditation, peer group review or independent evaluator?
6. The technical adequacy of the evaluation	What kind of data is to be collected? How can adequacy of analysis be accomplished? Qualitative/ quantitative data Thematic and statistical analysis Why does the programme work/not work?
7. Feasibility	Political context. Practical arrangements. Cost effectiveness of the evaluation. Formative evaluation and/or summative evaluation.
8. Utility	How can usefulness be maximised? Timeliness. Report presentation. Fitness of purpose?

Policy space

First, we need to consider what is evaluated and why. For Berk and Rossi (1990:12) 'evaluations are almost exclusively concerned with making judgements about policies and programmes that are on the current agenda of policy makers' and policy makers are understood as a broad group including all 'players not just public officials.' For Berk and Rossi (Ibid.) then evaluation occurs in a 'policy space' and they offer advice as to how academics can manipulate policy space for their own purposes. This suggests that we need to pay attention to two aspects of the practice of evaluation research, both of which derive from a more sociological, less pragmatic, viewpoint. First, the micropolitics of funding and second, the general conditions of emergence of policy space. Indeed it may be argued that unless evaluation is to surrender all of its academic autonomy it needs a critical self-awareness of its own practice.

Programme aspects evaluated

Second, we need to consider what aspects of the programme or policy are the subject of evaluation. A number of issues surface here with the debate in this section centring on the objectives approach to evaluation. The traditional objectives approach may be defined as seeing 'the task as measuring how far a programme... meets its stated policy objectives or goals' (Robson 1993: 180). Various modifications to the approach have been suggested, but the essential elements remain the same (Tyler 1942; Metfessel and Michael 1967; Hammond 1973; Mager 1962).

This strategy for evaluation research is properly seen to contain many advantages, relevant to our current concern. These may be briefly listed. First, this approach helps in the clarification of the rather general statements made by programmes. Second, it has the potential of holding the architects of programmes 'accountable', in particular perhaps limited ways for what they said the scheme would accomplish. Finally, the approach has a certain

elegant simplicity attached to it, which enables the practice of evaluation enquiry to be narrowly focused and an emphasis placed on systematic data analysis.

But 'the objectives [approach] can result in tunnel vision that tends to limit evaluation effectiveness and potential' (Worthen and Sanders 1987:73). Though more will be written about tunnel vision or as Norris (1990:124) puts it, 'selective visibility', later in Chapter 7, three areas will be explored here. The approach can ignore the processes or transactions within a programme. Some social programmes may rely on the realisation of technologically or organisationally complex systems. Thus unless system realisation is included as one of the explicit objectives – and it may not be – the programme could be evaluated without due regard to whether the particular intervention had been successfully operationalised. The objectives approach may also encourage lack of attention to unintended effects because they are not part of the blueprint aims. These effects could swamp any intended outcomes. The model has also been criticised for lacking 'standards to judge the importance of observed discrepancies between objectives and performance levels' (Worthen and Sanders 1987:73). Finally, the objectives approach may restrict the variety of potential stakeholders and limit the topics deemed appropriate by excessive reliance on the discourse of the programme.

Evaluation strategy and design

The third issue concerns evaluation strategy and design. The central issue concerns the identification of a research strategy that will be capable of detecting changes that can be attributed to the operation of the programme under review. The classic model here is the experiment. The experiment may be defined as

'that portion of research in which variables are manipulated and their effects upon other variables observed. This usually involves the use of experimental and control groups the composition of which will be randomly assigned' (Campbell and Stanley 1963:3).

Clearly laboratory experiments are neither possible nor desirable in most forms of social programme evaluation and thus field experiments or 'reforms as experiments' may be used. Such field experiments include ' a research design involving an experimental approach but where random assignment to treatment and control groups has not been used' (Campbell and Stanley 1963:9), then these are termed quasi-experiments.

Campbell and Stanley (1963) suggest that the quasi-experimental strategy has one clear advantage – in comparison with alternative models it can claim the potential for being strong on internal validity that is, providing strong evidence that a particular effect is the result of a specific intervention. They encourage the use of the quasi-experimental strategy even though they recognise that it is weaker than the true experiment. They also suggest that only certain designs, within this overall strategy, are really worthwhile because they minimise the endemic problems to which this strategy is subject. Finally, the authors argue that that the results obtained by the use of even the most robust quasi-experimental designs should be critically assessed in the context of the known recurring problems of these designs.

Although there is no one best design those preferred by Campbell and Stanley (1963) have a number of features. Data are collected in pre- and post-test conditions. Experimental and comparison groups are used. Where relevant, trends in the data collected should be taken into account by adopting some form of 'time series' model (Campbell and Stanley 1963: 37). This suggests two main relevant designs. The first of these is the pre-test/ post-test non-equivalent comparison groups design. This consists of the identification of two (or more) groups, distinct from one another, one of which is subjected to the intervention and the other(s) is not. The second design is the interrupted time series with non-equivalent comparison groups design. This consists of monitoring the time series data in distinct areas, one of which has been subjected to experimental intervention and the other has not. Clearly the first design is useful where data is collected over short periods in a one-off measurement of effect whereas the second design can be utilised where large amounts of data can be obtained relating to lengthy periods of time.

The threats to internal validity of the first design, based on pre-test/ post-test non-equivalent comparison groups, are comparatively negligible (Campbell and Stanley [1963: 5-6] revised by Cook and Campbell [1979: 51-55]). The main threats to external validity for this design are seen as 'the reactive...effect of testing' where the pre-test may affect the subsequent responsiveness to the experimental variable, and ' the reactive effects of experimental arrangements' where the very nature of the experience as experimental introduces features not found in other non- experimental settings. A further potential problem of external validity is 'selection' as suggested by LeCompte and Goetz (1982). This is concerned with the extant peculiarities of the experimental group studied.

On the other hand, the second design, based on the use of interrupted time series with non-equivalent comparison groups, has two recurrent threats to internal validity according to Campbell and Stanley (1963: 5-6) revised by Cook and Campbell (1979: 51-55). First, 'history' which may be defined as 'the specific events occurring between the first and second measurement in addition to the experimental variable.' Second, 'instrumentation' i.e. '...changes in the calibration of a measuring instrument ...[producing] changes in the obtained measures.' The threats to external validity posed by this design are the same as for the first design.

The appeal of experimental or more realistically quasi-experimental designs is clear, particularly the promise they hold for establishing programme effects in a systematic manner. These designs are widely used and have become particularly associated with the objectives approach. Also they are widely used because they stress the collection of quantitative data and have a broad appeal because of the scientificity they appear to demonstrate, a *sine qua non* of disciplined, disinterested enquiry.

But use of experimental or quasi-experimental designs stresses a view of science that is narrowly inductivist, progressivist and evolutionary. Evaluation research is portrayed as having a rational relation to policy change and as located in a broadly democratic and consensual society (House 1978). The conception of human subjects is exclusively mechanistic and causal and following from this, the data collection methods exclusively quantitative. Where considered at all, the level of explanation of human subjects tends to be psychological (Norris 1990:42).

The stakeholder context

The fourth question to ask is who is given attention by the evaluation? And in this context it is useful to draw on Berk and Rossi's (1990:13) concept of the stakeholder. The concept of stakeholder shifts attention away from the narrow concerns of the funders of evaluation research to draw in a range of partners who may have an interest in the process and outcome of an evaluation.

There are, however, differences within the literature on the scope of stakeholder definition and involvement. 'Systems and decision-making approaches' (House 1978) tend to identify the stakeholder population narrowly restricting it to the 'specific people' mentioned by Patton (1981). 'Expertise' based approaches offer a wider definition of the stakeholder population to be consulted allowing for a more democratic approach at least within the organisation concerned. 'Consumer based' (Worthen and Sanders 1987:87) or 'goal free' approaches (House 1978) offer the widest, most democratic definition of the stakeholder population with the 'consumer' being seen as the primary stakeholder.

The more narrow 'management orientated' approaches may have some advantages. As House (1978: 232) notes: '[They] stress... the importance of the utility of information... Connecting evaluation to decision-making underlines the purpose of evaluation.' Worthen and Sanders (1987:84) indicate that this approach supports the evaluation of all programme aspects and 'stresses the timely nature of feedback.'

But as House (1978:231) remarks 'why should the decision-makers... be given so much preference?' Furthermore this approach severely restricts the scope of evaluation making 'the evaluator the "hired gun" of the programme establishment.' And thus House (1978:23) suggests that this type of evaluation is 'unfair and undemocratic.' Finally, these approaches with agendas heavily prefigured by management, may not be able to reach consumers.

Closely connected to the above issue is the problem of who is informed of the results of the study and how. Much discussion of this issue in the evaluation literature proceeds treating the matter as a mere technical or pragmatic problem, the solution to which can be accomplished by simply being practical enough and/or exhaustive enough in terms of possible groups and possible uses to which the information collected could be put. There is some merit in the various checklists produced (Owens 1977; Worthen and Sanders 1987) at least in that they inform us of the possibilities available, that the issue is connected to negotiation and that perhaps different audiences require different kinds of report.

But at least two issues are left out by the above analysis. There is some need to recognise that the determination of audience 'needs' is a question of power, not simply technical decision-making. Perhaps this matter is best understood not as merely the 'need' to know, but 'the right to know' (Raizen and Rossi 1982:50). Further, some groups may have more clearly insititutionalised rights of access to information than others and more resources to use if not provided with what they consider to be useable information.

Finally, the use of data collected in consultancy contracts in published academic work must be considered. Norris (1990:88-89) notes that changes are evident here with more work being funded by 'centres of political power' and greater 'contractual control' being exercised over such work.

The choice of the evaluator

A fifth question that emerges from a reading of the evaluation literature is who should undertake the evaluation? Once again divergence of opinion is evident. Some authors suggest that evaluation should be based on the expertise of the programme staff creating a peer review model. There are some advantages to be gained from this – it is capable of developing a notion of democratic responsibility in the organisation; furthermore it may utilise or develop the professional expertise, knowledge and skills and organisational 'know how' of practitioners.

But there are clear disadvantages – the insider evaluator may be unable or unwilling to treat groups fairly (Cronbach 1980). The internal evaluator may be unable or unwilling to adopt an impartial stance to the outcome of the evaluation (Short and Ditton 1995). This is especially so for organisations that are under intense public and media scrutiny. Finally, the skills required of the evaluator may not be possessed by members of an organisation such as the police.

For this reason many commentators stress the need for independent evaluation, which according to Simons, is about how the inquiry is conducted that is, 'without fear or favour, not subscribing to any one vested interest...' and how the evaluation is reported that is, accurately (1984:57).

The advantages of independent evaluators are considerable. The independent evaluator is capable of playing the 'stranger' and seeing the programme in new ways and avoiding old allegiances to sectional interests within the programme. The independent

evaluator can be recruited because they have the skills not normally possessed in the organisation. The independent evaluator can perhaps achieve some degree of fairness and impartiality of investigation and reporting.

However, independent evaluation is not without its disadvantages. The evaluator may be seen as an invading force and problems of access may arise. By definition, independent evaluators lack insider knowledge. Independent evaluation may be more costly. The preservation of independence is difficult. Suchman (1967) provides a useful analysis of possibilities here. The real purpose of evaluation may be to sink the programme ('submarine'), ignore the defects of the programme ('whitewash'), offer mere prevarication ('postponement') or simply be seen to comply with some condition or contract ('posture'). Political interests are not confined to the policy space definers. Evaluators also have interests. Thus evaluators may be concerned to accomplish fast and cheap evaluations.

Furthermore the precarious nature of independence means that political considerations are paramount throughout the evaluation and may affect what is reported, how it is reported and whether it is reported. As Guba and Lincoln (1981:301) remark 'political factors are inevitably present' in the conduct of evaluation research.

There is one further aspect to the discussion which is worthy of consideration here – ethics. This issue has at least two features: research subject consent and evaluator competence. The first matter concerns the need to undertake data collection from subjects who have given their informed consent. Informed consent 'implies a responsibility on the [researcher]... to explain as fully as possible, and in terms meaningful to the participants, what the research is about, who is undertaking and financing it, why it is being undertaken, and how it is to be promoted' (British Sociological Association 1992: Appendix 2.4 102). The second matter concerns the independent evaluator and relates to the need to avoid claiming skills not possessed or findings not evident. Clearly this debate is part of a much broader issue connected to values in social science and the role of the social sciences. These matters will be dealt with in Chapter 7.

The technical adequacy of the evaluation

The sixth issue is concerned with how rigour can be achieved in the collection and analysis of data and technical adequacy maximised. Data should be collected using a clear strategy and design or designs. Anecdotal and casually produced data should be avoided. Some dispute is evident on issues connected to the use of qualitative data, the use of corroborative measures and the analysis of both quantitative and qualitative data.

The emphasis on the objectives approach and quasi-experimental strategies creates a bias towards quantitative and away from qualitative data. Qualitative data may be understood to determine patterns in a less definitive and scientific manner. Many advantages do arise from the use of quantitative methods. But this use should not be seen to exclude qualitative data collection because the use of different modes encourages what has been called 'triangulation' on the research object. Further as noted above the use of objectives approaches can frame the enquiry in terms of the founding aims excluding certain kinds of questions, understandings and groups. Qualitative methods of data collection can be used to remedy this exclusion. Finally, at a methodological level qualitative methods are justified in their own right, as they allow for types of explanation based on meaning and purpose, thereby developing a more complete understanding of the evaluation subject.

Clearly though both sets of data require careful analysis. Some debate surrounds the best form of thematic analysis and whether statistical trends are best analysed by means of estimates based on visual inspection or by using analytical statistics.

Feasibility

Seventh, how can the feasibility of the evaluation be maintained? This question requires an understanding of what features of the evaluation hinder its successful completion. Feasibility may be seen as having three aspects– political context, practical arrangements and cost effectiveness (Stufflebeam 1980 referred to by Patton 1981). As the above sections indicate evaluation research is undertaken in a political context from conception to reporting. Clearly

some political contexts will be more intrusive than others. Furthermore evaluation research has to overcome the multiple practical problems of any research effort including negotiating access, gaining and maintaining co-operation and collecting sufficient information and offering a thoughtful and systematic analysis of this data in the context of the need for timeliness. To maximise feasibility cognisance must be taken of cost effectiveness. Some evaluations are probably best mounted in-house though if the programme evaluated is publicly funded such a compromise is not unproblematic.

One further aspect of feasibility deserving separate treatment concerns the debate on formative and summative evaluation (Scriven 1967). Worthen and Sanders (1987:34) summarise the two forms.

‘Formative evaluation is conducted during the operation of a programme to provide evaluative information useful in improving the programme... Summative evaluation is conducted at the end of a programme to provide... judgements about the programme’s worth or merit.’

Stake (1969) questions the usefulness of the absolute distinction suggesting that the idea is a practical one based on audiences and what they want to know. Formative evaluation is aimed to provide data for programme managers to fine-tune the system. Summative evaluation is concerned to provide some pre-defined end of term assessment of the merits of the programme for managers and a broader audience.

Utility

The last issue concerns utility – the *raison d’être* of evaluation research is that it should:

‘...ascertain and provide useful information for judging decision alternatives...or to assist an audience or audiences to judge and improve the worth of some ... object’ (Norris 1990:102).

Norris (*ibid.*) rightly indicates the widespread support for this view. But there are very strict limits to this apparent consensus. Conflict is evident over whether evaluation research can be considered to have fitness of purpose. Many authors express regret at the limited impact evaluation research has on programme management and policy direction. Further many question the underlying assumption here ‘that policies and programmes are

the subject of discrete decisions which can be informed by carefully targeted information' (Norris 1990:144). This raises important questions about the other inputs into policy making and programme management i.e. economic, political and ideological considerations. Second, evaluation research may be understood as offering some form of accountability. But what sort of accountability is offered? This will almost certainly be restricted to certain programmes and policies within current policy space window. It may be limited by the 'tunnel vision' induced by the objectives approach to expected programme effects ignoring unintended consequences. Furthermore the discourse of the programme or policy may constitute only certain groups as authoritative sources of information. The results of the study may not be widely disseminated. Third, a contradiction may be seen to exist between the timeliness of the report and in-depth data collection, analysis and consideration. Similarly a further contradiction exists between the length and technical complexity of the evaluation report and the accessibility of the report to a wider audience.

Configuring the Doncaster study.

The implications of these points for configuring the Doncaster study can be briefly drawn out. There is a clear need to problematise the policy space occupied by both the CCTV project and the evaluation itself. An objectives approach is clearly useful as it has the advantage of assessing the programme in its own terms. But this must be modified to take account of system realisation, unintended effects and the elaboration of agreed and broadly recognised criteria for establishing programme effects.

A quasi-experimental approach is seen as useful for determining the impact of programmes, but with some trepidation. It is hoped that the attendant baggage of this approach - progressivist, inductivist and evolutionary assumptions about the nature of science, an over-rational view of policy, an over-consensual view of society, either an over-rational or over-determined conception of human subjects and an implicitly individualistic explanation of human conduct – can be avoided.

Recognition of the varied stakeholder context of CCTV needs to be made. The dissemination of findings is recognised to be an important issue. This would seem to require an open agreement to use the material collected for academic purposes and with the understanding that the results will be published both through the media and in a volume which may be obtained by the public for a fee.

Independence is seen as a necessary aspect of the conduct of evaluation albeit one that is difficult to create and maintain. A systematic and explicit research strategy and design is seen as necessary. This needs to include a planned information collection strategy making use of quantitative and qualitative data. Rigorous procedures for the analysis of data need to be developed. Due regard needs to be taken concerning the political context of the study. The study will aim to straddle the divide between summative and formative accounts by both offering on-going comment to system managers and a final report to managers and a broader audience.

Finally, the present study offers the opportunity of an empirical insight into the issues connected to utility. How far the results will influence local and other decisions will be able to be examined. What levels of accountability evaluation can deliver can also be critically assessed.

In this section we have examined the broader literature related to social policy evaluation. In the next section we review the more specialised literature connected to the evaluation of crime prevention programmes.

Evaluation research and crime prevention.

The second part of Chapter 2 sets out to accomplish four tasks: first, a review of the concept of crime prevention; second, an examination of the development of primary crime prevention forms; third, an analysis of evaluation issues pertinent to crime prevention

programmes; and finally, a consideration of the implications of the above for configuring the Doncaster study.

The concept of crime prevention

The concept of crime prevention is notably under-theorised even though many attempts have been made to produce various taxonomies (Brantingham and Faust 1976; Lewis and Salem 1986; Smith 1986; Currie 1988; Curtis 1987; Graham 1990; Van Dijk and De Waard 1991; Eckblom 1994; Walklate 1996; Pease 1997). Most taxonomies are based on an indication of the kind of intervention (Brantingham and Faust 1976 for example), the kind of target (for example, Walklate 1996) or a combination of the two (for example, Van Dijk and De Waard 1991). Brantingham and Faust 1976 offered a commanding and early attempt to think through the nature of crime prevention. It is this view that will be set out here as it has the greatest currency.

Brantingham and Faust (1976:290) offer the following useful, if not completely uncontroversial, definition and categorisation of crime prevention. They distinguish three forms of crime prevention.

'Primary crime prevention identifies conditions of the physical and social environment that provide opportunities for or precipitate criminal acts. *Secondary* crime prevention engages in early identification of potential offenders and seeks to intervene in their lives in such a way that they never commit criminal violation. *Tertiary* crime prevention deals with actual offenders and involves intervention in their lives in such a fashion that they will not commit further offenses.'

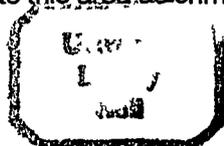
The limitations of Brantingham and Faust's view are worth briefly considering. Smith (1986) warns us that the public health analogy explicitly underlying Brantingham and Faust's scheme (1976:288) provides an over-consensual model of policy and that crime is not merely perpetrated by abnormal individuals (those who are 'ill') but may be found in conditions of economic marginalisation. Lewis and Salem (1986) make a distinction between 'top down' and 'bottom up' approaches to crime prevention. They thus draw our attention to the neglected point, that crime prevention is about the exercise of power and they further help to raise questions about the accountability of crime control agencies.

Walklate (1996:297) puts forward a model, which speaks of centredness – offender, victim, environment and community. Walklate sees this as questioning the central assumption of the public health model ‘that we know and agree upon the causes of crime...’ The critical comments considered here demonstrate that, whatever, the situation in public health, we cannot reduce the issue of crime control to a question of technical knowledge and effects. To do so means ignoring the contested character of crime, the causes of crime, criminological knowledge and penal policy.

Further, much of the crime prevention literature does not explicitly state the connection between, on the one hand the forms of intervention, and on the other hand, the targeted object. Pease (1997) and Ekblom (1994) attempt to deal with this omission. But there is a tendency to proffer over-rational or over-deterministic explanations, which relegate social processes to ‘distal’ mechanisms (Ekblom 1994) and which fail to do justice to the social cognition associated with offending.

Finally, attempts to understand crime prevention adopt a notably unsophisticated conception of social control that ignores its role in the classification and creation of deviance. This effectively eliminates any consideration of what Cohen (1985) calls iatrogenesis, which he sees as system generated deviance.

It is clear from the above that what is conventionally referred to as the criminal justice system is mainly concerned with tertiary prevention with its activities based on ‘detection, conviction and incarceration’ (Pease 1994:681). The penal system is concerned with the punishment or treatment of offenders. The police in their origins and current functions straddle the divide between primary and tertiary forms emphasising both prevention and detection. Various terms (crime prevention, community safety [Morgan report 1991] and crime reduction (Hope and Shaw 1988) have been coined to refer to the area of crime control concerned with primary and secondary prevention and often involving interagency groups or non-criminal justice groups. In order to avoid terminological confusion the present thesis will refer to this area as crime prevention as the term has the widest



currency. At the very least 'the growth of multi-agency crime prevention and the appointment of community safety officers by local authorities have blurred the borders' between tertiary and other forms or, less minimally, indicated a significant departure, from conventional crime control patterns putting more emphasis on non-criminal justice forms (Pease 1997:965).

One further terminological issue is worthy of clarification concerned with different kinds of and justifications for, primary prevention. Clarke and Mayhew (1980:1) suggest that there are two forms of prevention – situational and social. 'Situational prevention' they define as

'... measures directed at highly specific forms of crime; ...which involve the management, design or manipulation of the immediate environment in which the crimes occur; ... so as to reduce the opportunities for these crimes.'

Clarke later elaborated (1992:4) on the nature of these opportunities indicating that such measures act 'so as to increase the effort and risk of crime and reduce the rewards as perceived by a wide range of offenders.' In contrast, 'social prevention' may be seen to try to address the fundamental causes of crime. Clarke (1981) suggests that there are at least three such forms of social prevention. These include social policies dealing with moral commitment, attempts to reduce criminogenic inequalities and localised community projects concerned with solidarity.

The development of crime prevention

Many observers (Hope and Shaw 1988; Bottoms 1990; Bright 1991; Pease 1994, 1997; Tonry and Farrington 1995) note that there have been marked changes in crime control in the late 20th century. These shifts have been away from the 'tertiary prevention' system largely put in place in the 19th and early 20th centuries and characterised by a uniformed, paid police force (Emsley 1996), and centralised state controlled prisons acting as the lynchpin of the system (Ignatieff 1978). The modern criminal justice system may be seen to be based on professionalism and expert knowledges, bureaucracy, discipline and a mind set acting '*sine ira ac studio*, without anger or enthusiasm' (Garland 1990: 183). One

relevant element of the shift is a greater emphasis being placed on primary and secondary crime prevention. As Bottoms (1990:5) remarks, ' the 1980's ... have put crime prevention firmly on the map.' Furthermore these developments are by no means peculiar to the UK. Evidence from The Netherlands (Willemse 1994; Van Dijk and Junger-Tas 1988); Canada (Nuttall 1988); France (de Liege 1988; King 1989); and USA (Rosenbaum 1988) suggests a similar trend. Probably the single most important growth area is situational primary prevention.

Bottoms (1990) and Bright (1991) separately indicate that UK developments followed several different lines. Governmental stimulus was important. Initiatives set up in the 1960's following the Cornish Report had probably lost their vitality by the late 1970's. A fresh impetus was discernible by 1983 with new ministerial involvement in the Home Office Standing Committee (later known as conference) on Crime Prevention. This was followed by two developments. First, the Home Office Crime Prevention Unit was set up in 1983. Second, separate Interdepartmental Circulars on Crime Prevention for England and Wales and Scotland were issued in 1984, urging the need for interagency co-operation and the view that *crime prevention was not the sole concern of the police. However, whose role it should be was not made clear and became the subject of much subsequent acrimonious debate. This disputation was exacerbated because the rationale of crime prevention was not clarified. Even so 1986 saw the then Prime Minister emphasising the importance of crime prevention at a high profile seminar. The seminar stressed the need for involving business in crime prevention. It also set up a ministerial crime prevention group. This seminar 'marked a shift in government strategy for dealing with law and order' (Shaw 1986:88) from the conventional emphasis on tertiary prevention alone, to a more mixed strategy placing greater reliance on primary prevention.*

The emphasis on central government (aided by 'voluntary' efforts) and physical prevention became clear. The shift was also evident in the White Paper (subsequently the basis of the ill-fated Criminal Justice Act of 1991) which demonstrated penal pessimism and a new role for the criminal justice system of 'just deserts' with crime reduction being seen as

properly allocated elsewhere (Home Office 1990b). Two further governmental initiatives were evident which generally confirmed these emphases. The first was the central funding of local projects through the Five Towns Initiative and later the Safer Cities schemes, which continue to the present though with a changing orientation (Tilley 1993b; Pease 1997). The second policy initiative was a movement to advertising. This was at first regional in character and stressed individual responsibility for crime prevention. The 'Magpies' campaign exemplified the trend exhorting citizens to look after their property. Later the national 'Crack Crime' campaign shifted the target to what communities could do to prevent crime (Home Office 1989: 30). Subsequent developments included the creation of a National Crime Prevention Week and the provision of National Safer Cities Conferences.

A conflict-ridden relationship between central and local government was increasingly evident during the Thatcher administrations. This state of affairs did not encourage local government crime prevention initiatives. Nevertheless, some such initiatives did emerge and 'by the late 1980's a number of Labour controlled councils in the larger cities ...included community safety within their remit' (Bright 1991:75). Indeed the Association of Metropolitan Authorities set up a working group on crime prevention in 1989. By 1990 a more favourable view of local government involvement seemed to be emerging based on local partnerships (Home Office 1990a). This was further developed by the report of the AMA (1990) and the Morgan Report (Home Office 1991). The Morgan Report recommended giving local authorities a statutory duty for crime prevention. Both reports also questioned the emphasis on physical prevention and the dominance of the police as lead agency in crime prevention initiatives. In the early 1990s significant change is evident with movement from 'situational towards more complex models' (Pease 1997:965). Practical involvement of local government also increased despite central government intentions. The new Labour Government has outlined proposals for a leadership agency consisting of the police and local authorities both having a statutory duty in the field (Home Office September 1997).

The impetus to crime prevention did not just derive from central or local government. A number of local initiatives were evident deriving from a range of organisations. First, from

the police involving local forces developing crime prevention schemes. For example, the Northumbria Police who set up the 'Northumbria Coalition Against Crime' consisting of business and local authorities and aimed to stimulate effective crime prevention initiatives (Northumbria Police 1989 cited in Bottoms 1990). Also very often relying on police support, Neighbourhood Watch schemes have been developed around the country. Bottoms (1990:5) suggests that there were some 66,500 of these by 1989. Second, the voluntary sector has contributed to the development of crime prevention. In 1979 (Crime Prevention Unit) and 1980 (Safe Neighbourhoods Unit) NACRO set up its main crime prevention units (Bright 1991). These efforts became targeted on housing estates with some 80 projects running in the late 1980's (Bottoms 1990:5). Central government also attempted to stimulate activity, by setting up 'Crime Concern' in 1988. Third, some academics became involved in crime prevention including the Windsor consultation (Shapland and Wiles 1989), Young's work in Islington (Jones, Maclean and Young 1986; Painter 1988) and Coleman's work on housing design (1985).

Bottoms and Wiles (1996, 1997) argue that there are also broader forces, which have given impetus to these developments. They argue that social life in 'late modern societies' (1997) is dominated by areas of change which have implications for understanding crime and crime control patterns. First, the impact of the globalisation of capital and business has led to a 'hollowing out' of state power transferring it upward to transnational companies and downward to communities. Perhaps this accounts for the 'privatisation' of crime prevention pushed by feelings of impotence and pulled by communities insisting on effective action. Second, ontological insecurity has been induced by the de-traditionalisation of knowledge with no authoritative source being set up to replace it. 'The creation of "security bubbles" including ' women only hotels, CCTV systems, gated residential communities or well protected shopping malls' are, according to Bottoms and Wiles, ways of assuaging this ontological insecurity (1997: 351). Finally, new forms of regional inequality and social differentiation have contributed to social exclusion that is criminogenic, in the context of a globalised culture that induces the realisation of self through consumption.

The following foreground factors may be adduced to explain the shift to crime prevention. First, general public expenditure problems during the 1980's and 1990's which resulted in the 'crisis in penological resources' (Bottoms 1980:5). The penal system was no longer protected from increasing financial stringency affecting all public expenditure. Further, the influence of the crisis could not be confined to the penal system, but permeated the whole domain of tertiary crime prevention. However, law and order, a high profile election issue since 1970, could not be easily cut back whilst remaining politically credible (Downes and Morgan 1994, 1997). This led to a two-pronged policy. On the one hand, particularly between 1984-1992, there developed a re-constructed strategy for the penal system based on a non-reductionist logic located in 'just deserts' (Home Office 1990b). On the other hand, to establish reductionist credentials, a drive toward primary crime prevention programmes, which emphasised situational measures including CCTV systems.

Second, the underlying model of offenders and the implicit conception of social order (Clarke 1980, 1981) had affinity with the emergent Thatcherism which held the individual (and families) as the measure and centre of everything albeit still tied to traditional notions of morality. Individuals not only could be seen as responsible for crime but their own criminal victimisation too! No doubt there were organisational factors at work contained in the interplay between government and Home Office Research Unit as asserted by Clarke (1995), whereby this unit wielded a growing direct influence on policy directions.

Third, the management of 'slumpflation' was seen to require monetarist policy and marketisation, a policy perfectly consistent with the new individualism if not the traditional moralities espoused by the Tory Party (Gray, J The Guardian 18th October 1997: 21). These policies also led to the growth of inequality and social marginalisation (Hills 1993; Power 1994; Wells 1994; Wilkinson 1994). Yet despite all the aggressive law and order campaigns in the 1979-1996 period, and probably because of the ideological and material effects of the economic policies of the period, recorded crime rose (2.4 million offences in 1979 to 5.2 million offences 1992 Home Office 1994) and fear of crime continued to rise (Mayhew, Mirrlees-Black and Maung 1994).

Finally, the growth of primary crime prevention may be seen to be related to the emergence of the 'nothing works' view seemingly based on evaluation research findings (Brody 1976; Martinson 1974; Lipton 1975). The 'nothing works' view suggested that the tertiary system was ineffective. In the words of the Serota Report, quoted by Bottoms (1980:2),

' a steadily accumulating volume of research has shown that, if reconviction rates are used to measure the success or failure of sentencing policy, there is virtually nothing to choose between different lengths of custodial sentence, different types of institutional regime, and even between custodial and non-custodial treatment.'

All measures were seen to have the same order of effect and generally such an effect was understood to be limited. This challenged the conventional *raison d'être* of the penal system, 'the rehabilitative ideal', leaving a policy vacuum.

During the 1980's the crises of resources and confidence in the penal system spread to the criminal justice system. For example, a series of evaluation research reports in the 1980's demonstrated that there was virtually nothing to choose between different styles of policing (Morris and Heal 1981; Clarke and Hough 1984; Sherman 1983; Bradley, Walker and Wilkie 1986). This converted a penal crisis into a criminal justice crisis and promoted a managerialist ethic (Bottoms and Stevenson 1992), which provided a role for particular styles of evaluation research. Certainly these pessimistic views increasingly surfaced in public discourse on criminal justice (President's Commission on Law Enforcement 1967; Home Office 1990b; Canadian Sentencing Commission 1987).

The reaction to the 'nothing works' view demonstrates that take up of the notion was probably more a matter of context than certainty of argument or evidence. The conversion of 'nothing works' from a research finding into a social movement brushed aside perhaps many of the qualifications the original authors intended. It certainly ignored subsequent research findings that argued that individual treatment programmes can work (Gendreau and Ross 1980, 1987; McGuire 1995); that the research evidence of the original 'nothing works' studies was flawed (Martinson 1979; McGuire and Preistley 1985; Thornton 1987); and, anyway, that 'rehabilitation is the only justification of criminal sanctioning that obligates the

state to care for an offender's needs or welfare' (Cullen and Gilbert 1982: 247). The 'something works' movement has been able to gain some foothold in the burgeoning managerialist orientation. However, the logic of the 'something works' movement is to once again individualise the problem of crime.

Increasing recognition is evident that the term 'crisis' is not adequate (Morris 1989; Cavadino 1992; Sparks 1994), as it does not cope with 'the depth and duration of penal problems' (Sparks 1994:18), which are chronic not acute. As a consequence attempts have been made to grasp the vital aspects of the notion of crisis by utilising the sociological concept of legitimacy (Sparks 1994; Sparks and Bottoms 1995) albeit in a neo-Weberian form using adjustments offered by Beetham (1991). This not only allows a perception of the situation which pushes toward a much broader understanding of the issue but has important implications for assessing the role of evaluation research which will be developed below. Sparks (1994) following Held (1987) analyses these issues through notions of legitimisation problems, which Western political systems are seen recurrently to face. One approach to this issue is found in the conservative theory of 'overload' which is based on the view that Western political systems 'undertake functions they cannot meet' (Sparks 1994:18). This recurrently precipitates crisis, which leads to recourse to marketisation and the use of the criminal justice system to maintain social order. Another perhaps more useful approach, suggests that these problems result from the endemic instability of capitalist societies. These political systems claim a competence of control, which they cannot live up to and recurrently, face 'legitimation and motivation crises' (Held 1987:235). This suggests therefore that the penal or criminal justice crisis is an aspect of a much broader problem. These views are summarised in Table 2. Garland (1990, 1996) develops this by arguing that in 1990 that these problems are 'crises of penal modernism' (Garland 1990:7) and, in the later paper, the nation state itself.

Table 2 Views of crisis

Aspect	Conservative	Critical
1.0 Explanation of Legitimation problems: 1.1 Welfare	Increasingly seen as able to be managed to reduce social divisions.	Inherently threatening social divisions.
1.2 Economy	Increasingly seen as able to be managed to contain fluctuations.	Inherently unstable capitalist system.
1.3 Polity	Gradual absorption of welfare and economic management functions.	No improvement in the state's ability to manage social or economic conditions whilst greater competence is claimed over a wider range of areas.
1.4 Reasons for legitimation problems	Overload. Simple inability to fulfil 'unrealistic' expectations.	Legitimation and motivation crisis. Cannot mitigate inherent instability.
2.0 Solutions to legitimation problems 2.1 The market	Marketisation of society	Generate greater patterns of inequality
2.2 The welfare state	Retrenchment of social programmes	No mitigation of economic troubles
2.3 Law and order	Reassertion of authority and social order by the use of the criminal justice system	Recourse to authoritarianism. Maintenance of order assumes high priority. Criminal justice system used to deal with socially marginal.
2.4 Overall	Repeat the cycle.	Regressive: Authoritarianism. Critical/ Progressive: question givenness of politicised practices

Issues in the evaluation of crime prevention programmes

Before moving to the consideration of the literature concerned with the evaluation of crime prevention practice, two points must be noted. First, the growth in primary prevention in the UK was not accompanied by similar growth in good quality evaluation research. Second, this state of affairs was not peculiar to the UK.

In the UK although the Five Towns Initiative was set up in 1986 in Bolton, Croydon, North Tyneside, Swansea and Wellingborough as a 'demonstration project' (Bottoms 1990:4) 'no proper research evaluation was built in by the Home Office' (1990:17). Further the Home Office in its review in 1989 (pp36-38) concluded that in crime prevention 'there was an absence of detailed evaluation.' The AMA (1990) report indicated that central government initiatives had failed to provide for adequate monitoring and evaluation.

Furthermore, the Morgan Report (Home Office 1991: Para 4.50), one year later, concluded that 'monitoring and evaluation were the weakest elements of most crime prevention schemes.' Ekblom and Pease sum up the situation when they suggest that 'crime prevention research has been dominated by...a great deal of self-serving unpublished and semi-published work that does not meet even the most elementary criteria of evaluation probity' (1995:586).

In the USA, Rosenbaum (1988:381) noted a similar state of affairs where 'both the quality and quantity of evaluation research in this field are inadequate for building a solid body of knowledge regarding the nature, extent and effectiveness of community crime prevention initiatives.' Willemse (1994) notes despite the requirement to evaluate crime prevention schemes set by the Ministry of Justice in The Netherlands, only 41/200 scheme evaluations proved adequate. Wikstrom (1995:430) notes for Sweden that there are 'few careful evaluations of city center street-crime prevention programs.'

We must now consider the sound literature that does exist. The analysis will draw on the following works: Hope and Shaw 1988; Rosenbaum 1988; Bottoms 1990, 1994; Bright 1991; Berry and Carter 1992; Clarke 1992; Clarke 1993; Tilley 1993a; Pawson and Tilley 1994; Clarke 1994; Tonry and Farrington 1995; Pease 1994; Bottoms and Wiles 1997; and Pease 1997. The purpose of the analysis is to identify how the key issues facing evaluators have been addressed. This will, in turn, help to configure the Doncaster evaluation and articulate a framework for adequate evaluation practice. The discussion will proceed by utilising the framework suggested in the first part of this chapter (Table 1).

Policy space.

With the exception in passing of Ekblom and Pease (1995), no real emphasis is placed on the examination and analysis of the social construction of the 'policy space' into which primary crime prevention and particularly situational crime prevention fits. Some hints are given as to the general emergence of crime prevention on the scene with Clarke (1995:94)

suggesting that the Home Office Research Unit had a hand in the downfall of tertiary methods in general and the rehabilitative ideal in particular. Further, Tilley (1993a) and Pawson and Tilley (1994) note that the pessimistic conclusions reached in the 'nothing works' view were probably a product of failing to assess projects by reference to the causal mechanisms at work in particular contexts. But none of this takes the topic of policy space seriously. The lacuna is probably related to the general tendency in the literature to underplay the role of social factors and treat the environment as a purely physical phenomenon. The disappearance of the social has implications for the attempts to use theories to explain the impact of crime prevention measures. Such theories have become confined to various versions of the offender as a rational actor (Clarke 1980, 1992, 1994, 1995), with social processes being dealt with, if at all, as merely background or 'distal' (Ekblom 1994) factors.

Programme aspects evaluated

The literature reflects a useful emphasis on the need to take programme aims seriously when undertaking an evaluation. But there are clear limitations to this approach. The first limitation concerns the way in which such evaluations (for example Berry and Carter 1992) may become trapped in a top down, managerialist framework which resolves the contradiction between cost and precision too far on the side of cost because of the demands for economy, timeliness and the utilisation of existing data sources. A second difficulty is that the approach when inflexibly engaged has the potential for ignoring crucial implementation issues. As Ekblom and Pease (1995:589) note, such implementation issues are important.

Evaluation strategy and design

The crime prevention literature reveals a need for clear emphasis on experimental and quasi-experimental evaluation strategies (Tonry and Farrington 1995). These designs are rightly seen to require explicitness and systematicity. But some difficulties are evident. First,

a tendency to use less powerful research designs may be noted (Tonry and Farrington 1995). Second, even where the more powerful designs are used, a tendency to fail to analyse the well-established weaknesses of these designs is evident (Campbell and Stanley 1963). Ekblom and Pease (1995) in particular nominate the tendency to neglect regression to the mean as a problem for evaluation projects. This problem is significant as changes, which may be attributed to the crime prevention project may be the result of simple statistical variation. Third, perhaps because of the scientific closure of these studies, there has been a tendency to neglect qualitative data. Finally, there is the problem of the 'black box' (Rosenbaum 1988:382) of crime prevention research. Tilley (1993a) and Pawson and Tilley (1992, 1994, 1996) have been particularly strenuous in arguing for the need to transcend simply knowing whether a particular programme has effects to knowing why this is so. The debate goes beyond simply considering confounding variables (Bennett 1996 and Chapter 7 below) to considering the causal processes and mechanisms involved in programmes. This can, they argue, sharpen research, make it more applied and avoid the nothing works syndrome that occurred in the past largely because research was characterised by naive empiricism. Pawson and Tilley's emphasis seems appropriate but perhaps the real difficulty is not so much a naive empiricism but an unreflexive, contradictory, simplistic and erroneous construction of the social cognition of offending. The literature abounds with implicit or explicit rational offender models with uneasy affirmations of the psychological processes at work underneath the surface of the 'rational' decisions. These contradictions are evident in the work, surprisingly, of Laycock and Tilley (1995:538) who note that 'that opportunities cause crime ... has proved particularly unacceptable to many people. There are a number of reasons for this, including reluctance to accept the *deterministic model of human behaviour* which is seen to follow from the opportunity reduction model of crime.' (My emphasis) The emphasis on subjective meaning or choice is valuable but the eclipse of social explanations of offender cognition is not.

The stakeholder context

The identification of who should be consulted and who should be informed of the results of the evaluation has received very little attention. This may result from the general tendency of evaluation work to be objectives based and management orientated. This issue is unlikely to surface explicitly.

The choice of evaluator

The question of who should conduct the evaluation is also infrequently discussed again with the exception of Ekblom and Pease (1995) who though they return an open-ended verdict on the matter clearly favour the use of independent evaluators. The task of evaluation is seen as complex and false inferences may be too easily drawn by the untrained eye; practitioners might also be placed in a position where saving money assumed priority over good evaluation; and self-interest might too easily intrude into results produced by the practitioner/evaluator. Ekblom and Pease do not suggest, however, that the professional evaluator, especially if drawn from an academic background, is entirely without difficulties. On the contrary, they suggest that the 'uncompromising rigor' of academic evaluators may well induce a state of policy 'rigor mortis' (1995:636).

The technical adequacy of the evaluation

A clear concern in the literature emerges about the technical adequacy of evaluation. A number of new facets are raised. First, Berry and Carter (1992) usefully identify the importance of corroborative data. They suggest the creation of 'baskets' of measures set up to act in a mutually corroborative manner offer the prospect of increasing levels of confidence in the findings. This is particularly pertinent for assessing the impact of crime prevention programmes with their reliance on police statistics of recorded crime. This would suggest the need for victimisation surveys.

Second, a number of issues surround the use of statistical analysis of numerical data. There are some interesting contradictions at work here. Three are worth mentioning.

The first concerns the contradiction between the use of statistical tests and meaningful communication with the evaluation audience. Clearly, the greater the use of more complex designs and forms of analytical statistics the greater the task of communicating the details to audiences. The second is connected to the contradiction between absolute academic rigour and the ability to provide realistic conclusions. Finally, there is a potential contradiction between accomplishing internal and external validity. The very act of studying a CCTV system impacts on its representativeness.

Third, problems abound concerning the establishment of the effects of a particular measure. Ekblom and Pease (1995), in particular, express concern about the nature of significance tests. They suggest an as yet undeveloped new dose/effect measurement to determine the strength of impacts.

Similar difficulties are evident concerning the determination of displacement and diffusion of benefits effects. The displacement of crime has been defined as

' the usually unintended effect of crime control programs by which efforts to prevent one kind of crime sometimes lead to would-be offenders to commit a different kind of crime or the same kind of crime at a different time or place' (Barr and Pease 1990:278).

Three other varieties of displacement have been identified including tactical (committing crime using a different method); target (perpetrated on a different victim) and perpetrator (where an another offender steps in to commit the crime) (Repetto 1976; Hakim and Rengert 1981; Barr and Pease 1990; Bannister 1993 and Pease 1997). The present author would concur with Barr and Pease (1990) that displacement may be benign, 'when the displaced crime causes less harm or misery than the original crime' (Pease 1997:978). Displacement is clearly not a new process as all crime control measures, not just primary prevention programmes, may experience this phenomenon.

Diffusion of benefits may be defined as

' the spread of the beneficial influences of an intervention beyond the places which are directly targeted, the individuals who are the subject of control, the crimes which are the focus of intervention or the time periods in which the intervention is brought' (Clarke and Weisburd 1994:168-169).

It may be seen to take forms similar to those of displacement listed above.

The literature abounds with the problems of measurement associated with these two processes. The debate has generated more heat than light because of its heavy theoretical undertow. Extreme case pessimism of total displacement is difficult if not impossible to refute – the possibilities for displacement are infinite and statistical work alone cannot provide a definitive answer (Clarke and Weisburd 1994; Barr and Pease 1990; Pease 1994). But this work is seen as necessary at least as a first step involving procedures requiring the same methods as those used to determine reductionist effects on crime. Quantitative work is seen to need to be supplemented by qualitative methods investigating 'the subjective element involved' (Gabor 1990:60) exploring the offenders' meanings and actions.

The literature has few suggestions concerning the measurement of effects other than crime reduction. The cost effectiveness of crime prevention programmes is acknowledged to be an important issue though little mention is made of possible methods of measurement.

Feasibility

A number of problems may be highlighted. First, there may be a trade off between the use of resources on the one hand and the quality and certainty of the evaluation, on the other. Second, there may be radically differing expectations for example of administrators and practitioners to receive timely evaluations and the need for appropriately lengthy and even, before/after periods. Finally, there are difficulties attached to balancing summative and formative work and avoiding the tendency to incorporation, which seems to go hand in hand with formative assessment.

Utility

Many authors note that evaluation research suffers from a 'credibility problem' (Hope 1995; Pease 1997 Willemse 1994, Ekblom and Pease 1995). They thus raise fundamental doubts as to whether evaluation research routinely fulfils its own aim, to influence the practice of programmes and the determination of policies.

Configuring the Doncaster study

Table 3 Implications for evaluation research.

Role of evaluation research	Managerialist	Critical
Policy space	Ignored	Analysed
Programme aspects to be evaluated	Tunnel objectives approach entirely defined by programme managers	Objectives and process approach
Evaluation strategy and design	Exclusively quantitative.	Open to diverse methods
The stakeholder context	Authoritarian/ Bureaucratic (McDonald)	Democratic
The choice of the evaluator	Self interested practitioners and over contracted independent evaluators	Independent.
The technical adequacy of the evaluation	Illicit insertion of theory – rational offenders Inadequate – persuasive rather than systematic	Reflexive about explicit theory
Feasibility	Inexplicit about provenance	Clear about provenance
Utility	Primarily summative Unreflexive about fitness of purpose	Formative and summative. Reflexive about fitness of purpose

What are the implications of the above analysis for configuring the Doncaster study? The 'nothing works' debate has important implications for the present study. Evaluation as an aspect of surveillance is, as Garland (1995) suggests, inscribed into the heart of modernity. It is an inevitable part of modern life. However, Held's (1987) two models of legitimation problems, usefully set out by Sparks, may provide us with a creative way to differentiate forms of evaluation research. This enables two ideal types of evaluation, 'managerialist' and 'critical', to be distinguished associated with the two orientations to legitimation, namely 'overload' and 'inherent instability.' Evaluation may thus be conducted which is incorporated and limited or critical and reflexive. The present study aspires to fit into the latter category.

Of course it is recognised that important variations are evident within the main models as well as between them and that, the kind of critical theory discussed here is as Giddens (1990:154) suggests one without guarantees, that is the one grounded in 'utopian realism'. The distinction between these two types of evaluation is set out in Table 3.

The review also suggests the need for lengthy negotiation in order to clarify the requirements of the contract provider as well as talk through the uncertainties of evaluation. Attention also needs to be given to the local policy space – why is this project seen to need evaluation? The need to attend to both the aims of the programme (impact assessment) and the realisation of the associated system (implementation assessment) are noted. The desire to use the most powerful experimental models suggests the need for quasi-experimental strategies utilising the interrupted time series with non-equivalent groups design wherever possible. The results of this work will need to be assessed against repetitive problems connected to internal and external validity as analysed by Campbell and Stanley (1963). There is a clear need to use the study to provide a preliminary consideration of causal mechanisms at work in the particular context of Doncaster town centre. There is a need to make the evaluation as democratic as possible.

The need for corroborative data is noted and surveys planned to collect victimisation data on a before/after basis. Since there are different groups using the town centre then surveys of all such groups (town centre users, multi-storey car park users and school pupils using the town centre) will be undertaken. The material collected from these groups will include the prioritisation of crime as a problem of town centre use, crimes seen, victimisation and attitudes towards CCTV. Further corroboration of the effects of CCTV is planned through key worker surveys including police officers, magistrates, traffic wardens, Highways Department staff and business providers. The need for non-technical presentation of reports is also noted.

The avoidance of policy 'rigor mortis' can best be achieved by setting significance at the 5% level. This level allows for an exploratory approach setting the right balance between the declaration of false negatives and positives. The matter of whether the drive toward internal validity in the Doncaster project has rendered the results low on external validity is a matter for subsequent consideration. Displacement and diffusion of benefits impacts will be assessed using the police statistics and combined with interviews with offenders. Questions concerning my appointment as evaluator and factors concerned with the cost, timeliness and utility of the evaluation require some critical reflection.

However, before we look at the Doncaster evaluation in detail, we need to consider the specific literature on the evaluation of CCTV systems.

Evaluation research and CCTV systems

The third and final section of Chapter 2 reviews the existing literature (up to September 1996) on the evaluation of closed circuit television surveillance systems. Reference will be made to this literature again in Chapter 3 when the actual, documented effects of CCTV systems are considered. Here the review concentrates on four main areas: the nature of CCTV surveillance systems, the development of evaluation research on CCTV surveillance systems, debates within the literature with regard to evaluation and the implications of the existing studies for the evaluation of the Doncaster system.

The nature of CCTV surveillance systems

As indicated in Chapter 1 closed circuit television systems aim to create surveillance networks in particular localities. Such systems vary greatly in at least four main ways. First, in the nature of the area surveilled revealing, in turn, at least three sources of difference – related to whether the area is a public space (town centre streets, streets in a residential area) or some form of private space with either normally unrestricted (privately owned shopping centre, shop) or restricted (home, workplace) access. The next difference is

whether areas covered by cameras are primarily business or commercial districts (shopping malls, town centres, industrial estates, shops) or residential areas. The final source of difference is connected to the geography and 'furnishing' of the area, comprising of the physical complexity of the area and the impact of street furniture (trees, fountains and signs) on the surveillance capabilities of the CCTV system.

The second main source of variation in CCTV surveillance systems is evident regarding diversity of aims. A variety of aims may be claimed though these often relate to some or all of the following: crime reduction (through, amongst other factors, deterrence or apprehension), reduction in the fear of crime, promotion of commercial activity, and area management functions like, for example, dealing with traffic congestion in a town centre. Variety of purpose is of some significance given the centrality of stated aims to evaluation.

The third source of variation relates to the nature of CCTV systems themselves. The tendency is evident in the literature to treat all CCTV surveillance systems as essentially similar. This is not the case – systems vary in the type, range, mode of operation and quality of cameras and of any recording facilities; the nature of the connections between these two key facilities; the nature of the monitoring arrangements (remote or on site); and the technical requirements of a control room (if provided). They may also have other distinguishing features related to this technological dimension, for example there may be the provision of 'Help Points' or 'panic buttons' as reported in the studies of CCTV on the London underground by Burrows (1979) and Webb and Laycock (1992) and used in Doncaster.

Finally, CCTV systems have a human element, which causes significant variation in character and functioning. CCTV systems have quite distinct social histories. Systems vary in the designated and actual 'lead' and 'owning' agencies. Systems also vary according to the nature of the deployment of staff to operate the control room including here the conditions of employment, working environment, organisational culture and forms of

management. Such systems also differ on the extent of integration with other related groups, particularly the police, emergency services and the local council. Finally, CCTV systems vary according their relation to broader strategies including crime control, traffic management and general area management.

The development of evaluation research on CCTV surveillance systems

An extensive literature review of the field up to September 1996 discovered 32 reports, which have some evaluative material on CCTV. All are UK-based unless otherwise stated. This review reveals three important findings. First, these reports can be usefully divided into two different kinds, comprising of practitioners' and independent accounts. Second, practitioners' accounts are deeply flawed. Third, despite these flaws, practitioners' accounts dominated and influenced the formative period of the development of CCTV in the late 1980's and early 1990's.

A practitioner's account is seen as a study prepared by scheme operators or any other self-interested party. These are listed in Table 4. 'Independent' accounts are defined as normally deriving from semi-autonomous governmental groups (for example the Crime Prevention Unit [CPU]) or academy-based researchers. These are listed in Table 5. Some allowance in this separation also has to be made for provenance of data. Otherwise independent studies may show insufficient autonomy in data collection to justify relegation to the practitioners group.

A consideration of Burrows 1991 is instructive in understanding the distinction between 'practitioner' and independent accounts. Burrows' work was published by the Crime Prevention Unit (CPU) but may be considered to be a practitioner's account because of its inexplicit nature and over-reliance on the uncritical use of data reported by practitioners. The paper is referred to by other studies (Chatterton and Frenz 1994:134; Brown 1995:1) as *indicating the successful use of CCTV systems in commercial settings. Its task is avowedly missionary, to persuade business to take up the challenge of accepting responsibility for crime prevention (Burrows 1991:1). But the results are based on 'a short and unstructured*

enquiry' (1991:1). Even this approach seems to have run into opposition on the grounds of commercial confidentiality and supposed threats to security procedures. The information provided consisted of self-selected, success stories claiming reductions in unknown losses, losses from tills and violent incidents and improved apprehensions and improvement in the evidence collected. These claims were based on data supplied by Tesco supermarkets and were connected to their introduction of TISS (totally integrated security system), which included amongst other things, CCTV. The original data reported related to one store where 'an immediate impact was seen' (Burrows 1991:8). The CCTV system was extended to '8 stores' (1991:9) where 'unknown losses' were reduced. This study is seriously flawed. Virtually anything that would be considered necessary to guarantee validity is missing. The only saving grace it has is that it is honestly reported as such although even this is detracted from somewhat by the missionary zeal of the paper. So even though an 'outsider' conducted the research it cannot be considered an independent evaluation since it reveals absolute dependence on practitioner generated research strategy and data.

Short and Ditton (1995) make a number of stinging but appropriate criticisms of practitioners' accounts concluding overall that their claims are not 'credible'. First, these studies lack any form of independence. They suggest that such evaluations are '*... post hoc* shoestring efforts by untrained and self-interested practitioners' (Pawson and Tilley 1994 in Short and Ditton 1995:1). Doubts about notions of independence notwithstanding (see the first section of this Chapter for some of the disadvantages), it is difficult not to concede the point to Short and Ditton. Indeed in setting out what they consider should be future standards, Short and Ditton (1995:6) suggest that 'the single most important criterion for professional evaluation is independence.'

Second, practitioners' accounts depend on untrained personnel inexperienced in conducting methodologically adequate research. Survey work usually when practiced, is rarely properly described, and when it is, reveals poor sampling practice and leading questions. Furthermore this work usually omits important stakeholders for example retailers in town centres or town centre night-time users.

Table 4 Chronology of CCTV evaluation - practitioners' accounts

Authors	Researcher base	Date of study	Date of publication	Publication status	Impact of CCTV on:
Hancox, P.D. and Morgan, J.D.	Police officers	Sept. – Dec. 1974	1975	Public	Other location: Crime at football matches in Wolverhampton.
Burrows, J.	Home Office, Crime Prevention Unit	Not stated	1991	Public	Other location: Theft and losses from shops.
Corporation of London	Council	1993	1993	N/K	Town centre location: Public attitudes City of London. (Moore, P 1994)
Moore, P.	Police Officer	Sept. 1993	1994	Public	Town centre location: City Watch Scheme report. City of London.
Edwards, P. and Tilley, N.	Home Office	NA	1994	Public	General account of town centre developments with some success stories
Strathclyde Police	Police Force	Nov. 1991 – Oct. 1992	1994	Semi-public	Town centre location: Review of crime reduction effects. Airdrie.
Manning, J.	Council	Mar. 1994 – Mar. 1996	1996	Public	Town centre location: Impact of CCTV. Ipswich.
Home Office	Government (White Paper)	Newcastle :'first four years'; Bedford: 1994; Newport: 1994	1996	Public	Town centre locations: Crime reduction in Bedford, Newcastle and Newport. (1996: Para 2.10 pages 6-7)
Audit Commission	Government	1991 – 1992	1996	Public	Town centre location: Crime reduction in Airdrie.

TABLE 5 Chronology of CCTV evaluation events – independent studies.

Authors	Researcher base	Date of study	Date of publication	Status of publication	Impact of CCTV on:
Musheno, M.C., Levine, J.P. and Palumbo, D.J.	University staff. USA	May 1976 and Dec. 1976	1978	Public	Other locations: Crime and fear of crime in a public housing project USA
Burrows, J.	Home Office researcher	Nov. 1975- Dec. 1976	1979	Public	Other locations: Robbery and theft on parts of the London underground.
Poyner, B.	University researcher	Nov. 1985- Oct. 1986	1988	Public	Other locations: Vandalism on buses in North East England
Liberty	Civil rights group	NA	1988	Public	General concerns expressed about CCTV systems.
Not known	Carried out for the Home Office by private consultants, Michael and Associates	Dec. 1990 and Dec. 1991	1990	NK	Town centre location: Criminal victimisation and fear of crime. Quasi-experimental study. Birmingham
Home Office Crime Prevention Centre (HOPC)	HOPC	Various	1990	Semi-public	General survey of existing systems
Poyner, B.	Consultant	Mar. 1986 – Dec. 1986	1991	Public	Other locations: 'Car crime' in a university's car parks.
Honess, T. And Charman, E.	Home Office, Crime Prevention Unit	1991	1992	Public	Town centre location: Public attitudes towards CCTV systems.
Webb, B. and Laycock, G.	Home Office, Crime Prevention Unit	1988-89	1992	Public	Other locations: Robbery, assault and theft on parts of the London underground.
Tilley, N.	Home Office, Crime Prevention Unit	Variable range	Jan. 1993a	Public	Other locations: 'Car crime' in 6 cities' car parks
Poyner, B.	Consultant	NA	1993	Public	Meta-evaluation of crime prevention including CCTV

TABLE 5 Chronology of CCTV evaluation events – independent studies (continued).

Authors	Researcher base	Date of study	Date of publication	Status of publication	Impact of CCTV on:
Local Government Information Unit	Local government information, lobbying, publicity and policy service.	NA	Jun. 1994	Public	General briefing on CCTV
Chatterton, M. and Frenz, S.	University based researchers contracted by Merseyside Police Authority.	May 1992 – Mar. 1993	Jul. 1994	Public	Other locations: Burglary, detections, criminal victimisation and fear of crime in sheltered accommodation for the elderly. Liverpool
Bulos, M. and Sarno, C.	University researchers	Not specified	Aug. 1994	Semi-public	Survey of local authority development of and plans for, CCTV
Groombridge, N. and Murji, K.	University researchers	NA	Winter 1994	Public	General critique of CCTV systems.
Bulos, M. (ed)	University researchers contracted to Sutton Council	Jun. 1994 and Aug. 1994 – Sept. 1994	Jan. 1995	Semi-public	Town centre location: Crime over 2 months. Public attitude survey. London Borough of Sutton
Short, E. and Ditton, J.	University researchers contracted to Scottish Home Office Central Research Office	NA	1995	Public	Article urging the need for independent evaluation of CCTV.
Brown, B.	Home Office, Crime Prevention Unit.	Birmingham : Mar. 1990- Sept. 1993 Kings Lynn: Dec. 1991- 1993 Newcastle: March 1993- May 1994	Dec. 1995	Public	Town centre location: Three towns – Birmingham, Kings Lynn and Newcastle covering crime, fear of crime and detections.

TABLE 5 Chronology of CCTV evaluation events – independent studies (continued).

Authors	Researcher base	Date of study	Date of publication	Status of publication	Impact of CCTV on:
Squires, P. and Measor, L.	University researchers contracted to Brighton council	Survey Nov. 1994; crime statistics Nov. 1994-Jul. 1995	Dec. 1995/Jan. 1996	Semi-public	Town centre location: Executive summary and full report in relation to public attitudes. Crime reduction effects measured over a 6-month period. Brighton.
Bulos, M. and Grant, D.	University researchers contracted to Sutton Council	1994-5	Jan. 1996	Semi-public	Town centre location: Crime in Sutton centre after 12 months. Survey of public attitudes.
Short, E. and Ditton, J.	University researchers contracted to Scottish Home Office Research Office.	Nov. 1992-Oct. 1994	Mar. 1996	Semi-public	Town centre location: Crime and detections in Airdrie after 2 years.
Bennett, T. and Gelsthorpe, L.	University researchers contracted to Cambridge council.	Jun. 1994	Jun. 1996	Public	Town centre location: Public opinion survey of attitudes towards CCTV. Cambridge
Squires, P. and Measor, L.	University researchers contracted to Brighton council	Survey Dec. 1995 – Jan. 1996 Crime statistics Dec. 1994 – Nov. 1995	Sept. 1996	Semi-public	Town centre location: public opinion and crime effects over a one-year experimental period. Brighton.

Third, although some recognition of the need for before/after periods with regard to the processing of relevant data is shown often all crime is lumped together rather than separated into relevant categories and thus variations in effect are ignored. There is little recognition or clarity concerning the use of reported, as opposed to, recorded crime. The time periods over which the data are collected are often short and uneven, thereby not adequately taking into account the establishment of 'after' trends and seasonal effects. Only crude attempts are made to create comparison groups, limiting these potential designs considerably.

Fourth, little attention is given to the unintended consequences of the impact of CCTV, particularly displacement and diffusion of benefits and even where these are dealt with the measures used are crude. Fear of crime is rarely examined despite its importance.

Fifth, little awareness is shown of the important characteristics of particular systems including the publicity surrounding the launch of a scheme, the nature of the system and the details of management arrangements.

But Short and Ditton's (1995) critique of practitioners' accounts may be considerably extended. Practitioners' accounts very often allow no room for reflexivity regarding 'policy space'. The research strategy and design are often neither described nor justified and even when they are crucial details are omitted. Explicit recognition of these strategies and designs is important especially to prevent their misuse and to encourage an awareness of their limitations. Furthermore these accounts usually offer little analysis of the data beyond descriptive statistics. When fear of crime is considered no attempt is made to locate this within a quasi-experimental strategy. Little explicit data is offered regarding funding. These studies fail to take account of one another, let alone the broader backdrop to research in the field. They are inexplicit about data collection methods. Moreover, the importance of considering the flaws of practitioners' accounts is great since such accounts are often supplied to the media. The media have a tendency to uncritically reproduce them as success stories thus contributing to the 'silver bullet' claims of CCTV. Overall then Short and Ditton's critique may be extended in that practitioners' accounts tend to demonstrate insufficient reflexivity regarding the provenance of the topic, strategy and design, methods of data collection and analysis and utilisation of research results.

It might be useful to illustrate these claims by reference to a particular practitioner's account. I will choose the report compiled by Strathclyde Police 'N' Division entitled 'Safe Strathclyde: Evaluation of Airdrie CCTV Project' (Strathclyde Police 1994). The report details the results of Strathclyde Police's study of their CCTV system in Airdrie, which consists of 13 cameras located in the town centre and local hospital. A 75% decrease in the

level of crime is claimed for all offences, together with a doubling of the detection rate, from 35% to 75%. Public surveys, conducted before and after (n=200 in each sweep) the introduction of the system showed that 89% of respondents supported the introduction of cameras, 93% thought that fear of crime restricted their way of life and that 94% felt unsafe walking through Airdrie town centre after dark. The after study revealed that 71% of respondents felt that fear of crime restricted their way of life and that 91% of respondents felt unsafe walking through Airdrie town centre after dark.

A number of critical comments can be made about this work. First, the document is written as a conscious attempt to justify the installation of the Airdrie system. This is perfectly understandable given the identification of the Strathclyde Police with the project, but of course graphically illustrates the problem of self-interested practitioners. Second, it is clear from the general presentation and level of technical competence demonstrated that the study has been conducted by staff unused to this type of enquiry. Third, the survey work noted in the report (1994:3) is problematic in a number of ways. No adequate description of the practice of the survey is made available. There is no indication that any sort of sampling method was used. The questions used are not indicated. No systematic effort is made to take account of variation in opinion or cater for particular stakeholders, though 'retailers' in the town are quoted as 'repeatedly expressing satisfaction with the system' (1994:6). Despite the fact that a genuine before/after public survey was undertaken no real attempt is made to compare the two studies beyond listing the responses in percentage terms to questions asked. This would seem to illustrate the problem of inexplicit strategies and designs. No opportunity seems to have been offered to the public for a critical assessment of the scheme. There is a clear air of untrained staff pursuing an enterprise with limited resources.

Fourth, the compilation of police statistics does reveal comparable before/after periods and disaggregation of the offence categories. But it is not clear that the area on which statistics have been produced is the area in the view of the cameras. Further, little

awareness is shown of the need to take account of previously established trends in crime data. No awareness is shown of the need to provide non-equivalent comparison groups. The victimisation data collected in the survey is not integrated into a consideration of the crime reduction effects of the CCTV system. Detections and fear of crime are considered. But none of the above features are subjected to any form of rigorous statistical analysis which would determine whether or not such variations are attributable to chance. Awareness of the need to take account of possible displacement effects is shown. But the discussion of the issue is clouded by the apparent need to gloss over increases in crime in adjacent areas albeit increases that are not documented anywhere in the report.

Finally, no awareness is shown of the policy space inhabited by the evaluation project nor is any indication offered of the funding of the study. Airdrie has been used as an example of the positive deployment of CCTV systems (Home Office 1996). This claim, if based on practitioners' accounts, as the above shows, is based on flimsy evidence.

Despite the flaws noted above, practitioners' accounts have been dominant, until very recently and particularly in the formative period of CCTV in the late 1980's and early 1990's. They have exercised an influence, which is in marked contrast to their claims to credibility. Evidence of both the dominance of practitioners' accounts in this field and indeed the dearth of alternative studies is offered by the Home Office Crime Prevention Centre, which published, in 1990, a 'digest of CCTV schemes' in the UK. This digest reviewed 123 schemes including projects covering shopping centres, city centres, traffic and transport, industrial estates, and cycle and footbridges. All projects were assessed on what kind of evaluation had been conducted using a scale of evaluation running from 0 no evaluation, through to 1 and 2 by personal/ peer opinion, to 3-5 where assessment was conducted by more systematic practitioner assessment and ending at 6 in independent analysis. Of the 123 projects 31 (25%) had not been evaluated; 77 (63%) had been the subject of personal/peer review; 15(12%) had been subjected to more systematic practitioner assessment; and finally, none had been independently evaluated.

But what can account for the dominance of practitioners' accounts in the early, formative period? Clearly there was little research undertaken on CCTV systems and practitioners' work thus filled this gap. But, why was there so little research on CCTV undertaken? In part the dearth of research seems to have been the result of lack of government funding and support. In 1988 the then Home Secretary (Douglas Hurd) in response to a Parliamentary Question indicated that 'we have not conducted any research into their [CCTV systems'] effectiveness and have no plans to do so at present' (Hansard 14/11/1988 395W). In part this lack of interest in evaluation of CCTV systems may have been the result of a concern with crime prevention but not as yet CCTV systems. It may have reflected a lacuna in evaluation in crime prevention more generally. Perhaps too, the general context needs to be taken into account here – the growth in interest in evaluation and performance indicators, indeed the whole movement toward 'value for money' was perhaps to reach its high point after this time.

Why were practitioners' accounts given such a privileged position? Perhaps as they were the only studies available it was inevitable that they should be seized on particularly when they could be used to support and legitimate local and national policies. This factor will be explored in more detail in Chapter 3.

Certainly changes to government policy are evident regarding both CCTV as a central aspect of crime prevention and the need for evaluation. In 1994/5 £5 million was made available for bids to start CCTV surveillance systems. This was followed by the announcement of a further £45 million over three years in 1995. The recurrent bidding rounds (1994/5, 1995/6 and 1996/7) have been used to stimulate both the proliferation of CCTV systems and their evaluation, with evaluation statements being a condition of application. (Home Office 1996: Para 2.11 page7) Koch (1996 quoted in Pease 1997) estimates that some 78% of the Home Office crime prevention budget is spent on CCTV.

The paucity of practitioners' work and the dearth of other studies, justifies the comments of Beck and Willis who indicate that ' what is lacking is a solid body of evidence on which to base informed judgements about the effectiveness of CCTV...' (1995:71). The present study will only offer further comment on practitioners' work as a significant factor encouraging the stunning growth of CCTV systems referred to below as 'the Kings Lynn experience' (Chapter 3), rather than as a useful indication of evaluation practice or concrete evidence of the effects of CCTV. The next section turns to the evaluation practice of the independent studies set out in Table 5.

Issues in the evaluation literature on CCTV systems

This section is organised as follows. The material is divided into two main sections, studies that deal with town centre locations and studies that deal with other locations. These two main categories are then sub-divided by strategy (quasi-experimental or not) and by the main methods used (survey or other methods). The discussion of the main groups of studies is organised around the main categories regarding evaluation research set out in Chapter 2, Table 1.

Other locations: quasi-experimental approaches using surveys

Two studies of CCTV systems in other locations are relevant. The first study is the pioneering effort of Musheno, Levine and Palumbo (1978) carried out in a public housing project in New York. The second work is that of Chatterton and Frenz (1994), which examined the impact of a CCTV system on sheltered accommodation for the elderly in a Merseyside project. The latter study will also be considered in more detail in the next section, with the survey work elements only being analysed here.

Musheno, Levine and Palumbo (1978) positioned their work in the existing literature (seeing the study as, in part at least, a test of notions of defensible space) but went no further in exploring the policy space occupied by the CCTV project evaluated. The study used survey data to examine the impact of the CCTV system on fear of crime and criminal

victimisation. The authors showed awareness of the need to determine the operational readiness of the system, noting that it had taken some 3 years to accomplish (1978:648). No attempt was made to consider crime displacement.

The research strategy was explicitly quasi-experimental and the design, pre-test/post-test with non-equivalent comparison groups. The study did consult local residents about fear of crime and criminal victimisation. No indication was offered, however, of whether the results of the study were communicated to the residents. The involvement of the authors in the evaluation project was not explored. Data were analysed using percentage rates of victimisation and proportions of residents who felt unsafe and who altered their conduct because of this. Moreover there are some specific faults with Musheno, Levine and Palumbo's analysis. First, the experimental period was too short (3 months). Second, the questions used were not made explicit. Third, a very low response rate (34.5%) was obtained. Fourth, the results obtained were not subjected to any form of statistical analysis. Finally, no attempt was made to corroborate the findings using police statistics. Little real attention was given to grasping the processes at work likely to cause any effects. The authors offered little insight into evaluation project feasibility. Finally, little by way of discussion about the utility of the study itself was offered.

Chatterton and Frenz (1994) position their work in the academic literature on CCTV and the particular context of the local project. They used survey data on fear of crime and criminal victimisation to complement material derived from police statistics and thus their study is dealt with in more detail below. Awareness of the need for implementation assessment is present. The survey work they undertook was based on an explicit quasi-experimental strategy but the design used was pre-test/post-test single group. Clearly this enabled consultation with the residents of the sheltered accommodation. It is not known whether the survey conducted restricted the residents to a consideration of changes in levels of fear of crime and criminal victimisation.

But like Musheno, Levine and Palumbo (1978), Chatterton and Frenz operate with a short experimental period resulting from the practical demands of the project and exacerbated by the phased realisation of the CCTV scheme (8.4 months on average). Further, only a limited attempt was made to measure the statistical significance of any changes observed (changes in burglary rates are subjected to statistical assessment but fear of crime and victimisation are not). No attempt was made to discuss the threats to internal validity, notably 'history', and external validity, especially 'the reactive effects of the experimental arrangements' (Campbell and Stanley 1963:6). Both these points are of some significance given first, the single group design used and second, the particular, local, small-scale nature of this study.

Other locations: quasi-experimental approaches using other methods.

We can now move on to consider quasi-experimental studies using crime statistics. In offering this discussion attention will be paid to the critical framework set out in Table 1 in this Chapter. There are six studies to be considered – Burrows (1979); Poyner (1988); Poyner (1991); Webb and Laycock (1992); Tilley (1993a) and Chatterton and Frenz (1994). Musheno, Levine and Palumbo (1978) is excluded from consideration here as it has been completely dealt with in the section on survey work. Similarly the parts of the above studies relying on survey work will not be reviewed further.

Policy space

Varying awareness of the need to analyse the policy space occupied by the CCTV project to be assessed is shown. Chatterton and Frenz (1994) offer the most explicit account dealing with not just the academic literature on the impact of CCTV but also the background to the particular project. Webb and Laycock (1992:2) also make some limited attempt to locate the CCTV phenomenon. The other studies ignore this issue.

Programme aspects evaluated

All these studies tend toward an objectives approach. This is narrowly defined with few studies measuring effects other than crime reduction signalled by recorded crime data. The most obvious exception here is Chatterton and Frenz (1994) who assess criminal victimisation, fear of crime reduction and arrests and convictions. Burrows (1979) and Poyner (1988) both try to assess cost effectiveness.

A systematic assessment of scheme realisation is not evident. Some authors point to significant delays in the implementation of the scheme (Chatterton and Frenz 1994, Poyner 1991) but do not examine the impact of this on the evaluation, for example in the foreshortening of the experimental period. All the others do not deal with this issue at all. Thus in the remaining studies crucial questions about whether the scheme is delayed in its implementation, whether the hardware is installed as set out in the scheme plan, whether there are significant endemic faults, whether there are significant equipment failures and finally, whether the human side of the system has been accomplished (appointment, training of control room staff, connections between the scheme and other services), are neglected.

Evaluation strategy and design

In the six studies there is various recognition that the central research strategy at work is quasi-experimental. In processing the recorded crime data (in some studies the nature of crime data is not specified: Tilley 1993a) they vary in the exact design in use. There are two favoured designs. The first is the interrupted time series design with non-equivalent comparison groups (Burrows 1979; Poyner 1991; Webb and Laycock 1992 [Clapham North]; Tilley 1993a [Hartlepool; Bradford; Coventry]). The second design used is the interrupted time series but without comparison groups (Poyner 1988; Tilley 1993a[Hull, Lewisham and Wolverhampton]; Chatterton and Frenz 1994; Webb and Laycock 1992[Oxford Circus]). Webb and Laycock 1992 [Leystonstone-Barkingside study] also make use of the pre-test post-test non-equivalent groups design.

But the central weakness of the interrupted time series without comparison groups design is not sufficiently recognised. Without comparison groups there is, of course, no way to tell whether the changes noted are any different to trends in other areas. Tilley's work is widely used in the literature to claim that CCTV systems at least in car parks have demonstrable effects on car crime. Tilley (1993a:23) also claims that 'the data... presented provide quite strong evidence... that schemes deploying CCTV have generally led to reductions in various categories of car crime.' And yet in only 3 (out of 6) of the cities studied is the more robust design deployed. At the very least these conclusions needed to be tempered with a consideration of 'history' and preferably some consideration of the different level of certainty attached to the sets of results offered.

Poyner's study in 1988 is also based on the interrupted time series without comparison groups design and runs into serious and insufficiently considered problems. The indices chosen to measure bus vandalism were seat repairs and the retention of cleaning staff. It is wholly unconvincing to dismiss out of hand the view that these two factors were unaffected by the really quite fundamental changes occurring in bus companies at the time. Both the movement to deregulation with the consequent drive to maximise profits by reducing customer service (in this case seat repairs and bus cleaning) and the 'rationalisation' of employment toward greater productivity, all might have influenced the indices selected. Full recognition of the limitations of this design is also not offered by Chatterton and Frenz (1994) though the compilation of corroborative material lessens the effect of this criticism.

Even in the case of the interrupted time series strategy with non-equivalent comparison groups, perhaps insufficient attention is given to possible confounding variables. For example, in Poyner's 1991 study the CCTV system is introduced alongside other security measures and it is difficult to disentangle the impact of one from the other. The analysis of the distinctiveness of the experimental area in comparison with the non-equivalent areas is limited.

The stakeholder context

The studies reviewed here are markedly unforthcoming regarding the stakeholder context of the evaluations. This is evident regarding data collection methods – little real consultation with the affected groups is evident. None of the studies deal with the issue of the dissemination of findings although the Home Office studies are widely and freely available to interested parties.

The choice of the evaluator

The choice of the evaluator is taken for granted by the studies reviewed here.

Technical adequacy of the evaluation

Experimental periods (the periods after the introduction of CCTV) are often too short. For example, Tilley's Lewisham study is based on an experimental period of 4 months (Tilley 1993a). Two of the fifteen (13%) schemes studied by Chatterton and Frenz (1994:136) had a 5-month experimental period. In one case (Poyner 1988) the experimental period omits the first period when the CCTV scheme was operational. The average for all the studies reviewed here works out to 11.4 months. Furthermore the experimental and pre-implementation period may not be equivalent thus not allowing for seasonal effects – this problem is evident regarding Poyner 1988 (no pre-implementation data is produced), Poyner 1991, and Chatterton and Frenz 1994.

Corroborative data is generally lacking. Poyner 1988 uses the retention or otherwise of bus cleaners (but see the comments above on this), and Chatterton and Frenz pursue this issue the most systematically by collecting criminal victimisation and fear of crime data. Though some recognition of the need to allow for pre-existing trends in establishing whether the scheme has impacted is shown. But this is rarely systematically taken into account. Even then it is analysed by only very limited means. The exception, in this group of studies,

is Short and Ditton (1996) who make a pioneering effort to use linear regression to assess temporal distinctiveness. Without some attention being given to previously established trends in crime, meaningful conclusions concerning the crime reduction impact of CCTV cannot be made.

Analysis of before/after, regional and time trend data rarely moves beyond 'by eye' assessment of numbers and percentages. And yet statistical analysis of such data is vital in order to separate before/after effects from chance variation, general processes affecting all areas and previously established trends. There are two clear exceptions. Chatterton and Frenz (1994) assess burglary trends between pre- and post-implementation phases in this way, but not fear of crime and criminal victimisation. Burrows (1979) also assesses the trend in both pre- and post-implementation and regional effects in this way for thefts and robberies on the London underground. Some studies like Tilley 1993a, show lack of uniformity on this issue analysing some material less crudely by moving average and others by raw figures and percentages. Short and Ditton (1996) once again adopt the most systematic approach here although the method by which before/after and regional trends were actually controlled remains obscure.

Detections are examined by Chatterton and Frenz (1994) by means of arrest rates (number of arrests/ number of offences recorded). Properly pre/post implementation effects are registered by comparison but this remains at the level of percentages and does not take account of regional and time trends. Fear of crime and criminal victimisation are measured by Chatterton and Frenz (1994) also by means of survey work. Unfortunately no attempt is made to determine the significance of the trends measured.

Cost effectiveness is assessed by Burrows (1979) and Poyner (1988) but both remain more or less afterthoughts and the work is performed crudely by totalling savings in seat repairs and bus cleaners wages against the cost of the Bus Watch scheme. Burrows (1979) allows for displacement and calculates the cost per theft/robbery prevented of the scheme.

Most studies mention the need to assess unintended consequences in particular they try to take account of possible displacement and/or diffusion of benefit effects. But the measures of this tend to be quantitative only and limited by lack of analytical statistical techniques and general lack of rigour. Webb and Laycock (1992:15) make an interesting allusion to examining the effects of CCTV on offenders by the use of qualitative interviews.

The type of data collected tends to be quantitative, relying for the most part on recorded crime data (Burrows 1979; Poyner 1991; Tilley 1993a) The exceptions are Poyner (1988) relying on seat repairs and Chatterton and Frenz (1994) who supplement their crime data with survey based assessments of criminal victimisation and fear of crime.

Some terminological confusion is evident with regard to the presentation of these data within studies. Poyner (1991) refers to 'autocrime' (1991:96) and relates this to theft of and from motor vehicles. And yet the first case study of a town centre parking garage, offers figures on a much broader range of offences although separate analysis is offered of theft of and from motor vehicles. The study of the CCTV system in the second part of the article defines autocrime as including criminal damage, though once again separate analysis is offered of theft of and from motor vehicles. Tilley (1993a) also suffers from a similar confusion. 'Car crime' in Hull meaning criminal damage and theft of and from motor vehicles whereas in Wolverhampton it is defined as only theft of and from motor vehicles.

There is also some discrepancy between the evidence collected and the subsequent claims made in some studies. The main problem here is making claims for effects, which might be attributable to temporal trends and /or regional variation and not attempting to assess in general the probability of significant difference. In Poyner's first study (1988:48-50) rhetoric is substituted for measurement with claims that the decrease in damage to seats is 'so dramatic' and that the scheme had been 'very successful' or that 'the evidence in this study is the complete reverse of ...the theory of displacement'. Even if this evidence was sound (and it may not be) the operation of chance has not been eliminated and thus these confident claims are not appropriate. Some discrepancy is also evident between

findings and claims in Poyner's later study – where again without statistical assessment he concludes that 'thefts had been dramatically reduced' in the car park with CCTV and even that 'crime was reduced in a parking lot without the benefit of the surveillance system... sheds doubt on the displacement theory... [and shows]... the existence of a 'good effect' (1991:100).

Feasibility

Little discussion is offered with regard to feasibility the exception being Chatterton and Frenz (1994) who clearly indicate the effects of the contract on the need for a shortened experimental period.

Constraints surrounding timeliness are not mentioned in most studies with only Chatterton and Frenz (1994:136) indicating that the nature of the consultancy contract imposed severe time constraints not only on writing the report, but also the length of the experimental period especially as the actual implementation was delayed.

Utility

Amazingly perhaps, especially as the very *raison d'être* of evaluation research is that it is useful (see the first section of this chapter), only one of the authors comments on this issue. But Tilley (1993a:14) does so to suggest that 'good' research results are much less important in explaining the proliferation of CCTV than certain political circumstances.

Town centre location: non-quasi experimental approaches using survey methods

This section considers non-quasi experimental survey-based studies of town centre public opinion. These studies do not engage in any before/after comparison. They are specifically, consultative. The main studies to be reviewed are Honess and Charman (1992) and Bennett and Gelsthorpe (1996). Those parts of Bulos and Grant (1996) and Squires and

Measor (1996a and 1996b) concerned with survey work will be dealt with here. Bulos and Grant (1996) are frozen into a consultative approach because the first study was not conducted before the introduction of the CCTV system, and perhaps because of this, no specific attempt was made to engage in a before/after comparison. Squires and Measor (1996b) make no attempt to use the survey data in this manner. The discussion will proceed by using the studies as the primary units of analysis.

Evaluation is evident in these studies because the public is allowed to express an opinion about the overall impact of CCTV systems and whether they have any fundamental doubts about them. Such attitude surveys may be understood and used as mandates for development groups to introduce CCTV schemes or extend existing schemes.

Honess and Charman (1992) give few details of the construction of the policy space occupied by CCTV. Their task is clearly to consult public opinion though the channels by which this consultation was fed back are not made explicit. A number of topics are explored by this study. First, awareness of the presence of CCTV is considered. Second, questions about the management of the systems and access to CCTV products are explored. Third, public concerns or anxieties are examined. Finally, public perceptions about the effectiveness of CCTV systems are analysed. There are a number of questions concerning the technical adequacy of the study. Bennett and Gelsthorpe (1996:74) suggest that 'analysis ...is limited...and there remain many unanswered questions about the relationship between the support for CCTV and respondent characteristics, fear of crime and the way in which the support for CCTV is related to concern about civil liberties.'

Further, the nature of the population is ill defined. Honess and Charman 1992 adopt a different approach to the studies mentioned elsewhere in this section. Brown, Squires and Measor, and Bennett and Gelsthorpe all speak mainly about specific city centres – Birmingham, Brighton and Cambridge. Honess and Charman (1992:iii) go much further than this – their aim is to ' offer a comprehensive examination of public attitudes towards ... the

use of CCTV.' The public opinion mentioned above, though not specified, is presumably the UK. Very little justification is offered regarding the procedures adopted – of undertaking 'general street surveys' in Cardiff, Bristol, Birmingham, and Coventry. But it is not clear why these towns were selected. Nor is it clear how the data were collected. The logic of the 'site specific surveys' is also not set out and the reasons for the selection of the particular sites not offered. Although some recognition of the time sampling factor is shown there are severe doubts as to its adequacy (60 people were asked their opinions at night). Furthermore the individuals in the surveys were selected using ' a basic quota sampling frame' (1992:26) but the provenance of this sampling frame is not discussed. Finally, little discussion is offered concerning the practical matters in relation to the study and how the study will impact on the dash to CCTV.

Bennett and Gelsthorpe (1996) offer not only a clear theoretical lineage for the development of CCTV schemes in the UK but also some indication of the general research context of an investigation into public attitudes on the matter. In particular they see as pertinent to the need for research here the claims made by previous work. They rightly focus on effectiveness, unintended consequences, misuse and general image. The statistical analysis engaged, in keeping with their strictures concerning Honess and Charman (1992) above, is detailed taking up not only what factors are connected to favourable and unfavourable attitudes towards CCTV but also attempting some determination of the fundamental characteristics associated by means of multivariate analysis. Some slight unease must be expressed concerning sampling. Bennett and Gelsthorpe (1996) target a clearly defined population – residents of the city of Cambridge- and go about this using a quota sample derived from the 1991 census and specifically controlling for ' the number of tourists and other non-residents in the sample' (Bennett and Gelsthorpe 1996:75). The real question about this procedure is whether 'disenfranchisement' of the visitor is appropriate. It probably is not as the survey purports to be about town centre users.

Finally, the work of Bulos and Grant (1996) and Squires and Measor (1996a and b) will be considered. Only the survey element of these studies will be explored here. Both studies attempt to explore public opinion on the awareness of CCTV and its likely positive effects. Squires and Measor (1996a and 1996b), however, allow for a more detailed exploration of these issues as well as offering a more concerted exploration of the likely limitations and unintended consequences of CCTV systems. However, there are some difficulties with both studies. The first set of issues here concerns definitional / conceptual problems connected to victimisation, crimes seen and fear of crime. Squires and Measor (1996a) appear to ask respondents about their own and immediate family's victimisation but without indicating a time limit or specification of place. Similarly, Squires and Measor (1996a) when collecting information about crimes seen, though a place is specified, a time limit is not. Some reliance on rather speculative questions is also evident.

Furthermore some basic problems concerning the provenance of the samples used and indeed the nature of the population involved are evident. In Squires and Measor (1996a) the nature of the population is ill defined. Further for these studies the sampling method is not properly specified. Clearly there is a genuine difficulty here – if the population is defined as town centre users then it is likely that some users are not resident in the administrative area of the centre. This may be especially so for town centres, which are located in a recognisable tourist areas. Squires and Measor (1996a) recognise the population as town centre users and attempt to address the issue by, in effect, sampling users at identified times and places. But it is not clear how particular individuals actually were selected for inclusion in the sample. Clearly opportunity sampling makes checking for representativeness difficult. Given that the survey was undertaken in late October /early November (Squires and Measor 1996a: 31) when perhaps the tourist trade was reduced the limited gains of being able to sample non-resident users could have been off-set against the loss of certainty about representativeness. Arguably a quota sample of town centre users based on socio-economic data of residents in the area would have been more productive. If

this still causes concern about the representation of town centre users then a separate, specific street survey of these non-resident groups might have been possible reducing concerns about the representativeness of the sample as a whole. Similarly the surveys reported by Bulos and Grant (1996) have an uncertain relationship to the population studied.

A particular problem for Bulos and Grant (1996) is that the consultation task is only partially fulfilled given that the public is asked to consider only a limited range of possibilities regarding CCTV, with such possibilities too heavily framed by the expectations of the system (Ditton 1998).

Town centre location: quasi-experimental approaches using survey methods

Attention will now focus on those studies that use survey work not merely to consult the population but as part of a quasi-experimental strategy attempting to gauge the change in before/after periods and thus measure the impact of CCTV. There are two possible research designs (Campbell and Stanley 1963: Cook and Campbell 1979). First, the pre-test/post-test single group design where the same group are surveyed before and after the introduction of CCTV. The second design is the pre-test/post-test with non-equivalent comparison group design where multiple groups are surveyed before and after the introduction of CCTV. These designs might relate to system aims assessed by some other means (crime reduction and criminal victimisation) or systems aims assessed by this method alone (fear of crime, town centre use). Where the method is corroborative then the difficulties set out below are less significant.

The inadequacy of evaluation of town centre CCTV systems is starkly revealed when it is realised that only one study (Brown 1995) has been completed using this strategy. In the section of Brown (1995) dealing with Birmingham, a before (1990) /after (1991) study of criminal victimisation and fear of crime commissioned by the Home Office and undertaken by Michael and Associates, is reported. A sample size of 700 in each sweep is mentioned

but no details of the sampling method are given, nor is the research strategy or design made explicit. Such lack of details may be attributed to the need for brevity. More important then is the failure to base the conclusions on any form of statistical analysis beyond a comparison of percentages. For example, Brown notes that 'after CCTV was introduced a lower proportion of people were victimised in the streets' (1995:41). No attempt is made to measure whether this exceeds chance variation. Similarly with regard to fear of crime, there was, according to Brown (1995:43) 'an increase in feelings of safety for respondents using the city centre after dark amongst those who were aware that the cameras had been installed.' Again no attempt is made to determine whether or nor this was due to chance variation. The research strategies and designs in use are not properly articulated appearing to rely mainly on a pre-test/ post-test non-equivalent groups design (also backed by corroborative data from police statistics in the case of victimisation). No discussion of the inherent problems of this model is offered (Campbell and Stanley 1963 and the first section of this chapter).

It must also be noted that this study defined victimisation very broadly relating to the respondent and 'someone they knew' (Brown 1995:41) though a time and place was specified (Birmingham town centre). Further, in this work the nature of the population is also ill defined.

Unfortunately the annual report from Bulos and Grant (1996) on the Sutton system has to be recorded as a, seriously flawed, lost opportunity at least with regards to the survey data collected (See Mahalingam in Bulos and Grant 1996). The research strategy and design for the survey is not made explicit. The sampling methods used are not made explicit. The survey work was not genuinely before/after as the first survey was conducted 2 months after the CCTV system became operational. No attempt is made to use the victimisation data collected to corroborate the findings from police statistics. The comparisons between the two surveys lack analytical rigour. No analysis of variation in

opinion is made. No attempt is made to use the data on victimisation to corroborate the findings obtained from the analysis of police statistics. Presentation even in the annual report remains poor (for example on page 57 question 6 it is not clear whether all or some of the sample are being referred to).

Town centre location: quasi-experimental approaches using other methods

The discussion now turns to the last group of studies, which offer an evaluation of the impact on town centres of CCTV systems. As above this discussion will be organised around the main headings set out in Table 1. The clutch of studies included here represents all the published independent studies of this phenomenon. Included here are the following accounts: Brown (1995) covering Birmingham, Kings Lynn and Newcastle; Bulos and Grant (1996) relating to the London Borough of Sutton; Squires and Measor's (1996a and b) study of Brighton; and Short and Ditton's 1996 report on Airdrie.

Policy space

To what extent do these studies address the issue of 'policy space'? Certain 'push' and 'pull' factors are identified by the four studies though little systematic attention is given to this matter except by Squires and Measor (1996a). A number of pull factors are identified. Boyes Smith (Deputy Under Secretary of State to the Home office, in the Foreword of Brown, B 1995:iii) notes that 'nearly half of ...councils already have installed CCTV within their town centres. However, very few of these systems have been systematically evaluated. There is growing concern at this lack of evaluation, particularly amongst retailers who contribute significantly to the financing of many of these systems.' Short and Ditton (1996) note a further pull factor, that government support for CCTV systems is becoming conditional on evaluation. Probably the most systematic analysis of policy space is offered by Squires and Measor (1996a). They agree that a vital pull factor is the increasing emphasis placed on evaluation by central government. They go on to analyse push factors. They see

researchers being motivated to evaluate CCTV systems because of the academic challenge CCTV systems present. But they also see that a vital motivating factor is the need to take cognisance of significant concern and dissent about surveillance in general and CCTV in particular.

All studies show awareness of the relevant literature such as it is. Some difficulties emerge here, however, especially in relation to the provenance of certain work referred to by Bulos and Grant. The Sutton scheme is compared with Gravesend and Stockton-on-Tees but no indication of the source of the report for these two towns is provided.

Programme aspects evaluated

All four studies fit clearly into an objectives approach operating to evaluate the aims as set out by the particular CCTV project. However, the process by which the particular objectives were identified is not made explicit. All studies review crime reduction effects. Brown (in Birmingham, Newcastle and Kings Lynn), Short and Ditton (1996) and Squires and Measor (1996a) review the effects on apprehensions. Bulos and Grant (1996) and Brown (Birmingham) make some reference to impact on fear of crime. Surprisingly few other objectives are assessed – Bulos and Grant (1996) make some attempt to assess impact on use of the town centre.

Little awareness is shown of the importance of setting out the exact nature of the system reviewed and the need to include system realisation as an issue for assessment. This is important because the planned technical and human systems are central to the accomplishment of the expected impact. Little attention is given to important features here - how the control room operates and integrates with other services and how the system is managed and what the arrangements are for ensuring that ethical standards are adhered to. Attention is paid to unintended effects with some mention of the issue being made by all studies. Further comment will be made about the adequacy of the analysis used to determine these effects below.

Evaluation strategy and design

All the studies reviewed in this section adopt an implicit or explicit quasi-experimental design. In addition Brown 1995, following Tilley 1993a, suggests that his design is 'thematic' (1995:10). However, difficulties are evident connected to the use of this strategy by Brown (1995). The strategy pushes Brown into excessive dependence on CCTV scheme supplied data. This breaches any claims to independence as well as leading to a situation where different kinds of non-comparable data are collected. Further, the use of ancillary materials is nothing but opportunistic. The consequence of these problems is that the author is obliged to use different and incomplete kinds of analysis for the different schemes. The ambitions of the thematic study cannot be fulfilled. Indeed questions may be raised concerning the actual independence of the author from the CCTV schemes assessed.

Once again, in relation to crime statistics, most studies use interrupted time series with non-equivalent groups sometimes supplemented with other designs. Bulos and Grant's (1996) study had the potential, which was not realised, to use a pre-test/post-test single group design in relation to the survey data. This potential was also not realised by Squires and Measor (1996b). Brown (1995) was able to use this design to corroborate police statistics.

Most studies rely on recorded crime data (Brown 1995 [Kings Lynn]; Short and Ditton 1996; Bulos and Grant 1996; Squires and Measor 1996b). Brown's (1995) unfortunate dependence on pre-processed data is starkly revealed here –recorded crime is used for Birmingham but filtered through the 'Local Intelligence Office routine monthly bulletins' (1995:33). For Newcastle 'final incident code data' (1995:15) is used. This relates to 'incidents that the police have responded to and then assigned a code to' (1995:15). For Kings Lynn recorded crime data is used. This varied database means internal inconsistency. It also means that the study is not comparable to other studies. Squires and Measor (1996a

and 1996b) adopt another strategy – they compare the impact of the CCTV system on both recorded and reported crime. In part this was necessitated by a markedly changed force policy on recording incidents of assault immediately prior to the CCTV system going live (Squires and Measor 1996a: 60). But the distinction is not used consistently and clearly.

All studies recognise the need to define the surveilled area and target assessment of the impact of the CCTV system here. Some variation is evident in how the surveilled area is operationalised is evident. Most adopt some plotting exercise to determine only those areas visible to the cameras (Short and Ditton 1996; Bulos 1995 and Bulos and Grant 1996). Bulos (1995) raises an important point, which concerns the commission of crime inside premises within the surveilled area. The periods compared are set up to allow for seasonal variation in all but one study as Brown (1995) fails to do this adequately for Newcastle and Birmingham.

Recognition is also shown of the need to set up 'non-equivalent groups' for comparison usually including the outlying regions. Rather more limited awareness is shown of the need to take account of pre-existing trends in crime data – Short and Ditton (1996) offer a useful attempt to do this using linear regression.

Stakeholders in the evaluation

Little real discussion is offered in any of the four studies concerning the need to define and consult varied stakeholders. Short and Ditton (1996) examine only police statistics. Brown (1995) uses various versions of police statistics whilst also collating control room data and making use of one public survey concerned with criminal victimisation and fear of crime only. No report is offered on any attitudinal data. Both Bulos and Grant (1996) and Squires and Measor (1996a and 1996b) offer some broader, systematic consultation of a wider group of stakeholders covering a wider range of topics. Squires and Measor (both studies) offer material from a public survey (but see my comments on sampling above) conducted in Brighton covering a number of topics including respondent characteristics, criminal

victimisation, witness to crime, perceptions of safety, security measures taken at home, awareness of CCTV developments and attitudes towards CCTV. They also present control room data including the number and type of incidents processed. Though they neglect control room data Bulos and Grant (1996) probably develop consultation with stakeholders the most. The study covers a number of groups including the public (who are asked about town centre use, awareness of CCTV, fear of crime and safety, overall attitudes toward CCTV), business groups, local residents and control room operators and the police. In the first report some attempt, not repeated in the annual report, was made to use focus groups. Probably the poor response to this exercise meant that it was not repeated for the annual report. Unfortunately the attempt to consult groups other than in the public survey is beset with similar problems – with the samples involved being very small – business group (n=9 1996:63), local residents (n=7 1996:67), control room operators and the police (n= 5 1996:75). The last of the studies, concerned with control room staff and police officers, offers the opinions of senior police officers only (1996:75) and the views are presented in an undifferentiated fashion thus masking potential divergences of opinion between control room staff and senior police officers.

What attempt is made to use opinion data to measure before/after effects? Of the four studies one (Short and Ditton 1996) does not consult a wider audience. One does consult a wider audience using a before/after design but does not pursue the issue of significant changes (Squires and Measor 1996b). Of the two remaining studies one attempts to look at before/after opinion on only a limited range of attitudes and reported behaviours (Brown 1995). The final study cannot fully realise the opportunity because it is not a real before/after study, the areas covered especially over attitudes are limited, there is little real attempt to examine such limited attitudes for variation and no attempt is made to use statistical tests to consider any of the changes (Bulos and Grant 1996).

There is no explicit discussion in the four studies concerning arrangements for the dissemination of findings. No mention is made of any negotiations concerning publication of the material or of any restrictions imposed by the contracting body nor any identification of the target audience of any publications allowed.

The choice of the evaluator

Three of the four studies reviewed here are a product of 'academy' / contractor co-operation. The contractors involved vary – Scottish Home Office Central Research Office (Short and Ditton 1996); Brighton Council (Squires and Measor 1996a and 1996b); and Sutton Council (Bulos 1995 and Bulos and Grant 1996). All of these as such demonstrate the conditions of independence seen as so central above. The status of Brown's work in this regard is not so clear – though it is noted that 'at the time of writing Ben Brown was a member of the Home Office Police Research group' (1995:iv). It is also noted that Jason Ditton 'acted as an independent assessor for the report' (1995:iv). These details are not sufficient to form an overall judgement as to whether this account was undertaken in an independent manner. None of the four studies is explicit about the exact terms and conditions of the contract involved. There are specific further concerns about Brown 1995. The exact status of this account is not clear and there are some unanswered questions, pertaining to the dependence of this work on pre-processed data mainly derived from practitioners' accounts especially for Birmingham and Newcastle regarding police data and Birmingham regarding the survey data. This study is like Burrows 1991. Its status as an independent account is compromised by excessive reliance on practitioner-derived, pre-processed data.

Technical adequacy of data analysis

All the studies reviewed here deal with overall levels of crime as well as disaggregated offence categories. Some variation and lack of comparability is evident. For example,

different definitions of crimes or offences are used crimes in Scotland as compared with England and Wales (Short and Ditton 1996; 5).

The analysis of these data by offence group tends to be 'by eye'. The exceptions to this are Short and Ditton (1996) where figures are adjusted to allow for before/after, regional and time trends. Only limited probing of the statistical significance of the trends found is evident and very little discussion of the sort of appropriate criteria to be used is offered. No analytical statistical methods are used in Brown [Birmingham, Kings Lynn], Bulos and Grant (1996) and Squires and Measor (1996a) for this purpose. Squires and Measor (1996b) use moving averages and make a limited attempt to assess regional distinctiveness. Brown (1995) [Newcastle] does suggest that there is a significant difference in some before/after scores for some offences in the surveilled area (and in some of the outlying areas). But the test used is not mentioned nor why a 5% level of significance used. Similarly, in Short and Ditton (1996), the most statistically sophisticated account to date, no attempt is made to determine the possibility that, for example, the 21% fall in 'all offences' is not attributable to chance variation before/after, regionally or temporally.

Some discussion of displacement (and to a lesser extent diffusion of benefits) is offered in all studies. Short and Ditton (1996) give the most detailed discussion of this recognising the varied (six separate definitions are proffered), subtle and ultimately elusive character of this phenomenon. The method chosen by Short and Ditton 1996 is to try to target geographical and functional displacement and look for its effects in the outlying areas seeking signs of significant increases of similar offences and also increases in other offences not explicable in other ways. They rightly conclude that although 'it is impossible to eliminate the possibility of displacement using statistical data alone, examination of statistical data is clearly an essential first step' (Short and Ditton 1996:13). Short and Ditton 1996 clearly conclude that the way forward is to use qualitative studies of offenders. No development of the issue of diffusion of benefits is offered in this work.

Squires and Measor (1996a) cite French's (1995) qualitative work with offenders. They see this as a way forward but in a later work. Concerning statistical data they conclude that 'it has not been possible ...to identify and distinguish data for similar areas of the town centre to which criminal activity may be displaced' (Squires and Measor: 1996a: 62) and thus this matter is also relegated to a later work. Neither of these two areas are followed through in the later report (Squires and Measor 1996b).

Bulos (1995) and Bulos and Grant (1996) also examine outlying areas for signs of change – but they do so by calculating the amount of 'crime in the visions of the cameras as a percentage of all crime in the [immediate] area' (Bulos and Grant 1996:23). However, this proves a cumbersome and ultimately rather blunt technique especially as changes to both the numerator (due to deterrence) and the denominator (due to displacement) are possible. Brown (1995) offers no clear definition of displacement but a concern with functional and geographical displacement emerges. No clear, rigorous statistical attempt is made to assess the significance of the 'trends' discussed.

Clearly one part of the likely effect of CCTV systems is their ability to not just see and record, but respond to events. The impact of the operation of CCTV should be visible in a variety of ways, most obviously in improved detection rates. Such activity should also be evident in any monitoring data kept by the control room. The former method is used by Brown (Newcastle, arrest rates), Squires and Measor (1996a) and Short and Ditton (1996). The definition of arrest rates in Brown (1995) is not made clear. The average monthly numbers of arrests (for disaggregated offences) are then converted into numbers of arrests per 100 incidents recorded, presumably to allow for the diminishing numbers of offences overall due to the operation of the CCTV system. From this is estimated the risk of arrest – with this being seen to increase in the post compared with the pre-CCTV period, for some offence categories. The exact length of the periods involved is not stated though some attention is paid to the pre and post implementation effects. However, the distinctiveness of

these trends from regional and previously established temporal trends is not considered. No statistical analysis of changes in risk of arrest is made.

Like Short and Ditton (1996), Squires and Measor (1996a) examine detection rates or clear up rates, though this treatment is not extended to the later report (Squires and Measor 1996b). Short and Ditton are more forthcoming here defining a detection as a situation where 'a crime... is... cleared up [when] one or more offenders is apprehended, cited, warned or traced for it (1996:1). They present 'adjusted' detections in clearly specified lengthy periods for all offences and disaggregated offence categories but fail adequately to explain the notion of 'adjustment' and possibly take account of temporal trends and regional distinctiveness. Further the analysis tends to remain at the level of 'by eye'.

The second method of looking at this utilises 'control room derived data'. Brown (Newcastle and Kings Lynn) uses a version of this method as do Squires and Measor (1996a and 1996b). Brown in Newcastle relies on 'the personal experience of one of the five current camera operators,' who is seen to have been 'directly responsible for 100 arrests' (1995:24). This is illustrated by case studies showing some of the interventions. The material is seen to corroborate the statistics produced on arrest rates. In Birmingham, Brown presents data, derived from Goodwill Associates, relating to 'police use of CCTV' (1995:40). This is said to relate to the use made by the police of the CCTV system, broken down into incident types. In Kings Lynn a similar method is used and its provenance discussed. There incidents data relate to 'a written record of events' (1995:52) kept by the camera operators and presented as overall number of incidents, nature of referral and arrests related to such incidents. All of this indicates the extreme difficulty of relying on pre-processed data to undertake one overall study – that is the lack of comparability and coherence it produces. Furthermore critical reflection on the veracity of the data is virtually absent – this is particularly alarming with regard to the incident data. These data are likely to be a socially filtered product of any incidents that have 'happened'. But, furthermore, these

happenstance events are themselves likely to be the product of social construction (Norris and Armstrong 1997).

Squires and Measor rely on 'CCTV monitoring data' (1996a: 88). The exact specification of this data is not made clear. It is used to comment on the use of the CCTV system, the number of incidents recorded, the number of arrests resulting, the use of videotapes by the police. Squires and Measor (1996a) show some scepticism regarding the accuracy of these data.

Brown (Birmingham) and Bulos and Grant (1996) assess the impact of CCTV systems on fear of crime, though the latter study is rather a missed opportunity, as my comments above show. Bulos and Grant (1996) can pronounce on the proportions of people who claim they feel safer but not whether there has been any significant change. Brown makes use of the Home Office study in 1990/91 to examine fear of crime. This study has many difficulties not the least the 'by eye' estimate of change. A useful aspect is, however, the inclusion of awareness of CCTV system installation and its impact on fear of crime reduction.

The impact of the CCTV system on town centre use is not directly addressed by any of the four studies despite this being a frequent claim of such schemes. Only Bulos and Grant (1996) examine this but their study has significant faults noted above.

Following Pawson and Tilley (1994) three of the four studies make some concession toward the need for understanding the reasons why CCTV affects crime. This work is clearly in its earliest stages. Short and Ditton (1996:13) touch on this only in passing only at the end of their study— by suggesting that, quoting Cornish and Clarke (1987:934-5), 'additional ways of investigating displacement are needed...in particular studies which focus upon the offender's own explanations for his decisions and choices.' The rational offender model is an important part of the implicit baggage of supposedly theory neutral studies in crime prevention. Whereas Short and Ditton's work suggests looking at the issue from the point of

view of the offender, Brown considers the issue from the point of view primarily of the system, seeing criminal victimisation to be the result of the intersection of 'a motivated offender, a suitable victim and the absence of capable guardian' (1996:4). Once again the conception of the offender is underpinned by rational choice theory. The system is seen potentially to contribute to capable guardianship by offering an aid to deployment, identification and arrest of suspects, deterrent to criminal behaviour and evidence gathering. Unfortunately these promising ideas are not followed through vigorously enough. Squires and Measor (1996a) demonstrate awareness of Tilley (1993a) but this is not followed through systematically. Bulos and Grant (1996) do not examine this issue.

A generally more measured tone is evident in the four studies reviewed here in comparison with the practitioners' accounts examined above. Nevertheless some discrepancy between evidence and claims does emerge. Brown (1995:26) (Newcastle) suggests that 'there is little evidence to suggest that crime has been displaced either to other locations or from one type of offence into another. In fact there is some evidence to indicate that there has been some diffusion of benefit to the no CCTV area especially for burglary and criminal damage.' And yet there is no discussion of either of these phenomena in relation to the specific offences mentioned (1995:pp18-22), the tests used to measure the significance of before/after trends are not made explicit, no attempt is made statistically to assess regional distinctiveness and no attempt is made to disentangle before/after variation from pre-existing temporal trends. In the remaining three studies the lack of use of statistical tests to eliminate the possibility that any changes are due to chance variation sets some limits on the claims that can be made. In Bulos and Grant (1996) and Squires and Measor (1996b) although there is recognition of the need to establish before/after and regional distinctiveness, the same emphasis is not placed on the need to consider before/after trends in the context of previously established temporal trends except by the use of moving averages.

Feasibility

None of the four studies reviewed are explicit about the question of feasibility. No real discussion of access to data is evident. In Brown's case the access granted seems to have produced equal but opposite problems. Similarly, in these four studies there is little indication of the pressures on the project to complete. Moreover, the issue of finance is hardly mentioned at all. Perhaps the exception is the note in Squires and Measor (1996a: 61), which suggests that displacement could not be followed through 'within the confines of the study.' Similarly there is little analysis of the political context of the studies. Though Mick Lowe in Bulos (1995:10) notes that 'pressure to come to snap conclusions is created by the fact that CCTV has recently been the subject of several television documentaries and by banner headlines claiming large reductions in recorded crime.'

Little recognition is shown of the formative/summative distinction in the four studies reviewed here. Two (Short and Ditton 1996 and Brown 1995) are straightforwardly summative though no reflection about this choice is offered. The remaining two are formative and summative, clearly offering on-going reports as well as more informal feedback.

Utility

Although the practical aspects of the utility of the studies are generally acknowledged albeit often implicitly, very little discussion is offered of the fitness of purpose of the study, i.e. how it will shape decision-making at the local or national level. No mention is made of this in Short and Measor or Brown. The issue is more explicit in Bulos (1995) where the Assistant Chief Executive addressed the issue of both the utility of evaluation and CCTV.

The strengths of the four main studies reviewed.

The comments made have been detailed and may seem excessively harsh, judging the four studies by an ideal standard. It needs to be acknowledged that all four main studies were ground-breaking exercises with Short and Ditton beginning in 1993 and Brown, Bulos and

Grant and Squires and Measor in 1994. All have considerable strengths from which this study has benefited. The first published work on town centres, Brown (1995), did recognise the need for the clear determination of the surveilled area and to take account of displacement. The work also suggested the possibility of drawing together the results of victimisation surveys with police statistics. It put the exploration of why CCTV has effects on the agenda. Finally, this work did suggest the need for comparative study.

Bulos and Grant's work, based on a 12-month study, was published one year after Brown. It also has clear strengths – recognising the possibility of outside to inside displacement, undertaking a detailed study of a diverse range of public opinion and showing a concern with compliance to a code of practice. Short and Ditton's work was published in March 1996. Though looking only at crime reduction and displacement and detections this work showed the greatest statistical sophistication, recognised the need for lengthy 'after' periods and placed the need to take pre-existing trends into account. Finally, Squires and Measor published their annual report in September 1996. This work located itself very clearly in the expanding literature, reflected usefully on the growth of CCTV and offered a thorough exploration of public opinion on CCTV.

Configuring the Doncaster study

The last task to accomplish before bringing this discussion to a close is to examine the implications of the discussion here for configuring the study of the Doncaster system. In general certain points emerge – notably the need for reflexivity, explicitness, systematicity, inclusiveness and planning.

More specifically it is clear that any study of CCTV must attempt to deconstruct the local and national policy space into which the evaluation is to be located. Though an objectives approach is clearly justified this approach must be explicit about how any objectives that are assessed are identified and be flexible enough to take cognisance of unintended consequences. Furthermore, it is essential that an objectives approach is

practiced in such a way to allow for system realisation to be placed on the agenda. This would involve consideration of multi-agency ambitions regarding funding and management, overall crime prevention strategy, publicity, day to day management, control room organisation and integration with other agencies and ethical matters relating to the access to and use of, tapes. An inclusive exploration of all the identified objectives must be planned attempting to accomplish the task as cost effectively as possible.

Clearly the strategy of the study needs to be explicit and any designs within this clearly stated and followed through systematically. In particular the varying problems of different designs need to be recognised. Clarity is also necessary concerning the specification of any data types used – whether kinds of police statistics or the operationalisation of key terms in questionnaires. In questionnaires there is a need to avoid leading and unspecific questions, as well as to undertake a thorough exploration of opinion. The collection of qualitative data is necessary. The sampling procedures of these studies must be systematic and probably rely on quota samples based on up-dated census data. Corroboration by the use of different designs within the same overall research strategy is desirable.

Consultation should be as wide as possible preferably including all four elements of Young's square of crime (1997) i.e. the public as on-lookers and victims, offenders and social control workers. This work should take account of variation of opinion between older/younger people, daytime and night-time users of the town centre or members of the public or business providers. It should also take account of differences in orientation of multi-storey car park users and business providers who may have very different concerns. Account must be taken of the views of offenders especially usefully to explore potential displacement. Finally, systematic data needs to be collected from system providers (control room operators) and other key workers such as the local police, traffic wardens and magistrates. In all of this efforts should be taken to canvas opinion on the widest possible

range of related issues. Decisions about dissemination of this information need to be clearly stated in the evaluation report.

Despite the disadvantages of the independent evaluator and despite the problems of maintaining this stance, the only appropriate stance here is independence. This may be justified by reference to three points. First, there is some need for disinterestedness about the conclusions reached. Second, the evaluation of the scheme requires some technical knowledge and skills connected to criminology, research design and data analysis. Finally, an independent evaluator is better placed to seek to defend the study from incursions deriving from the CCTV scheme or external sources.

Analysis of data must transcend the presentation of percentages and raw numbers. For police statistics some account must be taken not only of before/after effects in lengthy equivalent periods but also regional and temporal trends. This requires clear differentiation of areas for comparison (with attention being paid to the determination of the surveilled area) and data collected for each area in a lengthy pre-test period (probably over some 2-3 years). The post-test period should be as long as possible (minimum one year) and for assessing before/after effects equal to pre-test period. Despite the limitations the use of recorded crime data is the only cost effective way forward here. All such analyses need to be separately applied to each offence category. The study of displacement and diffusion of benefits requires similar arrangements. The tests used to determine significance need to be clearly stated and justified and the criteria set for determining significance to be argued. Wherever possible corroboration of trends identified from recorded crime statistics should be sought using criminal victimisation data. Qualitative data may also be used here, adopting careful thematic analysis.

The analysis of survey data on attitudes towards CCTV needs to be systematic and based on something more than raw figures and percentages. Clear determination of the factors affecting variance should be sought. The exploration of attitudes should be augmented by qualitative data.

Similarly the exploration of other objectives requires equally careful, systematic, statistical treatment. Specifically the study of the reduction of fear of crime, increases in detections, greater use of the town centre and cost effectiveness all need a systematic methodology for their determination. The first and third of these questions lend themselves to before after survey work. Corroborative measures are possible regarding the third in terms of some form of 'footfall survey' relating to index shops. The second defined as changes in clear up rates (see above) may be addressed by the use of police data assessed to take account of before/after changes and against regional and temporal trends. Cost effectiveness may be established by setting the criteria of the overall cost of the system over a specified realistic period and then taking into account the net reductions in offending and the estimated costs saved. In all of this awareness of potentially confounding variables and the usual problems associated with quasi-experiments is essential.

Though relatively undeveloped the issue of why CCTV systems have effects (if they do) must be addressed. The theoretical baggage of rational offender theory implicitly haunts the studies undertaken so far. Perhaps it is possible to both make such assumptions more explicit and challenge their veracity. This means asking questions about the broader, local and contextual conditions that constrain choice and their impact on offending decisions.

Some transparency is required concerning the terms and conditions of the contract, the practical constraints (access, timelines, time) and political context governing the evaluation research. Recognition of the enhanced utility of a formative enquiry needs to be shown. Finally, the evaluation project needs to show reflexiveness about its own *raison d'être* and care as to how it will be used by interest groups including the media.

Chapter 3 goes on to consider the actual documented impact of CCTV systems.

Chapter 3 The impact of town centre CCTV systems

The thesis as a whole is concerned with two main objects, evaluation and the impact of CCTV systems. The first of these objects has been reviewed in some detail in Chapter 2. Here attention focuses on the impact of CCTV systems. Three aspects are considered. First, the stunning proliferation of CCTV systems is documented. Second, the broader conditions of emergence of this trend are analysed. Third, the actual documented impact of CCTV systems in town centres and other locations is set out. This analysis is restricted to the independent studies set out in Chapter 2 for reasons, which were made clear in that chapter. The results of non-town centre systems are reviewed here because they give a fuller picture of the probable capability of CCTV. Cognisance needs to be taken of the limitations of studies of CCTV as set out in Chapter 2. The chapter ends with an examination of the implications for configuring the Doncaster study.

CCTV system proliferation

Researchers in the field of CCTV disagree about much, but they agree at least, that the phenomenon has experienced, as Graham, Brooks and Heery (1996: 1) suggest, 'stunning' growth. The stunning aspect of this growth is related to the proliferation of the variety of venues, the sheer growth in the number of systems in use and the speed of the developments. Growth is not confined to the number of CCTV systems but the expansion of existing systems and the increasing technical complexity and capability of these systems. The financial costs involved are also spectacular as noted in Chapter 1.

First, as noted in Chapter 1 there has been a growth in the diversity of venues. CCTV systems have been installed on roads and in railway and underground stations, car parks, shopping centres, football stadia, leisure complexes, residential areas, educational campuses, hospitals, factories, storage yards, shops and banks. A strong movement to install CCTV in suburban areas and villages is also evident.

Second, growth is evident in the sheer number of systems- as Chapter 1 indicated this has moved from one town centre system in 1985 to 400 in 1998. In addition a burgeoning growth of private CCTV systems is noted in Chapter 1.

Third, the speed of growth has been phenomenal encouraged in part no doubt by Home Office prioritisation of money allocation (Koch 1996 in Pease 1997). This has been evident with regard to town centre and campus CCTV systems in particular. In 1990 the HOCPC review of CCTV noted 106 systems throughout the country, only 6 of which were town centre schemes (stated start date in brackets) including Bournemouth (1986), Plymouth (1989), Bridlington (1990), Coventry (1987), Canterbury (1990) and Worthing (1990). Both Edwards and Tilley (1994) and Davies (1996) suggest that 75 cities had CCTV in 1994. Bulos and Sarno (1994:7) found that 43% of the local authorities surveyed (including all London boroughs, all metropolitan authorities and 10% of district councils with a 98% response rate) had already installed CCTV in public places defined as 'car parks, town centres, shopping centres, open streets and... public buildings.' Bulos and Sarno (1994) also note accelerating use of CCTV by local authorities with only 2 authorities having installations in 1987 increasing to 7 in 1990. During 1990 the number of authorities having installations rose to 11 and thereafter grew to 39 in 1993. Some 49% of authorities surveyed indicated that they had plans to expand an existing CCTV scheme or install such a scheme. Given that the principle of multi agency development has become established in crime prevention, these figures probably underestimate the spread of CCTV. As noted above Brown (1995) suggests that 200 towns and cities are covered by CCTV, whereas Norris, Moran and Armstrong (1998) suggest that a further 200 schemes may be added to this.

The development of technical capabilities also raises the possibility of expansion and elaboration of CCTV systems. Various possibilities may be mentioned including thermal imaging with low light cameras, heat measuring devices combined with video imaging, 'active' vision cameras and camera miniaturisation. It also includes the development of computer software to actively manage surveillance. The software is used to recognise the properties of images and respond by system activation (Patel 1994). A further development of technical

capability is in the *post hoc* processing of data. Facial recognition systems, when finalised, will allow the identification of suspects by means of computer assisted searches of face records (Garland 1996: Lyon 1994).

The conditions of emergence of CCTV

It is apparent from the above that surveillance in general is an important social movement and that CCTV systems represent by no means the only aspect but a significant part of this movement. Bottoms and Wiles (1996,1997) assessment of the forces shaping 'late modern society' can be applied to the growth of CCTV systems. They suggest three inter-linked processes are at work in such societies. First, technology is part of daily life and is routinely seen as a solution to many problems. CCTV systems are seen to have a certain familiarity and 'taken-for-grantedness.' Second, in late modern societies there is a shift in the locus of trust, away from traditional sources like families and communities, and increasingly toward complex and abstract systems and organisations. This creates an impetus toward crime prevention through impersonal mechanisms. Finally, CCTV creates a feeling of a 'security bubble', which assuages feelings of ontological insecurity induced by the decline of traditional knowledge.

David Garland also addresses these issues in a useful manner. In attempting to 'think more analytically about the idea of surveillance', he sees the growth of surveillance as a specialised activity linked to the great processes of 'industrialisation, urbanisation, bureaucratisation, the growth of the nation state [and] the development of market-based capitalism' (1995:3). In his view surveillance is transcribed into the heart of modern societies or as he puts it '...whoever says "modernity", says "surveillance" (1995:4).

A number of foreground factors may be dealt with to account for the CCTV phenomenon in the 1990's. The analysis will proceed by identifying the key protagonists, their background and the meaning of CCTV to them. Public opinion surveys show considerable support for the introduction of CCTV systems in town centres. Studies also reveal that the

public fear criminal victimisation (Mayhew, Mirrlees-Black and Maung 1994: Jones, Maclean and Young 1986). They also show that town centres in particular are understood as potentially threatening places. The use of CCTV systems to control crime may be understandable, even though a second best option. Fear of criminal victimisation is high. Crime control has become, by custom and practice, a matter, which is far removed from direct public contribution. There is thus a tendency to defer to the 'experts.' The process is rendered meaningful for members of the public because of the routinisation of technological and abstract solutions to other everyday problems and events. In brief, protection is bought by accepting greater control.

An important protagonist in the movement to crime control through CCTV, is central government. The 1996 White Paper (Home Office) declared that 'CCTV surveillance systems have proved very effective in preventing and detecting crime and deterring criminals' (Paragraph 2.9 Page 6). They turned this belief into financial support via bidding rounds (offering £5 million in 1994-5 and £45 million in the next three-year period), which prioritise CCTV over other forms of crime prevention funding (Pease 1997: Home Office 1996). Many government and semi-government documents emphasise the positive effects of CCTV (Edwards and Tilley 1994, Audit Report 1996: Brown 1995). There are a number of factors at work here. The underlying problem is the failure to deliver on controlling crime. This is, in turn, connected to two tendencies. First, the more recent tendency to make law and order a significant election issue in 1970 (Downes and Morgan 1997). Second, the longer term tendency to identify the health of the nation state with internal order maintenance (Garland 1996). This problem has led to many U-turns in Conservative policy in the 1979-1992 period. First, a period (1979-84), when effectiveness was defined as a criminal justice system re-organised to emphasise deterrence. Second, in the 1985-92 period, a movement away from criminal justice as capable of generating significant reductionist effects and toward a policy of 'just deserts' (Home Office 1990). In this period crime reduction was to be accomplished by 'crime prevention' through multi-agency central government controlled, physical prevention schemes (Bottoms 1990; Pease 1997). A further U-turn was signalled in 1993 when Michael Howard announced his 27-point plan. This entailed placing an emphasis on tertiary crime prevention forms, particularly the prison and the notion of incapacitation. Alongside this went

the prioritising of CCTV over other forms of crime prevention (Home Office 1996). Clearly these proposals chimed with the conservative themes of free will, rational choice and social contract. But they also coincided with the election hopes of the Major government – it is conceivable, but speculative, to suggest that Howard was given the mammoth task of making the Major government re-electable by rehabilitating the party on law and order. CCTV was, arguably, an important part of this strategy.

The Conservative years, 1979-1997, for local government had been ones of conflict and retrenchment, not only because of spending restrictions but also because of central government inroads into traditional local authority territories (for example, education). Even though from the mid-1980's central government had promoted local crime prevention projects, these had largely gone ahead without relying on local authorities, though much debate had surrounded this issue. The promotion of CCTV projects had many attractions. It symbolically asserted the role of these authorities in local governance. It concretely established the role of local authorities in high profile crime prevention schemes thus strengthening subsequent claims to a statutory duty here. It provided cash grants for the promotion of CCTV and 'related' projects. As Pease (1997:979) notes about the Home Office bidding process 'the emphasis on CCTV invites local agencies to be cynical, to get money in, and spend it in ways which are of greatest local use and which can be reconciled to Home Office requirements for support.' Further the pressure to CCTV from local government expresses what Seyd, quoted by McCahill (1998:49), calls the move from 'socialism to entrepreneurialism.' McCahill (1998:50) suggests for local government, 'by the end of the 1980's... the emphasis had become one of creating an image likely to induce capital to invest in the city...[and] consumerism and leisure ...[were] regarded as the two activities ...capable of stimulating economic growth.' CCTV is a way of being seen to create a suitable environment for inward investment and consumers.

The police have been willing partners in crime prevention through CCTV. There are a number of factors involved here. First, as Bulos and Sarno (1996:42) suggest the context is one of 'rising demand upon police resources' with an 80% increase in crime and a 130%

increase in 999 calls to the police in the 1979-1992 period. As one senior Merseyside officer remarked installing cameras is like deploying police officers 24 hours a day and there is no need to worry about sick leave. Second, CCTV systems may be seen as a way of dealing with the increasing concerns about the cost of policing in the context of a public expenditure crisis whilst possibly warding off the threat of privatisation (Morgan and Newburn 1997). It may also be seen as a way of fending off threats to hive off particular police activities to the private sector. CCTV systems also offer at the least the potential for dealing with increasing concern about ineffectiveness. Further, they do so whilst enabling the police to remain in the driving seat of crime prevention countering the threat posed by the move toward crime prevention in the 1985-1992 period, and the possibility that such main projects would be led by other groups (Morgan and Newburn 1997). Contradiction is evident though as CCTV systems are likely to increase demands on police resources.

Business has also been a willing partner in the CCTV project. This has taken two forms and involved different commercial interests. The first form invokes CCTV as an answer to town centre decline. It involves town centre commercial providers. The second form invokes what may be best expressed as the 'Kings Lynn Experience.' This involves the security industry.

The decline of city centres and the creation of what is called the 'doughnut syndrome' is much remarked upon phenomenon (Beck and Willis 1995; Oc and Tiesdell 1997). The antecedents of this change go back to planning measures in the immediate post second world years especially slum clearance and road developments. However, one of the more immediate factors that influenced this decline is increased decentralisation of retail functions, which Schiller (1988) suggests, occurred in three phases. First, the transfer of supermarkets to out of centre locations. Second, the movement of other large stores to these locations. Third, the setting up of regional shopping centres, which are in direct competition with town centres. A second factor is the increasing concentration of retailing in large stores and the decline of the small business (Beck and Willis 1995). This creates a downward spiral, which further exacerbates the problem. Finally, city centres come to lose their political and

economic integrity and suffer an associated cultural loss coming to be seen by shoppers and retailers as places where crime and incivility are frequent occurrences (Phillips and Cochrane 1988; Poole 1991,1994; Beck and Willis 1995). CCTV schemes may be seen as part of a strategy aimed at reversing these trends by offering encouragement to town centre shopping. Local government and business may be seen to have common cause here.

The second way in which business has been involved in the CCTV project has been through invoking 'the Kings Lynn Experience.' The security industry is the key protagonist here. Clearly, in part at least, the rapid growth of CCTV is due to equipment becoming both cheaper and more sophisticated. But a separate factor has been the hard selling of the systems by a variety of groups including practitioners and hardware retailers. This has depended on the overstatement of the effects of CCTV systems in journals linked to the security industry by practitioners who thereby justify the investment made. Certain 'premier' schemes have also organised costly seminars in an effort to market their experience. A good example of this is the 'Kings Lynn experience.' Here a symbiotic relationship has developed between system managers, the system installer (Photoscan), a CCTV consultancy (Optima Systems Ltd) and the CCTV Users Group PLC. The original car park system set up by a joint effort of the council and police was subsequently extended at the expense of Optima. Optima organised seminars on the installation of CCTV systems generally extolling the virtues of CCTV and the effectiveness of the system in Kings Lynn. Optima offers consultancy crime analysis, system specification, and evaluation services. Phillip Edwards (author of Edwards and Tilley 1994) has been associated with the Crime Prevention Unit, the CCTV Users Group and Optima Systems Ltd. The claims of practitioners have become the standards accepted for what CCTV can accomplish being quoted widely by both government (Home Office 1996) and Audit Commission (1996). Some overlap between government, CCTV evaluation and private business interests associated with the supply of CCTV systems and related consultancy services, is evident.

The impact of CCTV

The review of research findings will now proceed starting with the conclusions derived from the study of public attitudes and then going on to set out the results of research on the impact of CCTV in town centres and other locations.

Public attitudes towards CCTV systems

Public awareness of CCTV systems

A number of aspects of CCTV systems have been researched by means of public attitude surveys. Public system awareness is clearly important for two reasons. It is a prerequisite of any deterrent effect on potential offenders. Furthermore it may be necessary if beneficial effects on the public are to be observed. For example, the reduction of fear of crime or greater use of the town centre may be connected with CCTV awareness. Of course, reduction in the fear of crime may be engineered in other ways for example, the CCTV system may reduce street corner groups and fear of crime, without those experiencing the reduction in fear of crime actually being aware of the CCTV system.

System awareness has been investigated by three studies – Honess and Charman (1992); Bulos and Grant (1996) and Squires and Measor (1996a and 1996b). Honess and Charman (1992) found that 63% of their general site survey (n=798), could name at least one site where a CCTV system was located. But the site specific surveys found that awareness varied according to the location of the cameras with 62% of people being aware of CCTV in shopping centres, 35% in city streets and only 32% car parks. The above figure for awareness of street cameras is similar to that found by the Home Office study conducted in Birmingham (1991) which revealed that 40% of the sample were aware of street cameras. Higher overall awareness of CCTV cameras is revealed by Bulos and Grant though once again variation according to camera location is evident. This study revealed that between the two sweeps undertaken (after 2 and 12 months of the system being operational), awareness of cameras

had increased. Awareness of cameras in car parks in the first study was signalled by 44%; in the second study 52% admitted to being aware of car park cameras. In the first sweep it was found that 45% of people were aware of street cameras; this increased to 62% in the second sweep. High levels of awareness of the proposed scheme were shown by the sample reported by Squires and Measor (1996a)– 65% indicated that they knew about it. The public survey undertaken approximately one year later revealed that 83% of the sample knew of the CCTV system. Clearly this variation may be related to different amounts and types of publicity and indeed the actual operation of a system. But the matter perhaps is not as simple as this since this issue taps into the whole area of social cognition (Sparks 1992), that is, it relates to matters of 'intuition,' which is shaped by direct experience and other processes.

Finally, did any of the studies find any variation regarding CCTV awareness according to the characteristics of the respondent? Only two studies mention this. Honess and Charman (1992:6) suggest that 'significantly more men than women (42% compared with 25%) [indicated] that they were aware of the CCTV cameras.' Squires and Measor (1996a) however, found that gender was not associated with variation in CCTV awareness. But they did find that those who were in employment, those who worked in the town centre and older people were more aware of the existence of the CCTV system. Squires and Measor (1996b) found a much less nuanced response. The statistical basis for the conclusion reached by Honess and Charman (1992) is not made clear. None of the connections noted by Squires and Measor (1996a and b) were subjected to rigorous statistical analysis.

Public assessment of the value of CCTV

What overall estimate of the value of CCTV systems was found by the available work? Four main studies are relevant here – with Bennett and Gelsthorpe (1996) being added to those already mentioned above. Two asked whether the respondent welcomed the provision of CCTV. Strong support was evident with Honess and Charman (1992) in the site-specific surveys – respectively 89% and 92% welcomed CCTV in the street and car park sites

surveys. Similarly Bulos (1995) and Bulos and Grant (1996) found that about 84% of the sample in both sweeps welcomed the system.

Squires and Measor (1996a) purport to have found that 62.5 % of their sample supported the introduction of CCTV in Brighton (though it is not clear what question this relates to). The study one-year after revealed increased support for CCTV with 86% suggesting they were in favour (Squires and Measor 1996b). Finally, Bennett and Gelsthorpe found that 64% of their Cambridge sample thought that the installation of CCTV into the city centre was 'a good idea.'

A number of issues arise from this data. First, why is CCTV welcomed or seen as a good idea? Second, do the public perceive any disbenefits? Third, is there significant variation in what appears to be overwhelming support? Fourth, what limits, if any, are evident regarding this support?

These studies seem to show that a broad welcome was extended to CCTV. Some doubts are raised about this in Chapter 6 using the work of Ditton (1998). It is plausible to suggest that this welcome was based on the perceived legitimate purpose of CCTV, particularly with regard to three or four functions; namely its ability to deter potential offenders, to improve detections, to make people feel safer and possibly encourage more town centre use. Table 6 summarises the results of the studies here. Although the first study by Squires and Measor (1996a) did not present detailed data on these matters, this lacuna was made up in the later report (Squires and Measor 1996b). Some 62-95% of the samples agree that the system will deter would-be offenders. 74-90% agree that CCTV will lead to more detection of offenders. Some 54-96% indicate that they feel safer with the CCTV system in place. The least enthusiasm is evident concerning whether the CCTV system will encourage more people to use the town centre (2-24%).

The public would appear to have high expectations concerning the impact of CCTV systems on crime through detection and deterrence and also on the fear of crime. The

differences evident in the Bulos (1995) and Bulos and Grant (1996) probably derive from the nature of the question used. The expected impact on types of crime reveals no clear pattern. The study by Bulos (1995) and Bulos and Grant (1996), providing as they do, material 2 and 12 months into the operation of the system reveals growing scepticism about the crime control effects of CCTV systems with 5 out the 6 crimes being seen as more likely. It is not clear what has shaped these beliefs.

Public assessment of the disbenefits of CCTV systems

But are there perceived disbenefits that might detract from the expected worth of CCTV? A significant minority did voice such concerns. These are summarised in Table 7. Squires and Measor (1996b) offer no details of the nature of public opinion on this matter.

It is clear that surveys of this kind are best undertaken when they are most explicit and concrete in the responses they require, though, of course, explicitness has the equal but opposite danger of implanting opinions. Concerns about CCTV seem to fall into one of two main categories. On the one hand there are a number of civil liberty concerns (abuse of the system, greater state control, unease about being watched) with up to 1/3 of the total samples expressing views about this when specifically asked. On the other hand, concern is expressed about the actual effectiveness (alternative preferred methods, ignoring real causes of crime) and unintended consequences of CCTV systems with perhaps about 1/5 to 1/4 agreeing when specifically asked. Comparison is difficult because studies vary and none deal with both of these aspects in detail. The available evidence would seem to suggest that opinion on the issue operates around the axes of control and protection, with some greater control being reluctantly and conditionally surrendered for effective protection.

TABLE 6 The perceived benefits of CCTV systems- the results of five studies. % indicating agreement with the stated benefits

Purpose	Honess and Charman 1992 (General survey)	Bennett and Gelsthorpe 1996	Bulos 1995	Bulos and Grant 1996	Squires and Measor 1996b
The system will be effective in :- 1. Deterring potential offenders	62%	69%	The question asked about the reasons for feeling safer: 47% attributed this to deterrence	The question asked about the reasons for feeling safer: 46% attributed this to deterrence	95%
2. Assisting in the detection of crime.	74%	76%	The question asked about the reasons for feeling safer: 30% attributed this to detections.	The question asked about the reasons for feeling safer: 37% attributed this to increased detections.	90%
3. Making town centre users feel safer/ preventing fear of crime	53%	73%	74%	75%	96%
4. Encouraging more use of the town centre.	N/A	Day: 7.5% Night: 21.5%	24%	15%	Increased use claimed by: Day: 2% Night: 3%
5. Impact on types of crime.	CCTV seen as the greatest deterrent for: burglary, sexual assault, violent attack, vandalism, theft, disorderliness. CCTV seen as able to improve detection of: violent attack, theft, vandalism, sexual assault, burglary, disorderliness.	N/A	% of sample indicating crime likely to occur very often/often): Burglary: 28% Sexual assault:2% Attack: 13% Vandalism: 43% Theft: 20% Disorderliness:47%	% of sample indicating crime likely to occur very often/often): Burglary: 20% Sexual assault:6% Attack: 22% Vandalism: 49% Theft: 29% Disorderliness:59%	N/A
Samples	n=798	n=716	n=500	n=501	n=505

TABLE 7 The perceived disbenefits of CCTV systems - the results of five studies. % indicating agreement with the stated disbenefits

Impact	Honess and Charman 1992 General survey n=798	Bennett and Gelsthorpe 1996 n=716	Bulos 1995 n=500	Bulos and Grant 1996 n=501	Squires and Measor 1996a n=779
1.0 Civil liberty concerns:	-	Those fairly/ very worried about civil liberties Total: 29%*	Spontaneous disbenefits indicated Total =9%	Spontaneous disbenefits indicated Total =14%	-
1.1 Provide Misleading evidence	-	1%	-	-	-
1.2 Target marginal groups.	-	1%	-	-	-
1.3 Will be abused	72%	5%	-	-	17%
1.4 Unease at being watched	-	10%	-	-	-
1.5 Lead to an erosion of civil liberties/ invasion of privacy	36%	4%	3%	2%	31%
1.6 Encourage a fortress society.	-	0.5%	-	-	-
1.7 Allow greater state control	37%	6.5%	-	-	-
2.0 Unintended effects: Displacement of crime.	-	-	0.5%	-	30%
3.0 Doubts about effectiveness: 3.1 Overlook the real causes of crime.	-	-	-	-	38%
3.2 Waste money	-	-	-	-	16%
3.3 Have no effect on crime	-	-	3%	7%	15%
3.4 Doubts about the technical adequacy of the system	-	-	0.5%	2.5%	-
3.5 Alternative methods of crime control more effective	-	CCTV ranked third after more police foot patrols and more streetlights.	2%	2.5%	-

* Miscellaneous concerns account for another 1% in this study

TABLE 8 Summary of variation in opinion on support for and criticisms of, CCTV systems * No statistical significance tests used ** Significance tests used.

Issue	Honess and Charman 1992	Bennett and Gelsthorpe 1996	Squires and Measor 1996a and b
Overall – analysis of ‘support’ (welcomed/ good idea)	-	Overall support: 64% Associated with : being female, older** Curvilinear relationship between age and support. Victimization: not significantly associated with support.** Fear of crime: associated with support.** Multivariate analysis of support revealed that: perceived safety on the streets at night and age are the strongest predictors of support.	Before: 62% supported the scheme. After: 86% supported the scheme Before: Associated with: older people, being female, employed, working in the town centre, lack of sense of safety at night, have witnessed crime in the town centre, not being the victim of crime* After: no variations
The CCTV will : 1. Improve detections	-	Support associated with being female and older**	-
2. Deter potential offenders	-	Support associated with being older**	-
3. Reduce fear of crime	-	Support associated with being older**	-
4. Increased town centre use.	-	Support for greater use in: Day: associated with older age group and those who feel less safe.** Night: associated with older age group, those who feel less safe, females.**	-
5. Impact on specific crime types	Variation evident regarding sites with and without CCTV- those from site with newly established CCTV less likely to see that the system would impact on disorderliness and violent attacks.*	-	-

TABLE 8 Summary of variation in opinion on support for and criticisms of, CCTV systems (continued). * No statistical significance tests used ** Significance tests used.

Issue	Honest and Charman 1992	Bennett and Gelsthorpe 1996	Squires and Measor 1996a and b
Overall – analysis of opposition	Site specific surveys: Males and those in the 20-29 age group more opposed. General survey: Again males and younger age group(20-29) more likely to express concern. Higher fear of crime negatively associated with concern about CCTV. No differences were evident between sites with and without CCTV.*	Opposition to CCTV associated with: feeling of safety after dark; males; younger age group.	After: no significant differences in relation to gender, age, victimisation or witness to crime.

Variation in public attitudes about CCTV systems

Is there significant variation of opinion on support for and criticism of, CCTV? Only three of the above studies attempt to determine this (Bulos 1995 and Bulos and Grant 1996 do not). Only Bennett and Gelsthorpe (1996) do so with some degree of systematicity in analytical method, using multivariate analysis and tests of significance. This research indicates, as Bennett and Gelsthorpe (1996:75) suggest that 'public opinion is ... quite complex' and thus there is some need systematically to unravel influences here. The available evidence on variation in opinion with regard to the two factors is summarised in Table 8.

This would seem to suggest that support for CCTV is associated with fear of crime (at night) and the older age groups. The existence of a curvilinear relationship between age and support is also notable. The existence of such diversity of opinion is significant suggesting that there is not a consensus in support of the introduction and use of CCTV.

Bennett and Gelsthorpe (1996:87) clearly indicate that support for, and opposition to, CCTV may not be mutually exclusive. Thus '59% of people who said that they were worried

about the civil liberties implications of CCTV said that they thought that it was ...a good idea to install CCTV.' This seems to suggest that 'people were willing to offset their concerns about CCTV for additional safety.' Furthermore even general support for CCTV may be grudging as Bennett and Gelsthorpe's study reveals – when asked to rank crime prevention measures in order of priority, CCTV came out third, after more police foot patrols and improved street lighting. The tactical, contingent, conditional nature of such support is emphasised. Finally, fear of crime here seems to play a crucial role influencing this tactical thinking. This takes us into a much-explored territory, the reasonableness of fear of crime (Young 1986; Sparks 1992).

The impact of CCTV

The last section of this chapter examines the impact of CCTV. The analysis will take account of the impact of such systems on crime (including displacement and diffusion effects); detections; fear of crime and increased use of town centres. Any conclusions reached must be qualified by the failure of most of these studies to systematically test for before/ after effects and regional and temporal distinctiveness as indicated in Chapter 2.

Town centre systems – all offences

The discussion will start with town centre systems and refer to recorded crime unless otherwise specified. Table 9 reveals that, in stark contrast to the practitioners' accounts, more rigorous approaches suggest a more modest reduction in crime. The impact on 'all offences', in the surveilled areas, shows a decrease of between 10% (Squires and Measor 1996b Brighton) and 21% (Short and Ditton 1995 Airdrie). Brown (1995) offers no comparable figures for the three towns he studied. Bulos and Grant (1996) claim an overall decrease of 13%. Squires and Measor (1996b) found that 'targeted crime' including assault, public order offences, criminal damage, robbery and theft of and from motor vehicles, decreased by 5%.

TABLE 9 Summary of the results of studies of town centre CCTV systems

Authors	Brown 1995	Brown 1995	Brown 1995	Bulos and Grant 1996	Short and Ditton 1996	Squires and Measor 1996b
Town centre studied	Newcastle	Birmingham	Kings Lynn	Sutton	Airdrie	Brighton
Impact on: 'All crime'	-	-	-	-13%	-21%	-10%
Dishonesty:	-	-	-	-	-48%	-
Burglary	-57%	No change	'Sharp decrease'	-47%	-	-
Shoplifting	-	-	-	+0.4%	-	-
Theft	-11%	Increase	-	+15%	-	-
Car crime:						
Theft of motor vehicles	-47%	'Reduction'	Decrease	-58%	-	-
Theft from motor vehicles	-50%	'Increase'	Decrease	-58%	-	-
Damage to motor vehicles	-	-	-	-53%	-	-
Criminal damage	-34%	'Increase'	'Decrease'	-42%	-19%	-
Assault	Juvenile disorder +15%	'Increase'	'Decrease'	-7%	+133%?	+1%
Displacement	Yes	Yes	-	No	No	-
Diffusion	Yes	No	-	-	-	-
Detections	Increased arrest rates	-	-	-	Increase from 50 to 58%	-
Fear of crime reduction	-	Probably decrease amongst those aware of cameras	-	Increased perception of the likelihood of crime in High Street.	-	-
Town centre use	-	-	-	Increased town centre use indicated by -first sweep 15%; Second sweep: 24%	-	-
Cost effectiveness	-	-	-	-	Mentioned	-

Town centre systems- 'crimes of dishonesty'

Turning now to specific offence groups, for the general category of crimes of dishonesty (this includes burglary, theft of and from motor vehicles, fraud and theft), Short and Ditton (1996) indicate an overall decrease of 48%. Where separate figures are presented burglary shows a decrease of 47% (166 to 88) in Sutton (Bulos and Grant 1996) and 57% (40 to 17) in Newcastle (Brown 1995). Brown's results for Birmingham seem to indicate no increase or decrease and for Kings Lynn 'a sharp [but unspecified] decrease' (1995: 56).

A variable effect is evident regarding theft from the person – Brown (Newcastle 1995) indicates an 11% decrease (223 to 198), though it is not made clear whether this offence category includes shoplifting. An increase for 'robbery and theft' is noted in Birmingham. Brown offers no comparable figures for Kings Lynn. Bulos and Grant (1996) also note an increase in this category of crime of 15% (279 to 323). Squires and Measor (1996a and 1996b) offer no separate analysis of this category of crime. Problems of definition limit the conclusions that may be drawn here. The impact of CCTV on shoplifting seems to be small. Only one study produces explicit figures on this – Bulos and Grant (1996) indicate that there was a very small increase (0.4%: from 504 to 506). Clearly since this offence is committed 'inside' it might be considered unreasonable to measure the effects of CCTV by assessing impact on this crime. But shoplifting could be a useful signal of displacement, from outside to inside within the surveilled area. It might also be directly affected because a town centre CCTV system may enable the more effective apprehension of suspects by engaging the tracking and tracing function.

Motor vehicle crime seems to have decreased in the before/ after periods in the areas surveilled by the cameras. Brown (1995) reports a 47% decrease in theft of motor vehicles in Newcastle (17 to 9), and unspecified decreases in both Birmingham and Kings Lynn. Bulos and Grant (1996) note a 58% decrease in Sutton in this crime category. Similarly theft from motor vehicles seems to have decreased – Brown indicating a decrease of 50% for Newcastle (18 to 9) and an unspecified decrease in Kings Lynn. An increase is, however, noted for

Birmingham. Bulos and Grant (1996) note a 58% decrease. They also separately analyse damage to motor vehicles noting a 53 % decrease.

Like motor vehicle crime, criminal damage seems to have decreased in the before/after periods in the surveilled areas. Short and Ditton (1996) note a decrease of 19% (for the Scottish offence category of 'fire raising and malicious mischief' from 221 to 179 offences); Brown (1995) notes a 34% decrease in criminal damage in Newcastle (32 to 21) and Kings Lynn (no figures specified) but an unspecified increase in Birmingham; and, Bulos and Grant (1996) note a 42% decrease in criminal damage (157 to 91).

Town centre systems – 'crimes of violence'

Crimes involving assault show a complex pattern perhaps related to the variety of definitions in use. Short and Ditton (1996) deal with this area in three categories. 'Crimes of violence' (which included robbery) where 'too few were recorded' (1996:6) to make analysis possible but where a decrease was noted (from 111 to 99 offences). 'Crimes of indecency' were also not analysed for the same reason but again showed a decrease (from 6 to 2 offences). 'Miscellaneous offences' including 'petty assault, breach of the peace and drunkenness' (1996: 6), showed a marked increase (133% from 149 to 340 offences).

Brown deals with 'juvenile disorder' (not defined) in Newcastle which showed a 15% increase. Perhaps of clearer definition is 'wounding and assault' in Birmingham. Unfortunately the conclusion reached is not clear on this offence category though it appears from the relevant table (Figure 17 page 36) that such crimes increased. Brown uses the same offence category in Kings Lynn and notes a marked decrease (but involving very low incidences). Bulos and Grant (1996) on the issue of assault (including common assault as well as the more serious, indictable crimes) note a 7% decrease in this crime category (from 112 to 104 offences).

Finally, Squires and Measor (1996a) analyse reported and recorded incidents separately for this category (defined as violent and disorderly offences) finding that reported

incidents increased by 24% and recorded offences by 20%. The 12-month study revealed a 1.3 % increase for recorded offences and 8.7% increase for reported offences of violence.

Town centre systems – displacement and diffusion of benefits

On the basis of the only available studies is there any evidence of displacement or diffusion of benefits effects? This discussion, like that above, is severely restricted by the failure of the majority of studies to move beyond percentage calculations and 'by eye' analysis. Probably the most rigorous with this regard is Short and Ditton (1996:13)– they restrict themselves to attempting to discern functional and geographical effects and suggest that 'there is no evidence to suggest that crimes "prevented" in the CCTV area... have been "geographically displaced". They also indicate a similar conclusion concerning functional displacement. They are clearly aware of the real difficulties of measurement here. Unfortunately, though the section is headed 'Displacement or Diffusion', no further mention is made of diffusion.

Brown reviews three cities and finds evidence of geographical displacement and diffusion (1995:26) in Newcastle albeit on scanty evidence. For Birmingham a displacement effect is noted based on both crime statistics and victimisation data (1995:45). No discussion of displacement or diffusion is offered in connection with Kings Lynn.

Bulos and Grant (1996) offer only a limited discussion of displacement. They conclude that 'there has been no displacement of crime from the area under surveillance to other areas within the Borough' (1996:22). No discussion of diffusion is evident.

Squires and Measor (1996a: 61-62) generally recognise the issues involved but see this to be a task for the 'second stage' of the evaluation. They do, however, note elsewhere that local residents argue that 'the cameras have done nothing more than push the homeless and beggars to a different part of the town' (1996a: 78). Although some further evidence based on perceptions about displacement is used in the later report, no attempt to measure this process using police statistics is evident.

Town centre systems - other effects

Town centre systems - Detections

Evidence of the achievement of other aims claimed for town centre CCTV systems is meagre and scattered. Only Short and Ditton (1996) and Brown (1995) address the issue of detections or apprehensions. Short and Ditton note an increase in the detection rate (this is defined as synonymous with the clear up rate 1996:1) from 50 to 58%, with the greatest increase in detected crime being found in the (Scottish) offence category, 'fire raising and malicious mischief'. The detections of crimes of dishonesty remained stable and for motor vehicle related crime (generally offences related to the use of motor vehicle) decreased. Brown uses a methodology apparently similar to Short and Ditton for Newcastle but refers to this as 'arrest rate' (1995:23) but without indicating what this means. His raw figures reveal that the only offence category experiencing an increase in 'arrests' was 'drunken offences'. When account is taken of the overall trends in offending (by indicating the number of arrests per 100 'incidents') then increases are evident in most categories reviewed (burglary, criminal damage, and theft of motor vehicles and 'drunken offences'). But the increase is marginal for theft of motor vehicles and anyway the study does not include crimes of violence, which are the most troubling for the public. No statistical analysis of this data is undertaken. Brown's attempts to consider this issue for the other two areas only serves to indicate the lack of comparability. Finally, the whole basis of the figures underlying the relevant tables are brought into question when Brown (1995:25) actually admits that there is a discrepancy between the arrest rates noted in Newcastle and 'official data.'

Town centre systems – fear of crime and public perceptions of safety

Bulos and Grant (1996) and Brown (1995), review the aim of reducing fear of crime and enhancing public perceptions of safety. Bulos and Grant operate with some limitations not the least that this is not a before/after study. Two questions explored matters relevant to this issue in their work. The first question explored perceptions about the incidence of crime in

Sutton High Street (full samples) and car parks (partial samples). This was undertaken in both sweeps. The results found are set out in Table 10. This table shows that there was a perception of increases in crime (assault, vandalism, theft, drunkenness, car crime) in the High Street between the first and second sweep. On the other hand, this table reveals that there was a perception that crime had decreased in car parks between the first and second sweep. Bulos and Grant asked a second question about whether the respondents felt safer with the cameras installed – the results show that ¾ said they did with only a slight decrease evident in the second sweep.

TABLE 10 Perception of the likelihood of particular crimes in Sutton High Street and car parks in first and second sweeps of the study

	Increased likelihood of crime	Decreased likelihood of crime
High street	Violent attack, vandalism, drunk and disorderly, theft, sexual attack, and theft of motor vehicle, theft from motor vehicle.	Burglary (commercial premises)
Car parks	-	Vandalism, theft, sexual attack, theft of motor vehicle, theft from motor vehicle,

Brown reports the results of a Home Office study in Birmingham, which purports to be a full quasi-experimental pre-test/post test single group design. This reveals very little change before/after in feelings of safety with 73% reporting that they felt unsafe before and 71% after. However, when awareness of the CCTV system is taken into account in the after study, the comparable figures for feeling unsafe are amongst those aware of CCTV, 64% and those unaware of CCTV, 74%.

No studies offer clear before/after findings on the issue of the impact of CCTV on town centre use. Bulos and Grant (1996) do indicate that in the two sweeps a minority (First sweep: 15% Second sweep: 24%) indicated that they use the town centre more since the installation of CCTV, but that the proportion of people saying that they did use the town centre more, increased in the second sweep.

Town centre systems – cost effectiveness

Cost effectiveness is an issue mentioned by Short and Ditton (1996) and promised in a forthcoming work.

CCTV systems in town centres – summary

Overall there would seem to be some evidence that CCTV does influence the incidence of some types of crime in the surveilled area. The strongest claim here is for the Airdrie system indicating an overall decrease of 21%. The offence categories that seem most affected are crimes of dishonesty including burglary and theft of and from motor vehicles. Criminal damage also seems to have been affected. The evidence is mixed for theft. No change appears to have occurred for shoplifting. The issue of violent and assaultive offences is complicated by varying definitions, but some evidence points to an increase in offences of this type, especially where the study includes non-indictable public order offences. This may suggest that CCTV systems lead to more police defined public order offences simply because they are 'seen' to happen. Further, some kinds of town centre use are relatively inflexible and thus unaffected by camera systems. This may be because of 'over-determination' by a combination of subcultural patterns (Saturday night is for fighting'), particular definitions of masculinity ('Who are you looking at') and alcohol; and CCTV systems provide sources of evidence which make prosecution more likely.

There is limited evidence of other effects regarding detections, reductions in the fear of crime, increased use of the town centre and cost effectiveness. The existence of displacement and diffusion of benefits effects cannot be ruled out by the available evidence.

CCTV systems in other locations

The impact of non-town centre CCTV systems is the final issue reviewed in this chapter. The material is organised by the nature of the area in which the CCTV system is located. This

provides the following categories: residential areas (Musheno, Levine and Palumbo 1978 and Chatterton and Frenz 1994); theft, robbery and assault on the London underground Burrows 1979 and Webb and Laycock 1992; car crime (Poyner 1991 and Tilley 1993a); and bus vandalism (Poyner 1988). Attention to other system effects will be mentioned in passing when these areas are reviewed.

Residential areas – crime, criminal victimisation, fear of crime and detections.

Musheno, Levine and Palumbo (1978) and Chatterton and Frenz (1994) review the impact of CCTV respectively on a public housing project in New York and sheltered accommodation for the elderly in Merseyside. There are important differences evident in the systems used. Musheno, Levine and Palumbo found no evidence, as revealed by victimisation surveys, of a significant diminution in burglary, theft, robbery and assault. No significant reduction in the fear of crime was recorded. Chatterton and Frenz found that recorded offences of burglary and attempted burglary were significantly lower (down by 82%). No conclusion was reached regarding reported victimisation but fear of crime was seen to be lower after the introduction of CCTV, indeed 74% of residents interviewed reported that they were less worried about being burgled. The latter study also examined the impact of the CCTV systems on detections and found that there had been a localised increase in detections from 25% prior to the installation of the CCTV, to 33% after the installation.

Other locations – the London underground - crime

Burrows (1979) and Webb and Laycock (1989) review the impact of the introduction of CCTV on certain London underground stations in the late 1970's and mid 1980's respectively. Burrows found that in the four underground stations with CCTV that theft and robbery were significantly reduced before/after and in comparison with other stations without CCTV. Thefts decreased from 243 to 66 and robberies from 9 to 7. This represents a decrease of 73% and 22% for theft and robbery respectively. Some geographical displacement of theft could not be ruled out especially at the stations nearer to those equipped with CCTV. Burrows also

attempted to assess the cost effectiveness of such measures but recognising the difficulties of assessing the police costs, he therefore offered a ratio of cost of CCTV by offences prevented. Taking account of displacement and regional trends it cost £1140 to prevent each theft and £31450 each robbery.

Webb and Laycock (1992) examined the impact of CCTV and passenger alarm points on robbery (Clapham North to Tooting Broadway); robbery, theft and assault (Oxford Circus); and fear of crime (Leytonstone to Barkingside). They conclude that in Clapham North stations the reduction in robbery between 1988 and 1989 of 85% was greater than the surrounding area stations and thus possibly attributable to the measures taken, though confounding factors were also evident. In contrast 'the Oxford Circus project does not appear to have reduced crime' (1992:23). Finally, the impact on passenger perceptions of safety of passenger alarm points at Leytonstone to Barkingside stations was found to be negligible.

Other locations – car parks

The next set of studies (Poyner 1991; Tilley 1993a) examined car crime, concentrating their efforts on such crime in car parks. The overall conclusion is clear that there was a reduction: in theft of motor vehicles (18-89%); theft from motor vehicles (3-86%); and damage to motor vehicles (29-45%). Table 11 gives a detailed breakdown.

Tilley (1993a) notes a possible displacement effect in Bradford, Coventry and Hartlepool and a life cycle effect in Hartlepool. Poyner 1991 suggests that 'rather than displace crime to less well protected targets on the campus, the "good effect" has spread out beyond the immediate area of application' (1991:100). However, other than noting car crime in the un surveilled car park there is no attempt to measure displacement.

Finally, Poyner 1988 examined bus vandalism finding that seat repairs decreased by 1/3 and bus cleaners jobs could be cut by 1/3 after an extensive anti-vandal campaign including CCTV being installed on some buses. This study claims that this was achieved without displacement and probably also had diffusion of benefits effects.

CCTV systems in other locations – summary

Research on CCTV systems in other locations seems to suggest a similar pattern of effects on crime to studies of town centre locations. Burglary of residential premises was reduced in the Chatterton and Frenz study. Some reduction in the fear of crime was noted. Similarly theft and robbery were reduced on the London underground as shown by Burrows (1979) and Webb and Laycock (1992) in Clapham North. Studies by Tilley (1993a) and Poyner (1991) suggest a reduction in car crime. Evidence for other effects is limited. A displacement effect was noted by Burrows (1979) for theft and Tilley (1993a) in Bradford, Coventry and Hartlepool for car crime. Poyner 1988 and 1991 claims a diffusion of benefits effect

TABLE 11 Showing the impact of CCTV in car parks as revealed by Poyner 1991 and Tilley 1993a

Author	Damage to motor vehicle	Theft of motor vehicle	Theft from motor vehicle	All
Poyner 1991	-29%(31 to 22)	-20%(15 to 12)	-66% (92 to 31)	-53%(138 to 65)
Tilley				
Bradford	-	-43%(23 to 13)	-68%(32 to 10)	-58% (55 to 23)
Coventry*	-	-76% (300 to 72)	-34%(604 to 398)	-48% (904 to 470)
Hartlepool**	-	- 71%(106 to 31)	-3% (32 to 31)	- 55%(138 to 62)
Hull	-45%(11 to 6)	-89% (27 to 3)	-76% (38 to 9)	-76% (79 to 18)
Lewisham	-	-	-	75%(24 to 6)
Wolverhampton	-	-18%(11 to 2)	-46(28 to 15)	-38%(39 to 24)

*1992 compared with 1987 to take account of accumulative introduction of CCTV in the five car parks. (Adapted from Table A3 Tilley 1993a:28)

** Jan 1989 – March 1990 compared with April 1990 – June 1991 (Adapted from Tilley 1993a Table A1 page 26)

Implications for the Doncaster study

A number of implications for the present study follow from this review of the findings of research into the impact of CCTV. Clearly the examination of public opinion on this matter is essential as it will allow for the exploration of the perceived benefits, possible unintended consequences and disbenefits of CCTV systems. It will also allow for the consultation of large, representative groups of people, relatively quickly. There is a clear need to consult recognisable groups using the town centre in order to take account of variation in opinion –

those shopping there, using car parks where CCTV is installed, and business and commercial providers. Clear control of representativeness is essential. Surveys should not impute priority to the issue of crime on the public's behalf but explore this. Further, some exploration of awareness of CCTV provision should be made in order to allow for the impact of this variable on attitudes. In addition respondent details are needed together with data on fear of crime, attitudes and behaviour in relation to CCTV. The apparently overwhelming and seamless support for such systems needs careful analysis to pinpoint variation regarding age, sex, fear of crime and other variables. The impact of 'youth' on attitudes towards CCTV suggests the need for a more explicit and detailed treatment of this issue. This work needs to be firmly founded on explicit and detailed questions covering the positive effects (improved detections, deterrence etc) together with an exploration of unintended consequences (displacement) and negative effects (erosion of civil liberties).

Public opinion data may be usefully supplemented by studies of the opinions of key workers. These key workers may be drawn from the criminal justice system (police officers, magistrates), from the CCTV system (control room staff) and from town centre workers or providers (traffic wardens, Highways department staff). Again using systematic sampling the material here can be used to complement the picture obtained from the public, but also explore the specific relationship that the worker group has with CCTV.

Of course, this is not to suggest that survey work is without faults. Cognisance has to be taken of how both the way in which questions and the social context of the data collection exercise shape, rather than simply collect, opinion. This would suggest the need for some detailed qualitative data collection.

Attention needs to be paid to the impact of CCTV on all offences and rigorously defined specific offence categories. Such an analysis must take account of before/after variation, regional trends and pre-existing trends. This necessitates a rigorous approach to data collation using the main offence categories in clearly defined, mutually exclusive locales on a before/after basis, allowing for pre-existing trends of at least 2 to 3 years for each

category of offence in each locale. It is difficult to see how this analysis can be satisfactorily completed without some systematic statistical analysis applied to all offence categories for all areas and measuring the impact of before/after trends against pre-existing trends. The determination of the possible presence of displacement and diffusion of benefits effects must be the product of the similar analysis.

The limitations of official statistics must be acknowledged. Corroboration of the effects of these measures established by crime statistics may be sought from victimisation data and crimes observed by the town centre-using public. Similarly the key worker surveys may give some useful corroboration of these issues. Of course, this material can be combined with the study of public opinion and administered to all the groups set out above.

As has been noted in Chapter 2 even so the impact of CCTV on crime and the production of displacement and diffusion effects will not be definitively understood by these methods alone. Some further exploration of the impact of CCTV on offender meanings and behaviour is probably necessary using qualitative techniques.

Just as the determination of the reductionist effects of CCTV on crime need careful study, so too do other possible impacts or effects. Clarity of definition is essential if we are to measure increased town centre use, decreased fear of crime and cost effectiveness. A clear and explicit methodology for their measurement is required together with an equally systematic determination of the probability of the impact. Intimations may be gleaned from public opinion data for town centre use and fear of crime. This needs to be inserted into an appropriate quasi-experimental model and assessed by means of appropriate tests. Cost effectiveness requires a careful determination of the costs of the system estimated over a five-year period. This must take account of reduction, diffusion and displacement effects and utilise a clear methodology to assess the costs of crimes, which have been saved.

In Chapter 4 the organisation of the Doncaster evaluation is set out, together with the results of the implementation assessment conducted.

Chapter 4 The evaluation of the Doncaster CCTV system: general considerations and implementation assessment

In the next two chapters the results of the evaluation of the Doncaster CCTV system are set out. This material is intended to throw light on the nature of evaluation and the impact of CCTV systems. In Chapter 4 the nature of the Doncaster system is described. Then, an analysis of the local conditions of emergence of the system is set out. Next, attention is focused on the context and general structure of the evaluation. The chapter is concluded by the presentation of the results of the implementation assessment. In Chapter 5 the details of the public acceptability of the Doncaster CCTV system are presented together with the results of the impact assessment. The distinction between implementation and impact assessments is an important organising principle both for the evaluation and the presentation of results. The distinction was discussed in Chapter 2 and represents a crucial division between examining whether a system has been effected and what effects the system has accomplished. The evaluation study has created a large archive of data. The present analysis, by asking only the questions pertinent to an implementation and impact assessment of the Doncaster CCTV system, makes only limited use of this archive.

The Safety in Doncaster CCTV system

Doncaster has a compact town centre, the boundaries of which are the main arterial roads. Most of the central commercial district is covered by the CCTV system. The scheme became operational in October 1995 and is a multi-agency, police-led, town centre system, consisting of 63 colour cameras located in the commercial centre, multi-storey car parks and on the main town centre arterial roads. Forty-seven 'Help Points' or 'panic buttons' in the town centre are also provided to enable two-way communication between the public and the main control room. The estimated cost of the system over a five-year period is £2.337 million.

There are three control rooms. The main control room is located in the police station and has access to all cameras and has the authority and capability to override all other control room commands. It is staffed 24 hours a day by Police Authority employees retained as

civilians and has communication links with operational police units. The main control room is accommodated in a re-designed suite of rooms. These include the main operations room housing 43 monitors and the control desk. The tape storage facility is attached to the operations room. Access to the tape storage room is only possible from the control room and is monitored by a security system. The other control rooms are operated by local authority car park and Highways Department staff and cover the multi-storey car parks and highways respectively.

In the main control room videotape recordings can be made from all cameras. The products of the 23 town centre cameras are continuously recorded in 'real time.' Multiplexed images are routinely recorded from the other cameras though real time recording can be used for specific incidents. Recording facilities are only available in the main control room where all videotapes are stored in secure conditions. The format used for recording, SVHS, ensures high quality colour pictures. Hard-copy printout facilities are also available. Tapes, stored in the secure facility noted above, are set aside for use as evidence or recorded over after three weeks.

The scheme is managed by a steering group (known as Safety in Doncaster), comprising of the local police and council. In December 1995, an ethics sub-committee was set up to advise on issues connected to access to tapes.

The local context of the CCTV scheme

As we have already seen the development of crime prevention in general, and CCTV in particular, is part of a broader structural process. In this section an analysis of how these broader processes impacted on the local context and CCTV scheme key players is undertaken. The CCTV scheme was first mooted in late 1992 and the first meeting of the development group was held in January 1993. At this time there were no town centre CCTV schemes in South Yorkshire and a limited number in the UK as a whole. Bulos and Sarno (1994) note some 39 local authorities having CCTV installations in 1993.

The key players in the scheme, as is indicated in Table 1A (the denotation A indicates that the material is to be found in the Appendix), were the South Yorkshire police, local businesses from the town centre and Doncaster Metropolitan Borough Council. The police involvement was Doncaster-based consisting of the local superintendent and the Crime Prevention Unit. Local businesses were involved as well as some of the larger national companies. Doncaster Metropolitan Borough Council was represented by officers and elected members, including the council leader.

The general context of the CCTV development was one of deep-rooted and multi-faceted crisis, manifested in a number of ways. Like many Labour controlled local authorities Doncaster had found that central government over the 1979-1992 period had created a hostile culture in which to operate. The locality had experienced the consequences of a combination of monetarist political management and economic decline. This was demonstrated most forcefully during the Miners' Strike of 1983/4, when open conflict between the state, the Coal Board and the National Union of Mineworkers (NUM) had literally been fought out on the streets of many DMBC pit villages like Armthorpe and Stainforth.

The economic and social fall out of the conflict was considerable. The closure of pits had a profoundly depressing effect on the local economy. The privatisation of any continuing operations meant that the NUM could not regain a secure foothold in places of employment. The NUM, between 1984-1992, ceased to be a significant political bloc. The close and historic relationship established between the NUM and the local Labour Party was thus broken undermining the ascendancy of Labour in local government elections and the legitimacy of its established practices.

Pit village life though was also shattered – its support base was removed and the solidaristic culture began its slow decay precipitating yet further moves to altered political allegiances and fundamental changes in village life. The decay of pit village culture probably made many inhabitants, especially the young, more susceptible to the message that the self can be realised through consumption. Ironically such a message held out a promise, which

because of economic change, could not be realised. The decay of the economic base of the pit villages also led to a re-organisation of the family. Increasing patterns of employment for females meant a radical re-think of the traditional family patterns.

There is no doubt that the police were, and are, the active partners in the development and management of the CCTV scheme. Although there is no documentary record as to what the police saw as the benefits of the scheme, the Safety in Doncaster Steering Group noted the need for a more proactive targeting of offenders and action to reduce the fear of crime (Safety in Doncaster September 1993 Paras 2.1 and 4.0; Safety in Doncaster Action Pack 1994). The police claimed the more active role because they were the first to moot such a system (Safety in Doncaster September 1993) as well as for reasons related to their presumed occupational expertise. The system clearly appealed to particular parts of the police organisation notably senior managers and the Crime Prevention Unit. Senior police managers saw this in strategic terms especially in relation to closing the gap between finite resources and infinite demands, keeping the initiative in crime prevention in the light of the Morgan Report (Home Office Standing Conference of Crime Prevention 1991) and stimulating the kind of crime prevention whose products could be funnelled back to the police. The local Crime Prevention Unit were probably committed to the principle of crime prevention through CCTV though maybe there was an undertone even here, of improving the status of crime prevention within the priorities of police work. Nevertheless, a consensus within the local police force about the positive effects of CCTV was not evident. The survey of police officers conducted one year after the system start-up indicated that 24% of officers were concerned that the system would monitor them and 23% thought that it would lead to the displacement of crime (See Tables 30A and 31A).

Local government officers and councillors became involved after a council meeting in 1992 (Safety in Doncaster September 1993 Para 2.3) when the reservations felt by the then council leader, Gordon Gallimore, were overcome by a groundswell of support from rank and file councillors. A resolution was passed to hold 'discussions... with the South Yorkshire Police to secure the implementation of a suitable surveillance system in the Borough.' Though

the council came to obtain legal 'ownership' of the system in practice they remained secondary to the police as the prime moving force and day-to-day managing agency.

What was the appeal of the scheme to councillors and their officials? A definitive disentanglement of interests is not possible but the appeal of CCTV can be explained by reference to a number of factors. First, being apparently strong on law 'n' order in a time of political crisis, as we have seen with central government, is an attractive position. Clearly involvement with CCTV also enabled a claim to be staked out concerning the issue of ownership of crime prevention or community safety. Perhaps too, as Pease (1997) notes, the cash-strapped council was happy to obtain money from any source. More sectional concerns were clearly related to perceived safety and use of the multi-storey car parks. Finally, the factor of civic competitiveness has to be considered. As McCahill (1998) notes economic processes and their political management by central government pushed councils to engage in greater competition with one another for the scarce resources of inward investment and shoppers.

The appeal of the CCTV scheme to business interests was clearly related to general concerns about market competition and economic decline. Despite the fact that some 89% of businesses in the before study reported they had experienced criminal victimisation, none indicated that crime was the single most important problem they faced. Instead they noted market competition (44%) and economic depression (35%) (See Table 22 for details). Exactly how CCTV would address these problems though is not clear except by making Doncaster more 'competitive'. Support for the scheme was evident if rather grudging especially when it meant making a financial contribution. No underlying financial motive was evident other than the desire to boost trade in the town centre.

Consultation with the public was not undertaken directly by the Safety in Doncaster Steering group during the formative stages of the project. The before study was undertaken only after the decision to install the system had been made thus conferring rather a passive role on the public. The before studies, of town centre users, multi-storey car park users,

school pupils and the business group all indicate that people generally welcomed the CCTV scheme (See Table 20 for details). Why did CCTV appeal to the public? Clearly they were fearful of crime (See Tables 26-28). They generally saw that the system was capable of some beneficial effects (See Table 20). Nevertheless, the public did not prioritise crime problems as particularly serious in the town. In contrast the town centre users survey found that 'accessibility' was the key problem in the daytime with 57% choosing this in the before survey. Accessibility was defined as ease of access to and exits from the town centre and thus included issues connected to both public and private means of transport as well as the kind of facilities that were provided in the town centre.

The context of the evaluation project

The evaluation project began when I was retained as a consultant in February 1995. Clearly this was very much after the decision to go ahead with the CCTV system and thus the opportunity for crime pattern analysis was missed together with the opportunity to formulate a crime prevention strategy based on the analysis produced.

The exploration of the question as to why the scheme was evaluated at all must remain speculative but the following reasons can be tentatively adduced. First, the conditions attached to funding pushed toward the engagement of some form of evaluation. Second, it was recognised that the high profile nature of the scheme would make its effects a matter of some interest in the town. These impacts needed to be known with some degree of clarity and authority. It was recognised that neither the police nor the council possessed the relevant technical expertise. Finally, there was a perceived need for an independent assessment of the system.

The evaluation contract specified that the steering group, Safety in Doncaster, would pay Doncaster College, over the five-semester period February 1995 to July 1997, £16,000. The payment was to free my time from teaching and other duties for one day per week and pay for computer hardware and supplies. In the time made available I would design the overall

evaluation, construct any questionnaires and configure my requirements for police statistics. I would also be responsible for data analysis and report writing. Most of the major tasks concerning data collection and processing including the printing and administration of the questionnaires and the substantial task of data inputting would be undertaken by the South Yorkshire Police or contracted out to sessional workers. The contract specified an experimental period of one year. Quarterly reports were planned to provide formative feedback as well as a final annual report. The contract provided for the general agreement of the steering group to the use of the materials for publication. The agreement also allowed for the payment of the fees for this PhD.

Why was I retained as a consultant? I work for a local higher education provider and I was known to the police inspector involved with the SID project as I had already undertaken some consultancy work for a local crime prevention group, Doncaster Action Against Crime. The outside evaluator was required less because of intra-agency rivalries and more because of technical expertise as is indicated above. Clearly I was not hostile to police-led crime prevention initiatives.

The evaluation project

First, it was necessary to establish the scheme aims in discussion with the CCTV system liaison officer and members of the steering group. Second, it was necessary to determine the appropriate measurement instruments. Finally, it was necessary to decide on the criteria to be used to determine whether a particular aim has been realised. The full details of the implementation and impact assessments are set out in Tables 12 and 13. Table 14 gives further details of the main data collected including data type (column 1), person responsible for data collection (column 2), the population and sample size (column 3) and comments including the response rates obtained (column 4).

The implementation assessment was concerned to examine five main areas. These included the accomplishment of: multi-agency funding, development and management of the CCTV system; realisation of the technical system according to the contract; the creation of an active main control room; the restriction of videotape use to legitimate purposes; and the successful installation of the Help Points.

The implementation evaluation was to be accomplished in a number of ways. Detailed discussions with the South Yorkshire Police CCTV liaison officer were an important element. So too was attendance at steering committee meetings and analysis of the minutes of the steering group and ethics committee meetings. Analysis of the fault report statements compiled by the control room staff in relation to all faults in the system was useful. The Borough Engineers office was monitored to determine when system completion was achieved. Before and after surveys of the public were conducted as well as an after study of key workers. The CCTV control room incident logbook data were analysed.

The impact evaluation covered the six main, agreed aims of the system together with some indication of the criteria to be used to establish impact. These are set out in full detail in Table 13. In general such aims were assessed by using police recorded crime and detection statistics, surveys of various stakeholders including 'consumers' (town centre users, multi-storey car park users, school pupils) and 'providers' (business group, police, magistrates, traffic wardens, control room staff, Highways Department staff) and qualitative work with young offenders.

The impact evaluation generally adopts an overall quasi-experimental strategy using both a pre-test/post-test and an interrupted time series with non-equivalent groups design. The pre-test and post-test periods are equivalent being one calendar year each from October 1994 – September 1995 and October 1995 to September 1996 respectively. The overall design was intended to cover all aims and try to do so by providing at least one corroborative check for each aim.

TABLE 12 Summary of the implementation evaluation of the Doncaster CCTV system

Aims	Measured by	Criteria
1. To implement a CCTV system through multi-agency funding and manage it through a multi-agency partnership and place this in an overall crime reduction strategy for the town centre	Analysis of the minutes of the steering group and ethics committee.	1.1 Multi-agency funding of project and multi-agency membership and attendance of management group and ethics committee. 1.2 Elaboration of an overall strategy for crime reduction in Doncaster (together with other groups).
System realisation: 1. To install a system which is capable of delivering to the contractually specified performance criteria	1.1 Analysis of fault report statements. 1.2 Certification by Borough Engineer. 1.3 Detailed interviews with CCTV system liaison officer.	2.1 Successful installation by July 1995 (later revised to October 1995). 2.2 Borough Engineer certification. 2.3 Reduction in the incidence of faults 2.4 Rapid response to fault reports.
2. To develop a control room which enables the integration of CCTV with police and other functions.	3.1 Review of control room operation using incident logbook. 3.2 Survey data from business group, public and key workers.	3.1 Control room: amount of use and response to calls. 3.2 Satisfaction of public and business group with both the control room and the Help Points. 3.3 Satisfaction of key workers.
3. To restrict the use of videotapes to the original aims (as set out below) of the CCTV system	4.1 Minutes of ethics committee. 4.2 Key worker and public surveys.	4.1 Release of tapes to media limited to the fulfilment of system aims. 4.2 Active use of Ethics committee by the CCTV system 4.3 Key worker and public satisfaction.
4. To successfully install the special feature of the Help Points	5.1 Fault reports in relation to the Help Points 5.2 Help point study using incident logbook at main control room. 5.3 Key worker and public surveys.	5.1 Help Points: Amount and nature of use and nature of response to calls. 5.2 Satisfaction of public and business group with the Help Points 5.3 Satisfaction of key workers

TABLE 13 Summary of the impact evaluation of the Doncaster CCTV system.

Aims	Measured by	Criteria
1. To reduce crime in the surveilled area of the town centre.	1. Before/after: 1.1 Recorded crime in the surveilled area of the town centre, and in six adjacent areas. 1.2 Criminal victimisation and crimes seen in the town centre measured by public and business surveys. 1.3 Other data 1.3.1 Key worker surveys. 1.3.2 Relevant perceptions of the public. 1.3.3 Young offender group discussions.	1. Before/after - 1.1 Recorded crime. 1.1.1 Significant diminution in offences allowing for regional variation and temporal trends. 1.1.2. Limited significant displacement producing a net reduction in offending. 1.2 Significant diminution in criminal victimisation and crimes seen in the town centre as measured by surveys. 1.3 Other data 1.3.1 Key workers and public perceptions consistent with crime reduction.
2. To reduce the fear of crime in the town centre	2.1 Before/after- Public and business group surveys. 2.2 Other surveys: 2.2.1 Key worker 2.2.2 Young offenders.	2.1 Significant diminution in the fear of crime amongst the public and business group. 2.2 Perceptions not inconsistent with this from key workers and young offenders.
3. To assist with the prosecution of offenders.	3.1 Detection rates for crime perpetrated in the town centre. 3.2 Survey of key workers. 3.3 Interviews with offenders. 3.4 Perceptions of the public and business group.	3.1 Significant increase in clear up rates for relevant crime in the town centre before and after installation. 3.2 Agreement amongst key workers that the CCTV system enhances the prosecution process. 3.3 Offender perceptions that the system influences their decision making. 3.4 Public and business group perceptions that apprehension etc. is facilitated by the CCTV system.
4. To encourage more use of the town centre	4.1 Before/after survey of the public and the business community. 4.2 Takings surveys/ footfall surveys.	4.1 Significantly greater use of the town centre as shown by public and business surveys. 4.2 Increases in takings and footfall figures.
5. To be cost effective.	5.1 Survey of key workers. 5.2 Cost effectiveness survey. 5.3 Survey of public and business group re perceptions of cost effectiveness.	5.1 Agreement that policing is more effective and better targeted as shown by key worker surveys. 5.2 Clear evidence that the system is cost effective. 5.3 Public and business group perception that the system is cost effective.
6. To assist in town centre traffic management	6.1 Survey highways staff 6.2 Survey of public and business group 6.3 Survey of traffic wardens.	6.1 Significant changes in opinion amongst multi-storey car park and town centre users and the business group about the relevant problems attached to the town centre. 6.2 Satisfaction amongst relevant key workers.

TABLE 14 Details of the data collected for the evaluation of the Doncaster CCTV system

Data name	Compiled/ collected by	Population and sample	Comments including response rates where applicable
1. Incident logbook – main control room.	Compiled by CCTV system control room staff.	All incidents observed by or reported to the main control room. Allowed for separate analysis of Help Point calls.	A detailed window onto the operation of the control room and the impact of the system. Inevitably flawed by organisational routines and unclear categorisation determining whether an incident is recorded.
2. Fault Report Statements	Instigated by CCTV system Liaison Officer. Compiled by CCTV system control room staff.	All system faults in the January – September 1996 period.	Covers only the last 9 months of operation starting in mid January 1996.
3. Interviews with CCTV liaison Officer	Compiled by report writer.	Weekly then fortnightly meetings from February 1995 – December 1996. Enabled the monitoring of Borough Engineer certification.	A source of much useful information.
4. Minutes of relevant committees	Produced by the minute secretary of Safety in Doncaster.	All meetings in the 1993-1996 period. Steering group and Ethics Sub-Committee.	-
5. Recorded crime and detection rates.	Compiled by the South Yorkshire Police Force. April 1993 to September 1996.	Produced in categories useful for the study at the report writer's request (12 offence categories) covering the 7 areas for the period 1993 – 1996.	-
6. Before/ after surveys of the public.			
6.1 Town centre users.	Questionnaire designed by report writer and PC Roy Salmon. Data collected by survey teams.	Town centre users Aged 16 and over. Quota sample n=1000 in each sweep. April 1995 and November 1996.	-
6.2 Multi storey car park users	Questionnaire designed by report writer and PC Roy Salmon. Distributed by car park staff/ postal return.	Random sample of car park users n= 416 in each sweep. April 1995 and November 1996.	Average response rate = 44%

TABLE 14 Details of the data collected for the evaluation of the Doncaster CCTV system (continued).

Data name	Compiled/ Collected by	Population and Sample	Comments including response rates where applicable
6.3 School pupils	Questionnaire designed by report writer and PC Roy Salmon. Distributed / collected by school staff.	Opportunity sample of pupils aged 14/15 at a local secondary school n= 69 and 153 in each sweep April 1995 and April 1997.	Response rate = 88%
6.4 Business community	Questionnaire designed by report writer and PC Roy Salmon. Distributed by Chamber of Commerce and survey staff/ collected by survey staff.	Random sample of town centre businesses n= 130 in each sweep May 1995 and December 1996.	Response rate = 60%
7 Key worker surveys	Questionnaire designed by report writer and PC Roy Salmon. Distributed and collected by PC Roy Salmon.	Census of all: Police Officers at Doncaster (A1); Magistrates; Traffic Wardens; Control Room staff; Highways Department Staff November-December 1996.	Response rates: Police Officers = 61% Magistrates = 48% Traffic wardens = 83% Highways staff = not completed Control room staff = not completed.
8. Discussion groups with young offenders.	David Skinns	Group discussion with 23 young people at an Attendance Centre.	-

Both implementation and impact evaluations were intended to be democratic. A wide variety of groups was consulted. The results were disseminated within the police and to other agencies. Moreover, the evaluation attracted widespread media interest and the report was made available on request to any interested party.

The rest of the chapter is devoted to an examination of the results of the implementation assessment. Each recognisable aim is considered using four main headings. First, the aim or area is stated and explained. Second, the method of measurement indicated and any specific justification set out. Third, the results are presented. Fourth, an assessment of whether the aim has been accomplished is set out. An examination of the public

acceptability of the CCTV system and the results of the impact assessment are offered in Chapter 5.

Implementation assessment

Multi-agency funding, development and management

Statement of aim

To implement a CCTV system through multi-agency funding and manage it through a multi-agency partnership and place this in an overall crime reduction strategy for the town centre.

Measurement of aim

Three main sources of data were used to monitor whether diversity in contributions to funding, development and management of the scheme were evident and whether an overall strategy for crime prevention for Doncaster was emergent. First, some meetings of the CCTV Steering Group and the Ethics Sub-committee were observed. Second, all the minutes of both of these groups were analysed. Third, regular meetings were held with the CCTV liaison officer. The Steering group was the main body responsible for the development of the scheme and was the primary managing body. The Ethics Sub-committee was a subsidiary group established to set and monitor a code of practice regarding access to videotaped materials.

Results.

Multi-agency funding for the CCTV scheme

The total cost of the system for the first five years of operation is estimated to be £2.337 million. This sum has been obtained from diverse sources as Table 15 suggests. These include the European Union (14%), the South Yorkshire Police Authority (43%), DMBC (34%),

and the public including business (9%). The relatively small donations from business and the public and the absence of any contribution from central government are noteworthy. The aim, to secure funding from diverse sources, would seem to have been accomplished.

Table 15 Estimated funding of Safety in Doncaster, for a 5-year period. 1995-2000
(Source: SID minutes).

Source of funding	Start up funding	Maintenance	Total
European Community	329,000	-	329,000
Police authority	200,000	815,000	1,015,000
Doncaster Metropolitan Borough Council	472,000	321,000	793,000
Donations from the public/business	200,000	-	200,000
Total	1,201,000	1,136,000	2,337,000

The development and management of the CCTV system through a multi-agency approach

This aim was measured by a review of the membership and attendance of two main committees or sub-committees. Tables 1A and 2A, show that, in its initial stages, the steering group consisted of approximately one third each of local business, police and council. Later membership of the steering group was reduced by the business group withdrawing leaving the task to the police (60%) and council (40%). From inception to December 1995 the management group consisted of 16 individuals, eventually being reduced to 5 individuals drawn from two main groups after December 1995. Table 4A shows that attendance was approximately proportionate to membership.

A separate Ethics Sub-committee was set up in December 1995 to deal with issues related to access to tapes. Table 3A shows that the sub-committee consisted of local police and council together with a person from the legal profession and an independent chairperson. Overall 4 meetings have been held. Table 5A shows that attendance reflected this proportionate representation.

The study reveals that the aim of multi-agency development and management has been largely realised in that the police, the council and, to a lesser extent, the business group, have played a part in the development and now, the management, of the CCTV scheme.

Incorporation of the CCTV system within an overall crime reduction strategy for Doncaster town centre.

The connection between the system and the police and policing in Doncaster is clear and explicit. Some lack of clarity surrounds the relationship between the CCTV system and the subsequent crime prevention efforts of other Steering Group participants including the Doncaster MBC and the South Yorkshire Police force as a whole. Lack of clarity also exists concerning the relationship between the CCTV scheme and other local crime prevention organisations not involved in the steering group, for example, the probation service. Lack of clarity also surrounds the extent to which the CCTV system has been integrated into an overall crime prevention strategy. Though a notable movement has now been made in this direction with the setting up of the Doncaster MBC Community Safety group and their recent work, together with the Safety in Doncaster Ethics Sub-Committee, on a Code of Conduct for CCTV systems.

Conclusion

The Safety in Doncaster CCTV system is a police-led, multi-agency (involving two main groups) local partnership in crime prevention. The role of the CCTV system in the broader development of crime prevention policy in Doncaster is emergent. The aim of multi-agency funding and development and management has been largely accomplished. The articulation of an overall crime prevention strategy for the town remains a matter for development.

System realisation

Statement of aims

System realisation is dependent on the accomplishment of four subsidiary aims. First, a physical system has to be installed which is capable of delivering to the contractually specified performance criteria. Second, the main control has to be developed to enable the integration of CCTV with police and other functions. Third, the use of videotapes has to be restricted to the aims of the CCTV system. Finally, Help Points have to be successfully installed.

Measurement of aims

The determination of the realisation of the physical system has relied upon three methods. First, lengthy and detailed discussions have been held with the CCTV system liaison officer, PC Roy Salmon. Second, the analysis has been undertaken of the fault reports statements started by the CCTV system control room in January, 1996 (See Tables 6A-9A for details). Finally, Borough Engineer certification has been monitored by means of regular interviews with the CCTV liaison officer.

The assessment of the accomplishment of an adequately functioning main control room is based on three sources. These are the incident log kept by the CCTV control room (this record also incorporates the small number of recorded events happening in the car parks and noted by the control room there) and surveys of key workers and the public. Data from a survey of control room staff were not available at the time of completing the annual report.

The assessment of the restriction of access to videotapes to legitimate uses was based on analysis of the minutes of the Ethics sub-committee and by surveys of key workers and the public. Finally, realisation of the Help Points was measured by a re-analysis of the incident log data specifically concerned with public use of this facility and supplemented by public survey data enquiring specifically about satisfaction with Help Point use.

Results

Realisation of the physical system

Discussions with the CCTV system liaison officer and analysis of the fault report statements have revealed a number of difficulties over the year. Tables 6A-9A are compiled from fault report statement analysis. Table 6A overviews these reports providing an indication of overall numbers. Table 7A offers a breakdown of the faults by type. Table 8A offers a breakdown of the most frequently occurring fault, camera problems. Table 9A examines the speed with which such faults were cleared.

First, camera wobble was a severe problem for some cameras as noted by the CCTV liaison officer and indicated in Table 7A. This problem was resolved by April 1996, with the installer replacing all the camera poles. Second, camera pre-set problems continued throughout the year to cause concern, averaging some 3% of faults in the year. The term camera pre-sets refers to programmed settings to which designated cameras will return at fixed times. Third, numerous difficulties were experienced with the Help Point system. These persisted throughout the year and constituted 8% of the total faults. Not infrequently such faults resulted in the complete breakdown of the Help Point system. Fourth, the VCR's demonstrated some unreliability representing 7% of all faults. Fifth, camera faults were the most frequent form of system unreliability representing 75% of all problems as shown by Table 7A. Table 8A shows a breakdown of these camera faults. The most frequent causes of camera problems were loss of operator control (42% of all camera faults), picture loss (31%) and problems connected to the pan/tilt/zoom mechanism (14%) and iris faults (14%). Sixth, colour shift problems are evident. Here recorded pictures are not based on matched black and white and colour images thus making such pictures unsuitable for identification purposes. This continues to be a problem for VCR playback though pragmatic correctives are to be applied. Finally, the software in use in the tape library computer is not adequate to the task.

Table 6A shows that the number of overall faults diminished very slightly in the January 1996 to September 1996 period (average faults per day in the last three-quarters of the after period were 0.55, 0.48, and 0.46). Most faults (51%) have been remedied in less than 8 hours (see Table 9A). However, there is very little evidence of the achievement of optimal operational efficiency before the onset of parts wear. The system seems to have generally poor reliability.

The system was so problematic that its opening was delayed by three months. Even by 30/09/96, when the current evaluation was finalised, no certification of installation had been granted by the Borough Engineer. The commissioning of the scheme was thus some 15 months behind schedule.

The large number of faults, some of them very persistent, combined with the delay in obtaining Borough Engineer certification of the system, indicate that this aim had not been accomplished by the autumn of 1996.

Realisation of the main control room function

The incident log data used here is derived from an analysis of the logbook kept by the CCTV control room staff. The logbook contains material relating to incidents or events. The following details were noted regarding each incident or event – date, time, initiator, nature of the incident, the nature of the action taken and the outcome. The initiator was classified as generated by the control room staff (CR) (this includes calls from the Help Points and the car parks control room) or reported to the control room by one of three groups: the area control room (ACR), operational police units (OPD) or other sources. The area control room is the facility in Doncaster which co-ordinates police communications in the local area. Operational police units from Doncaster were in radio contact with the control room. Contact with special squads and other districts was also possible using the conventional 'phone system. Other

sources were diverse but generally consisted of communications from the public, the British Transport Police, the local council, store security staff etc.

The classification system used for event types relies on seven categories. The 'social service' category excludes crime and includes fire calls, the summoning of ambulances for injured people and events concerned with missing persons. Second, 'system issues,' which denotes communications about the working or failure of the CCTV system itself. The third category used is that of 'suspicious persons or objects' which relates to signs of trouble as defined by the operator. The fourth category used relates to crime and has been sub-divided into three main groups. The first sub-category concerns 'miscellaneous offences' (including drugs offences, breaches of warrant etc.) and in the summary table (Table 17) motoring offences. The second sub-category concerns public order offences (relating to a wide range of non-indictable and indictable crime including breach of the peace, drunk and disorderly and drunk and incapable, begging and public urinating and offences under the Public Order Act 1986) and assault. The third sub-category concerns property crime including burglary and alarm activation, criminal damage, theft, fraud and robbery and theft of and from motor vehicles. The final main category used relates to events that could not be classified.

The action requested is divided into the following categories - current observations (COBS) and review of videotapes (TOBS). Clearly with incidents initiated by the control room they could be referred elsewhere. Similarly an incident could cease to be recognised as such.

The outcomes of events or incidents are classified in a number of ways. The first category used is formal action. This includes police actions concerned with arrest and being reported on summons. It also includes any action, which led to formal processes of identification being used ~ the record of the incident being kept to one side for the purposes of evidence or hard copy photographs being produced from the system. The formal category also includes action taken regarding non-crime incidents involving CCTV control room calls to the fire and ambulance services. The informal category includes any situation where a

warning is issued or advice is given. The 'not traced' category covers those events where the reported event could not be located. The remaining categories used are self-explanatory involving no further action and outcome not known.

When formal action was taken further classification is used. These classifications reflect those set out above for the original events. Clearly though there is no necessary correspondence between the original classification of an event and the subsequent formal outcome. Finally, it must be noted that although the incidents recorded do not represent all incidents dealt with, this information does provide a useful, if flawed, window onto the operation of the control room.

The survey data used here are derived from studies of key workers (after sweep only – traffic wardens, police officers and magistrates) and the public (before and after sweeps of town centre businesses, town centre users, multi-storey car park users and school pupils).

It is clear from the incident log data that the main control room has a proactive role initiating about one third of all events recorded or some 1506 for the year (See Table 16). The view that the control room adopts a proactive role is also supported by Table 19, which indicates that it has been responsible for initiating action resulting in approximately one third of all formal actions. In this study a strict definition of formal actions attributable to the CCTV system is made i.e. as those formal actions resulting from events initiated and assisted by the CCTV system. Of course, this strict test excludes all the effects of the system which result from their intervention when a referral is made by police or other agency. Overall in the January- September 1996 period the system was thus directly involved in 32% of formal actions indicating an active role for the control room. See also Table 13A. Table 18 also shows that events attributable to the main control room also resulted in a significant number of informal actions.

It is also clear that the main control room has become integrated with the policing network of the town centre as is shown by the number of events recorded in the logbook, that derive from external sources. Thus approximately two thirds (3279 events) of all events were reported to the main control room by the Doncaster police area control room, Doncaster operational police units or crime control sources (See Table 16). The material presented in Table 11A suggests that the CCTV control room staff have been mainly asked to provide 'current observation'. Current observation entails tracing and /or tracking a particular person/ event /object as they/it appears on the screens. Some 95% of outside referrals requested current observations and only 5% the examination of videotapes. The reasons for the relative lack of use of videotapes are twofold: first, there is some under-reporting of the use of the tape search facility; and second, the task of tape checking is onerous especially where precise specification of person or event or object cannot be given.

The events dealt with by the system are diverse in character. The 'top three' types of event in the period were: property offences (23%); suspicious persons or objects (22%) and public order/ assault (22%) (See Table 17 and for a more detailed breakdown of the nature of events Table 10A). The next three types of events were miscellaneous offences (14%); 'social service' (11%) and system issues (8%). The top three types of formal action are: public order and assault (33.5%), property offences (26%) and social service (21%) (see Tables 19 and 12A).

The integration of the CCTV system with policing and other networks in the town centre is also supported by the survey data from key workers. Traffic wardens (70%), magistrates (81%) and police officers (93%) reported that the CCTV system had had an overwhelmingly positive effect on the performance of their jobs. Only a minority were critical concerning the following matters: communications with the control room being slow (Traffic wardens: agree 10%; Police officers agree: 9%), that the control room operated on different priorities to themselves (Traffic wardens: agree 20%; magistrates: agree 6%; Police officers: agree 11%), and that tape access was too restricted (Traffic wardens: agree 10%; Magistrates: agree 6%; Police officers agree: 3%). Perhaps most importantly, as noted below,

the system and the control room in particular were seen to contribute significantly to greater professional safety of the key workers on the street (see Tables 28A-31A).

The positive picture of integration with the police and other bodies is not continued when the views of the business community are considered. 10 out of 68 (15%) businesses reported both that they had been criminally victimised and that the CCTV system had been engaged in some capacity in dealing with the incident(s). 6 of these indicated that the main way the system was used to deal with their victimisation was by means of the use of videotapes. 4/10 indicated that the control room had observed an incident and the police dispatched to deal with it. The level of satisfaction with the system was low here with 4/10 indicating that they were dissatisfied or very dissatisfied, 4/10 neutral and 2/10 satisfied/very satisfied with the operation of the CCTV system. However, in the before study, the business group did suggest that the CCTV system would lead to more effective use of the police (74% agreed). 69% agreed in the after study (see Table 20 for details).

Public survey data from multi-storey car park users, school pupils and town centre users suggests a mixed reaction to the CCTV system when it is used to assist them. These surveys asked the respondents whether they had been a victim of a crime and if so, whether the CCTV system was engaged in some way to provide them with assistance. Where people had been victims of crime and the CCTV system had been engaged in providing them with assistance, respondents were also asked how satisfied they were with the assistance received. Only 2 multi-storey car park users indicated they had been criminally victimised and the CCTV system had been engaged to provide assistance. One of these had used a Help Point to report the offence and was very satisfied with how s/he had been treated. The other case necessitated the use of videotapes and the victim was very dissatisfied with the outcome. 7 school pupils reported they were the victims of crime in the town centre. Only 1 was clear that the CCTV system had been engaged to provide assistance (the incident was observed whilst it was happening and a police unit dispatched). The victim was satisfied with this response.

Of the 27 town centre users who reported being the victim of a criminal offence in the town centre, 10(37%) indicated that the CCTV system had been engaged in some way to deal with the incident. 50% (5/10) of these involved the CCTV system actually observing the incident and dispatching police units to the scene; 2/10(20%) reported the matter themselves using the Help Points; and in three cases (30%) video tapes were examined for further information concerning the incident. Of the 10, 6(60%) were satisfied or very satisfied with the way in which the incident was handled by the CCTV system; 3(30%) were neutral; and 1(10%) was dissatisfied or very dissatisfied.

Data derived from the public surveys also offered an indication whether respondents thought integration between police and CCTV had occurred. The public surveys enquired about whether the CCTV system would lead to more effective use of the police. Although some significant diminution in agreement is evident, the majority, in all three surveys, even in the after sweep, agreed that the CCTV system had led to more effective use of the police. (Before agree: Town centre users: 78%; multi-storey car park users: 75%; and School pupils 66%. After: agree— Town centre users: 63%; multi-storey car park users: 52%; and School pupils 53%) (see Table 20 for details).

Thus the evidence suggests that the control room had assumed a proactive role, had become well integrated with the police and had developed good communication links with the emergency services. One issue emerges however, the limited use made of videotapes as shown by Table 11A.

TABLE 16 Doncaster CCTV system main control room logbook - source of events, October 1995-September 1996

Source of events	Totals OCT 1995-SEP 1996	Totals OCT 1995 - SEP 1996
	NO	%
CCTV control room	1160	22.0
Help point calls	346	6.6
Area control room	1787	33.9
Operational police units	1682	32.0
Other	290	5.5
Totals	5265	100

**TABLE 17 Doncaster CCTV system main control room logbook - nature of events
October 1995- September 1996**

Nature of referral	Totals OCT 1995 – SEP 1996	Totals OCT 1995 - SEP 1996
	NO	%
Not classified	159	3
Social service	565	11
System issues	405	8
Suspicious persons/ Objects	1138	22
Miscellaneous offences (including motoring offences)	755	14
Public order and assault	1009	22
Property crime	1234	23
Totals	5265	99.9

**TABLE 18 Doncaster CCTV system main control room logbook - outcomes of actions
taken October 1995- September 1996**

Source of events	Totals Oct 1995 -Sep 1996	Totals Oct 1995 -Sep 1996
	NO	%
Referral by Area Control Room/Operational Police Unit/Other events:-		
Current observations		
No further action	1087	30.1
Traced formal action	677	18.7
Traced informal action	752	20.8
Not traced	731	20.2
Traced outcome not known	367	10.1
Totals	3614	99.9
Examinations of videotapes:-		
Traced no further action	14	8.6
Traced formal action	31	19
Traced informal action	34	20.8
Not traced	42	25.8
Traced outcome not known	42	25.8
Totals	163	100
Referral by CCTV control room to Area Control Room /Operational Police Units/Other		
Traced no further action	529	35.5
Traced formal action	369	24.8
Traced informal action	442	29.7
Not traced	43	2.9
Traced outcome not known	101	6.8
Not classified	5	0.3
Total	1489	100

TABLE 19 Doncaster CCTV system main control room logbook - total system arrests and other formal actions January –September 1996.

Event classification	NO	%
Not classified	6	2
Social service	76	27
Miscellaneous offences (including motoring offences)	29	10.5
Public order and assault	113	40.5
Property offences	56	20
Totals	280	100
% CCTV system attributable of all formal actions taken	32%	-

Restriction of the use of videotapes to system defined purposes

The Ethics Sub-committee of SID recommended the acceptance of a code of practice derived from the local government information unit document in June 1996 (LGIU 1994). The primary thrust of the code was that the guiding principles in relation to the release of information to the public domain were public interest and crime control. There have been two releases of such photographic and /or video footage to the press. Key worker surveys revealed that the policy pursued had not led to too greater restriction on access to videotapes (Access too restricted: traffic wardens 30%; Magistrates 6%; and Police officers 3%). Respondents in the public surveys expressed no serious doubts about access to videotapes (see Table 20 for details). The aim to restrict the use of videotapes to system purposes would seem to have been accomplished.

Realisation of the Help Points

Fault report statements clearly indicate that the Help Points experienced considerable difficulties throughout the January – September 1996 period. The evaluation discovered, and the CCTV liaison officer confirmed, that at times the system was entirely out of action because when one Help Point button was pressed all such points were opened simultaneously rendering communication impossible.

Re-analysis of the control log shows that despite these difficulties some use was made by the public of the Help Point facility. Thus the control room log shows that between 01/10/95 and 30/09/96, 346 Help Point calls were received by the control room, averaging some 29 per month or 1 per day. The top three types of referral were: using the broader classification from Table 17, public order and assault (26%), social service (25%) and property offences (23%). One third of Help Point referrals resulted in formal action. Other actions listed in order of numerical importance are informal action (31%); no further action (18%); outcome not known (11%); and not traced (8%). The top three kinds of formal action were for public order and assault (35%), property offences (19%) and social service (16%). See Tables 14A and 15A.

The public surveys asked multi-storey car park users, school pupils and town centre users whether they had used the Help Points and if so how satisfied they were with the result. Of the 156 multi-storey car park users who replied to the after survey 14 (9% of the total) admitted to making at least one use of the Help Points. 4/14(29%) reported an incident witnessed; 9/14 (64%) to get some immediate attention; and 1(7%) pressed the button by mistake (the lift and Help Point buttons in the multi-storey car parks are in close proximity). In relation to these 14 incidents all respondents were either satisfied or very satisfied with the way in which their report was handled. Only 2 (1.3% of the total) school pupils reported using the Help Points. No further information was provided. 21 town centre users (2.1% of the total) reported using the Help Points with the following results: dissatisfied/ very dissatisfied- 1(5%); neutral 9 (43%); satisfied/ very satisfied- 11 (52%). Thus use was limited. But when the Help Points were engaged some satisfaction was evident.

The problems connected to the realisation of the technical system associated with the Help Points probably limited public use. However, when the public made use of the facility they were satisfied with the result.

Conclusion

A technical system, which complied with contract specifications, had not been accomplished by 30/09/96, when the experimental period for this study ended. Significant faults in the CCTV system meant that full Borough Engineer certification was not granted. The installer was thus some 15 months past the contractually specified completion date (07/07/95).

The CCTV main control room seems to take a proactive role. It also actively supports the policing of Doncaster town centre therefore this aim does seem to have been accomplished. Some difficulties are evident regarding the main control room, particularly connected to the under-utilisation of videotapes.

The aim to restrict the use of videotapes to system-defined purposes does seem to have been accomplished. The existence of an Ethics Sub-committee since December 1995, and the subsequent development and implementation of a code of conduct adopted in June 1996, has effectively limited the use of visual images to crime control matters.

The installation of the Help Point system has not been without initial and on-going difficulties. However, the public seems satisfied with the response received when they have had reason to make use of the facility. It is not known whether the faults mentioned above inhibited the use made of the system. An open verdict must be returned on whether the Help Point system has been effectively accomplished.

In the next Chapter the results of the study of the public acceptability of the Doncaster CCTV system are discussed together with the presentation of the full impact assessment.

Chapter 5 The evaluation of the Doncaster CCTV system: the public acceptability of CCTV and impact assessment.

Chapter 5 explores the results of the Doncaster evaluation covering the public acceptability of CCTV and the results of the impact assessment. Some justification of these items is necessary. The prime distinction, between implementation and impact assessments has already been discussed. Here we are concerned with the separation of the assessment of public acceptability from both implementation and impact assessments and the inclusion of a cost benefit study in the impact assessment. The study of public acceptability may be properly seen as a separate task to either implementation or impact assessment. This is so because it does not involve an examination of whether the system has been set up or whether the aims have been realised, but a consideration of the general attitude of the public to social control through CCTV in their area. Separation is also justified because the study of public acceptability is an important topic in its own right. High levels of public acceptability may be taken as a mandate for CCTV systems. The inclusion of an assessment of cost effectiveness in the impact statement is justified here on the basis that achievement of this was one of the specific aims of the Doncaster CCTV system.

The public acceptability of CCTV in Doncaster is presented first. The section starts with the overall profile of opinion revealed by the before study. Comment is then offered on variation in these views between the before and after studies and by the socio-economic characteristics of the respondent. The study of both forms of variation is important. A marked change in 'mandate' before /after may signal, for example, the limits of public acceptability for CCTV. The study of the segmentation of opinion is also important especially as there has been a tendency in the literature to present opinions as unified in support. Finally, the results obtained will be compared with other studies and any limits to the enthusiasm for CCTV will be considered. Such a comparison will also offer the opportunity of corroboration of the Doncaster findings.

The impact assessment begins with the aims that were peripheral to the CCTV system including here traffic management and increased town centre use. Attention then focuses on

the main aims all of which centre on crime. The order adopted is to review reduction in the fear of crime first. Crime reduction, displacement and diffusion of benefits are reviewed next. The impact on detections is then considered. The chapter is concluded by the assessment of the cost effectiveness of the CCTV scheme. Each item in the impact assessment is presented using five main headings namely, aim, methods of measurement, results, conclusions and a comparison of the results of the Doncaster evaluation with other studies.

The public acceptability of the Doncaster CCTV system

Overall acceptability

The before surveys revealed that a qualified welcome was extended to the system. This is less pronounced for school pupils and thus the analysis proceeds by dealing with the three other survey groups first and then school pupils. Table 20 provides full details of the results of the before study. An overall majority amongst town centre and multi-storey car park users and the business group agreed that the system would deter potential offenders (74-91%); lead to the apprehension of offenders (84-88%); make people who use the town centre/ multi-storey car parks feel safer (74-93%); and allow for more effective use of the police (74-78%).

A more varied response is evident to the last three questions concerned with the possible advantages of CCTV. Town centre users did think that more use of the town centre would be encouraged by the CCTV scheme (70%) and multi-storey car park users clearly agreed that more use of such car parks in the daytime (83%) and at night (61%) was likely. The business group was rather more sceptical of this claim with only 42% agreeing that greater town centre use would result from the CCTV scheme. A possible beneficial effect of CCTV systems might be that they make people more conscious of the need for caution about being criminally victimised. Some support was evident for the system encouraging people to be more cautious (52-63%). Probably greater scepticism is suggested about whether the system will be cost effective with town centre and multi-storey car park users generally

agreeing (64 and 58% respectively) and the business group showing much greater scepticism (agree - 41%).

Just as some key advantages of the system are supported, some key disadvantages are denied or at least treated sceptically. Strong disagreement was evident concerning whether the system would invade privacy (69-86%). Similarly that the system would act as a deterrent to otherwise legal activities was not seen as a disadvantage by an absolute majority of town centre users and the business group (60-61%) (excluding the multi-storey car park users who were not asked this question). Majorities of both town centre and multi-storey car park users did not perceive problems connected to access to videotapes (39-41%). The business group dissented from this with the majority here falling into the 'neutral' category.

However, some concern is evident that the system will displace crime with absolute majorities (agree: town centre users 63% and the business group 58%) agreeing with this except the multi-storey car park (agree 43%) users for whom the question is less pertinent. Further, some concern was evident that the introduction of CCTV would lead to a reduction in car park staffing levels (multi-storey car park users 34%) or police foot patrols (town centre users 44%, and the business group 38%).

The views of school pupils are throughout much more sceptical. They do tend to support the claimed advantages of deterrence (56%), apprehension (81%), enhanced safety (51%) and more effective use of the police (66%) but at a reduced level compared to the other groups. They are considerably more sceptical than the other groups concerning greater use of the town centre (31%), making people more cautious (39%) and cost effectiveness (46%). They are more likely to agree that CCTV has disadvantages. Thus 36% agree that the system will invade privacy (48% disagree though); displace crime (67% agree) and reduce police foot patrols (40% agree).

TABLE 20 Attitudes towards the Doncaster CCTV system expressed in percentages.

The system will:	Town centre users			Multi-storey car park users			School Pupils			Business Group		
	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig
1. Deter potential offenders - Agree	79	69	-s	91	60	-s	56	48	Nc	74	65	Nc
Disagree	12	11	Nc	3	2	Nc	28	14	-s	8	13	Nc
Neutral	5	11	+s	3	11	+s	12	23	+s	10	10	Nc
Don't know	3	9	+s	3	27	+s	4	15	+s	8	12	Nc
Response to the question. No's	995	1000	-	202	156	-	68	147	-	89	68	-
2. Lead to the apprehension of offenders - Agree	88	69	-s	87	51	-s	81	67	-s	84	69	-s
Disagree	4	9	+s	4	3	Nc	12	5	Nc	2	3	Nc
Neutral	4	10	+s	5	8	Nc	6	17	+s	10	10	Nc
Don't know	4	11	+s	4	39	+s	1	11	+s	3	18	+s
Response to the question. No's	998	999	-	202	156	-	68	147	-	89	68	-
3. Make people feel safer - Agree	86	77	-s	93	76	-s	51	55	Nc	74	84	Nc
Disagree	4	8	+s	2	5	Nc	24	12	-s	6	6	Nc
Neutral	8	10	Nc	4	11	+s	18	20	Nc	17	6	-s
Don't know	2	6	+s	1	8	+s	7	13	Nc	3	4	Nc
Response to the question. No's	998	1000	-	203	156	-	68	147	-	89	68	-
4. Make more effective use of the police - Agree	78	63	-s	75	52	-s	66	53	-s	74	69	Nc
Disagree	5	9	+s	2	3	Nc	13	6	Nc	6	1	Nc
Neutral	8	12	+s	16	11	Nc	13	24	+s	16	10	Nc
Don't know	9	16	+s	7	34	+s	7	16	+s	4	19	+s
Response to the question. No's	997	1000	-	201	156	-	67	147	-	88	68	-
5. Encourage more use of the town centre/ car parks* - Agree	70	36	-s	* 83/61	*48/24	-s/ -s	31	24	Nc	42	24	-s
Disagree	9	26	+s	4/12	7/13	Nc/Nc	31	18	-s	19	28	Nc
Neutral	15	18	+s	11/17	12/17	Nc/Nc	24	32	Nc	29	26	Nc
Don't know	6	20	+s	2/10	33/46	+s/ +s	13	26	+s	10	22	+s
Response to the question. No's	994	997	-	202/195	156/155	-	67	146	-	89	68	-

TABLE 20 Attitudes towards the Doncaster CCTV system expressed in percentages. (continued)

	Town centre users			Multi-storey car park users			School Pupils			Business Group		
	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig
The system will:												
6. Make people more cautious— Agree	59	51	-s	63	61	Nc	39	43	Nc	52	49	Nc
Disagree	23	19	-s	16	5	-s	18	9	-s	18	16	Nc
Neutral	11	18	+s	14	15	Nc	34	31	Nc	19	19	Nc
Don't know	7	12	+s	7	18	+s	9	17	+s	11	16	Nc
Response to the question. No's	998	1000	-	202	156	-	67	147	-	89	68	-
7. Be cost effective— Agree	64	53	-s	58	51	Nc	46	38	Nc	41	45	Nc
Disagree	5	7	+s	2	1	Nc	10	11	Nc	3	1	Nc
Neutral	13	9	-s	18	10	-s	28	21	Nc	28	16	-s
Don't know	18	31	+s	22	37	+s	16	30	+s	28	37	Nc
Response to the question. No's	997	999	-	203	156	-	68	145	-	88	67	-
8. Have a favourable impact on sales— Agree	-	-	-	-	-	-	-	-	-	-	10	-
Disagree	-	-	-	-	-	-	-	-	-	-	30	-
Neutral	-	-	-	-	-	-	-	-	-	-	22	-
Don't know	-	-	-	-	-	-	-	-	-	-	37	-
Response to the question. No's	-	-	-	-	-	-	-	-	-	-	67	-
9. Invade privacy— Agree	11	8	-s	5	3	Nc	36	19	-s	10	3	-s
Disagree	80	81	Nc	86	91	Nc	48	48	Nc	69	88	+s
Neutral	8	9	Nc	8	4	Nc	13	22	+s	16	4	-s
Don't know	1	2	+s	1	1	Nc	3	11	+s	5	4	Nc
Response to the question. No's	995	999	-	202	156	-	67	140	-	86	68	-
10. Scare off otherwise legal activities— Agree	24	24	Nc	-	-	-	24	22	Nc	9	4	Nc
Disagree	61	45	-s	-	-	-	54	30	-s	60	57	Nc
Neutral	11	11	Nc	-	-	-	13	22	+s	25	18	Nc
Don't know	4	20	+s	-	-	-	9	26	+s	6	21	+s
Response to the question. No's	995	1000	-	-	-	-	67	138	-	86	68	-

TABLE 20 Attitudes towards the Doncaster CCTV system expressed in percentages. (continued)

	Town centre users			Multi-storey car park users			School Pupils			Business Group		
	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig	Bef	Aft	Sig
The system will:												
11. Displace crime— Agree	63	63	Nc	43	18	-s	67	41	-s	58	31	-s
Disagree	15	11	-s	26	20	Nc	9	8	Nc	9	18	Nc
Neutral	13	8	-s	18	15	Nc	19	28	Nc	23	15	Nc
Don't know	9	17	+s	13	47	+s	5	23	+s	9	37	+s
Response to the question. No's	995	1000	-	202	156	-	67	138	-	86	68	-
12. Raise problems connected to the ownership of and access to, tapes— Agree	13	19	+s	9	6	Nc	28	16	-s	17	4	-s
Disagree	41	29	-s	39	20	-s	19	9	-s	15	23	Nc
Neutral	18	12	-s	26	18	-s	30	33	Nc	36	16	-s
Don't know	28	39	+s	26	56	+s	22	41	+s	32	56	+s
Response to the question. No's	994	998	-	201	156	-	67	135	-	84	68	-
13. Reduce police foot patrols/ car park staff agree**	44	39	-s	34	23	-s	40	37	Nc	38	28	Nc
Disagree	30	26	-s	28	22	Nc	22	12	-s	16	18	Nc
Neutral	12	10	Nc	17	14	Nc	24	21	Nc	22	16	Nc
Don't know	13	24	+s	20	41	+s	14	30	+s	24	38	+s
Response to the question. No's	992	998	-	201	154	-	67	133	-	83	68	-

KEY: s= Significant at the 5% level; **Nc=** No change.

* Question 5 asked all town centre and multi-storey car park users about the impact respectively of the CCTV system on town centre and multi-storey car park use. Multi-storey car park users were asked about day and night time use of such car parks (Day/ night).

** Question 13 asked about police foot patrols (town centre) and car park staffing (multi-storey car parks)

In order to conclude that there have been significant changes in opinion between the 'before' and 'after' studies the material was subjected to a significance of proportions test. This test has also been applied to changes in opinion concerning problems of town centre use, fear of crime, the extent of criminal victimisation and crimes witnessed in the town centre and changes in detections. This test enables the determination of the significance of difference of the proportions in two samples. A 5% level of significance was used.

One year on some diminution of enthusiasm regarding the positive effects of the CCTV system is evident. Less change though is evident concerning opinions about the disadvantages of the system. The after study revealed a general reduction in agreement with the claimed advantages of CCTV across all questions for town centre and multi-storey car park users and often achieving significance. For the business group only two questions produced increased agreement those concerned with a greater sense of safety (question 3) and cost effectiveness (question 7). Nevertheless, opinion remained strongly supportive (with agreement being 60% or more) for some claimed advantages particularly that the system would deter potential offenders, lead to the apprehension of offenders (multi-storey car park users were less supportive: 51%), make people feel safer and lead to more effective use of the police (multi-storey car park users were less supportive: 52%).

Decreased agreement with the advantages of the system does not signal the emergence of a generally more critical attitude. Only one significant increase in agreement with the disadvantages of the system is evident amongst town centre users and concerned with problems connected to access to videotapes. On the contrary, the results show that generally people are less critical of CCTV. Fewer town centre users and business group members agree that the system will invade privacy. Fewer multi-storey car park users and business group members think that CCTV will lead to displacement of crime. Fewer business group members think that the system will cause problems of access to videotapes. Fewer town centre users and multi-storey car park users think that CCTV will lead to a reduction in foot patrols.

School pupils' opinions followed the more general trend regarding the claimed advantages of the system – decreases were evident for all views except that the system makes people feel safer and act more cautiously though neither of these changes achieved statistical significance. Significant diminution in agreement with some claimed disadvantages of the system was evident amongst school pupils. Fewer school pupils agreed that CCTV would invade privacy, displace crime and produce problems connected to access to tapes.

Overall the system continues to command support for many of the claimed advantages. Enthusiasm does seem to have waned though. There is little real evidence for marked concern about civil liberties issues. Concern is evident that the system may have unintended and undesirable effects. Experience of CCTV seems to reduce the discrepancies of opinion between school pupils and the other groups.

Variation in opinion

The study of variation in opinion is based on the two main surveys of varied individuals, town centre and multi-storey car park users. Table 21 reveals that, for town centre users, support for CCTV in the before study is segmented by age, general victimisation (including all victimisation not just in the town centre), employment status and employment type. Generally, support for the system is greater amongst older people, victims of crime, those who are employed and those in non-manual occupations. Sex, use of the town centre at night and victimisation in the town centre were not significantly associated with variation in opinion. The after study shows that opinion is less segmented with the major variation here being related to victimisation in the town centre. These findings are corroborated by the tendency for school pupils and other survey groups opinions to converge.

In the before study, for multi-storey car park users, victimisation is the most potent influence on opinion, with those who have been victimised being more supportive of the CCTV system. The impact of victimisation is diminished in the after study.

Table 21 Significant variation in attitudes towards CCTV in Doncaster amongst Town Centre users and Multi-storey Car Park users by age, sex, employment status, employment type, victim of any crime (town centre users only), victim of crime in the town centre/car park and use of the town centre at night (town centre users only). Significance level 5%.

Item	Town centre users		Multi-storey car park users	
	Before	After	Before	After
1. Deter potential offenders	Age, ES, ET, Victim	Victim(TC)	Victim	Age, Sex
2. Lead to the apprehension of offenders	Age, ES Use of town centre, ET, Victim	Victim(TC)	Victim	Age
3. Make people feel safer	Age Victim	Victim Victim(TC)	Victim	-
4. Make more effective use of the police	Age, Sex Victim	Sex, ES, Victim, Victim(TC)	Victim	-
5. Encourage more use of the town centre/ car parks*	Age, ES, ET	ES	Day: - victim Night: Victim	Day:- Night: -
6. Make people more cautious	Age, Sex ES, Use of town centre, ET, Victim	Age, Sex ES, Victim Victim(TC)	Victim	Victim
7. Be cost effective	Age Employment status Employment Victim	Victim Victim(TC)	Victim	Victim
8. Invade privacy	Age, ES, Use of town centre, Victim	Age, Sex	Victim	-
9. Scare off otherwise legal activities	Age, ES, ET, Victim	-	NA	NA
10. Displace crime	-	-	Victim	-
11. Raise problems connected to the ownership of and access to, tapes	Age, ES, Use of town centre, Victim	Sex, Victim(TC)	Victim	Age
12. Reduce police foot patrols/ car park staff	Age, Use of town centre, Victim	-	Victim	-
13. Less likely to report offences	NA	Victim(TC)	NA	-

Key: Use of town centre = whether day and night or day only

ES= Employment status

ET= Employment type

Victim = victimisation overall

Victim (TC) = victimisation specifically in the town centre

Table 16A suggests, for town centre and multi-storey car park users that those most worried about crime are less critical and more supportive of the CCTV system. This is also the case for the town centre users in the after study. Fewer associations are evident for multi-storey car park users in the after study.

Comparison with other studies

The results obtained here may be placed in context when compared with those set out in Chapter 3 Table 6. All show very considerable support for the main positive effects of CCTV, with the downward trend in support in Doncaster bringing the results in line with most other available studies. With the exception of school pupils, opinion in Doncaster seems to be more supportive of deterrent effects and a reduced fear of crime/ enhanced perception of safety in the before study and converge with broader views in the after sweep (Deterrence - Before: 74-91%; After: 60-69%. Safety – Before: 74-93%; After: 76-84%). Squires and Measor (1996b) report much higher levels of support for these two functions even after the lapse of one year (respectively 95% and 96%). The initial strong support evident in Doncaster regarding the impact of the CCTV scheme on town centre use/ multi-storey car park use (with the exception of school pupils and the business group) significantly diminished in the after study to converge with the results of other studies (Before: 70 and 83/61%; After: 36 and 48/24%). On the issue of detection or apprehension the Doncaster study reveals initial enthusiasm amongst all survey groups (with some segmentation), but support significantly diminished in the after sweep (Before: 81-88%; After: 51-67%) and became less segmented. Once again this brings the study into line with other accounts, with the exception of Squires and Measor (1996b) who claim that 90% agreed that the CCTV system assisted with the apprehension of offenders.

Table 7 in Chapter 3 shows that, with the notable exception of school pupils again, the impact of the system on civil liberties was seen to be a problem by fewer people in the Doncaster study than was found by other studies. (Before: 5-11%; After: 3-8%). However, much more concern was shown about the issue of displacement (Before: 43-63% excepting school pupils; After: 31-63% excepting multi-storey car park users).

The exceptions noted here are worthy of special mention. The persistently more critical view adopted by school pupils is clearly an expression of the segmentation of opinion on CCTV by age noted above. The convergence of opinion between this group and the three other survey groups after one year is worthy of note. The stance of the business group is of particular interest. There was a significant diminution in agreement that the CCTV system would encourage town centre use in the before/after period. Further, the after study enquired into whether the CCTV system would have a favourable impact on sales. Only 10% agreed that it would. It is clear that if the problems of the town centre can be seen to be attributable to market competition then CCTV is not seen as a solution (see Table 22 below).

To sum up, the majority of Doncaster people sampled were initially enthusiastic about the CCTV system because they perceived it might provide a 'security bubble'. Enthusiasm has declined although support still remains strong. Little concern for civil liberties was evident though awareness of unintended effects was present. The results of the Doncaster study on the acceptability of CCTV systems are not radically inconsistent with other comparable studies.

Improved traffic management

Statement of aim

To identify and facilitate the dispersal of traffic congestion in the town centre.

Method of measurement

Two main methods were planned. Data from traffic wardens and local authority Highways Department staff were seen as crucial, especially as the latter group operated one of the subsidiary control rooms. Questionnaires enquired as to how the system impacted or otherwise on traffic observation and management. In addition the public surveys enquired

about the single biggest problem users faced. Respondents were given a number of possible choices one of, which is pertinent here, accessibility. Accessibility was defined as ease of access to and exits from the town centre. It is only an indirect measure therefore of traffic problems.

Results

Unfortunately key worker data here were not received from main control room and Highways Department staff. The data from traffic wardens supports the view that the CCTV system had not facilitated traffic dispersal. Although traffic wardens did suggest that the system had assisted in dealing with road traffic accidents (100% agree) and even had assisted in identifying traffic congestion (80% agree), it had not reduced such traffic congestion (50% thought that it had not).

The survey of the business group enquired about the single biggest problem faced by the company. Table 22 summarises the results. There is little doubt that access (as defined above) to the town centre increased in overall rank order (from third to first place). It also showed significant proportional increase (from 9% to 34%).

The survey of town centre users and school pupils also enquired as to the single biggest problem faced in the daytime and at night. See Tables 23 and 24. In the daytime for town centre users accessibility showed significant proportional increase. It remained first in rank order. For school pupils accessibility remained of first rank even though registering a significant proportional decrease. At night, for town centre users, accessibility both revealed proportional significant increase and a change in rank order from fifth to third. For school pupils increasing concern about accessibility is evident. There is little evidence of any alleviation of the problem from these data.

Table 22 Single biggest problem faced by the Doncaster town centre business group: before and after results. No (%)

Problem	Before	After	Comment
Market competition	39(43.8%)	8 (11.8%)	Dec S
Economic depression	31(34.8%)	13 (19.1%)	Dec S
Crime	0	2 (2.9%)	-
Access to the town centre	8 (9%)	23 (33.8)	Inc S
Avoidance of the town centre due to crime	2 (2.2%)	2 (2.9%)	Inc NS
Town centre decline	5 (5.6%)	13(19.1%)	Inc S
Increasing overheads	4 (4.5%)	7 (10.3%)	Inc NS
Totals	89(100%)	68(100%)	

Table 23 Single biggest problem faced by Doncaster town centre users in the day and night time: before and after results. No (%)

Day time			
Problem	Before	After	Comment
Accessibility	536(57)	805(83)	Inc S
Environmental pollution	132(14)	43(4)	Dec S
Crime	81(9)	49(5)	Dec S
Unruly behaviour	149(16)	56(6)	Dec S
Drunken people	47(5)	17(2)	Dec S
Totals	945(101%)	970(100%)	
Night time			
Problem	Before	After	Comment
Accessibility	45(5)	197(20)	Inc S
Environmental pollution	10(1)	9(1)	No change
Crime	87(9)	136(14)	Inc S
Unruly behaviour	447(47)	323(33)	Dec S
Drunken people	353(37)	327(33)	Dec S
Totals	942(99%)	992(101%)	

Table 24 Single biggest problem faced by Doncaster school pupils using the town centre in the day and night time: before and after results. No (%)

Day time			
Problem	Before	After	Comment
Accessibility	35(51)	51(35)	S Dec
Environmental pollution	6(9)	34(23)	S Inc
Crime	10(14)	9(6)	S Dec
Unruly behaviour	16(23)	37(26)	NS Inc
Drunken people	2(3)	14(10)	S Inc
Totals	69(100%)	145(99%)	
Night time			
Problem	Before	After	Comment
Accessibility	0	9(6)	-
Environmental pollution	0	5(3)	-
Crime	3(4)	9(6)	NS Inc
Unruly behaviour	38(55)	56(37)	S Dec
Drunken people	28(41)	74(48)	NS Inc
Totals	69(100%)	153(100%)	

Conclusions

Data from traffic wardens would suggest that the CCTV system has not eased traffic congestion. Insofar as problems relating to accessibility have a bearing on this matter, the public surveys would suggest some support for the more informed views of traffic wardens. Some useful assistance regarding road traffic accidents is noted as well as an ability to identify traffic congestion. This aim has not been accomplished subject to the limitations caused by the incompleteness of the data used. The apparent failure to accomplish the aim to improve traffic management seems to be related to both the lack of systematic data compilation and the absence of effective systems to act on such intelligence to disperse traffic congestion.

Increased use of the town centre

Statement of aim

The CCTV system was set up to try to encourage more people to use the town centre and stimulate growth in the commercial activity therein.

Method of measurement

The before / after business group surveys asked questions concerning whether more people were using the town centre and whether (after survey only) the CCTV system had had an overall favourable impact on sales. The public surveys contained questions about whether in general more people were using the town centre and specifically whether the respondent now uses the town centre more as well as exploring the reasons given for any increase or decrease in use. A number of alternative methods were proposed, but none of them proved workable for a number of reasons, for example commercial confidentiality.

Results

TABLE 25 Specific use by the respondent of Doncaster town centre or multi storey car parks. No (%).

Survey	Less often	Same	More often	Totals
Multi- storey car park users	2(1)	119 (79)	30(20)	151(100)
School pupils	5(4)	105(83)	16(13)	126(100)
Town centre users	40(4)	875(89)	65(7)	980 (100)

There is considerable doubt whether the CCTV system has encouraged more use of the town centre and stimulated commercial activity therein. The business group study suggests a significant proportional decrease in agreement with the view that the system would encourage more use of the town centre (from 42% to 24%). Further this group expressed scepticism about whether the CCTV system had stimulated sales (only 10% agreed that it had increased sales). See Table 20 for details.

Less enthusiasm seems to be evident concerning the stimulation of the use of the multi-storey car parks both in the day and at night time (see Table 20 for details). Multi-storey car park users when asked specifically whether they used the car parks more by the 'after' survey indicated that the majority did not (79%). However, a sizeable minority did indicate that they used the car parks more (20%). When asked to give reasons for this (respondents were not restricted to one reason) 59% of the responses indicated that the greater safety conveyed by the CCTV system was a factor.

School pupils expressed considerable doubt as to whether the CCTV system would increase town centre use. In the after study school pupils were even more doubtful that more people use the town centre because of the CCTV system (see Table 20 for details). Specifically 83% indicated that they use the town centre to the same degree in the before and after periods. Only 13% indicated that they had increased their use of the town centre and 54% of these responses given indicated that the CCTV was responsible for the change (see Table 25 for details).

Amongst town centre users there has been a marked statistically significant decrease in the number of people who think that the system has encouraged more people to use the town centre (see Table 20 for details). The majority (89%) of town centre users have neither increased nor decreased their use of the facility. Of the 7% who have increased their use, 77% attributed this in some part to the existence of the CCTV system (see Table 25 for details).

Conclusions

The CCTV system does not seem to have stimulated a growth in commercial activity in the town centre according to the business group. Further, a sceptical attitude prevails amongst the other groups surveyed regarding whether the system has stimulated greater use of the multi-storey car parks and the town centre. There is little evidence of actual increased use with only multi-storey car park users showing a marked increase in actual town centre use. This aim has not been accomplished.

Comparison with other studies

Bulos and Grant (1996) found, like the Doncaster study, that the impact of CCTV on town centre use is negligible (see Table 6 Chapter 3). Similarly, Squires and Measor (1996b) found that few people felt that the CCTV system affected the frequency of their visits to the town centre.

Fear of crime reduction

Statement of aim

The system was set up to reduce town centre users' fearfulness of becoming a victim of crime in this location (including the multi-storey car parks) and thereby establishing a greater sense of personal security or safety.

Method of measurement

The main method was to directly ask the public a series of questionnaire items - entailing 'before' and 'after' surveys of four main groups - town centre users, users of the multi-storey car parks, school pupils who pass through the town centre on a regular basis and commercial providers. For details of the surveys see Table 14 in Chapter 4. The material is presented taking account of the small amount of respondents who occasionally failed to answer. It also takes account of those who could not answer certain questions for example, males in the main questionnaires (for town centre and multi-storey car parks users and school pupils) in question 2, which is concerned with rape and sexual assault. Non-car owners were also excluded from questions 3 and 4, which concerned car crime and were used for town centre and multi-storey car park users.

Two questions in the surveys were directly concerned with fear of crime and safety. Respondents were asked to indicate how worried they were about becoming a victim of crime in the town centre or multi-storey car parks; and whether they thought that the CCTV system would make people feel safer in the town centre and multi-storey car parks. Less directly, but still usefully, the question concerning the single biggest problem faced by town centre providers or users, indicated some prioritisation of problems associated with town centre use. A secondary method has been to survey key workers including police officers and traffic wardens. In this case the survey was only conducted after the establishment of the CCTV system. Finally, a further method entailed the discussion groups with young offenders.

Results

The fear of crime surveys of the business community indicated that overall there had been little change. The only offence category where significant change was probable was 6 (showing a decrease in partly worried about female staff being sexually assaulted whilst on company business but off company premises). Overall fear of crime remained high - with some 68% of the responses indicating worry of some kind in the after study (See Tables 26 and 28). The business group tended to have increased in their agreement with the view that

the CCTV system would provide for the personal safety of town centre users (from 74 to 84%) (see Table 20). Table 22 above indicates that crime remains a low priority in terms of perceived problems for town centre commercial providers. Some apparent contradictions are evident here viz. why is the town centre perceived to be safer for users but not business providers? Given that fear of crime has not significantly diminished why does crime assume such a low priority in the estimation of problems? Further, why has there been no diminution in fear of crime in the light of the clear reduction in criminal victimisation?

TABLE 26 Fear of crime in the town centre- respondents' views - all crime - comparison of before and after views. % Key: NS= not significant; S= significant

Survey	Not worried	Partly worried	Very worried
Business group	NS Inc Before: 29% After: 32%	NS Dec Before: 47% After: 46%	NS Dec Before: 24% After: 22%
Multi-storey car park users	NS Inc Before: 17% After: 22%	NS Inc Before: 47% After: 53%	S Dec Before: 36% After: 25%
School pupils	NS Dec Before: 32% After: 29%	NS Inc Before: 42% After: 49%	NS Dec Before: 26% After: 22%
Town centre users	S Inc Before: 25% After: 42%	S Dec Before: 48% After: 40%	S Dec Before: 27% After: 18%

Multi-storey car park users revealed some diminished fear of crime overall though after the installation of the system some 78% responses indicated that for all crime people were partly or very worried (See Table 26). Some significant decreases in fear of crime are evident for certain offence groups. Thus notably, offence groups 2 (being raped or sexually assaulted), 3 (having your car stolen), 4 (having your car broken into and something stolen) and 6 (being insulted or bothered by strangers) showed a significant reduction in the very worried category. Significant increases in the not worried category were evident for offence categories 1 (being mugged or robbed) and 3 (having your car stolen). In the case of offence categories 2 (being raped or sexually assaulted) and 4 (having your car broken into and something stolen) there were significant increases in the partly worried category (see Table 27 for details). Some significant diminution in the perception that CCTV ensures safety in multi-storey car parks is evident with users adopting a more sceptical approach to the likely impact of the cameras (see Table 20). Nevertheless in the after study some 76% of the

sample did think that the CCTV system created a safer environment within the multi-storey car parks.

TABLE 27 Comparison of before/ after views on fear about being the victim of specific offences in the town centre by survey groups excluding the business group %

Offence category/ period and comment	Town centre users			Multi -storey car park users			School pupils			
	NW	PW	VW	NW	PW	VW	NW	PW	VW	
1	Before	30.7	47.8	21.4	15.7	58.8	25.5	28	58	14
	After	46.7	37.9	15.4	24.3	54.5	21.2	28	53	19
	Comment	S +	S -	S -	+ S	- NS	-NS	NC	-NS	+NS
2	Before	19.4	46	34.6	13.1	41.8	45.1	24	13	63
	After	31.7	49.7	18.6	12.8	53.5	33.7	18	37	45
	Comment	S +	S +	S -	-NS	+S	-S	+NS	+S	-S
3	Before	8.2	49.1	42.7	6.3	49	44.7	-	-	-
	After	26.5	41.6	31.8	14.1	53.2	32.7	-	-	-
	Comment	S +	S -	S -	+S	+NS	-S	-	-	-
4	Before	5.8	45	49.2	4.3	36.6	59	-	-	-
	After	17.1	46.7	36.1	7.7	57	35.2	-	-	-
	Comment	S +	NS +	S -	+NS	+S	-S	-	-	-
5	Before	28.9	52.1	18.9	22.5	47.1	30.4	28	40	32
	After	47.7	40.2	12.1	24.3	52.6	23.1	24	55	21
	Comment	S +	S -	S -	+NS	+NS	-NS	-NS	+S	-S
6	Before	38.1	45.6	16.3	33.8	45.1	21.1	46	43	10
	After	57.4	32.4	10.1	39.2	47.7	13.1	42	45	13
	Comment	S +	S -	S -	+NS	+NS	-S	-NS	+NS	+NS

KEY: OFFENCE CATEGORIES:

1= Being mugged or robbed

2= Being raped or sexually assaulted (women only)

3= Having your car stolen

4= Having your car broken into and something stolen from it.

5= Being attacked by strangers

6=Being insulted or bothered by strangers

S= Significant: NS = Not significant: NC= No change

NW= Not worried: PW= Partly worried: VW= very worried

Table 28 Comparison of the before/after views of the business group on fear about the company and/or its employees being the victim of specific offences in the town centre.
%

OFF	BEFORE			AFTER			COMMENT		
	NW	PW	VW	NW	PW	VW	NW	PW	VW
1	12.4	49.4	38.2	16.2	55.9	27.9	+NS	+NS	-NS
2	20.2	57.3	22.5	22.1	57.4	20.6	+NS	NC	-NS
3	30.3	44.9	24.7	25.7	50	24.3	-NS	+NS	-NS
4	25.3	54	20.7	36.4	47	16.7	+NS	-NS	-NS
5	70.5	22.7	6.8	71.6	23.9	4.5	+NS	+NS	-NS
6	47.7	43.2	9.1	57.1	30.1	12.7	+NS	-S	+NS
7	23.9	56.8	19.3	19.7	51.5	28.8	-NS	-NS	+NS
8	30.7	40.9	28.4	40.7	27.1	32.2	+NS	-NS	+NS
9	23.9	42	34.1	31.7	31.7	36.7	+NS	-NS	+NS
10	18.2	53.4	28.4	22.1	60.3	17.6	+NS	+NS	-NS*
11	25	51.1	23.9	20.3	60.9	18.7	-NS	+NS	-NS
12	17.2	55.2	27.6	20.9	53.7	25.4	+NS	-NS	-NS

KEY: OFFENCE GROUPS:

1= Company premises broken into and something stolen

2= Staffed robbed on company premises

3= Staff robbed on company business but off company premises

4= Staff robbed on their way to and from work

5= Female staff being sexually assaulted or raped on company premises

6= Female staff being sexually assaulted or raped whilst on company business but off company premises

7= Female staff being sexually assaulted or raped on their way to/from work

8= Company vehicles being stolen

9= Company vehicles being broken and something stolen from them.

10= Staff being assaulted on company premises

11= Staff being assaulted on company business but off company premises

12= Staff being assaulted on their way to/ from work.

S= significant and NS = Not significant

*= Close to significant at the 5% level

NW= Not worried: PW= Partly worried: VW= very worried

Amongst the school pupils surveyed little change is evident with some slight increase in worry overall (see Table 26). No change was evident for offence groups 1 and 6 (unlike other groups surveyed). Some diminution in worry was evident for offence groups 2 (fear of being raped or sexually assaulted) and 5 (fear of being attacked by strangers) (see Table 27). Amongst school pupils fear of crime (all crime: partly or very worried) affects 71% of the sample in the after study (See Table 26). The majority of school pupils perceive that the CCTV system has produced greater personal safety in the town centre. Crime assumes a low priority when the problems of the town centre are considered (see Table 24). 'Incivility' (defined as drunken people and unruly behaviour) does, however, seem an important factor, which has not diminished in importance.

The results of the surveys of town centre users with regard to fear of crime reveal that overall those not worried have proportionally significantly increased and those partly or very worried significantly decreased. The most marked diminution in fear of crime was evident for offence categories 1 (being mugged or robbed), 3 (having your car stolen), 5 (being attacked by strangers), and 6 (being insulted or bothered by strangers). Even so, overall 58 % of responses indicated that people were still partly or very worried about becoming the victim of a crime. As Table 20 indicates there was strong (but diminishing) support for the view that the CCTV system impacts positively on the perception of personal safety in the town centre. Crime remains a low priority for both day and day/night time users (see Table 23). This also indicates that 'incivilities' (drunken people and unruly behaviour) rather than crime are the cause of much concern at night.

The relevant key worker surveys here relate to the police and traffic wardens. Such groups are, of course, working on the streets. Although less than one per cent of police officers spontaneously indicated that they saw that the greatest advantage of the CCTV system was enhanced professional safety, when asked specifically whether greater professional safety was an advantage of the CCTV system 67% agreed or strongly agreed, with only 7% disagreeing. The view was probably related to the widely held opinion (76%) that the CCTV system was able to provide a rapid response to police calls for back up.

Again few traffic wardens spontaneously indicated that professional safety was the important advantage of the system though all agreed (100%) that they now felt safer in the town centre performing their job. This was probably related to the possibility posed by the CCTV system of summoning back up.

The young offenders interviewed indicated that the system had not induced a greater sense of safety or reduced fear of crime especially in relation to fear of attack. The reasons given for this were: it could not prevent the sort of personal assault associated with public order/ fighting behaviour typical on particular nights in the town centre; and further, for the females especially, it could not prevent sexual assault. It is worthy of note though that females were more in favour of the system than males, mainly because they saw the system as extending some, albeit limited, 'protection' from sexual assault. Such protection was seen to derive from the possibility of deterrence as well as the satisfaction that the system would increase the possibility of apprehension. It was limited by the strong perception that the system cannot observe and thus respond, to every such incident. The apparent fear of 'incivility' is supported by material in Tables 20 and 24.

Conclusions

Overall some diminution in fear of crime is evident for multi-storey car park and town centre users. School pupils are probably slightly more fearful. With the business group no significant change in overall patterns of fear of crime is evident. Overall worry about crime and incivility still remains high. Any reduction in the fear of crime is clearly conditional (fear remains higher at night) and seems to suggest a less enthusiastic approach to the system as people become aware of what it can and cannot do. In particular, the coverage in multi-storey car parks is seen as a significant problem along with the issue of the observation of and rapid response to, incidents.

Amongst key workers whose role takes them onto the streets there was a very clear perception that the system contributed to enhanced professional safety. For young offenders

some perception of greater safety was present but this was greater for females than males and even with females was seen to have very strict limits.

Comparison with other studies

Of the town centre studies reviewed, only two accounts deal with fear of crime; namely Brown (1995 Birmingham) and Bulos and Grant (1996). Both deal with public fears only and are thus comparable with the town centre users, multi-storey car park users and school pupils surveys. The results obtained are strikingly similar though no distinction was made between those who are aware and those unaware of the system in the Doncaster study. In Birmingham there was a small reduction in the fear of crime from 73% to 71%. In Sutton, Bulos and Grant (1996) used a less direct method to assess the problem – by enquiring about perceived incidence of crime. They found that there was no perception that crime had diminished in the high street after the installation of the system, though some diminution in crime was seen to have happened in the car parks. Although clearly concerned with the incidence offences the material clearly expresses fear of crime also.

Of the non-town centre studies Musheno, Levine and Palumbo 1978 and Webb and Laycock 1992 [Leystonstone] found no evidence of any impact on fear of crime. However, Chatterton and Frenz 1994 noted that 74% of residents reported that they were less worried about crime after the installation of the system.

Crime reduction, displacement and diffusion

Statement of aim

To reduce recorded crime in the surveilled area. To accomplish this whilst minimising any displacement and maximising any diffusion of benefits effects.

Method of measurement

The crime reduction effects of the system in the surveilled streets of the town centre are assessed by means of four data sets. First, material derived from South Yorkshire Police recorded crime statistics. Second, victimisation data collected by means of before and after surveys of town centre users, multi-storey car park users, school pupils and the business community. Third, data derived from the survey of the perceptions of key workers (Doncaster magistrates, police officers and traffic wardens) and the public. Finally, by means of interviews conducted with young people at Doncaster Attendance Centre.

Why were recorded crime data used? These data were selected because they were relatively easily available and avoided some of the problems associated with alternative forms of police statistics. Reported crime data were rejected because they are raw in terms of absolute numbers and unfinished in terms of classification categories. Command and control final incident code data were rejected because they derive from an aggregation of police call-outs this being only a sample (of unknown provenance) to which the police have responded by immediate action and were crude regarding the categorisation of incidents. Data derived from police intelligence bulletins were rejected because they have many of the above faults and represent a highly selective sample, such selectivity being related to their purpose, to inform officers of 'important' incidents or events.

The main notifiable offence categories used by the Doncaster evaluation were: 'all offences'; 'burglary and burglary other' (including burglary of dwellings); 'other thefts' (including theft from the person, going equipped); 'shoplifting'; 'theft from motor vehicles'; 'theft of motor vehicles'; 'criminal damage'; 'robbery'; 'assault'; 'sexual offences', 'public order offences' (under the Public Order Act 1986) and 'other offences' (including all other notifiable offences). These categories were felt to both display the type of offences committed in the town centre and be amenable to intervention by CCTV.

The utilisation of recorded crime data to determine whether the CCTV system has reduced crime in the surveilled area requires a consideration of three key questions. First, whether there had been a significant reduction in recorded crime in the surveilled area of the town centre in the before (October 1994- September 1995) and after (October 1995- September 1996) periods? Second, is this effect significantly distinct from patterns in adjacent areas? Finally, is the before/ after effect in the surveilled streets explicable by reference to previously established trends? The first two questions seem amenable to paired t tests. But this would not only require many tests, but also, multiple t tests have interactive effects, which increase the likelihood of counting a result as significant when it is not. An alternative method is necessary that can cope with the multiple comparisons within one test, thus avoiding the errors applicable to t tests (Hinton 1995). The two-way analysis of variance test (2ANOVA) enables an estimate of the significance of difference in two conditions (before/ after and between areas) whilst avoiding the problems of undertaking multiple t tests. Tukey's method (T) enables a more detailed post hoc analysis of the above results. The 2ANOVA(T) test has been applied to all offence categories where the numbers of offences are all ready sufficient or made sufficient by aggregation into to 3-month periods.

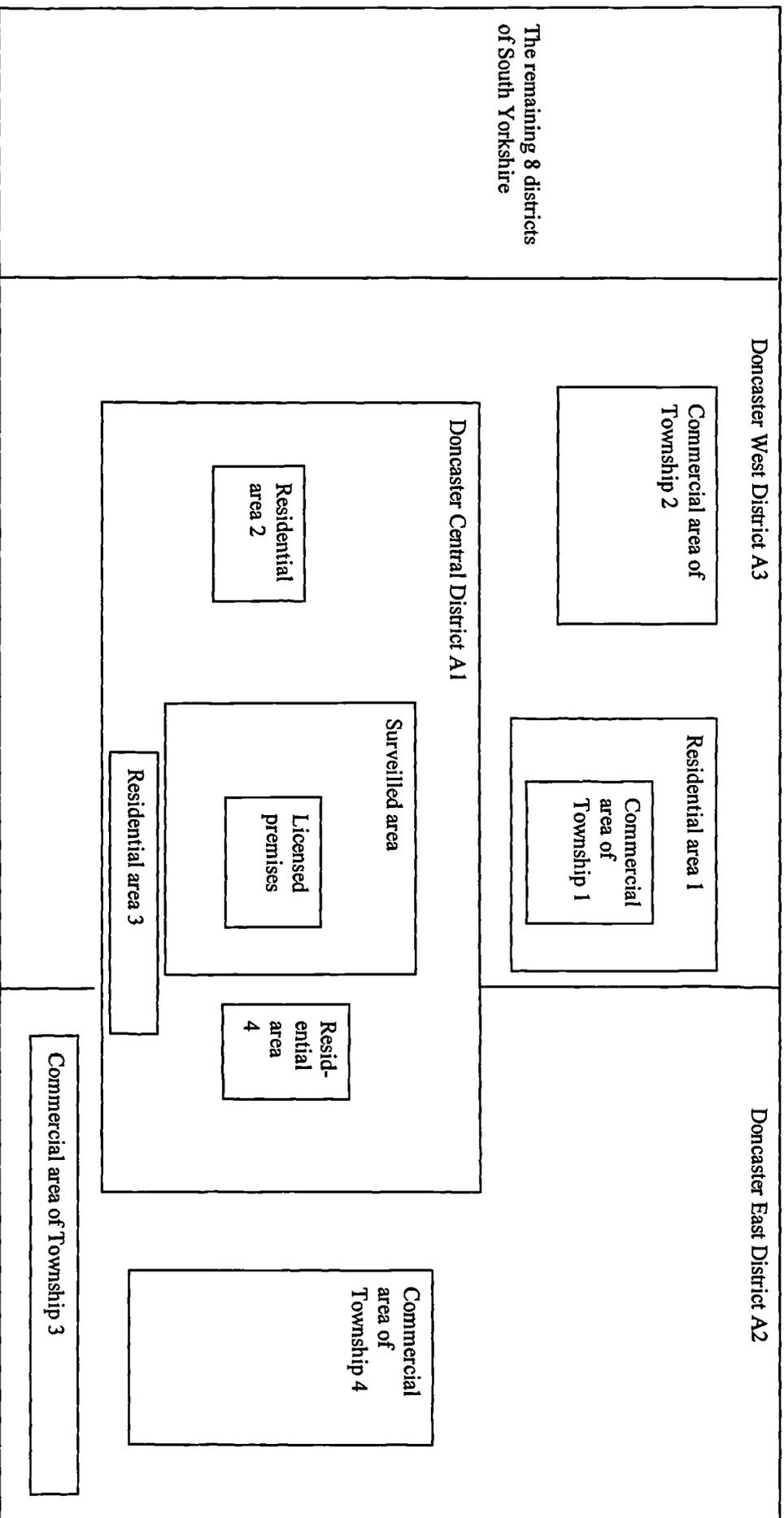
The third question requires that if we are to associate the extent of recorded crime with the impact of the CCTV system, a method must be found that can predict accurately the extent of crime after the installation based on previously established trends. Further, then a method must be found that can measure the significance of the difference between the actual and predicted values. Linear regression, was the method used for calculating the seasonally adjusted predicted values. Thus a 'line of best fit' was calculated for each offence category in each area and extrapolated to produce the predicted values. The significance of the difference between actual and predicted values was calculated by means of the paired t test. A paired t test was undertaken for all actual and predicted values for each offence category in each area. A significance level of 5% was used throughout. A 5% level of significance has been chosen because it allows for an exploratory approach, minimising the possibility of missing a significant relationship

The assessment of regional distinctiveness or separation from background noise and the measurement of displacement and/ or diffusion of benefits effects required the identification of seven distinct areas (see Figure 1 for a diagrammatic representation of these areas) and the collection of relevant recorded crime data on these areas. Doncaster consists of three police districts and is located in the broader area of South Yorkshire, which in turn consists of a further 8 police districts.

The first area identified consisted of 'licensed premises' (including all public houses and nightclubs) within the surveilled street area. This was identified to determine whether any outside to inside, geographical displacement or diffusion of benefits was evident. For example, it established whether the rate of 'other thefts' decreased in the surveilled area and increased in public houses and clubs. The next area was that of the surveilled streets, including all streets or parts of streets in the vision of the cameras. The third area included the commercial areas of four adjacent 'townships'. These commercial localities (within 15 miles of the main town centre) were chosen to try to identify areas comparable with Doncaster town centre.

Selected residential areas constituted the fourth locality to determine background noise and displacement and diffusion effects. The fifth area consisted of the immediate Doncaster locality minus all the previous relevant areas. It was chosen because of the potential for displacement and diffusion effects as well as providing a measure of background noise. The penultimate area consisted of A2 the police district to the east of Doncaster minus relevant commercial areas and A3 the police district to the west of Doncaster minus relevant commercial areas and the residential areas. This was selected to estimate both displacement and diffusion effects and background noise. Finally, the South Yorkshire Police Area minus all of A district was used mainly to provide evidence of background noise. The relationship of the areas to one another is set out in diagrammatic form in Figure 1.

Figure 1 A diagrammatic representation of the Doncaster area and surrounds



In addition, to check crime reduction effects in the town centre surveilled streets for previously established trends, police recorded crime data for the specified offence categories (12) in the distinct areas (7) were obtained or separately calculated for a period of 30 months before the start date of the system and for the 12 months of the 'after' period reviewed.

It is widely recognised that recorded crime data have severe limitations, not the least that not all offences committed, are reported or recorded (Mayhew, Mirrlees-Black and Maung 1994; Jones, Maclean and Young 1986). Clearly the impact of the CCTV system on crime might also include unreported or unrecorded victimisation. Thus in measuring the crime reduction effect of the system the recorded crime data are supplemented using a widely used source of alternative information on crime, namely victim surveys. These were undertaken on a before/after basis involving four populations: town centre business providers (n= 130 each sweep with an average response rate of 60%), multi-storey car park users (n= 400 each sweep with an average response rate of 44%), school pupils, aged 14-15 years (n= 69 and 153 with an average response rate of 92%), and town centre users aged 16 years and over (n=1000 in each sweep with a 100% response rate). The samples (excluding the business group) were asked whether they had been the subject of criminal victimisation in the town centre in specified, comparable periods and whether they had witnessed any crimes whilst there. Responses to these questions are analysed using a significance of proportion test previously discussed in this chapter. A significance level of 5% was used.

A wider consideration of crime reduction in the surveilled streets is made possible by the use of survey data derived from before/after studies of the business group and the public. Such data is also corroborated by the surveys conducted with key workers including Doncaster panel magistrates, police officers and traffic wardens. This quantitative data is supplemented by some limited group discussions with young people at Doncaster Attendance Centre.

As noted in Chapter 2 the displacement of crime can be defined as

' the usually unintended effect of crime control programs by which efforts to prevent one kind of crime sometimes lead would-be offenders to commit a different kind of crime or the same kind of crime at a different time or place' (Barr and Pease 1990:278).

In Chapter 2 it was also noted that other forms of displacement have been identified including tactical (committing crime using a different method); target (perpetrated on a different victim) and perpetrator (where another offender steps in to commit the crime). Diffusion of benefits may be defined as

' the spread of the beneficial influences of an intervention beyond the places which are directly targeted, the individuals who are the subject of control, the crimes which are the focus of intervention or the time periods in which the intervention is brought' (Clarke and Weisburd 1994:168-169).

Displacement and diffusion of benefits effects are examined by means of the study of trends in recorded crime data set out above. In addition to this recorded crime data are interrogated further by enquiring into changes in offence patterns inside the surveilled area thus checking for the possibility of offence displacement. The same criteria are used to detect significant changes here as are used in the measurement of changes within the surveilled streets area.

A wider consideration of displacement and/ or diffusion of benefits is made possible by considering the findings from the public surveys, surveys of key personnel and a limited set of interviews conducted with young people at Doncaster Attendance Centre.

Results

TABLE 29 Offence category: All Offences

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre Licensed premises	-12.1	Not sig	Sig dec
Town centre streets under CCTV	-15.7	Sig dec	Not sig
Commercial areas of townships	+30.8	Sig inc	Sig inc
Residential areas adjacent to the town centre	+2.5	Not sig	Sig inc
Doncaster central district	-11.5	Sig dec	Sig dec
Doncaster east and west districts	+0.1	Not sig	Not sig
The remainder of the South Yorkshire Police Force area	+3.3	Not Sig	Sig inc

Key: TESTS: 2ANOVA(T) = 2 Way Analysis of Variance and Tukey's method.
LOBF= Line of best fit and t tests

Crime reduction in the surveilled area of Doncaster town centre

Table 29 indicates that there was a 16% decrease in 'all offences' in the before/after period in the CCTV surveilled area of Doncaster town centre. The downward trend is greater than for the rest of the central district (-11.5%) and contrary to the trend for the other Doncaster districts (0.1%) and the police force area as a whole (3.3%). However, as the line of best fit shows, the change is not significantly different from what might have been expected in the town centre surveilled area, on the basis of previously established trends. Thus the decrease cannot be attributed with confidence to the effects of the CCTV system.

As the impact of CCTV may be varied for different kinds of offences it is important to configure the data to enable an examination for this purpose. Tables 18A-25A give precise details for all offence categories used. Table 30 here offers a summary including the town centre under CCTV surveillance and any other results where significance was achieved in both tests. This would suggest that for the town centre area surveilled by the CCTV system, only two offence categories, 'theft from and of motor vehicles', experienced a significant decrease (of 49% and 45% respectively), which may be associated with the introduction of the cameras. A third offence category, 'criminal damage' (-32%), very nearly fulfils the criteria by achieving results which are significant by two way analysis of variance and being close to significant with regard to line of best fit.

'Burglary/ burglary other' shows an interesting trend. A significant (before/after and between areas) 25% reduction in this offence category in the surveilled area is shown to be the product of already existing trends. This emphasises the importance of reading supposed crime prevention programme effects in the context of previously established trends. Two other offence categories are worthy of further comment. A close to significant decrease in 'shoplifting' in the before/after period is shown to be not significant when subjected to the second test by line of best fit (see Table 20A). For 'other offences' a close to significant increase in the before/after period is found to be significantly different to what would have been expected on the basis of previously established trends (see Table 25A). All other

offence categories in the CCTV area of Doncaster town centre do not reveal any significant changes.

Other things being equal, the recorded crime data point towards a modest reduction in offences in the surveilled streets that can be associated with the operation of the CCTV system. The reduction is very strong and well established for 'theft of and from motor vehicles'. It is less well established for 'criminal damage'. It is even less pronounced and well established for 'all offences' and 'burglary and burglary other'. See Table 26A for a summary.

TABLE 30 Notable changes in recorded crime for the town centre and other areas by offence category.

Offence/Area	% Change	2ANOVA (T)	LOBF
Burglary/burglary other			
Town centre streets under CCTV	-25.0	Sig dec	Not sig
Commercial centres of townships	26.1	Sig inc	Sig inc
Doncaster central(A1)	-25.6	Sig dec	Sig dec
Other thefts			
Town centre streets under CCTV	2.3	Not sig	Not sig
Commercial centres of townships	42.4	Sig inc	Sig inc
Shoplifting			
Town centre streets under CCTV	-11.3	Not sig	Not sig
Commercial centres of townships	29.5	Sig inc	Sig inc
Theft from motor vehicles			
Town centre streets under CCTV	-49.4	Sig dec	Sig dec
Commercial centres of townships	18.6	Sig inc	Sig inc
Theft of motor vehicles			
Town centre streets under CCTV	-44.8	Sig dec	Sig dec
Commercial centres of townships	30.1	Sig inc	Sig inc**
Criminal damage			
Town centre streets under CCTV	-32.0	Sig dec	Not sig*
Commercial centres of townships	50.99	Sig inc	Sig inc**
Assault			
Town centre streets under CCTV	6.8	***	Not sig**
Other offences			
Town centre streets under CCTV	26.5	Not sig	Sig inc

Key: * Close to significant decrease at the 5% level.

** Numbers small -aggregated into quarterly periods

*** Numbers too small even when aggregated

Are these modest reductions supported by the results of the before/after sweeps of the public surveys? These surveys asked questions about the respondents' personal experience of crime as witnesses. They also asked about the respondents' criminal victimisation in town centre and non-town locations. Table 31 suggests that all relevant groups

have reported significantly less criminal victimisation to the after than the before, survey. Further for multi-storey car park users, school pupils and town centre users, less crime seems to have been witnessed comparing the before and after periods. The above material would seem to corroborate the recorded crime data, i.e. that there has been a reduction in offending in the area covered by the cameras. The conclusion is strengthened by comparing the reported criminal victimisation in the town centre with criminal victimisation experienced in non-town centre locations over the same period and reported to the surveys for two groups, town centre users and school pupils. This reveals that the decrease in victimisation in the town centre was accompanied by stable rates of non-town centre victimisation for town centre users and a slightly increasing rate for school pupils (see Table 32A).

There are two sources of data to draw on further to corroborate these findings. Both rely on perceptions collected using survey work. In the before study of public surveys the samples were asked about their expectations of the system. In the after study they were asked about whether they thought the CCTV system had created certain effects. In both cases the surveys were concerned with whether people thought that the system would deter crime and assist in the apprehension of offenders. Two aspects are pertinent – first, whether in the after study most people agreed with the statement and second, whether there has been a significant shift in perception comparing the before with the after, study. Such material could not stand alone but might act to corroborate trends established in the ways indicated above as widely divergent views here might cast some doubt on the finding that crime had been reduced in the surveilled area.

An enthusiastic attitude prevails with the majority in the after study seeing that the CCTV system would both deter offenders and effect apprehension. The exception is amongst school pupils who show marked scepticism regarding the deterrence of offenders. A comparison of the before and after studies reveals a marked reduction in overall agreement with both statements (the exceptions here are for the business group and school pupils regarding deterrence). Public survey data indicates a situation where the public thinks that the CCTV system is having a positive effect on crime (see Table 20 for details).

There can be little doubt that relevant key workers (Doncaster magistrates and police officers) also felt that the system had reduced crime by deterring would-be offenders (90% and 81% respectively) and by assisting with the apprehension of offenders (92% and 99% respectively).

Two small discussion groups at Doncaster Attendance Centre for young offenders suggested that for these young people there was some support for the view that the system would reduce instrumental crime. Both groups were sceptical about whether the system would reduce some kinds of crime especially public order/ assault/ fights. They suggested that the system would not change the pattern of assault given the use of alcohol and the existence of local habits/ cultures. They also suggested that the 'apprehension' function of the system was limited given that the system does not pick up all incidents as they are happening. Much crime was seen as spontaneous and thus unlikely to be affected by the presence of cameras. They were also sceptical about whether CCTV systems were more concerned to watch, rather than protect, young people.

Crime displacement and diffusion of benefits

As we have already seen (Table 29) in the area immediately surrounding the camera system (Doncaster central district) there was an overall 11% decrease in 'all offences.' The effect was significant on both tests and thus the decrease is probably attributable to a diffusion of benefits effect induced by the CCTV system. Alternative explanations of the trend are also possible. For instance police activity previously allocated to the surveilled area may have been re-assigned to the outlying region and this may have led to the decrease in crime in the outlying area. For 'all offences' no displacement effect is evident from surveilled streets to licensed premises. On the other hand, in the 'commercial areas of the townships, there is an overall 31% increase in 'all offences.' This is significant by both tests and would support the probability of a displacement effect.

Table 31 Respondents reporting crimes seen in the town centre or car parks and criminal victimisation in the town centre or car parks in the before and after sweeps of the surveys: the business group, multi-storey car park users, school pupils and town centre users. No(%)

Survey	Options	Crime seen in town centre or car parks			Victim of crime in town centre or car parks		
		Before	After	Sig	Before	After	Sig
Business survey	Yes	-	-	-	79(89)	44(65)	S Dec
	No	-	-	-	10(11)	24(35)	S Inc
	DK	-	-	-	-	-	-
	Total	-	-	-	89 (100)	68 (100)	-
Multi storey car park users	Yes	19(9)	4(3)	S Dec	18(9)	6(4)	S Dec
	No	183 (89)	151 (96)	S Inc	186 (91)	145 (96)	S Inc
	DK	4(2)	1(1)	-	-	-	-
	Total	206 (100)	156 (100)	-	204 (100)	151 (100)	-
School pupils	Yes	21(34)	28(20)	S Dec	9(13)	7(5)	S Dec
	No	30(49)	80(58)	NS Inc	54(81)	136 (90)	S Inc
	DK	10(16)	30(22)	NS Inc	4(6)	8(5)	NS Dec
	Total	61 (99)	138 (100)		67 (100)	151 (100)	-
Town centre users	Yes	242 (24)	124 (12)	S Dec	48 (5)	27 (3)	S Dec
	No	726 (73)	869 (87)	S Inc	921 (95)	967 (97)	S Inc
	DK	28 (3)	6 (1)	S Dec	-	-	-
	Total	996 (100)	999 (100)		969 (100)	994 (100)	

The examination of both displacement and diffusion of benefits effects requires the study of individual offence categories as well as 'all offences.' This reveals that diffusion of benefits effects are probably evident in Doncaster central. With regard to 'burglary/burglary other' a 26% decrease occurred and the effect was significant on both tests (see Table 18A). However, displacement is also probably evident. Such effects are mainly confined to the commercial areas of townships. Increases in 'other thefts' (42%), 'shoplifting' (29%), theft from motor vehicles (30%) and theft of motor vehicles (51%) are all significant on both tests. See Tables 19A – 22A.

There are two other possible areas subject to displacement effects. Table 24A indicates that recorded incidents of assault increased (by 7%) in licensed premises. The change is significant by the first test (2ANOVA(T)) but not the second (LOBF). Thus no firm conclusion can be offered. It is, however, worthy of note that the area denoted as licensed premises (in the surveilled area) and the surveilled area itself are distinct from the surrounding areas in that they alone experienced an increase in assault. Of course this does not necessarily suggest a real increase in crime. The change could be explained by reference to the CCTV system acting to reveal more previously unreported and/or unrecorded crime. Finally, 'other offences' experienced a 26% increase in the surveilled area. This was close to significant on the first and significant on the second, test suggesting a possible offence displacement effect (see Table 25A).

Table 32 offers an estimate of the overall net impact of the CCTV system in Doncaster on the areas within its immediate vicinity on 'all offences.' This suggests that an overall decrease of 6% or some 930 offences. Clearly the calculation is only an approximation as it attributes all change to the CCTV system. Nevertheless it does indicate a modest decrease.

In summary, diffusion of benefits effects to Doncaster central regarding 'all offences' and 'burglary and burglary other' are evident. On the other hand, the balance of probability is that the commercial areas of the townships experienced displacement of 'other thefts', 'shoplifting', theft from motor vehicles' and 'theft of motor vehicles.' Table 32 suggests an overall 6% decrease for 'all offences' in the five areas including and immediately surrounding, the surveilled area.

The before public surveys indicated that absolute majorities of town centre users (63%), school pupils (67%) and the business group (58%) saw displacement as a possible disadvantage of the system. Even 43% of multi-storey car parks users also agreed with the possibility of displacement, despite the fact that such an issue is much less important for this group. The after study revealed that for three groups (multi-storey car park users, school

pupils and the business group) agreement with displacement as being a disadvantage of the system had significantly declined. Town centre users' opinions had not changed on the issue.

The results of the surveys of key workers with regard to displacement indicated that a significant minority thought that displacement was a problem for the system (magistrates - 15%; police officers - 23%; and traffic wardens - 20%). Both discussion groups with young people at Doncaster Attendance centre tended to agree that some crime (mainly of the acquisitive or instrumental kind) had been displaced.

Table 32 Calculation of the net effect of the Doncaster CCTV system on recorded crime (all offences) in the immediate locality.

Area	Before	After	Difference	% Change
Town centre Licensed premises	257	226	-31	-12.1
Town centre streets under CCTV	2918	2459	-459	-15.73
Commercial areas of townships	764	999	+235	+30.76
Residential areas adjacent to the town centre	4847	4966	+119	+2.4%
Doncaster central district	6909	6115	-794	-11.5
Totals	15695	14765	-930	-6%

Conclusion

The results of the crime reduction, displacement and diffusion of benefits effects of the Doncaster CCTV system are set out in Tables 26A and 27A. These results were corroborated by survey data of different kinds. A modest decrease in some crime is evident in the surveilled streets together with some displacement and diffusion of benefits. The limitations of the data need to be taken into account particularly the lack of comparison groups in the case of the survey data and the problems associated with quasi-experimental work particularly 'history'. The possibility of confounding factors cannot be ruled out and will be the subject of comment in Chapter 6.

Comparison with other studies

Although any comparison is limited by the differences between areas, systems and evaluation methodologies, nevertheless it is useful to set the Doncaster findings in the context of other studies. Details of these other studies are supplied in Chapter 3 Table 9. The overall decrease noted for all offences (16%) is similar to that obtained by Short and Ditton 1996 (21%). To enable comparison in the figures that follow the Doncaster results are given first followed by the other studies. Reductions are evident for all town centre studies in burglary and burglary other (25%: range 47% to 57%: Bulos and Grant 1996; Brown 1995); theft from motor vehicles (49%: range 50 to 58%: Brown 1995; Bulos and Grant 1996); theft of motor vehicles (45%: range 47% to 58%: Brown 1995; Bulos and Grant 1996) and criminal damage (32%: range 19% to 42%: Short and Ditton 1996; Brown 1995; Bulos and Grant 1996). Discrepancy is evident for theft (+2%: range -11 to +15%: Brown 1995; Bulos and Grant 1996) and assault (+7%: range -1 to -7%: Bulos and Grant 1996; Squires and Measor 1996b). Discrepancy is also evident for shoplifting (-11: +0.4%: Bulos and Grant 1996) with decrease in Doncaster and a small increase elsewhere.

The same method of presentation is used with regard to the results of studies of CCTV systems in other locations. Concurrence seems to be evident regarding reductions in: burglary and burglary other (25%: 82% Chatterton and Frenz 1994); theft from motor vehicles (49%: range 3% to 86% Tilley 1993a and Poyner 1991); and theft of motor vehicles (45%: range 18% to 89% Tilley 1993a and Poyner 1991). No material on criminal damage was available. Discrepancies are evident regarding increases in Doncaster and decreases elsewhere for theft (+2%: -73% Burrows 1979) and robbery (+30%: -85% Clapham North Webb and Laycock 1992). Contrary evidence indicating no effect is provided by Muscheno, Levine and Palumbo 1978 (burglary, theft, assault and robbery) and Webb and Laycock 1992 (Oxford Circus: theft, assault and robbery).

Despite the difficulties here (as noted in Chapter 2) such results would seem to confirm that some reduction in all offences is evident and that theft from and of motor vehicles and criminal damage appear to be susceptible to the influence of CCTV systems. The effects

on other kinds of offence are markedly uncertain. The consideration of any displacement and diffusion of benefits effects is limited by the problems noted in Chapter 3.

Improved apprehension of offenders

Statement of aim

The CCTV system will assist in the apprehension of offenders by improving the detection rates for offences and by making the prosecution process more effective. This has implications for various stages of the 'prosecution' process including affecting the probability of arrest (where relevant), the probability of being charged and the nature of these charges, the probability of being arraigned in court, the probability of pleading guilty and being found guilty and the nature of any sentence imposed.

Measurement of aim

Detection rates (percentage figures based on the number of detected crimes divided by the number of recorded crimes in the surveilled area) are used to measure the impact of the CCTV system here.

The second method makes use of the surveys of key workers (magistrates, police officers and because of their role in surveilling vehicles, traffic wardens). The full details of the surveys are supplied in Table 14 Chapter 4. The public surveys collected perceptions about the effectiveness of the CCTV system.

Results.

No significant effect is evident in the detection rates for 'all offences.' The change is, however, in a positive direction. Only one offence category, 'robbery' reveals a significant increase but this is based on very small numbers. On the other hand one offence category reveals a

significant decrease, 'other offences.' Overall the evidence would seem to suggest that the aim to improve detection rates has not been achieved.

Table 33 Percentage detection rates in the surveilled streets October - September 1994/5 (before) and 1995/6 (after).

Offence	Before	After	Comment
All offences	48.1	50.2	+ NS*
Burglary and burglary other	26.2	25.2	- NS
Other thefts	11.5	10.2	- NS
Shoplifting	91.0	91.1	+ NS
Theft from a motor vehicle	16.8	9.0	-S
Theft of a motor vehicle	17.1	22.2	+ NS
Criminal damage	30.1	35.2	+ NS
Robbery	30.0	53.9	+ S **
Assault	65.6	67.4	+ NS
Sexual offences	70.0	70.0	NC
Public order offences	100	95.00	-NS
Other offences	61.8	42.0	- S

* Close to significant. ** Very small numbers involved.

All three key worker groups (magistrates 81%; police officers 92.8%; and traffic wardens 70%) were agreed that the CCTV system had had an overall positive impact on the performance of their jobs. The main relevant reasons for this are set out in Tables 28A and 29A. These indicate that such groups perceive that the CCTV system does assist the prosecution process but in a reactive rather than proactive manner. This view does not seem to be borne out by the review of the main control room data set out in Chapter 4. The data discussed there suggested that the main control room played an active part in policing both by initiating activity as well as in assisting operational police units and the area control room.

The before surveys asked for perceptions about whether the system would lead to the improved apprehension of offenders. An absolute majority in all survey groups agreed that it would. In the after survey, though agreement remains quite strong, some overall significant diminution in confidence is evident here amongst all groups (see Table 20). Discussions with young offenders suggested that they were ambivalent about the possibilities regarding apprehension the system offered with, probably, a general emphasis that the system would lead to better apprehension.

Some discrepancy between the results of the study of detection rates based on police statistics and the perceptions of the public on the one hand, and on the other the perceptions of key workers is evident here regarding whether this aim has been accomplished.

Conclusion

The CCTV system would not seem to have had a significant effect on detection rates in the first year of operation. Even though the research design for the study of detection rates is relatively weak, being pre-test/ post-test single group, it must be concluded, that the evidence from the police statistics is, at this stage more convincing than the perceptions of key workers. Of course, this does not detract from the discovery that key workers find that the system does affect the prosecution process including identifying offenders, charging, determining guilt or obtaining guilty pleas and sentencing. It might also be that some of the faults noted by key workers (that coverage was not always adequate, that is parts of the town centre remain unsurveilled, picture quality was sometimes poor and video viewing time-consuming), explain why useful assistance is not transformed into greater levels of detection. The apparent inconsistency may be explicable by reference to three further factors. First, operational police units may not be able to respond to all calls by the CCTV main control room thus blunting any potential apprehension effect. Second, there may have been changes in the detecting practices of force officers in the town centre leading to a reduction in overall clear-ups. The latter point may be a negative consequence of the otherwise positive effects of altered targeting of police resources referred to above. Third, the above-mentioned problems of checking videotapes mean that resource limitations apply to this method of detection.

Comparison with other studies

Of the town centre studies only Short and Ditton (1996) note that there had been an increase in detections from 50 to 58% for all offences. The Doncaster study also established that an increase had occurred from 48 to 50% though this was not statistically significant. No other sources of comparison were possible. Of the non-town centre studies only Chatterton and

Frenz (1994) dealt with detections finding an increase (from 25% to 33% for burglaries). No other studies have explored the attitudes of key workers.

Cost effective operation.

Statement of aim

That the CCTV system would 'break even' in a 5 year period i.e. that the costs of installing, running and maintaining the system would be balanced by the financial benefits resulting from crime prevention.

Method of measurement

The first approach here concentrates on the actual savings in cost of the offences that have been prevented by the system comparing them with the actual costs of the system. The 'saved' offences are calculated from the results set out in the section on crime reduction particularly Table 32. The methods used are necessarily approximations.

The calculation requires a number of assumptions. First, it is assumed that non-monetary benefits (for example associated with reductions in the fear of crime) may be ignored. We must also assume that we can reliably calculate a net reduction in crime in the first year by including all adjacent areas. These include licensed premises, town centre streets under CCTV, commercial areas of the townships, residential areas and Doncaster central district. Third, it is assumed that 'notifiable' for the purposes of the evaluation may be treated as synonymous with indictable offences. Fourth, it is assumed that the net reduction rate will remain constant for the five-year period though on a decreasing base (See Table 34). Fifth, it is assumed that there are no significant changes in the detection or other relevant rates. Sixth, it is assumed that it is possible to produce accurate estimates of prosecution and sentencing costs. Seventh, it is assumed that such costs in criminal justice increased by 3 % per annum in the 1993-1996 period. Penultimately, it is assumed that it is possible to estimate the

approximate career of such offences through the criminal justice process using a tree diagram (See Table 35). Finally, it is assumed that the criminal justice system can be responsive to crime reductions and costs can therefore be reduced. This depends on the relative balance of 'fixed' as opposed to 'variable' costs and in the longer term, the responsiveness of even these relatively 'fixed' costs to change.

A second approach enquires as how many offences on current cost estimates would have to be made by the system for it to break even. In addition an estimate is made using Table 36 of the cost per offence saved year on year over a five year period.

Two other pieces of corroborative data have a bearing on cost effectiveness. They are perceptions about the cost effectiveness of the CCTV system held by the public and key workers. These perceptions were collected by means of the survey work.

Results

A net reduction of 930 offences has been achieved in the 1995-96 period as revealed by Table 32. This represents a 6% net reduction in the relevant areas as a whole. An extrapolation of the net reduction in offending over a 5-year period would produce an overall total reduction in crime of 4168 offences (see Table 34). In Table 35 the figure of 4168 offences is inputted into a tree diagram representing the 'career' of an offence in the criminal justice system.

Table 34 Calculation of net reduction in crime over a 5-year period 1995- 2000

Year	Net reduction - 6%	From	To
1. 1995-96	930	15695	14765
2. 1996-97	886	14765	13879
3. 1997-98	833	13879	13046
4. 1998-99	783	13046	12263
5. 1999-2000	736	12263	11527
Totals	4168		

Table 35 An analysis of the career of the 4168 offences saved.

Offences	Decisive moments
4168 (From Table 32 it is estimated that the ratio of town centre to non-town centre crime is 53:47)	50% of town centre offences not detected (see the previous section) 26% of rest detected (Home Office Research and Statistics Directorate 1996)
1614 detected or cleared up	40% detected by secondary methods (646) (e.g. TIC) (Social Trends 1993)
968 primary detections	37% of offenders cautioned (358)(Home Office Research and Statistics Directorate 1996)
610 prosecutions	23% Found not guilty or no evidence offered.(140) (Sanders 1985)
470 found guilty/ pleaded guilty	59% Fine/ discharge/ other(277) (Social Trends 1995)
470 found guilty/ pleaded guilty	26% non custodial penalty (122)(Social Trends 1995)
470 found guilty/ pleaded guilty	15% custodial sentence(71)(Social Trends 1995)

The Home Office Research and Statistics Directorate (December 1995) indicates that in 1993/4 the average cost of a 'prosecution' including police, CPS, legal aid, probation service reports and court costs was £2,000-3,000 per indictable offence. The 'sentencing' cost was £1,500-2,000 for an indictable offence. To up-date these and assuming a figure mid way in the distribution the 'prosecution' costs are £2,650 and the 'sentencing' costs are £1857 per offence.

Excluding victim costs the cost of these are as follows: prosecution- 610 * 2650 = £1,616,500 and sentencing = 470 * 1857 = £872,790. The total cost is thus £2,489,290. The costs of the system over a five-year period are set out in Chapter 4 Table 15 and amount to £2,337 million.

This finding is confirmed by using the second approach. Given that 30% of offences actually lead to a full prosecution process and that of these 23% are filtered out and of the rest 26% are given non-custodial supervisory sentences and 15% custodial sentences then the break even point is given by: where Y is the number of prosecuted offences.

$$(Y*2650)* + (77/100*Y*1857) = 2.337\text{million}$$

Y= 573 offences

Thus the overall break even point, assuming that prosecuted offences remain the same proportion of the total (i.e. $610/4168 = 14.63\%$) is 3917. The system would need a net saving of 3917 offences to break even taking into account prosecution (for those proceeded against) and sentencing (for those found guilty/ pleading guilty) costs. It is estimated that the reduction will be 4168 offences.

The costs of the system per year can be estimated by reference to Tables 34 and 35 and are shown in Table 36. In the first year the cost per offence saved was £1535.7. Over 5 years, £560.7.

Table 36 Estimated costs per offence of the Doncaster CCTV SYSTEM.

Year	Offences saved	Cost in the year £'s	Cost per offence £'s each year	Cost accumulatively
1	930	1428200	1535.7	1535.7
2	886	227,200	256.4	911.6
3	833	227,200	272.7	710.7
4	783	227,200	290.2	614.7
5	736	227,200	308.7	560.7
Total	4168	2337000		

As Table 20 indicates 41-64% of the people in the before studies saw that the system would be/ is cost effective. Significant diminution in agreement is evident amongst town centre users, i.e. people were less convinced of the cost effectiveness of the CCTV system in the after as opposed to the before study.

Key workers indicated some disagreement on the cost effectiveness of the system: police officers (51% agreed 49% neutral) and magistrates (77% agreed; 23% neutral) generally supported the view that the CCTV system would be cost effective. Traffic wardens, on the other hand, were sceptical (20% agreed; 80% neutral).

Conclusions

The system is cost effective taking into account only the prosecution and sentencing costs. Other costs not included here are victim costs and police costs for recorded but not detected and detected not prosecuted crime (including TIC, cautioning). Some difficulty is evident in convincing the public, police officers and traffic wardens that the system is cost effective. This may relate to the problem of the proportional significance and relative unresponsiveness, of the fixed costs of the criminal justice system.

Comparison with other studies

No town centre studies offer a source of comparison here. Of the non-town centre studies only Burrows 1979 attempts a limited estimate of the cost effectiveness of the CCTV systems installed in the four London underground stations studied. The average cost per offence saved is estimated to be £1140 for theft and £31450 for robbery for the first year. The present study, when recalculated, produces a figure of £1535.70 per offence for the first year, decreasing to £560.7 over the 5-year period.

Chapters 6 and 7 go on to offer some critical reflection on this study.

Chapter 6 Reflections on the evaluation of the Doncaster CCTV system:

internal critique

The thesis so far has identified two main objects of study, the conduct of evaluation and the impact of CCTV systems. Investigation of these areas has proceeded by reviewing the relevant literatures (Chapters 2 and 3). Chapters 4 and 5 offered a detailed presentation of both the research strategy and results of the evaluation of the Doncaster CCTV scheme. The main purpose of the next two chapters is to offer some sustained reflection on the Doncaster evaluation and thus some further consideration of evaluation research. The present chapter is divided into two parts, the first dealing with the nature of validity and the second, offering an internal critique of the Doncaster study focusing predominantly on threats to validity. Clearly validity is important because only studies high on validity can realistically claim to know the effects of CCTV systems. Chapter 7 offers an external critique focusing on the broader problems of the evaluation undertaken and also including some consideration of methodological validity. Chapter 8 sets out the implications of the thesis as a whole for the first main object of the study, the conduct of evaluation research. Chapter 9 examines the implications of the thesis for understanding the impact of CCTV.

The nature of validity

LeCompte and Goetz (1982:32) suggest that

' validity is concerned with the accuracy of findings. Establishing validity requires determining the extent to which conclusions effectively represent empirical reality and assessing whether constructs devised by researchers represent... the categories of human experience that occur.'

This definition amounts to the view that validity is concerned with determining whether a particular strategy, design or technique actually does accurately represent what it is supposed to represent. Implicit in the definition is that such strategies, designs or techniques will accomplish their task with some degree of 'reliability' or consistency, that the picture produced will seem 'reasonable' (face validity) and that it will be corroborated by other reliable and reasonable measures (concurrent validity).

As was noted in Chapter 2 quasi-experimental strategies have been widely used in evaluation research and were, of course, a central part of the research strategy of the Doncaster study. Campbell and Stanley (1963) indicate that two further useful distinctions concerning validity are particularly pertinent regarding quasi-experimental strategies. As noted in Chapter 2 Campbell and Stanley suggest that quasi-experimental strategies have the potential for achieving 'internal validity'. These strategies are seen to be capable of providing strong evidence that a particular effect (on the dependent variable) is the result of a particular intervention (by the independent variable). The strength of this strategy is seen to inhere in the ability of quasi-experimental strategies to control the distribution of the independent variable and the impact of confounding variables. The second distinction offered by Campbell and Stanley (1963) is 'external validity.' External validity is concerned with generalisability or representativeness, that is, the extent to which the results of a particular study may be applied to other populations or contexts. As noted in Chapter 2 there may be some trade-off between the accomplishment of internal and external validity.

Jupp (1994:5-6) suggests the concept of 'methodological validity,' which he defines as involving 'consideration of the theoretical and methodological assumptions implicit in the use of particular methods and designs.' He suggests that there are a number of these assumptions concerned with 'the unit of analysis in any explanation of crime...', the type of explanation of criminological phenomena and the orientation to social reality. Clearly considerations of this kind move the debate away from internal to external critique.

Internal critique

The rest of the chapter is divided into two parts. The first part offers a review of the validity of the quasi-experimental strategy and associated designs used in the Doncaster study. The second part examines the validity of particular data sets.

The validity of the strategy and designs in use in the Doncaster study

The Doncaster evaluation made use of two quasi-experimental designs. These designs varied in their robustness. The pre-test/ post-test single group design is recognised to be a relatively weak design being subject to a number of faults particularly the inability to realistically attribute any change to the experimental variable and thus giving rise to problems of internal validity. The main data sources in this category are the public surveys (measuring attitudes to CCTV, fear of crime, criminal victimisation, crimes seen in the town centre and use of the town centre) and the study of apprehensions or detections. This design also suffers from faults in relation to external validity. These are set out in some detail below and include the reactive effects of testing and the experimental arrangements, and selection. Some doubt has to be expressed concerning this design in that not only is it not able to take account of 'background noise', but also cannot insert the findings into already established trends. Using this design it may be possible to witness a change in the before / after periods. But it is not clear whether the change noted was already likely, given existing established trends.

However, the impact of these problems is reduced where the material is used to corroborate other more rigorously based data as with the estimate of the impact of crime reduction. It is also reduced where multiple sources are used albeit all suffering from similar difficulties (this applies to the study of the impact on fear of crime, apprehensions, use of the town centre and traffic management). Time and cost restrictions meant that to extend the survey work to areas other than Doncaster was not possible. Similarly the calculation of detections in all seven areas for all offence groups was not possible within the time constraints. Nor was it possible to examine previous studies of these populations. Care must be exercised when interpreting the data relating to fear of crime, detections, use of the town centre and traffic management.

But even well founded strategies and designs have systematic faults (Campbell and Stanley 1963; Cook and Campbell 1979). The main elements of these may be set out and then considered with regard to the present study. The main difficulties of the interrupted time series with non-equivalent groups design, the approach adopted to process the police statistics, are according to Cook and Campbell, twofold. First, threats to internal validity from

'history', instrumentation and regression to the mean (the last of these is highlighted by Ekblom and Pease 1995: 593). Second, threats to external validity deriving from reactive effects of testing and of the experimental arrangements and 'selection'. Jupp (1994) and Ekblom and Pease (1995) also highlight, as a threat to external validity, the contradiction between achieving internal validity at the expense of external validity.

The discussion that follows of these important issues starts with problems relating to internal validity and then moves to questions about external validity. Clearly the quasi-experiment depends for its strength on the before and after periods remaining roughly equal. Has 'history' intervened? First, to what extent has history intervened in the measurement of crime effects in the surveilled area? Changes are evident in the town centre and its relation to outlying areas. More out of town shops have been provided especially with the opening, during the relevant period, of the Yorkshire Outlet, a complex of shops selling 'factory' goods and offering direct competition with the town centre. Furthermore, there has been an expansion of out of town centre leisure provision particularly on the Dome Site where a leisure centre is now combined with a supermarket, multi-screen cinema, bowling alley and large 'family' public house. The impact of this might be to decrease town centre use and the possibility of both criminal victimisation and criminal perpetration. This would detract from the findings of a reductionist effect attributable to the CCTV system. It would also impact on use of the town centre (detracting from any increase due to the system) and might influence fear of crime (though the direction of the effect is not known). The overall impact of these processes might have been to reduce traffic congestion though this is unlikely.

Further, the issue of the changing parking arrangements in Doncaster town centre needs to be considered as a potential confounding variable. Decreased parking in the town centre might account for the diminution in car related crime, which seems to be a well-established effect of the CCTV system. No systematic evidence on changed parking arrangements is in the public domain but it is the case that from my own experience of trying to park in the town centre, that on-street car parking places in Doncaster town centre have been reduced. Finally, the surveillance possibilities of the CCTV system have changed with

movement toward the pedestrianisation of streets and the provision of street furniture and decoration. The impact of these changes is unknown.

The measurement of displacement or diffusion of benefits effects also depends on everything remaining equal during the experimental period. The evaluation found a possible displacement effect to the 'townships' (Chapter 5 Table 29 and 30) for all offences, burglary/burglary other, other thefts, shoplifting, theft from and of motor vehicles and criminal damage. A diffusion of benefits effect was also discovered in Doncaster central district for all offences and burglary and burglary other. But there are possible alternative explanations of these changes other than the impact of CCTV. The increase in offending in the western part of the townships may be due to displacement from other areas since the experimental period has seen the commissioning of other CCTV systems. It is possible that the apparent displacement effect is due to changes in policing. Similarly the apparent diffusion of benefits effects may be explicable by reference to changes in circumstances which may or may not be directly or indirectly related to the CCTV system. One plausible view is that the existence of CCTV in the town centre led to an increase in the use of 'fire brigade' policing cued by system intelligence. As a consequence police officers were freed up for duties elsewhere in the Doncaster central district.

The next threat to internal validity to be considered is that of 'instrumentation'. As indicated in Chapter 2 this concerns changes in the calibration of a measuring instrument. Clearly the use of police statistics makes the Doncaster evaluation dependent on the 'instrumentation' of the South Yorkshire police and indeed the Home Office. The issue here resides around the 'criming' of incidents and the reporting and recording of these incidents. Two issues are worthy of mention.

The first concerns assault. No less than two instrumentation effects are evident working in opposite directions. First, during the period of the evaluation a Home Office-based reclassification of assaults occasioning actual bodily harm (Section 47 Offences Against the Persons Act 1861) occurred. The net effect of the change was to push many assaults out of

the notifiable offence category and out of the consideration of the present study. A reduction in assaults in the region was evident. It is notable that even so, within the town centre streets under surveillance and in town centre licensed premises, unlike the other areas, assaults actually increased (see Table 24A). This would seem to suggest that there was a second instrumentation effect at work concerned with the impact of the CCTV system on the possibilities of preferring charges of serious assault. Such a view only requires two assumptions. The first assumption is that assault patterns are relatively immobile and impervious to intervention. Fighting in town centres is very often alcohol related, sub-culturally fixed in place and confined by local definitions of masculinity (Ramsey 1983; Hope 1985; Wikstrom 1995). The second assumption is that the CCTV system affected the propensity to charge people with serious assault. The evidence from police officers (key worker survey -see Table 28A) suggests that they saw that the CCTV system had the advantage of providing useful evidence for charging purposes. It is impossible to disentangle these processes without further research.

The second separate matter with regard to instrumentation concerns public order offences. Discussions with the CCTV liaison officer indicated that once again, some change in the definition and use of charges under the Public Order Act 1986 (affray). In the immediate past he suggested that these charges were not the preferred outcome of situations. However, more recently, and during the experimental period, there had been some relaxation of the inhibition about using charges under the Act. Of course, the whole matter is complicated by the difficulty of separating public order offences from charges of assault.

The third threat to internal validity is that of regression to the mean. This issue, as mentioned in Chapter 2, is emphasised by Ekblom and Pease (1995: 593). They ask of implementors 'are they... targeting action on the basis of neighbourhoods where last year's crime statistics were highest? Given the strong "random" component of crime statistics, these figures are likely to fall, mimicking the pattern of impact.' The Safety in Doncaster scheme certainly made claims that crime was at a high point but was this so? This consideration, an important factor rarely taken into account by other studies, is confronted in the present study

by testing the impact of the system against the existing trends in crime figures by means of linear regression. The relatively short experimental period in use, however, does mean that this problem cannot be ignored.

The threats to external validity considered to be important here (and which apply to both strategies) can be dealt with as follows. The first threat concerns the reactive effects of testing. This can be dismissed as a problem for crime statistics but may be a factor with regard to the surveys conducted. It is possible that being asked prior to the start up of the CCTV system about it and its effects may have affected the respondents' attitudes to the system itself. However, even so, this would have affected only a small number of people (1400 at most out of a population of 250,000).

The second threat concerns the reactive effects of the experimental arrangements. Here the area studied is made less representative because it is studied. It is plausible that this factor might have played some part. This is unlikely concerning the public surveys. It is more likely with regard to the police and control room staff. Knowing that the CCTV system was being evaluated may have affected 'criming' decisions. Similarly, control room staff might have been more conscientious because they were being evaluated. This would seem to suggest that there is a trade-off between high profile data collection and external validity.

As noted in Chapter 2, LeCompte and Goetz (1982) suggest that there is a third threat to external validity namely, what they call 'selection'. Selection concerns the lack of representativeness, which results from evaluations being targeted on the unusual or the spectacular. For example, there may be a pressure to install CCTV systems in cities with high crime rates. This may be a sound reason for the installation of CCTV (if it works) but it makes generalisation to less abnormal circumstances difficult. Doncaster was not peculiar in this regard according to the Chief Constable's Report (South Yorkshire Police 1994). It does have some peculiarities though. First, there was a systematic and reasonably early effort to build the evaluation into the development of the project (though well after the decision to actually seek crime prevention through CCTV). This makes the Doncaster system unusual.

Second, adequate 'space' was made available for the independent operation of the evaluation. Third, the human system associated with the CCTV scheme has been responsive and the technological system was at the time, 'state of the art' (colour pictures, recording in real time, etc.) both factors separating the Doncaster system from systems installed elsewhere.

Ekblom and Pease 1995 note the final threat to external validity when they suggest that there may be a contradiction between the achievement of internal and external validity. In other words the creation of an appropriate study makes the system studied by definition not the same as systems that are not studied. It is impossible to know whether this is a factor but I would concur, as above, that the very existence of the study and any rigour it introduced in the pursuit of data that would move toward internal validity, probably did affect the operation of the system itself. Indeed the rationale of a formative study is that data and preliminary conclusions are divulged, making an impact on the operation of the scheme. Insofar as this is so, clearly the system studied begins to diverge from one that is not studied. But further I would acknowledge that the evaluation in Doncaster did affect the operation of the system in other ways – by anticipating particular problems (system realisation and encouraging the keeping of a log of faults) and by seeking the formalisation of particular kinds of data (for example the control room logbook), which may not have been formalised without the evaluation. Though this issue is worthy of comment and raises matters clearly worth monitoring in any study, nevertheless it is necessary to conclude excessive emphasis on these matters would probably lead to unjustifiable evaluation paralysis.

Finally, the Doncaster evaluation has concentrated on an implementation and impact assessment and, as noted at the beginning of Chapter 4, this has tended to limit the use of data to the estimation of before and after effects. A number of complementary procedures are possible. The use of continuous time series could identify changes as they occur making more use of the wealth of data collected. Two examples will suffice. The estimation of the crime reduction effects of the CCTV system might have been displayed by means of a time trend detecting any interesting peaks and troughs which could be associated with pre-

installation impact, publicity campaigns or technical problems of the CCTV system. Similarly, control log data could have been displayed in a time trend allowing for an assessment of the possible impact of technical failures on control room activity.

The validity of specific data sets used.

Implementation assessment

The implementation evaluation concerned the assessment of two items – multi-agency funding, development and management and system realisation (which itself contained examination of the operationalisation of the physical, human, ethics and Help Point sub-systems). Perhaps the study relies rather too much on official accounts and quantitative data. For example, the use of the minutes of steering group meetings may provide an indication of who was present and therefore numerical representation. But the content of such minutes constructs events from a point of view albeit one that is within the group at least, unobjectionable. A further example relates to the study of the Help Point sub-system. It was originally intended to monitor calls made by the public from the Help Points to the control room as these calls were supposed to be recorded. But the Help Points suffered from significant faults and the recordings could not be used. This not only reduced the possibility of corroborative material but also put reliance back on official data. Some assessment of concurrent validity was, however, possible by asking questions about Help Point use in the public surveys.

The control room logbook data present a further useful example. These data were produced by the control room staff and consisted of a record of events giving details of the date, time, nature of event, source of event, action requested, outcome and nature of any formal action taken. The data were, as far as I am aware, diligently produced both at source in the logbook and in the Microsoft Works record, and offered a potential window on the operation of the control room. They could be seen as 'authentic' in Scott's (1990:19) terms. This material does give some indication of what has happened (filtered by time and cultural

constraints with a common framework at least being used between researcher and compiler). However, it tells us mainly about outcome not process, about the what but not the why. In particular it does not allow for the study of how 'trouble' (Cicourel 1964) comes to be defined. Some 22% of all referrals (see Chapter 4 Table 17) related to suspicious persons/ objects – but what constituted the grounds for such 'suspicion' is not made clear. This would have required a detailed observation study of the control room (see Norris and Armstrong 1997) and was simply beyond the resources of the evaluation as originally configured. Similarly, largely because of the failure to realise part of the technical system, the tape library computer software, an independent check on the amount, and reasons for use of the videotapes was not possible. This raises fundamental issues connected to the veracity of the data collected by CCTV systems and the accountability of the systems. Such matters will be pursued in the next chapter.

Impact assessment

Public attitudes

The study of public attitudes may be seen to have certain weaknesses stemming from questions of validity. Issues related to sampling and external validity will be dealt with first. The use of quota samples (for the town centre users studies) in the circumstances limited the ability to calculate standard error. On reflection the use of one year group for the school pupils surveys was too limiting even though pragmatically justified in order to obtain the co-operation of the school. In turn this was justified in order to minimise the utilisation of researcher time. The sampling of the business group also proved problematic given that the sampling frame supplied by the local chamber of commerce was out of date. Regrettably no attempt was made to separate out town centre user respondents on the basis of more finely drawn age groups and explore the U-curve of support for CCTV reported by Bennett and Gelsthorpe (1996). A further problem concerning the town centre users survey may be discerned. The study did ensure, by means of quota sampling, that the before and after samples are comparable. But this depended on selecting the sample from those using the

town centre. It is possible that the existence of the CCTV system had altered the composition of the users of the town centre in the after study, by encouraging more people who previously did not use the town centre, to do so. Clearly this problem could have been avoided by interviewing at place of residence using the electoral register as a sampling frame. However, the consequence of interviewing at place of Doncaster MBC residence would be the elimination from the sample of non-resident visitors to the town centre.

Response rates and refusals may also be commented upon here. Not all those approached for the town centre users survey who would fit the quotas agreed to be interviewed. It is possible that the length and detail required by the questionnaires might have biased co-operation towards the more educated. The response rate for multi-storey car park users was, like any postal questionnaire, disappointingly low at 44% (See Chapter 4 Table 14). A reasonable response rate of 60% (Chapter 4 Table 14) was only obtained from the business group after employing extra assistance to chase up the non-responders. Two groups of key workers did not complete the questionnaire as noted above. Of the rest some low response rates are evident particularly for magistrates (48% Chapter 4 Table 14). It is not known whether lack of completion was significant. It could well have demonstrated diplomatic disagreement with the aims and nature of the CCTV system (Ditton and Short 1998:220).

Four matters can be briefly mentioned when considering the validity of the questionnaires used by the evaluation. First, the place of completion may have influenced the answers given. For example completing the questionnaires in school may have affected the nature of the pupils' replies. Similarly street surveys are conducted in less than favourable circumstances for clear thought, unhurried responses and replies that are uncontaminated by the presence of others (the interviewer, friends or relatives of the respondent). Second, to what extent does simply asking questions about this issue produce artificial replies? The questionnaires included detailed enquiries about the likely advantages and disadvantages of the CCTV system. The extent to which respondents were placed in a situation where they felt obliged to say something is not known. Third, amongst the key workers who did respond, it is not possible to estimate the impact of the politics of the situation on their responses. Finally,

the problem of 'skewed contextualising' (Ditton 1998:223) needs to be considered. There is some weight to be attached to the argument that the structure of the questionnaires used – dealing as they did with respondent data, fear of crime, victimisation and attitudes to the CCTV system probably did enable or empower certain kinds of sentiments. No attempt was made to explore the respondents' knowledge of the existence and character of the CCTV system.

Overall with regard to the determination of public attitudes it might be suggested that the present study is over-reliant on quantitative sources. This resulted from the time and resource constraints of the evaluation on the one hand and the need to be seen to gain greater external validity on the other. Cognisance of the limits of qualitative strategies in relation to impact assessment also played some part in their relative lack of use in the Doncaster evaluation. As Bulos (1995) found, the problems of using focus groups are considerable including poor response rates, small samples and a tendency to recruit those who have some sort of emotional or ideological stake in the topic. However, there are clear areas where qualitative work would be useful especially to read public opinion in more realistic settings and to further explore the issue of displacement especially amongst offenders.

Traffic management and congestion

The assessment of the impact of the Safety in Doncaster system on traffic congestion and management was accomplished in the least satisfactory manner. The study had to rely on indirect sources (public survey data on problems faced in town centre use) and one official source, traffic wardens, because no response was received from the most important source, the local authority Highways Department officers. Treatment of this aim was limited in operationalisation and lacking in the ability to corroborate findings. Furthermore the problems of 'history' discussed above, impacted directly on the measurement of the accomplishment of the aim. The new parking arrangements seemingly caused, at least at first, considerable

confusion and congestion as motorists drove around the town centre looking for parking spaces that no longer existed and, in so doing, caused innumerable traffic jams.

Town centre use

The assessment of town centre use, relied on the four public before/after surveys and the three completed key worker surveys. But there were also two related failures. The first concerned the inability to follow through the DMBC town centre shop premises survey, despite being provided with material for 1994 and 1995. Access to the 1996 data was not denied but it was simply not provided in time for the study. This was at a time when the issue of town centre decline had become a matter of some local controversy fuelled by the Labour Council making alterations to the parking arrangements in the town centre allegedly drastically reducing the provision of on-street parking in the day time. The matter became highly politicised.

The second problem relating to the collection of data on town centre use concerned the collection of 'footfall' and takings data from key shops. Despite the fact that it was indicated that the material would be stored securely and used in such a manner that the contributors would remain anonymous, only one key shop was willing to provide this information. The strategy had to be abandoned. Clearly authoritative 'sponsorship' of research cannot ease all the problems of access especially where these run up against particular organisational (over) sensitivities, become enmired in political contests or cut across economic interests.

The total impact of these two difficulties was to restrict the estimation of the impact of the CCTV system on town centre use to data drawn from the four surveys in total. The public surveys asked members of the public (town centre users, multi-storey car park users and school pupils) whether they thought in general that other people used the town centre more and whether specifically they did themselves. Similarly, the business survey asked about their perceptions of town centre use and whether takings had actually increased.

Although some corroborative evidence was collected the net result of the refusals by the local council and businesses to provide the respective data was to limit the exploration of this issue to generally more indirect forms.

Fear of crime

The assessment of the impact of the system on fear of crime was accomplished by the Doncaster evaluation by asking respondents (town centre users, multi-storey car park users, school pupils and members of the business community in both before and after periods) a number of questions. They were asked to indicate whether they were worried about particular issues namely, being mugged or robbed, having their car stolen, having their car broken into and something stolen, being raped or sexually assaulted, being assaulted and being insulted or bothered by strangers. This formulation of the issue was chosen because it reflected the practices of the British Crime Survey on the matter. It is now clear that these questions scratch the surface of this complex issue. The change of orientation in part derives from experience of actually engaging in evaluative practice. It is also supported by the recognition that there is a need to re-formulate the conceptualisation of fear of crime to place it in line with research on social cognition and the study of risk. Further comment will be made about this issue in Chapter 7. Although no inter-population corroboration of the results was undertaken the existence of three comparable surveys did allow some intra-population corroboration. Clearly these data were subject to the problems of sampling and questionnaire construction noted above.

Crime reduction

Comments here will cover the lack of use of statistics relating to summary offences, the problems of victimisation studies and limitations connected to the statistical methods used to process the recorded crime statistics. The study of the crime reduction impact of the CCTV system using police statistics was entirely confined to notifiable offences recorded by the police. It proved simply impossible, within the resources of the study, to hand process the

crime reports that would have been required in order to produce a set of statistics for the surveilled area and comparison groups. Some development of this is possible in the future with the greater computerisation of police and court data. The use of summary offence data offers a much more detailed and fine-grained picture of the actual impact of the CCTV system. Changes mooted by the Crime and Disorder Bill will probably assist in the compilation of relevant material in the future.

It is clearly recognised that official statistics on crime are subject to various problems (Maguire 1997). Aside though from the changing definitions noted above, there is little reason to suppose that major changes occurred in the way in which events were 'crimed' during the period of the study. Furthermore the impact of the system here was corroborated by reference to an independent archive of data derived from the victimisation studies.

Victimisation surveys have been conducted in the Britain since the late 1970's (Sparks, Genn and Dodd 1977) and became a method used by government, in the form of the British Crime Survey from 1982 onwards. A number of local studies have also been conducted in Merseyside, Islington, Hammersmith and Fulham, Edinburgh and Aberystwyth (Zedner 1997). The applicability of key failings of victimisation studies to the present evaluation will be considered. Some of the key failings of victimisation studies pertinent to the present study will be discussed here. First, the present study does tend to ignore certain kinds of crime particularly corporate crime, 'domestic' violence and crimes where the respondent may be complicit, and thus may underestimate the amount of victimisation. With some exceptions though (drugs use and dealing) the study probably will not thereby underestimate the extent of the impact of the CCTV system – as the system was clearly not concerned with affecting these crimes. Indeed it is worthy of note, and a matter of comment in Chapter 7, that there is a wider issue here, the tendency of the movement to CCTV to concentrate attention on street crime and thereby divert attention away from other serious crimes.

Second, as Block and Block (1984) suggest victims may well have been over-represented among the survey refusers and non-responders. This may mean that the present study, read simply as a victimisation study, does undercount victims. But it does not mean, since there is no reason to suppose that the tendency will have changed between the before after surveys, that the measurement of before/after impact is deficient in this regard.

Third, counting errors figure highly in victim surveys. These errors derive from the respondent and the interviewer. Though the present study has sought to minimise the possibility of forgetting and 'telescoping' by interviewer training in a set procedure and providing very clear dates as cut-off points, nevertheless these issues remain, as do errors deriving from the influence of the interviewer/ questionnaire. However, there is no reason to suppose that the impact of these errors has been other than uniform in the before/ after periods and this criticism does not apply to the study as an evaluation.

Finally, the statistical methods used to process the recorded crime statistics can be criticised. Two-way analysis of variance (with Tukey's corrections) was used to determine whether a significant before/after change was evident that was also distinct from the other areas. Three limitations associated with the application of 2ANOVA(T) may be listed. First, even where no aggregation into three-month periods has been used the 'after' period is very short. Second, where aggregation into three-month periods has been used (for certain offence categories - see Tables 19A-25A) this greatly restricts the degrees of freedom and thus makes the test conservative in estimating the existence of differences. Third, it should be noted that the Tukey test sets high critical values for the determination of significance (Hinton 1995).

The separation of 'after' effects from all ready established trends was undertaken by using seasonally adjusted linear regression calculations to establish predicted values and paired t tests to estimate the significance of the difference between actual and predicted values. The measurement of temporal distinctiveness has certain difficulties. First, the use of linear regression assumes that the data may be described by a linear equation. There are circumstances, of considerable scatter, when linear regression cannot be properly applied.

Some determination of the applicability of linear regression to the data was necessary making use of Pearson's Correlation Coefficient. Second, linear regression assumes no relation between the mass of the object that is changing and the rate of change. This is unimportant provided there is no marked sudden increase or decrease in the mass of the object. But if such radical disjunctions do occur then the rate of subsequent change may no longer be best described by means of linear but exponential regression. Cognisance also needs to be taken of the relatively short experimental period used in the study.

Detections

The impact of the CCTV system on apprehensions was measured by means of police data on detection rates. In addition corroborative material was derived from the key worker surveys. As noted above, the consideration of detection rates in the surveilled area alone utilises a relatively weak research design. The measurement would have been considerably strengthened by the use of non-equivalent comparison groups relating to all the other areas examined. This proved impossible to accomplish within the confines of the study. Clearly there are further problems of using police derived clear up data, not least because it is not explicit about the relative balance of primary and secondary detections. Only the former could be attributable to the system.

Cost effectiveness

With its emphasis on the cost/benefit of a specific crime prevention programme, the present study does largely avoid the difficulties of the cost of crime analyses reviewed by Zimring and Hawkins (1995). However, it is not possible to avoid the grave practical, political and methodological problems associated with the cost benefit analysis of crime. This section is concerned with the practical problems of measurement. The next chapter considers the political and methodological issues raised. Five issues may be indicated here.

First, the calculation of 'saved' offences. Clearly the accuracy of this is crucial to subsequent calculations and yet it is an estimate based on the logic, or otherwise, of the section on crime reduction. It involves two 'generalisations' the first is geographical in terms of the balance of reduction, displacement and diffusion in the five regions and the second is temporal, estimating impacts, from year 1 to the subsequent further 4 years. Second, the calculation of costs ignores anything other than prosecution and sentencing costs and ignores such imponderables as the victim's out of pocket expenses, fear of criminal victimisation and actual pain (physical or mental) resulting from criminal victimisation. Third, the estimate is based on yet further estimates, in this case the officially calculated prosecution and sentencing costs. Fourth, these raw figures do not give any basis for being able to estimate comparative costs. Bennett and Gelsthorpe (1996) indicate that when asked the general public prefer 'people policing' over technology. The logic of the move to CCTV is to suggest either that CCTV is cheaper than providing policing based on human contact or more effective or both. This raises two questions. Is CCTV more or less effective than people policing? Is CCTV more or less expensive than people policing? To arrive at a meaningful conclusion on this matter some comparative cost data on alternatives is necessary. Finally, even assuming that CCTV does lead to a reduction in offending, the whole logic or otherwise of the study of cost against benefits depends on the installation and maintenance costs of the system actually contributing to a reduction in the costs of the prosecution and sentencing process. Whether this happens depends on how responsive the costs of the criminal justice system are to crime prevention. Clearly some costs are responsive. Fewer offenders do mean fewer court reports and less legal aid. But do they mean fewer police and probation officers and court sittings?

Chapter 6 has raised a number of doubts about the validity of the evaluation of the Doncaster system. The purpose of this self-critique has been twofold. The first purpose is to enable the movement to good evaluation practice, an aim central to the *raison d'être* of the thesis. Chapter 6 also tries to encourage the reader to form a critical judgement concerning the value of the documented effects that the Doncaster evaluation claims for CCTV. In summary the overall research designs in use have some weaknesses. The pre-test/ post-test

single group design is recognised to be problematic especially where little or no other corroborative data is available. The interrupted time series with non-equivalent groups design is shown to suffer from problems of external validity concerning the reactive effects of the experiment and 'selection' and internal validity concerning 'history' and 'instrumentation.' Furthermore, particular difficulties connected to validity are seen to exist for specific data sets. The implementation assessment is seen to rely too much on official accounts and quantitative data – committee minutes, the control room logbook etc. The questionnaire data is seen to suffer from sampling difficulties as well as 'skewed contextualising.' The material on traffic management and town centre use is seen to lack corroborative evidence. The assessment of fear of crime is seen to be limited by a narrow conception of the social cognition of risk. The determination of the crime reduction effects of CCTV is seen to be restricted to notifiable offences only and the trend line data processing to be based on relatively crude statistical techniques. The material on detections suffers from a lack of comparison groups. Finally, the cost benefit work is flawed in a number of ways, not the least is that it ignores comparative costs and assumes that the fixed costs of the criminal justice system can be reduced and CCTV will be an alternative, not an additional cost. The relatively limited experimental period used is a limiting factor on the validity of the assessment of all the scheme aims.

But the overall judgement of the study must be, though it was conducted over a 12-month period, that it does tell us a great deal about town centre CCTV systems. Clearly the results must be read in the light of the faults highlighted and subsequent studies should benefit from the points made. The study was derived from a review of the methodological literature on evaluation and has been shaped by extant studies of crime prevention and CCTV. It has also been shaped by the on-going experience of evaluation practice. As such, despite its faults, it does approximate a best guess as to the impact of CCTV in town centres.

Chapter 7 goes on to offer an external critique of the Doncaster evaluation.

Chapter 7 Reflections on the evaluation of the Doncaster CCTV system – external critique

Chapter 7 continues the process started in Chapter 6. Here, however, the central topic moves from internal to external critique. The purpose of the external critique is to offer a broader reflection on the nature of evaluation research. Attention first focuses on the socially constructed 'selective visibility' of the objects of the evaluation study. Second, the fundamental problems of quasi-experimental strategies are addressed. Third, the role of evaluation research with regard to programme accountability is critically considered. Fourth, the question of whether the evaluation was useful is assessed. Fifth, the question of whether evaluation research should be useful is considered. Sixth, whether the study was democratic is assessed. Seventh, the impact of economic and political constraints on the study is considered. Finally, any fundamental flaws in the determination of particular aims are assessed. Chapter 8 considers the implications of the points made for undertaking evaluations of CCTV systems.

'Selective visibility'?

This section is concerned with omissions. These omissions may be matters of inadvertence but they may be also related to the practice of evaluation research in particular ways and conditioned by particular evaluation research strategies and evaluation contracts. The effect is referred to as 'tunnel vision' by Worthen and Sanders (1987: 73) or as indicated in the title of this section, 'selective visibility' by Norris (1990:124). It is difficult not to reach the conclusion that selective visibility is evident in the Doncaster evaluation.

Selective visibility is evident in a number of areas. In the public surveys respondents were asked about their attitudes towards the supposed benefits and disbenefits of CCTV systems. But they were not given the opportunity of expressing views about the relative merits of CCTV systems in the context of other physical methods of crime prevention. As Bennett and Gelsthorpe (1996) found when they asked respondents to rank their preference for crime prevention strategies, CCTV was put in third rank after more police foot patrols and

improved street lighting, and only prioritised over private security patrols. Clearly the surveys induced some selective visibility.

A similar process is evident in whether physical crime prevention is the most appropriate and effective way of tackling town centre problems. This limitation was signalled by two developments. The first became evident when re-reading the Morgan Report (Home Office Standing Conference on Crime Prevention 1991). The Morgan Report raised the question of overall strategies for crime prevention in local areas implying that these should be diverse in character. The evaluation could thus be constructed to avoid this element of selective visibility. As is noted in Chapter 4 the CCTV scheme was found to be deficient in this regard, as no attempt was evident to move beyond the one-dimensional physical prevention represented by CCTV systems. The second event happened only after the study was well under way. One respondent, in the town centre users study, had rather hurriedly scribbled in the section on 'other disadvantages', that the CCTV system 'ignores the real causes of crime.' It was immediately obvious that the study in the before/after modes had biased the replies in a particular direction, to the extent that responses were not routinely allowed on the matter. This is a matter of inclusive and sound questionnaire design. But it is also a matter of 'selective visibility,' which structured the responses to the surveys.

There are other ways in which the study has induced selective visibility. There can be little doubt that the CCTV scheme takes as one of its founding assumptions the need to deal with street crime (Safety in Doncaster 1995). This does, of course, assume that street crime, is a suitable priority worth investing large amounts of public money to prevent. The Doncaster evaluation in its first annual report is indeed guilty of invisibly sustaining such an assumption rather than testing whether the public and other groups support it. To the extent that the evaluation does this, some sort of implicit justification for the CCTV programme evaluated, is offered. The matter could have been explored by asking whether the CCTV system deals with serious or organised crime.

Indeed the general orientation of the study to prioritise quantitative data has also created tunnel vision. Survey methods tend to speak rather than listen. In this process, meanings may be imposed rather than simply collected. Further the data produced may not give insight into the human processes associated with crime prevention projects. For example, the control room log did provide much information about how the control room worked – but not how staff came to define suspiciousness. The questionnaires did not allow for the exploration of the gendered character of the use of space and conceptions of public safety (Brown 1998). Nor did they explore the privatisation of public space – ‘mallisation’ – and its consequences (Graham 1998).

The fundamental limits of the quasi-experimental strategy

The next issue considered here is concerned with the fundamental limits of quasi-experimental evaluation strategies. The substance of the issue can be set out by examining the debate between Pawson and Tilley (1994, 1996) and Bennett (1996).

Pawson and Tilley (1994) began the debate when they offered a critique of quasi-experimental methods (which they abbreviate as OXO methods). They suggest that the points they raise represent ‘the second watershed’ (1994:291) in evaluation research methodology, with the first having been the ‘nothing works’ ‘trauma’ of the 1970’s. Indeed they argue that there may be a connection between the two watersheds suggesting that ‘research sloth rather than policy blight is responsible for us being unable to speak with confidence about what works...’ (1994:292). The view adopted by the present author is to welcome the explicit re-entry of theory. A welcome is also extended to the view that crime prevention programmes and their effects should be seen as a human process. The value of moving toward attempts to account for, rather than merely ascertain, the effects of crime prevention programme, is also noted. But some regret must be expressed about the conventional assumptions on which this second watershed is based. Further doubt may be expressed about whether the change suggested will make evaluation findings more secure.

Finally, some scepticism needs to be registered concerning the apparent total abandonment of quasi-experimental approaches.

Pawson and Tilley (1994) develop their argument by suggesting that the quasi-experimental or OXO approach is responsible for research sloth and general lack of evaluation certainty. The OXO approach is seen to be an appropriate strategy for natural world phenomena but fails to grasp 'the nature of causality and change going on in social programmes' (1994:292). Pawson and Tilley (1994:293) argue that quasi-experimental methods operate with *successionist* conceptions of causality whilst what social programmes require is a *generative* conception of causality. They attempt to explain this distinction by suggesting that *successionist* conceptions 'look at causation "externally". Cause simply describes constant conjunction of events. The action of billiard balls is ... describable in these terms.' On the other hand 'the *generative* conception of cause ... sees the matter of causation "internally". Cause describes the *transformative potential* of phenomena.' Presumably external explanations work for inanimate objects but are inappropriate for people. The explanation of human action requires 'internal' accounts.

OXO approaches are seen to be 'neither feasible or finalizable' because they consider programmes as 'some kind of external, impinging "force" to which all subjects "respond"' (1994:294). Pawson and Tilley argue that programmes work 'if subjects choose to make them work and are placed in the right conditions to enable them to do so' (1994:294). This means, according to Pawson and Tilley (1994), OXO approaches ignore precisely that which would make the work finalizable that is a consideration of internal logic and social context. OXO approaches are not only guilty of reducing the forces involved in programmes to a series of mechanical processes but also testing a series of implicit hypotheses about the relation between the programme and the impacts. This, in their view, flattens out the reality of effects and means that when different and contradictory findings are uncovered it is not possible to discover why. In addition, the OXO approach is seen to be deficient in that though 'matching' (of control and experimental groups) is undertaken this also is done mechanically and important aspects of the social context are ignored.

The evaluation of social programmes requires 'a scientific realist strategy' (1994:292). Such a strategy is to be based on a methodological position which 'insists that the outcomes unearthed in empirical investigations are intelligible only if we understand the underlying mechanisms which give rise to them and the contexts which sustain them' (1994:292). The approach starts with precisely those aspects of the programme, which are overlooked by the OXO approach. The scientific realist approach, they suggest, in contrast 'starts with a theory of what makes programmes work and a theory of the circumstances in which such ideas are likely to be efficacious' (1994:292), with these theories being rooted in the assumption that programmes may be seen as 'the product of skilled action and negotiation by human agents' (1994:297). This of course means treating the mechanisms at work as human processes and offering explicit consideration of them. But what kind of human process? Furthermore it means taking account of the context of the programme. But how is the context conceptualised?

These points are illustrated by reference to two studies, notably Tilley (1993a) and Bennett (1991). Pawson and Tilley (1994) treat Tilley (1993a) as a flawed attempt to apply scientific realist methods to identifying the impact of CCTV on car crime. Tilley (1993a) consists of the articulation of some 10 causal mechanisms by which CCTV may reduce car crime. For example 'the caught in the act mechanism whereby CCTV prevents car crime by making it more likely that present offenders will be caught...' (1994:301). Some five aspects of context are then listed for example 'the criminal clustering context whereby a given rate of car crime may result from quite different patterns of events, which may be differently influenced by the intervention.' This is seen to enable a research programme that can 'move from crudely articulated and partially evaluated models' (1994:304), by way of a series of studies, towards a cumulative understanding of how and where CCTV can play a part in reducing car crime' (1994:304). Such an approach is seen to have the potential for the subsequent creation of general models and the understanding of other crime prevention approaches.

The second study reviewed is that of Bennett (1991). This is treated as an otherwise excellent piece of evaluation research using the OXO approach. Indeed they remark that the study is based upon 'a rigorous design... producing...some trustworthy results' (Pawson and Tilley 1994:297). But the study is also seen to have all the faults of the OXO model outlined above in particular a 'deficient and defective conception of the programme' (Ibid.). Pawson and Tilley go on to suggest that consideration of the conception of the crime prevention programme involved resolves itself into two parts. The first concerns the 'mechanisms' at work in the programme. Bennett (1991) is seen to reduce the programme to a series of 'mechanical operations,' which ignore why any effects are achieved. Bennett (1991) is found to be deficient in regard to investigating the 'character of the contact' made between the police patrols and the community, of testing implicit rather than explicit hypotheses regarding the matter and being unable to discover why contradictory findings might exist. The second concern of Pawson and Tilley (1994) relates to programme 'contexts.' Here Bennett (1991) is seen to be deficient in that the OXO method used seems to exclude what is essential to make a programme work that is, the 'character of the community' and the 'social conditions favourable to success' (Pawson and Tilley 1994:298).

Trevor Bennett (1996) offered a belated riposte to the criticisms set out above. Whilst apparently acknowledging the need for 'a robust critique of quasi-experimental design' (1996:571) and the possible contributions of a scientific realist approach (when spelled out more carefully he suggests), he rebuts both the general critique of OXO approaches and the specific critique of his own work.

Bennett suggests, with regard to the general critique, that apart from statements of opinion, there are two connected arguments offered by Pawson and Tilley(1994). The first concerns not so much the failings of the OXO strategy but the benefits of scientific realism which are seen to result from the way in which this approach can concentrate on contexts and mechanisms which are largely ignored by the OXO approach. Connected to this, the second point concerns the distinction between successionist and generative conceptions of causality, with the former being seen to be used by the OXO approach and deficient whereas the latter

underlies the scientific realist approach and is seen to be both more productive and appropriate.

Bennett questions whether it is appropriate to identify a methodology with a strategy or method. He develops the point by asking whether those using the OXO strategy necessarily overlook context and mechanisms. He concludes, citing Cook and Campbell (1979), that they do not, though he has to admit here that these considerations are not primary to the study of impact but more concerned with the assessment of the internal validity of the evaluation as a whole. These mechanisms and contexts are understood as potential sources of confounding variables related to 'history' or 'selection' rather than primary elements of the research. What seems a sound point, about confusing methodology with method, is thus lost as the examples given betray little real appreciation of the points made by Pawson and Tilley (1994). But presumably the adduced mechanisms and contexts in play require some strategy to test them – one that will probably require at least something from the logic of the quasi-experiment. Consequently it seems reasonable to suggest that the strategy (OXO) is neutral as to the methodology.

Bennett's second criticism of Pawson and Tilley (1994) is that they adopt a 'preposterous position' (1966:569) seeing OXO studies as espousing a narrow view of causation, based merely on empirical association of events. Bennett's defence here is unconvincing and evasive seemingly not recognising the gulf between nominalist and realist conceptions of causality. Furthermore, an interesting presupposition is revealed in Bennett's conception of research in his distinction between 'scientific and interpretative positions' (Bennett 1996: 569). This seems to suggest no room in a 'scientific' position for interpretative understandings. Interpretative explanations in themselves may not be complete but such incompleteness also extends to causal explanations alone. Bennett's argument that Pawson and Tilley (1994) misconstrue the form of causation in operation in OXO approaches is not convincing. This is so because such questions are not a simple matter of practicality.

Bennett (1996) also suggests that Pawson and Tilley (1994) are 'unnecessarily nihilistic and dismissive' of evaluation research findings. This seems a well-founded point and seems to derive from the missionary zeal of the authors.

Regarding the specific critique offered of his 1991 study, Bennett offers a number of points. First, he argues that his study of the programmes was not to reduce them to a series of mechanical operations even though, because of time constraints, he only used quantitative measures. Second, he asserts that he did deal with and test causal mechanisms especially in relation to fear of crime. Third, he claims that he did offer details of the communities that were studied.

With the tone of the debate becoming increasingly heated, Pawson and Tilley (1996) offer a number of comments about Bennett's general critique. They assert that Bennett confuses the realist concern with causation with the 'old chestnut' of the distinction between cause and correlation. Further they argue that the OXO approach is 'avowedly successionist' (1996:575). Third, Bennett is seen to offer a flawed understanding of the realist conception of causation which is concerned with the codification of explanatory propositions asking the questions 'what is it about a programme which might cause it to work?' and what is it about the context (understood as 'the existing normative structure' [1996:575]) which allows the programme to work?

With reference to Bennett's defence of his specific work, Pawson and Tilley (1996) suggest that he makes a poor attempt at posing as a realist and substitutes understanding mechanics for mechanisms and local colour for context. Essentially they argue that his approach does not offer a theorised understanding of the mechanisms at work in the specific context or a series of propositions which can be tested. Pawson and Tilley suggest that 'evaluation needs to be driven by propositions of a quite specific character which guide our search for possible causal mechanisms which will be triggered in specific contexts and which will produce specified outcome patterns' (1996: 577).

The present author cannot admit to a Pauline conversion to one side of the 'methods war' (Bennett, T 1996: 572). Nevertheless consideration of the debate does raise important theoretical and practical issues. How does this apply to the present study? Comparing the accomplishments of the Doncaster evaluation with the checklist set out by Pawson and Tilley (1994:305) it is clear that much has been achieved. Rigorous attempts have then been made to assess whether the crime in the surveilled area has diminished. Using the OXO approach, some attempt has been made to indicate that the introduction of CCTV into the area effected these changes. A close scrutiny has been made of 'other outcomes' including here non-crime impacts as well as both displacement and diffusion of benefits effects. Systematic attempts have been made to consider the external validity or generaliseability of the Doncaster evaluation to other areas. Awareness is shown in the evaluation report of its incompleteness.

But a number of areas are neglected. The study has been quasi-experimental adopting an exploratory approach to the effects of the CCTV system. This has probably limited the certainty with which conclusions could be drawn about the effects of the programme. It has certainly limited consideration of what it was about the intervention that reduced the problem and what it was about the problem that enabled the impact of the intervention. Similarly, systematic consideration of the human context of the system has been neglected. Overall perhaps the study has tended to see social change to be the result of causal forces and not meaningful actions and causal forces. Finally, because an emphasis has not been placed on causal mechanisms and contexts it is difficult to explain why the results obtained in the Doncaster study differ from other studies.

It might seem plausible to suggest a source of tension between Pawson and Tilley's work (1994, 1996) and evaluation research. The evaluation of specific programmes may be seen to want to know about what works but be relatively uncaring about why. Pawson and Tilley (1994, 1996) suggest a fundamental reorganisation of evaluation to take account of 'why', justified on the basis of accumulative evidence and the ability to estimate comparative effects. Perhaps it is possible that such tension is more apparent than real. Subject to cost

constraints the explanation of programme effects may contribute very greatly to effectiveness. These points have clear implications for doing evaluations, which will be examined in Chapter 8.

Addressing these matters has enabled the identification of troubling issues, notably the silent methodological baggage of quasi-experiments and the presence-in-absence of theory in OXO models. In this baggage can be found confidence in objectivity, empiricism and causal explanation. At least some of these, in turn, link to notions of technological fix. The theory present in absence offers implicit understandings, which tend to depend on conventional assumptions about offenders (as rational actors), and social order (consensual) and an emphasis on the propensity to commit crime unsullied by considerations of criminalisation. But there is more to it than this – Pawson and Tilley's approach especially allows connections to be made between evaluation research and criminological theory and the debates within the philosophy of the social sciences.

And it is precisely at this point that limits to the revolution attempted by Pawson and Tilley (1994, 1996) may be discerned. The acknowledgement of the active role for theory in evaluation is a useful step. The treatment of programme impact as only understandable through the operation of human agency is invaluable. But it is doubtful whether these changes will render evaluative judgements any more secure. The scientific realist approach may enable us to know why variations in impact occur and better able to judge what works. But the approach overall will only add a yet further element of uncertainty, the uncertainty that evaluation findings are theory led, relative and /or driven. This point is not made to assert the need to a return to supposedly unquestioning empiricism, but to cast doubt on the claim, made by Pawson and Tilley (1994, 1996), that a scientific realist approach will lead to finalised results. We cannot return to the certainties offered by out-moded positivist forms of

knowledge. It does not imply that evaluation research does not have a role to play – but it does limit the claims that it can make. This issue will be taken up in Chapter 8.

Pawson and Tilley (1994, 1996) and Tilley and Laycock (1995), however, do not avoid the contradictions of the conventional OXO approach in conceptualising the offender, the social order and social control. The image that emerges of the offender is still over-rational on the one hand and over-determined on the other. And the focus is still the individual offender. This leaves out the broader social forces shaping the offender and the impact of criminalisation processes on the offender. The potential to re-insert theory into the debate about crime prevention and the evaluation of crime prevention programmes is missed.

Finally, do Pawson and Tilley (1994, 1996) throw the quasi-experimental baby out with the unquestioning empiricist bath water? The authors make considerable play on the absolute identification of OXO models with successionist causal explanations. This would seem to suggest a complete rejection of quasi-experimentation. It is difficult to see how the hypotheses formulated by Tilley (1993a) to imaginatively account for the impact of CCTV on car crime within a particular human context can be definitively explored without resort to some sort of before/ after quasi-experimental strategy. In turn, of course, this raises the bigger question about whether these strategies are techniques rather than methodologies. The retention of quasi-experimentation as a strategy is evidenced by a recent study by Gill and Turbin (1998). This study attempts to take up the suggestions made by Pawson and Tilley (1994, 1996) and applies this general approach to understanding the impact of CCTV on shop theft by making use of quasi-experimental strategies!

Evaluation research, 'managerialism' and accountability

There are two critical questions to be addressed. First, can the evaluation of the Doncaster CCTV system be seen as an aspect of the supposedly burgeoning managerialist desire for 'value for money'? Secondly, in its practice does this study contribute to the growth of limited 'calculative and contractual' forms of accountability and detract from alternative, more

democratic forms? The assessment offered here is to suggest that the present evaluation is flawed regarding both matters. This is not to suggest that it would have been preferable that no evaluation be conducted, nor that evaluation research need necessarily be so limited. Even flawed systematic evaluation enquiry is a useful corrective for judgements excessively influenced by political interest, party ideology, penological pragmatism and pure 'commonsense.' Furthermore, the conduct of the enquiry has been used to clarify the nature of a useful critical practice.

Many authors (Tuck 1991; McLaughlin and Muncie 1994; Newman and Clarke 1994) suggest that endemic crisis and government pressure have led to public services in general and the criminal justice system in particular, becoming the increasing target of financial audit, measurement of performance and stringent controls on expenditure. By the mid 1990's the police, magistrates' courts, the Crown Prosecution Service, the Legal Aid scheme and the probation service had been the subject of Audit Commission reports. These reports were used to justify rationalisation and organisational re-structuring and closer fiscal control. In turn this led to the application of the market metaphor (speaking of consumers or customers not clients or inmates, profit not service) to public services, market testing, contracting out, privatisation and a significant change in management style from quasi-military or professionalised models to managerialist strategies. These managerialist strategies depend on altered conceptions of how to orientate to and control the work force and place a value on change for itself and on tactics for its promotion. As a consequence of this there has been a shift to nationally enforced (agreed?) standards, target setting and performance measurement. The style of managerialism is highly instrumental in character with the notion of effective and economic justice being seen as commonsensical and consensual.

The position may be summed up in Tuck's (1991:23-24) words:

'the management model ... is based on the insight that some crime is inevitable in any society and conceives the task as being to manage, reduce or prevent the amount of crime so as to make its occurrence as little damaging to society as possible...Responsibility for devising ways of "dealing" with crime falls largely to central administration which has to measure the efficacy of any particular means of "dealing" carried out by any of the agencies involved, and to extend or replace it according to its utilitarian value in reducing or preventing the kind of crime which damages society.'

Feeley and Simon (1992: 455) identify a 'new penology' which they see as 'neither about punishing nor about rehabilitating individuals ... [but] about identifying and managing unruly groups. It is concerned with the rationality, not of individual behaviour..., but of managerial processes. Its goal is not to eliminate crime but to make it tolerable through systemic co-ordination.' The new penology clearly relates to notions of managerialism. But Feeley and Simon (1992) add a further dimension to the analysis offered so far by asserting that such developments represent a change as profound as those which created the modern system of criminal justice in the 19th century based on a move from individualised to actuarial justice. Quite clearly the proliferation of CCTV systems could be understood as part of the process of the cost effective identification and management of unruly groups.

Can the Doncaster evaluation be seen as an expression of managerialism or a reflexive examination of it? The study is Janus-faced. There were many factors contributing to limitations. I was initially unfamiliar with acting as a consultant. Further the groundbreaking nature of the task (at the start of the project in February, 1995 there were only two published studies of CCTV systems) imposed constraints. The limits of the contract-imposed time constraints were exacerbated by my employment by an institution, which was itself under considerable pressure from financial audit, measurement of performance, increasingly stringent controls on expenditure and cuts in income.

On the other hand, within the evaluation itself opportunities have been sought to move beyond any imposed limits on reflexiveness. A clear separation has been made between implementation and impact assessments. The measurement of effects has been rigorous and used officially derived and alternative data sources. A variety of groups have been consulted including town centre night-time users, young people and young offenders.

To what extent does the Doncaster evaluation contribute to or detract from democratic accountability? Feeley and Simon (1992) suggest that one of the outcomes of the movement toward to new penology is that criminal justice may come to be seen as a sphere of expertise rather than a place of informed public debate. This they suggest would be

'fatal to a democratic civil order' (1992: 470). Similarly, Reiner (1993) when discussing the re-emergence of the issue of police accountability in the 1990's, expressed concern that the direction of change here, toward the measurement of efficiency and effectiveness and the movement to policing by objectives, introduced 'calculative and contractual' rather than democratic, accountability. The fundamental point is that apparently scientific evidence will be used as a substitute for political judgement, rendering what remains in essence a value choice as a matter of the exercise of technical skill.

To what extent then is this study guilty of adding to the construction of CCTV as a 'technological fix' for crime and evaluation as the technological fix for determining which solutions are effective? It is difficult to assess the extent to which the study adds to public perception of the amenability of crime to technological control but the implicit identification of 'the crime problem' as being one of street crime, noted above, probably does legitimise this perception.

There can be little doubt that the 'consultation' with the public in the main before and after studies was systematic and reasonably representative. But this is no substitute for a clear public mandate on the issue. The local council was not elected with a mandate to introduce CCTV nor did they engage in any referendum on this issue. In any case the main lead agency was the police whose relationship to the public is refracted through a machinery of accountability that has been the subject of much controversy and debate concerning its effectiveness (McLaughlin 1994). It is unlikely that the juxtapositioning of the police and CCTV would make CCTV any more accountable. There is undoubtedly, between the before and after sweeps of the surveys, a movement of opinion toward greater ambivalence (there was an significant increase in neutral and don't know on most questions and most groups. See Chapter 4 Table 20), which might be interpreted as surrendering to the 'experts'. Certainly media coverage of the issue portrayed the matter as province of experts.

But on the other hand three points are relevant. First, to what extent are people, when expressing greater 'neutrality', simply indicating that the operational matters of the system

are simply beyond their competence in the general context of what has been called 'the Foucault paradox' (Abercrombie, Hill and Turner 1986), that is, that the side effects of a system (greater control) may be swallowed if the benefits (protection) are sufficiently great. Second, the practice of evaluation is a technically complex matter. This is indeed used by many authors to justify in part the use of independent evaluators. The application of the validity criteria of the social sciences to crime prevention programmes does then depend on some technical knowledge and skill. But it is the duty of the evaluator to ensure that report writing is inserted into and informs, public debate. Thirdly, as Sax and Fine (1989) note the alternative to the practice of a careful evaluation is that innovation in social policy is likely to become an even greater hostage to political fortunes. It will also mean that policy will be at the mercy of pragmatic one-off attempts or fall excessive prey to unaccountable administrative power which may attempt to 'manipulate information for political convenience or advantage' (Norris 1990:124) without fear of contradiction.

Fitness of purpose: was the Doncaster study 'useful'?

The study has been utilised by the Safety in Doncaster system in a number of ways. It has had a marked formative influence suggesting forms of monitoring and providing useful data (fault reports) for management purposes. The influence of the summative element of the evaluation is harder to judge – especially from this time scale. It has been used as a way of creating an action plan for the system in order to maximise its effectiveness. Has the influence of the study spread outside the Doncaster area? Some 100 copies of the annual report have been sent out – a recent visit from the Minister of State for the Home Office responsible for crime prevention, to South Yorkshire demonstrated that he was aware of its existence and the findings contained therein. Time will tell whether the study will refine the crude dash to CCTV that has occurred in the early 1990's. The recent bidding round published in January 1998 seems to indicate more limited support for crime prevention through CCTV. It also places much greater emphasis on a systematic framework for evaluation (Home Office 1998). Did this project accomplish 'fitness of purpose'? The position taken here is that the present enquiry did, in a limited way accomplish fitness of purpose. It

did so by both influencing the development of the CCTV scheme in the short term and by contributing to the information base necessary for a democratic consideration of the value of such systems in the longer term.

A strong critique of evaluation research on the basis of an attack on its fitness of purpose may be mounted to suggest either that this aim is often not realised in practice or that it is necessarily unrealisable. The position may be summed up as arguing either that failure usually does not matter or that 'failure never matters' (Muncie 1990). In the former case then programme managers or policy makers often brush research findings aside. In the latter case manifest policy aims are nothing more than a cover for latent policy concerns – it only matters if these latent aims are realised.

It is sociologically naive to suggest that programme management and policy making are not the complex product of many forces, only one of which may be the result of any evaluation research. This may be graphically illustrated by a number of examples perhaps the most glaring being the recurring theme of short deterrent custody for young people. Short deterrent custody has experienced a career that has had four phases in the 20th century. Phase 1 (1908-1933) started when a maximum period of one month custodial treatment in a place of detention was provided for in the Children Act of 1908 as a substitute for imprisonment. This provision fell into disuse reaching zero in 1933 (Radcinowicz 1952). It was revived in the lead up to, during and immediately after the second world war, eventually culminating in new legislation making provision for junior and senior detention centres (Criminal Justice Act 1948). The creation of detention centres was a slow process but by the early 1960's a national network was in place. Phase 2 was thus accomplished. However, by the late 1960's opposition was growing especially to the use of junior detention centres. Junior detention centres were abolished by the Children and Young Persons Act of 1969. Phase 3 began when, on the one hand the new Conservative government refused to implement the abolition of junior centres, and on the other hand, magistrates began to make increased proportional use of detention centres. This culminated in the 'new regimes' approach of the 1979 Conservative government. However, the use of the detention centre

order began to decline after 1983 (largely as a result of other provisions of the Criminal Justice Act of 1982, which allowed magistrates new custodial sentencing powers). The Criminal Justice Act of 1988 abolished the detention centre order. But phase 4 was signalled when Michael Howard was appointed as Home Secretary in 1993. He put resources into new image deterrent custody in the shape of the 'boot camps' (Nathan 1995). The Labour Government in March 1998 closed one boot camp ('The Guardian' March 1998).

A number of studies have shown that the deterrent effects of short residence custody are limited. Early studies by Bagot (1944), Radcinowicz (1952) and Banks (1969) all supported this conclusion. Similarly the Home Office Psychology Unit Report (1984) indicated that the new regimes approach did not produce a noticeable impact on reconviction rates. Whatever the methodological shortcomings of these studies their findings have indeed been largely ignored.

Thus programme or policy construction in crime prevention is a complex product of many forces including social anxieties (Hall et al 1978), political ideologies (Pitts 1988), social sentiments (Garland 1990) organisational processes (Cohen 1985) and political economy (Scull 1977, Rusche and Kirchheimer 1937, Cohen 1985). Probably what is surprising is not that this is so, but the clarion calls by academics (Bottoms 1974: Garland 1990) to engage in a study of the influences on criminal justice policy have been neglected.

A contingent relationship between evaluation research and programme managers or policy makers is suggested. An 'in principle impossibilism' is not supported. On the contrary, having an influence on policymaking or programme management is dependent on a number of considerations. Some of these are the nature of the research bargain struck, the actual practice of the evaluation and its particular context. These areas, of course, must be recognised from the start – an unfair research bargain should signal the need for at least a rethink about the project. Research bargains also need to be actively managed and monitored. Of course, even the fairest research bargain together with the most rigorous maintenance of the bargain may not insure against being ignored. But any research bargain

should ensure that the findings of the research are not merely relegated to the wastebasket of the administrator. As a matter of routine they should be made available to the wider constituencies of interest connected to the matter.

The present study cannot pretend to a heroic effort in this matter. Nevertheless it was based on a clear research bargain, which did allow for publication of the results. The study has exerted a formative influence on the CCTV project in a number of ways. These include: the systematic documentation of faults in implementation of the technical system allowing for better rectification of faults; rapid identification of system faults; the re-design of the Help Points to make them more user friendly, the early identification of the importance of the communication link between the control room and operational police units; the need to locate the CCTV scheme in a broader strategy of crime control; the importance of clear, undramatic publicity; the need for a code of practice in relation to the system.

It is too early to be precise about further effects of the evaluation but the influence of the study and others like it (which have also overcome some of the difficulties attached to measuring effects) will be to limit overclaiming and set the current movement in its social context and offer a better understanding of what CCTV can and cannot do. The alternative would have been that practitioners' would have continued to make unchallenged, exaggerated claims.

The CCTV scheme and the academy: should evaluation research be useful?

Evaluation research necessarily entails critically examining a policy or programme with a view to offering an account of impacts measured and appropriate inferences that may be drawn. Clearly this arrangement depends upon a particular evaluation research contract. It also depends on the assumption that the study of the impact of crime control is an appropriate role for the social sciences.

The present study was inexplicit about the nature of the 'contract.' What did the parties get from this contract? The contract providers, Safety in Doncaster, wanted three things: an independent researcher, technically competent evaluation practice and a 'finalised' 'scientific' account. In return SID could offer research opportunities, the possibility of the publication of results and a contribution to the national debate and payment for the evaluator. These elements were of considerable interest to the present author offering both the possibility of publications and the basis of a PhD. It was attractive to the author's teaching institution insofar as the money involved provided for no-cost staff development, paid for extra computing facilities and provided cash to an institution suffering from stringency imposed by funding bodies.

This does, however, alert us to the appropriateness of the role of for the social sciences implied in evaluation work. Grimshaw and Jefferson (1987:ix) suggest that there is a severe incongruity at work here. They argue that, based on their experience of police research, there are 'structural axes of differentiation' between the researcher and the researched. The first source of this differentiation derives from 'the Home Office's interest in policy for the police and the university's in *explaining...policies of the police.*' The second source of differentiation is based on 'any conjunction of an institution given the power to uphold order... and one with the responsibility for examining and explaining the exercise of power, can hardly be harmonious.' In short the argument suggests that there is a necessary discontinuity between the task the academy sets itself (explaining the powers of the police) and the tasks of contract providers identified with the criminal justice system whose role will be to find methods that uphold order most effectively.

Perhaps the present study did take the official line – some part of the 'selective visibility' may result from this. But the study was by no means a whitewash uncritically underwriting the activities of the CCTV system. The findings show a modest net crime reduction effect of 6% involving both displacement and diffusion of benefits effects. Furthermore there was little reduction in the fear of crime, detections rates did not improve

and neither did traffic management. Finally, there was no discernible increase in town centre use.

This may suggest that the structural constraints put forward by Grimshaw and Jefferson (1987) noted above are not universally applicable conditions. There are some relevant specific areas of difference between their study and the Doncaster evaluation. For the Doncaster evaluation the role of central government was nothing more than a regulator generally insisting on evaluations rather than an active participant if not contract provider. For Grimshaw and Jefferson central government played a major part. The political context was clearly divergent. The Sheffield project began in 1977 but moved into an era of muscular Conservative government domination, which might have empowered a more prescriptive approach both from the Home Office and senior management of the police force studied. As Hall noted of this period it was based on 'the drift towards a law 'n' order society' (Hall 1980:3). The context of the present study 1995-8 was quite different – characterised as it was by a Conservative government that had 'stretched the elastic of democracy too far' (Major quoted by 'The Guardian' May 1997) and therefore aware of the frailty of its hold on government. Finally, decentralisation of management functions within the police force now means, unlike then, that many aspects of activity are no longer under the direct scrutiny of headquarters-based senior officers.

In summary the Doncaster evaluation was not without its limitations with regard to this issue. The contract was not made explicit. The study was perhaps blunted by the penetration of some official notions. Perhaps also it was possible to make whatever positive elements the study possessed less the product of happy chance and more a product of explicit and organised relationship. But, on the other hand, the study demonstrates that there was space for the validity criteria of the social sciences to be applied to the claims of the CCTV programme. Further the study demonstrates that there is a role for the development of a critical evaluation practice to consider the possibilities of change. It also demonstrates that evaluation research can enable social scientists to 'come to terms with those aspects of modern institutions associated with surveillance as a medium of power' (Giddens 1985:41).

Democracy, consultation and the dissemination of findings

The present study made some effort to consult representative samples from four groups. The first group was town centre users who were contacted by street surveys using quota samples derived from up-dated census data. The second group was multi-storey car park users selected by random time sample. School pupils represent the third group and were contacted through the school. Form groups in year 11(aged 14 years) were used. The fourth group surveyed was town centre businesses. These were drawn from a sampling frame provided by the local chamber of commerce. The last group was key workers (Doncaster magistrates, police officers, and traffic wardens, control room staff and Highways Department staff). Questionnaires were sent to all key workers. The studies of town centre users and school pupils included night time users of the town centre and specifically targeted those under 16 years of age (the 'school pupils' surveys). The surveys collected respondent details and consequently the determination of significant variation in opinion and experience was possible. Some limited discussions occurred with young offenders. But inevitably shortcomings are clear. Some groups were not systematically consulted. These included local councillors, ethnic minorities and town centre dwellers. Moreover, the method of consultation was not conducive to gaining a free expression of opinion. The latter point concerns the possibility of the use of more 'open' means of data collection like 'focus' groups and panels though it is recognised that the use of these methods creates problems of a different kind (see Bulos 1995).

Were the results disseminated in a manner, which enabled all constituencies access to them? This issue concerns not just how they were disseminated but in what form. In practice the material was disseminated by means of three preliminary reports dealing with 3, 6 and 9 months of operation and an annual report. These reports were made available to the media and the public. In addition local media coverage of the 3 monthly and annual report was extensive. The following critical comments can be made about this process. First, the timing of the reports was not appropriate – on reflection the only justified report was the annual statement. A number of factors pushed toward premature disclosure. My lack of

evaluation experience was responsible for such expectations being built into the contract. The needs of the CCTV manager to receive formative data also played a part in premature disclosure. Pressure from the steering group played some part. Finally media pressure was a factor.

Second, was the annual report (and other preliminary documents) presented in an understandable form? A technical report was produced full of tables and statistics amounting to some 90 pages in length. It was clear that for some, including a Minister of State at the Home Office, its style and content did not facilitate understanding. On reflection more time should have been spent producing a more user-friendly account. The report was published in English only.

Third, the extent of media interest in the first (3 month) report was intense and entirely unjustified by the confidence with which any conclusions could be drawn. This heightened the difficulties about too frequent and perhaps premature report writing. But an entirely separate issue is that concerning the media coverage – it is clear that the local media could not always be relied upon to disseminate findings in an accurate manner. Probably not surprisingly some interpreted the results as showing only a definite decrease in crime ('Independent Study Shows Big Fall in Reported Offences...' Yorkshire Post 25/06/97) and others only a definite displacement of crime ('Crime Shifts to the Suburbs' The Star 25/06/98).

Despite the lengthy negotiations leading up to the evaluation proper and the explicit agreements made concerning the determination of impacts the present evaluation experienced the contradiction between academic rigour and meaningful and satisfying conclusions. This was most evident with regard to the claimed primary effect of the system, crime control. A 5% significance level was eventually determined as a best compromise between academic rigour and saying something. Nevertheless the application of both 2-way analysis of variance and linear regression, led to some heart searching. Probably the best example of this is regarding burglary/ burglary other, which showed a 25% decrease in the

before/ after period in the surveilled area. This was significant and distinct from other areas. However, linear regression showed that a fall in offences was occurring prior to the installation of the cameras and that the fall recorded was not significantly less than what might have been expected without the CCTV system. Indeed, on the contrary, the decrease in offences had not occurred as much as would have been expected on the basis of previously established trends.

Feasibility: the context of economic and political constraint

To what extent has the study suffered from political and resource constraints? Only a cursory review of the comments so far in Chapter 7 and elsewhere (Chapters 4 and 5) indicates that the present study has been detrimentally affected by resource constraints. These constraints have limited the use of qualitative methods (in exploring control room operation, offering less artificial settings for the study of attitudes of groups studied by other means). They have led to the neglect of some interest groups (for example offenders, ethnic minorities, and town centre residents). Resources constraints have curtailed quantitative work particularly regarding the choice of some sampling methods. Such constraints have also limited intergroup comparison and the research designs used. Constraints have restricted the consideration of crime to notifiable offences. The study of detection rates was restricted to the surveilled area restricting the research design. Finally, these constraints have limited the exploration of alternative explanations of the effects discovered.

Political constraints have also influenced the study. The study has been conducted in circumstances that were not unproblematic. The business group would not divulge footfall data largely because of tactical concerns about the possibility of stimulating a downward spiral of demand. The study has been conducted in a situation where the traditional support base for the council has been eroded. A scandal in local government, dubbed 'Donnygate' by the media, was also emerging. The 'Donnygate' affair was concerned with the alleged misuse of public funds by local councillors. This made the council sensitive to studies into town centre activity. It made the council probably less co-operative with a study of a scheme run

by the police. Indeed police officers were investigating the 'Donnygate' affair. Relations between the council and some business groups were tense during the period especially over the re-arrangement of on-street car parking. This meant that access to the DMBC shop premises study was not extended to the 1996 survey and therefore limited the range of data collected especially for assessing the aim to increase town centre use.

Measuring specific aims: fundamental issues

Only those specific aims requiring further comment are addressed here.

Fear of crime

Given the strategic role of fear of crime in affecting the decision to give support to CCTV schemes and the qualified nature of this support, whereby more control is perhaps reluctantly conceded to obtain more protection, the conceptualisation and consequent determination of fear of crime is a significant issue. The position adopted here is that the study can be criticised for reproducing relatively crude notions of the processes of social cognition that contribute to fear of crime.

Sparks' (1992) critique of Young (1987) is instructive. The debate was enjoined when Young (1987) attacked both what he called 'new idealists' and 'new administrative criminology' alike for engaging in 'the great denial.' This was seen to concern the tendency of both groups to deal with rising fear of crime by asserting that there is a disjunction between reality and fear. Young notes this 'surplus' fear was explained by reference to either the notion of moral panics (in the case of the 'new idealists') or neighbourhood decline and /or the growth of incivilities (by 'administrative criminology'). He goes on to suggest that these disparities are more apparent than real, that to deal with them in either of the ways suggested above denies the practical experience of women and the elderly and that these views give succour to inappropriate policy change. Young argues that,

'there is a rational core to public concern and images... that is, that popular conceptions of crime and policing are... constructed out of the material experiences of people rather than fantasies impressed upon them by the media and the state' (Young 1987:337).

However, Sparks (1992) argues that this view puts Young in the position of giving away some part of the 'criminological good sense' (Garland 1987 quoted by Sparks *ibid*: 122) of 'realism.' Sparks goes on to justify this claim by arguing that Young's assertions here raise important questions about how we should conceptualise fear of crime. These turn on the whole notion of 'rational' fear which in Young becomes equated to any fear that is 'wholly accounted for by an objective level of risk' (Sparks *ibid*) and is seen to 'invert the logic of the moral panic thesis rather than to correct it' (Sparks *ibid*: 125).

Sparks (*ibid*: 123) suggests that Young's view fails properly to take account of the complexity of social cognition. In particular he argues that research on fear of crime has yet to admit the full complexity of the relationship between '...the "reality" of risk and the appropriateness or rationality of an emotional or dispositional state called fear....' He defends his 'denial of the great denial' as not being inherently anti-realist. He goes on to try to examine the concept of fear by using examples of fear of flying and dogs, concluding that neither case tells us 'prescriptively how afraid it is reasonable to be' (*ibid*: 125). He notes that researchers have tried to deal with this by refining the categories used (to take account of fear for the self, fear for others, fear of places or situations), but argues that such empirical differentiations do not help us to conceptual clarification.

Sparks uses Douglas (1986) to try to do this finding that none of the usual definitions offered settle the question of when it is reasonable to be worried or fearful. He concludes that what we mean by fear of crime is 'not so much a calculation of probabilities as a set of intuitions' (Sparks 1992: 127). He relates the distinction, between probabilities and intuitions, to Giddens' (1984:339-40) concern with respectively, validity and credibility criteria, seeing this as compatible with Young (1987) at least so far. But Sparks then argues that Young attempts to 'restrict, *a priori*, the set of experiences which may be relevant' (1992: 127) to this 'intuitive' mode to direct experiences of crime alone.

Sparks argues that the close linking of fear with experience is a signal failing in Young's account and is unsupported by the literature on risk. Indeed this literature suggests that intuitions are connected to culture defined by Douglas(1986) as 'actively invoked conventional wisdom' (Sparks 1992:127). Sparks argues that the risks associated with crime are made more salient than domestic accidents and some crimes are made more salient than other crimes, because of culture. He uses Smith (1986) to exemplify this view arguing that though 'fear and risk do tend to coincide they do not coincide uniformly. The sense of living in a dangerous place also has to do with awareness of economic and political marginality' (Sparks 1992: 128). Such risks may also be affected by broader representations of crime in the media which provide the basis of rumour and gossip which in turn find salience because of risk, a sense of living in a dangerous place, feeling economically and politically marginalised and experiencing a sense of decline. This complex combination of processes explains why it is that even in high crime areas fear of crime seems 'disproportionate'.

Sparks concludes by assessing the implications of these views for the realist paradigm. He makes four main points. First, he suggests that the introduction of notions of unevenness between fear and risk of crime does not gloss over the real risks faced by particular groups nor is it inherently anti-realist. Second, he argues for the need to investigate the relation between 'public discourse and private feeling' (ibid: 131). Third, he suggests that studies of fear of crime need to be 'less presumptive...of the reasonableness of possible responses' (ibid: 132). Finally, he argues that fear of crime is based on 'practical consciousness' but that such practical consciousness is not purely or merely, inductive. This is because as human beings we may assess risks but always with limited resources and data – in these circumstances representations are important and both give salience to certain kinds of experience and are given salience by that experience. Sparks argues that some environments are chronically fear-inducing (multi-storey car parks, town centres especially at night) and so are some modes of crime prevention (CCTV?).

How does this apply to the present study? The study focused on fear of victimisation specific to the respondent and to a place, either the town centre or one of the multi-storey car

parks covered by the CCTV system. The time periods were clearly denoted. It is clear from the discussion offered by Sparks that the ambit of the present concern might have been widened to include fear for others' safety. More fundamental than this is the relative apparent intractability of the problem – even though some decreases were noted in Chapter 4 the overall levels of fear of crime remained high (ranging from 58-78%). Perhaps Sparks can throw light on this in that time-situated concern for personal safety is influenced by more general processes and is not amenable to particular limited interventions.

But more pertinently it may be that, somewhat ironically, the studies undertaken of the CCTV system and the presence of the system itself, *ceteris paribus*, tend respectively to put people in mind of the possibilities of criminal victimisation and encourage people to be fearful about criminal victimisation. This is because CCTV systems do nothing to sustain trust and community and a great deal to construct a fortress approach to crime control. This matter must be related to the issue of the qualified support for CCTV noted in Chapter 3. If the intractability of the fear of crime is indicative of media representations of the 'crime problem' one must ask whether such representations would live up to the validity criteria discussed above. If not, one wonders whether surrender to new forms of control for protection from these fears is justified.

Will the spread of CCTV systems be limited by their apparent failure to reduce fear of crime? Or will continuing high levels of fear of crime be used as a yet further justification for the expansion of the web to new areas? Both these last two concerns were considerably under-researched by the Doncaster evaluation. Indeed the processes of social cognition involved are barely touched upon.

Crime displacement and diffusion of benefits

Both of these effects were considered using a quasi-experimental strategy and an interrupted time series with non-equivalent comparison groups design. In this design allowance was

made for experimental, regional and temporal processes. Limited additional information was derived from the public and key worker surveys.

However, the methodological problems in measuring displacement and diffusion of benefits are considerable and have only been partially overcome in this study. There are two main problems here – the problem of isolating areas for comparison and the problem of the multi-faceted nature of displacement. The first issue concerns the fact that the comparison groups established for the study ‘double up’ as experimental groups. The second problem concerns the frequently remarked upon impossibility of ever pinning down these effects. There are six types of possible displacement (Barr and Pease 1990). Geographical displacement alone raises serious difficulties of measurement given that the displacement of a finite amount of crime is, in theory, to a disparate and unknown number of places. Some of these may be immediately detectable (from the streets to the inside of buildings both within the surveilled area). Others may not be – they could be outside of any net thrown by the researcher – in this case outside of the South Yorkshire Force area. Furthermore with potential geographical dispersion over a wide area of a finite number of offenders the net effect is thinly spread and measuring it is like trying to register the effects at one end of the Derwent Water, of a pebble dropped in at the other end. Of course this simple picture is complicated still further by the possibilities of other kinds of displacement some of which also throw up their own special problems of measurement. An example of this is ‘perpetrator’ displacement – where another offender presumably commits the same offence in the same place using the same methods on the same target at the same or similar time. S/he simply steps into the shoes of the presumably more careful original potential offender.

Determining the existence of displacement suffers from the problems associated with trying to pin down any trend in crime. During the experimental period significant changes may have occurred about which the researcher is unaware. Furthermore, each possible confounding variable would seem to require a study in itself to determine whether or not it was operative.

All of this leads to the conclusion that Gabor reached in 1990 – that it is not possible to pin down displacement and diffusion of benefits, by quantitative work alone. A clear problem of the Doncaster evaluation is that insufficient attention could be given to this issue. The limited interviews with young offenders did not suggest displacement but nor did they suggest crime reduction either.

Cost effectiveness

The assessment of the relative cost of crime prevention programmes is justified. This cannot be used as a substitute for political and value choices. Zimring and Hawkins (1995) offer a critical account of the politically motivated attempts to use cost benefit analysis to justify the move to incapacitation in the USA in the 1980's. They note that 'dollar cost estimates provide a useful means of comparing different types of crime prevention with each other and can be useful in studying offences where most of the harm caused by the offence is economic, but the wholesale translation of heterogeneous criminal behaviour into aggregate dollar values is usually misleading and always seriously inadequately supported by meaningful conceptual foundations.'

The present study examined the costs of CCTV. But clear dangers are evident. First, there is the danger of engaging in a type of practice, which pushes toward an unreflexive concern with value for money. Second, as Zimring and Hawkins (1995:154) note the practice of cost benefit analysis has the potential for technizing and consensualising what are, in reality, only different and contested ways of emphasising the consequences of crime. Ultimately 'monetized cost estimates add nothing to the proper calculus of choice between the costs of imprisonment and its benefits.'

Chapter 8 examines the implications of the thesis for undertaking the evaluation of CCTV systems.

Chapter 8 The conduct of CCTV evaluation research.

In this chapter I seek to draw some general lessons about what would constitute good practice in the evaluation of CCTV systems. The format for the exposition follows the structure of evaluation research set out in Chapter 2, Table 1. It is not intended to provide an 'off the peg' evaluation guide. There are good reasons for recognising that each CCTV evaluation project has to be tailor made. Without some recognition of this the unique and often very varied features of CCTV projects may be ignored. Similarly, there is some need to take account of the skills and strengths of the particular evaluator.

However, neither of these limitations should be taken as a license to undertake evaluation in an idiosyncratic fashion. It should follow that the purpose of this section is to indicate the parameters within which the critical practice of CCTV evaluation research can operate.

Policy space

Sound evaluation research, which avoids being merely a technical fix, must come to terms with the analysis of policy space, by making, not taking, problems. This means demonstrating a critical understanding of the social space occupied by CCTV programmes by examining the local and national economic, political, cultural and penal context they occupy. It also means demonstrating a reflexive awareness of the policy space occupied by the evaluation research project itself. This task entails some reflection on the social circumstances of the perceived need for, and subsequent practice of, evaluation.

CCTV programme aspects subjected to evaluation

Cognisance needs to be taken of the whole project including whether it was originally based on some form of crime analysis. CCTV schemes must be evaluated on what they achieve assessed against what they set out to achieve, in the context of what was used to achieve this

effect. Such aims need to be articulated and agreed with the programme management. But an impact statement is not sufficient to determine the effectiveness of a programme. What is required is a consideration of whether the system set down in the policy documents has been realised in practice. A complete assessment of the programme requires both an implementation and impact assessment. Implementation assessments need to take account of the technical, human and accountability sub-systems. Both assessments must use a variety of data sources. The impact assessment must also attempt to assess possible unintended consequences.

The strategy and design of CCTV evaluation research projects

It seems inevitable that quasi-experimental (OXO) strategies, with a before/after format of data collection, will continue to be used, but not without making the effort to maximise their potential and mitigating their severe limitations. The potential of such strategies can be maximised by the utilisation of the most powerful designs (particularly here the pre-test/post-test comparison group design and the interrupted time series using non-equivalent groups). This potential can also be maximised by placing the results obtained in the context of the known common failings of the particular designs in use.

But this will not counter the severe limitations of quasi-experimental strategies. In particular the way in which OXO strategies tend to a mechanical, 'black box' view of programme effects. This requires attention to be given to the issue of not just whether a particular project has effects but also why. There is need to take the insistent voices of Tilley (1993a, 1998) and Pawson and Tilley (1994, 1996) seriously. However, this does not necessarily mean abandoning the quasi-experimental approach completely but it does mean adding to it and modifying it substantially. In particular, it means attempting to account for programme effects and allowing for subjectively meaningful, as well as causal, explanations. This element will be developed when the study of the crime impact of CCTV systems is discussed below.

The stakeholder context of CCTV evaluation

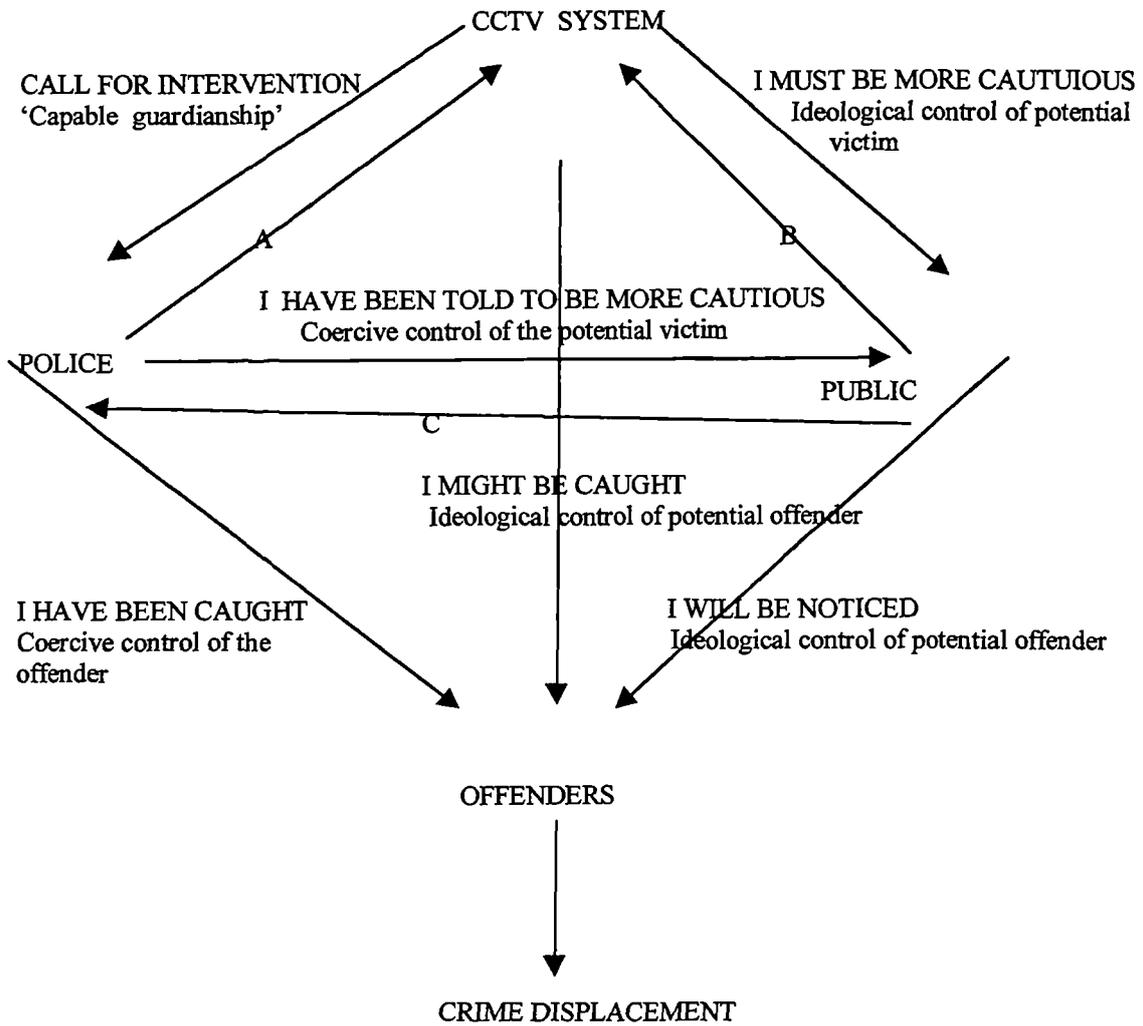
To achieve the aim of appropriate consultation the widest possible identification of stakeholders regarding a CCTV project is necessary. Figure 2 indicates the main components involved in the CCTV web. There are a number of diverse groups involved. The CCTV web consists of the personnel of the CCTV system, police officers and civilian staff, the public and offenders.

Clearly the CCTV system will impact on different groups in various ways. There is some need to explore such variation in opinion not only between but also within the groups. For example, uniformed officers in operational police units working in the surveilled area may have quite different perceptions about the system than their senior colleagues. Members of the public may have very different perceptions about the system according to whether they are older or younger or users of the town centre at night. This may mean accessing particular constituencies using data collection techniques more sensitive than surveys, like for example, discussion groups with offenders or semi-structured interviews with ethnic minority groups.

A systematic sampling device to identify respondents from these stakeholder populations must be used. The techniques used to explore opinion need to be sensitive to the priorities of the group studied. This work need not be survey based using pre-coded questionnaires for all groups. Questionnaires, and indeed research agendas, must attempt to avoid what Ditton (1998:223) calls 'skewed contextualising.'

Premature dissemination of findings should be avoided. Regular feedback to the managing agency should be provided where the emphasis of the project is formative. Reporting intervals need to take account of what can be realistically inferred from a relatively short experimental period regarding impact. Clearly implementation assessment is not so tied to relatively lengthy experimental periods and can be realistically reviewed at regular intervals throughout the evaluation exercise.

Figure 2 The CCTV web



Key:

A POLICE REQUESTS FOR TRACKING AND TRACING

B PUBLIC USE OF THE HELP POINTS TO INDICATE CRIMES COMMITTED

C PUBLIC NOTIFICATION OF THE POLICE OF CRIMES COMMITTED.

The independent evaluator

The review so far has clearly indicated the need for the evaluation to be conducted by independent researchers. There are a number of reasons for this. Independent evaluators should bring with them data collection and analysis skills not possessed by the programme managers. The independent evaluator can operate with some disinterestedness. Thirdly, the independent evaluator can take a broader view of the research problem considering social context and consequences. Finally, the independent evaluator can act as a safeguard against the substitution of cheapness for quality in evaluation research. Regular meetings between the evaluator and the liaison person may help to overcome some of the disadvantages attached to independent evaluation. This contact can reveal important variation of opinion and practice within the scheme. Contact can also heighten awareness about emergent key issues. It may suggest ways of preventing or reducing resistance to the evaluation. It can ease access problems and ensure that access is maintained.

General considerations for maximising the analytical adequacy of the CCTV evaluation

A number of general considerations may be listed. Clear criteria need to be determined for the assessment of the accomplishment of the aims of the system. The criteria for any statistical tests need to be set and justified. Corroboration of findings in relation to any aspect of the system should be set up. This is particularly important for key aspects of the programme (for example system realisation) or where particular measures, though reasonably freely available, have internal validity problems (for example crime reduction where crime statistics are notoriously problematic and any may be the subject of conscious or unconscious influence). Finally, evaluation studies need to compare lengthy and equivalent before and after time periods when assessing the impact of CCTV on recorded crime data. A lengthy experimental period is also clearly preferable whenever any possible effect of CCTV is considered.

Feasibility and utility

A clearly articulated and negotiated research bargain is a central feature of good evaluation practice by making the study feasible and more useful. Though the bargain is necessarily fragile and requires continuous 'servicing', to negotiate it from the outset means that all parties are clear about their respective roles and the nature, purposes and activities of the evaluation project. An evaluation without such a research bargain is more likely to degenerate into conflicting and dissatisfied groups. The research bargain should cover a number of matters. It is predicated on two considerations. Cognisance must be taken that the evaluation may produce results that are not to the liking of the CCTV scheme management. It also must be recognised that the role of the evaluator is an active rather than passive one – making, rather than simply taking or reflecting, problems or issues. This may mean that the areas to be evaluated from the outset are broader than the programme management originally intended. It may also mean that, during the period of the evaluation, new areas will need to be added by negotiation with the programme management.

First, the aspects of the programme to be the subject of evaluation should be agreed. What is to be evaluated is by no means obvious. It should include questions about the social analysis of the CCTV scheme, reflexivity concerning the policy space occupied by the evaluation and the inclusion of implementation and impact assessments. Clearly this work is predicated on an agreed articulation of the aims of the scheme to be assessed.

Second, the main strategies and designs to be used by the evaluation need to be agreed, including here some indication of the likely weaknesses of the particular strategies in use. Third, the types of data required should be specified together with an indication of the agreed source (the CCTV programme, negotiated by the programme with a third party, negotiated by the evaluator). A clarification of what both parties consider to be authoritative sources may be useful at this stage too. The importance of both qualitative and quantitative data needs to be stressed.

Fourth, the dissemination process needs to be agreed in advance including not only how material is to be disseminated but by whom, to whom. It is incumbent on the evaluator to negotiate the widest dissemination possible for the report to accomplish the task of making evaluation an aid to democratic accountability. Agreement to use the results of the evaluation in publications should be obtained and incorporated into the evaluation research bargain. A media relations strategy needs to be negotiated with the programme management given the high profile nature of CCTV evaluation. A reporting schedule should be drawn up including a specification of reporting intervals together with arrangements for making interim results available on an on-going basis through routine contact with appropriate persons. The limits of interim reporting should be specified.

Fifth, a clear indication and agreed statement of the criteria to be used to assess effectiveness needs to be made. This should include informing the programme management of the nature and implications of any statistical tests used and the reality of significance levels. The relative agreed responsibilities between the evaluator and the programme need to be set out regarding data collection, data inputting, data analysis and report writing.

Sixth, the nature of the independent evaluator should be clarified. Any financial arrangements need to be placed on a clear and unambiguous footing. Clearly such funding may be in kind, that is, based on an agreement to provide data collection or inputting services. Any limitations imposed by funding levels should be articulated. It is incumbent on the evaluator to not make unjustified claims to scientificity.

Finally, the agreement needs a human face thus both the evaluation project and the CCTV programme need to nominate a liaison person. The identified individuals should act as the first point of contact when routine information is needed as well as in times of difficulty. Regular meetings between such individuals are advisable.

Some issues about feasibility and utility still remain. Access to data must be negotiated (perhaps using the CCTV programme management) and then maintained. Cognisance needs to be taken of the political context of the study balancing the relative demands of key players. The evaluation of CCTV schemes may occupy a high profile position and be the subject of media curiosity. Balancing cost against validity and systematicity is a constant issue to be faced.

Cohen (1985:7) suggests that most criminological studies of decarceration are uniformly 'dull' and fall into one of three categories namely, '...evangelical, fudgy or nihilistic...' He also suggests that they tend to fall into 'analytical despair and adversarial pessimism' (Ibid.: 261). The theme of despair and pessimism is a frequent call from other writers in the field especially those regretting the impact of well-founded evaluation studies. Indeed following from this is the concern that failure never matters either because the underlying but hidden agenda is fulfilled, or because policy making is relatively uninfluenced by research results.

The present study suggests a break with pessimism, impossibilism and the identification of all evaluation as a justification of the status quo. This gives too much away. Here a critical role for evaluation research is suggested. Of course this links in with the theme discussed in Chapter 2 where a critical stance on evaluation was first mooted linked into legitimisation crises. This stance unites the key themes of the whole thesis. One part of this thesis is concerned with the impact of CCTV systems, an important aspect of the general growth of surveillance in society. This process, as noted above, is essentially Janus-faced. But evaluation is an aspect of the same process. Evaluation is about surveilling the surveillers. Like the broader process it too can be seen as Janus-faced capable of simply justifying the status quo or being a genuine attempt critically to understand the nature, impact and social consequences of this important movement.

The form critical evaluation research should take is to start by not simply taking but making its own problems. As noted above, this means taking a critical look at the social context and effects of CCTV systems. But it also means avoiding adversarial pessimism by engaging in careful analysis and exploring the black box surrounding why CCTV affects particular crimes in specific ways. It also means negotiating a particular research bargain which allows the results of evaluation work to be disseminated to the widest audience and thereby ensuring that the material produced can be used in the democratic process surrounding decision-making concerning CCTV. It means attending to minority voices and making use of data collection techniques, which allow for this. This may mean giving support to CCTV projects as ways of controlling crime or rejecting the use of CCTV. So be it. What is necessary is a systematic process of 'registering the gains and recording the losses' (Cohen 1985: 261) which shows 'sensitivity to success' (Cohen 1987:369).

It should be noted though that critical evaluation practice is not a form of debunking or expose journalism. Ethical considerations of research practice dictate that all research subjects co-operate with the evaluation project in a condition of informed consent.

Considerations for evaluating particular aspects of CCTV programmes

Implementation assessment:

The realisation of technical systems

Clear systematic exploration of the topic is required based on something more than the perceptions of the system manager gleaned from frequent meetings. A useful device for the Doncaster system was a fault report statement that was filled in whenever a fault developed. This included data on the nature of the fault, date and time and when the installer remedied it. CCTV systems are technologically complex. Most contracts will thus have provision for completion to only be declared when an independent person, who has the necessary technical competence, has given the system a certificate of fitness. This should be monitored.

The perceptions of crucial key workers – control room staff, police officers, and magistrates – will also enable a view to be built up of the operationalisation of the system.

The realisation of associated human systems

Three data sources are possible here. Control rooms should be encouraged to maintain a log of all system events providing brief details of source of 'referral', nature of referral, action taken and outcome. Further, detailed observation of the control room is necessary in order to understand the nature of the logbook as well as the way in which control is constructed. The observation schedule used by Norris and Armstrong (1997) is worthy of note here. The final source of data may be derived from key worker studies particularly serving police officers in the surveilled area.

The realisation and effectiveness of accountability systems

A review of the operation of the management group and its various partners must be complemented with a review of any ethics committee. There is no substitute for observing these meetings though the minutes produced can act as useful records. Any code of practice needs to be considered in the light of practice.

An analysis of any video material disclosed to the media is required. A study of the way in which videotapes are used in the prosecution process (by the Crown Prosecution Service, defence solicitors and courts) would throw light on a neglected aspect of CCTV operation.

The location of the CCTV scheme in a broader strategy of crime prevention

This may be monitored by oversight of the minutes of the management or steering group and /or observation of the group. The provisions in the Crime and Disorder Bill may simplify the task – to monitoring the 'leadership agency' set up.

Impact assessment:*Public attitudes towards CCTV*

A combined strategy is necessary which enables the exploration of attitudes about CCTV systems together with criminal victimisation, fear of crime and town centre use. Some sensitivity to problems connected to 'skewed contextualising' is necessary. Respondents should be specifically asked about the merits and problems of CCTV. Clearly this work needs to be framed in appropriate before/after modes and based on rigorous sampling. Respondent data needs to be collected to consider variation in opinion. It is important that significant minorities (night-time users of the town centre/ ethnic minorities) and /or special user groups (women, offenders) are identified and studied. If the attitudinal data are to be used in a quasi-experimental manner then the more powerful designs (pre-test/post-test non-equivalent comparison groups) need to be used. Survey data needs to be complemented by more detailed, qualitative work. Both approaches need to take cognisance of the awareness of respondents about the nature, coverage and capabilities of CCTV systems. Experience shows that a significance of proportion test may be the preferred method for determining the difference between the before and after sweeps.

Traffic management and town centre use

Where an impact on traffic management is seen as desirable then this could be investigated by surveys of appropriate key workers and direct questions to the public on their experiences of traffic congestion in their use of the town centre. Changes in town centre use may be established by means of social survey. Due regard needs to be taken of the split between attitudes and behaviour and specific rather than general questions used. Corroborative data would be useful here relating to footfall material and takings surveys from key shops, provided commercial confidentiality can be overcome.

Fear of crime

Cognisance needs to be taken of the complexity of the character and sources of the social cognition that underlies the notion of fear of crime. This requires a quantitative and qualitative approach both broadly set within a pre-test/post-test with non-equivalent groups design. Quantitative work should explore variation within and between before and after periods. This may be complemented by more detailed pictures of the invocation of conventional wisdom offered by before/after qualitative studies including here special interest groups. Finally, account needs to be taken of the broader context of risk – noting the presence of the CCTV system on fear levels as well as the broader socio-economic factors.

Crime: reduction, displacement and diffusion of benefits.

In keeping with the modified quasi-experimental strategy advocated above effort should be taken to determine before/after effects and to explore why these effects have occurred. There are a number of general considerations crucial to an effective analysis of crime statistics here. The relevant research design here is the interrupted time series with non-equivalent groups model. Care needs to be taken in identifying the offence categories used and the areas selected as non-equivalent comparison groups. Clearly equivalent and preferably lengthy before and after periods should be used. Furthermore such work must, using appropriate analytical statistics take account of before/after variation, changes in the region and previously established time trends. The use of recorded crime data is preferable but could be supplemented by the processing of relevant summary offences preferably in more than one area over lengthy periods and subjecting the data to the same tests according to before/after comparison and regional and temporal variation.

Two-way analysis of variance proved useful for determining before/after and regional distinctiveness. However, new measures are needed to determine temporal distinctiveness. The use of Pearson's Correlation Coefficient to determine whether linear regression can properly be applied is recommended. Where this is found to apply to both before and after

conditions then changes in the slope of line can then be used to guide decisions about the significance of the change. Clearly where a trend moves from scatter to positive or negative correlation or from positive or negative correlation to scatter, then an effect can also be determined. Finally, cognisance needs to be taken of the problem of disjunctions. When disjunctions occur investigation of the data using exponential regression is recommended.

Since crime statistics are notoriously problematic and subject to conscious and unconscious manipulation there is some need to use alternative, corroborative measures here. Ideally corroboration could come from victimisation surveys taking account of the usual failings of these studies and probably the need to adopt the more powerful quasi-experimental designs (possibly the pre-test/post-test non-equivalent groups design). Surveys of key workers and studies of offenders may add to the picture formed by these two other methods. A significance of proportion test is the recommended method of determining difference here between the before and after sweeps.

The exploration of the 'black box' of CCTV, however, must cause the research programme to be structured in a different way. This requires an examination of a number of new issues. What is it about CCTV systems that reduces crime? What makes some kinds of crime susceptible to the reductionist effect of CCTV systems? Why are other crimes less susceptible to this influence? What social environments favour crime reduction through CCTV intervention? The acceptance of the need for this analysis owes much to the prodding of Tilley (Pawson and Tilley 1994, 1996; Tilley 1998). The exact shape it takes owes much to Young's notion of the 'square of crime' (Young 1997). Some of the details of the nature of CCTV are located in the useful accounts offered by Norris and Armstrong (1997), Norris and Armstrong (1998), Norris, Moran and Armstrong (1998) and Gill and Turbin (1998).

The analysis of the first two questions posed above – what is it about CCTV that reduces crime and what is it about crime that renders it sensitive to the impact of CCTV - may be briefly summarised in Table 37 below. It is diagrammatically illustrated in Figure 2.

Table 37 Why crime is susceptible to the influence of CCTV systems and what it is about CCTV systems that affects crime.

<p><u>CCTV system:</u></p> <ol style="list-style-type: none"> 1. Totalising or panoptic vision 2. 'Total recall' 3. 'Capable guardianship' <p>Variables:</p> <ol style="list-style-type: none"> 1. Nature of area surveilled e.g. 'rat runs' 2. Nature of system e.g. quality of pictures 3. Nature of the organisation of control room e.g. integration with operational police units. <p><u>Police:</u></p> <ol style="list-style-type: none"> 1. Authoritative, speedy intervention 2. Targeted intervention (deployment , back-up, tracing) 3. Protected intervention 4. Evidence gathered <p>Variables:</p> <ol style="list-style-type: none"> 1. Connection to and credibility of, CCTV control room 2. Resources available <p><u>CPS/ Courts:</u></p> <p>CPS</p> <ol style="list-style-type: none"> 1. Prosecution decision 2. Charge decision <p>Courts</p> <ol style="list-style-type: none"> 1. Verdict intervention 2. Sentencing intervention <p>Variables:</p> <ol style="list-style-type: none"> 1. Integration of CCTV with legal actors 2. Integration of CCTV with courts 	<p><u>Public (as offenders):</u></p> <ol style="list-style-type: none"> 1. 'I may be seen.' 2. 'I will be seen.' 3. 'I will be remembered.' 4. 'I will be caught.' <p>Variables:</p> <ol style="list-style-type: none"> 1. Beliefs about CCTV 2. The conditions of the offence (place of crime, victim of crime, method of crime, meaning of crime, visibility of crime)
<p><u>Public (as on-lookers):</u></p> <ol style="list-style-type: none"> 1. Protected response 2. 'Capable guardianship' <p>Variables:</p> <ol style="list-style-type: none"> 1. Subjective meaning of surveillance 2. Nature of crime and perpetrators 3. Subjective meaning of reporting 4. Perceived vulnerability of reporter 	<p><u>Public (as victims):</u></p> <p>Cautiousness response(a product of direct intervention and habituated anticipatory opportunity reduction)</p> <p>Variables:</p> <p>Cautiousness may be limited or exaggerated by- meaning of loss/ injury; role of alcohol; perceived previous vulnerability</p>

The operation of a CCTV system depends upon three assumed characteristics. The first is that the system is capable of panoptic vision, that is, it will be capable of seeing all or most events. Second, it is assumed that the system will be capable of 'total recall', that is, it will be able to identify, endlessly revisit and display criminal events to a wide audience. Third, it is assumed that CCTV systems provide for 'capable guardian[ship]' (Brown 1995), that is, offer a willingness and ability to call forth an authoritative response. Clearly these capabilities

will vary according to the type of system and how it is used. They will also vary according to the relationship between the system and those called on to provide an authoritative response (operational police units, police officers dealing with cases, CPS, courts, defence solicitors, defendants).

Further in the gaze of the camera the watched subject is 'distanced' from the watcher in at least three ways. First spatially, in that the watcher is physically removed from the watch and cannot be seen by the watched. Second, temporally, in that the operation of observation may be time-delayed. Third, socially, the system into which the watcher is located wields power or authority over the watched. All of these act cumulatively to capture the subject in a gaze/ relation that is based on an 'asymmetry of power' (Norris and Armstrong 1998:4).

How does CCTV impact on the watched? Clearly it does so by providing the possibility of swift or at least more certain intervention against those committing acts deemed deviant or criminal (*I will be seen and be caught, I will be remembered and subsequently caught*). In this sense it is coercive in character, dealing with events as they happen by ensuring a swift and sure authoritative intervention. To some important extent the effects of CCTV systems seem to depend on effective intervention and thus where coercion does not happen any reductionist effects will be eroded. This has implications for the 'dummy cameras' approach to CCTV systems and for systems that are not monitored. Effective intervention will follow criminal action. But the impact of the system on crime does not end here – the effect is also ideological – it is about the production of 'habituated anticipatory conformity' (Norris and Armstrong 1998:5). In this way CCTV systems act to induce self-regulation. The power relation implicated in deviance control is no longer 'exercised over someone but *through* them' (Ibid: 5). 'I may be caught.'

The above analysis suggests that there are significant possibilities for a varied pattern of interaction between CCTV and the potential offender. What processes are likely to influence 'habituated anticipatory conformity'? Two main sets of factors related to beliefs

about the system and about offending are relevant. The first concerns beliefs about the existence, coverage and capabilities of the CCTV system. This would include both tendencies to envisage the system as having greater geographical coverage than it does to forgetfulness about the existence of the system altogether. Clearly these beliefs are mediated by sub-cultural practices about the use of town centre space and alcohol and other drugs which may induce carelessness, recklessness and sheer bravado (a sort of 'fuck it' factor). They might also include some oppositional understandings about the system (and policing and control more generally) expressed articulately or inchoately.

The second set of factors concerns the 'offence'. Here the CCTV scheme has an active and processural role especially regarding certain kinds of offences (notably public order). There are a number of considerations here including the type and level of motivation of the offending, the role of the clandestine in offending and the flexibility of offending in relation to place and victim. First, the type and level of motivation of the behaviour, which is defined as offensive may vary. The type of motivation may be financial gain or symbolic display. Clearly such conduct may be individual or collective. The level of motivation for the offence may also be variable. Specific behaviour may be overdetermined or not, thus making it more or less likely that the conduct will be displaced. It will be more likely to be displaced if planned and motivated by individual gain. For example, stealing cars to 'order' for organised gangs of 'ringers'. It will be less likely to be displaced if 'over-determined' by alcohol, perceptions of masculinity and sub-culture definitions of place. For example, fighting behaviour on a Saturday night in town centres. Second, offending behaviour places a different meaning on the need for being clandestine. Clearly the response to the system will vary according to whether there is a need for privacy or not. Third, offending behaviour may vary according to the flexibility of place, victim and method. Differences in these conditions will produce variations in response to CCTV.

The potential impact of the CCTV system does not finish with the offender. The watched also include those who may provide criminal opportunities. Clearly the CCTV system acts directly to reduce opportunity to crime by 'coercing' the public to be more cautious. This

'coercion' may take the form of police officers being dispatched to talk to particularly careless potential victims. For example, in Doncaster police officers were dispatched to talk to a potential victim who had left a parcel on his car roof. With systems with external loudspeakers, a message may be broadcast to the potential victim. For example, a local educational site has a CCTV system, which is monitored remotely at night. At this site messages are broadcast from the remote control room to members of the public informing them to exercise care concerning their victimisation. CCTV also acts indirectly and persuasively, to induce 'habituated anticipatory' opportunity reduction. The impact on the public as on-lookers may be seen to potentially encourage 'capable guardianship.' This may be seen to consist of a willingness, not only to see an offence, but report it to the police.

Finally, the potential impact of the CCTV system may not be restricted to either the offender or the public. Potential impacts are possible on the behaviour of police operational units, Crown Prosecution Service and the courts.

But the impact of the system does not depend only on the nature of CCTV and the watched. There is also a need to ask meaningful and informed questions about the social environment in which the system operates. This matter is pursued not merely to provide an indication of the limits of generalisation, but to indicate the social context of effect. Five main points emerge from the existing literature. First, what is the 'style of usage' (Pawson and Tilley 1994:302) of the area? Style of usage concerns two elements the time-situated use made of the relevant space and the meaning this has for the users. Second, what is the 'lie of the land' (Pawson and Tilley 1994:302)? Lie of the land refers to the surveillance capacity of the area, that is, its physical layout. This is not a fixed capacity either in the short term, for example, changing configurations of parked cars create different surveillance patterns and medium term, for example the planting of trees may alter surveillance capacities. Third, how are town centre problems perceived by users and what is considered to be the solution to these problems? Fourth, what is the alternative resource context? What forms of crime prevention already exist? Finally, what is the resource context of the CCTV system? This entails

examining the nature of the technical system of the CCTV project. It also requires a consideration of the human systems in place, including the integration of the CCTV system with police units and other emergency services.

The unpacking of these complex processes suggests that the study of CCTV may be developed by the use of a research agenda, which sets these concerns within a quasi-experimental overall strategy. This agenda is set out in Table 38 below. The overall purpose of this agenda is to explore the impact of the system on the identified groups allowing the application of differential sources to specific questions. For example, in Table 38 it is suggested that a crime reduction effect may be sustained by the ideological control of potential victims. This would manifest itself in members of the public indicating that they acted more cautiously whilst in the town centre (only using certain parts of the centre at certain times, avoiding contact with certain individuals, not leaving possessions unattended). Similarly, the impact on offenders might be exerted through anticipatory conformity. Do offenders indicate that they are worried about being caught on camera?

Detections

The examination of detection rates requires a pre-test/post-test non-equivalent groups design to be really effective even in its own terms. The areas selected could parallel those used for the study of crime reduction. Corroborative data may be obtained from offenders and certain key workers particularly serving police officers.

Cost effectiveness

Cost effectiveness analyses are appropriate to compare the relative costs of crime prevention measures. This may allow for an appropriate scaling of any particular measure as well as some estimate of the opportunity costs involved. To be worthwhile the estimates must avoid reducing the irreducible to money terms, they must take account of all costs (including for

CCTV installation, maintenance, monitoring, insurance) and estimate differential effectiveness by cost per crime saved calculations.

Table 38 A research agenda for exploring the crime impact of town centre CCTV systems

Group affected	Mechanism	Data source	Questions
Public	Ideological control of opportunities to crime through anticipatory conformity induced by the CCTV system.	Public Key workers	Has the system created more or less use of the town centre? Do the public act more cautiously in the town centre? Is this supported by the views of business and the police?
Public	Coercive control of opportunities to crime through direct police action.	Public Key workers Control room	Have the public experienced police assistance to be more cautious? In what circumstances/ how often have the police been used to deal with restricting opportunities? Does data from the control room log/ observation support this? In particular does Help Point use support this view?
Offenders	Ideological control by public surveillance.	Public Key workers Offenders	Has public use of the town centre increased or decreased? Do traffic wardens and the police support this view? Does footfall and takings data support the view? Do offenders show awareness of this issue?
Offenders	Coercive control by public through direct or indirect intervention.	Public Key workers Control room Offenders	Do the public show more willingness to report offending? Do the police and businesses register such a change? Is this supported by control log/ observation data? Do offenders support this? I have been arrested as a result of on-looker report.
Offenders	Ideological control by CCTV system.	Offenders Key workers Police statistics Public	Does evidence from offenders support a 'I might be caught' view? Do the police and magistrates support such a view? Are there significant reductions in offending in before/after period distinct from other areas and established trends? Are public perceptions consistent with crime reduction? Do the public report reduced town centre criminal victimisation and crimes seen?

Table 38 A research agenda for exploring the crime impact of town centre CCTV systems (continued).

Group affected	Mechanism	Data source	Questions
Offenders	Coercive control by police made more possible by speedy deployment targeted intervention and protected intervention.	Offenders Key workers Control room log Police statistics	Do offenders indicate that they have been caught by the CCTV system? Do the police and magistrates support such a view? Does the control log/ observation indicate 'system inspired arrests'? Is there evidence of significant changes in detection rates?
Offenders	Coercive control by courts/ CPS provided by sound evidence to ensure prosecution and sentencing.	Key workers survey Offenders	How is the evidence used by the CPS? Do JP's support the view that CCTV evidence is secure? Does offender experience support the view that videotape evidence is being used in this way?
Offenders	Displacement and diffusion of benefits	Offenders Key workers Public Police statistics	Do offenders show awareness of the system (extent of coverage, limits of effects)? Do they indicate that they engage changed methods etc.? Do police officers show awareness of displacement /diffusion? Do the public show awareness of displacement /diffusion? Are significant and distinct increases or decreases in unsurveilled areas evident?

Chapter 8 has set out some of the parameters of good evaluation practice in relation to CCTV systems. Perhaps the hallmarks of such practice can be identified as criticality and reflexivity. The applicability of the framework may extend beyond CCTV and include at least other crime prevention projects, if not crime control more generally.

Chapter 9 considers the implications of the study as a whole for nature of CCTV systems and their place in social control as a whole.

Chapter 9 Understanding CCTV systems.

Chapter 9 offers a reading of the implications of the thesis as a whole for understanding CCTV systems. It draws on a critical reading of the literature on the impact of CCTV systems, the findings of the Doncaster evaluation project and the critical discussion of CCTV evaluation practice offered in Chapters 6 and 7. A number of matters surface as key issues connected to CCTV operation. The account starts with the dash to CCTV. Attention then focuses on the current limits of CCTV. This is an important issue given the extravagant claims made about CCTV by both its exponents and some of its critics. The third matter addressed is the crucial issue of accountability. The final matter considers the place CCTV occupies in debates about the future of social control.

The dash to CCTV

The growth of town centre and other CCTV systems has been stunning in the 1990's (see Chapters 1, 2 and 3 for details). Two aspects of the rapid proliferation of CCTV systems are worthy of comment. The first concerns the general dash to CCTV. The second matter is concerned with the implications of the spread of CCTV systems for other forms of crime prevention.

The dash to CCTV was based on scanty evidence of its crime control effects. Furthermore, there was little evidence for any other of its claimed effects on reductions in the fear of crime and the revival of town centres. Clearly this gives support to the view that Rusche and Kirchheimer expressed some years ago. They wrote that

‘punishment is neither a simple consequence of crime, nor a simple reverse side of crime, nor a mere means which is determined by the end to be achieved. Punishment must be understood as a social phenomenon freed from both its juristic concept and its social ends. We do not deny that punishment has specific ends, but we do deny that it can be understood from its end alone’ (1968:134).

If we extend the view to primary crime prevention this statement has fundamental relevance to our present concern. CCTV must be understood as a social phenomenon, having an existence not merely explicable in crime control terms, being rooted in wider social forces.

Any worthwhile evaluation must deal with this issue by taking account of the broader and local forces shaping the project. This is not to suggest that CCTV does not reduce crime. The present study indicates that a modest reduction in crime is attributable to the system. Nor does it suggest that evaluation is unnecessary or redundant. On the contrary evaluation is seen here as an important adjunct to the democratic process having the potential to limit, by means of well-founded criticism, speculative movements.

The second matter considers what might be understood as the opportunity cost of the dash to CCTV. The failure of the Safety in Doncaster scheme, either alone or together with other local partners, to articulate a broader strategy for crime prevention, is significant. The alacrity with which the dash to CCTV was achieved has not been accompanied with equal enthusiasm concerning developing other styles of crime prevention. Perhaps this is unremarkable given the context – of crime prevention being seen in the relevant period as almost exclusively about CCTV. Further the effort expended on the development and operationalisation of the CCTV scheme was immense and fell on a small group of people. This small group of people was, of course, mainly police officers whose view of the world is not necessarily congruent with social prevention. Perhaps CCTV is seen as an aid to detection by the collection of intelligence and not really crime prevention at all.

However, as the Morgan Report suggests:

'it is [our] view that the social aspects of crime prevention, which seek to reduce those influences which lead to offending behaviour, and the fear of crime, need to receive attention at least equal to that given to the situational aspects of crime prevention...'
(Home Office Standing Conference on Crime Prevention 1991:Para 3.4).

The reasons for this emphasis can be briefly stated. Firstly, diversity of strategy given the relatively poorly understood connection between crime and prevention is itself a virtue especially when combined with well-organised evaluation. Secondly, although some crime might actually be highly opportunistic and not strongly motivated and thus unlikely to displace, other crime is less permanently susceptible to barriers to opportunity. Medium-term social prevention schemes have the advantage of not being a quick fix and potentially addressing underlying processes causing crime and the fear of crime. Thirdly, social prevention strategies may do something to ameliorate the unintended and disadvantageous consequences of

control through situational prevention notably the movement to a fortress mentality (Bottoms 1990).

Finally, such an emphasis would go some way to meet Brown's (1998) well-founded concern that CCTV does not take sufficient account of the extent to which place use and security concerns are gendered. She argues that CCTV has limited relevance to women for a number of reasons. First, women reveal different patterns of behaviour, notably not using town centres as much as (young) males. This claim was sustained by the Doncaster study. Second, CCTV extends male policing adding only to visibility not security. Third, CCTV fails to cover significant areas of considerable risk to females travelling to or using town centres (in taxis, bus stations, and clubs). Fourth, CCTV cannot deal with the prime sources of concern namely 'the alcohol fuelled male gaze nor the alcohol fuelled male display' (Brown 1998:216). Fifth, CCTV has both ideological and financial opportunity costs, blocking alternative suggestions and hungrily eating up scarce crime prevention resources.

The new round of funding bids (1997-8) would seem to place town centre CCTV systems in a less prominent place. Further the new context likely to develop consequent on the Crime and Disorder Bill becoming law may well raise questions about future resources for CCTV systems as well as provide an impetus for a more broadly based crime prevention strategy.

The limits of CCTV

Without an assessment of the limits of technological control it is possible that its rhetoric could be mistaken for reality. There are four issues worthy of discussion. All concern the gap between rhetoric and reality. The limitations on CCTV systems derive from at least four main sources relating to technological systems, organisational processes, human reactions and system impact. The first concerns the problems associated with the actual realisation of technically complex systems and the viability of the specifications created. For the Doncaster scheme the problems of realisation of the system as designed were considerable in scope

and duration. In certain instances they were insoluble. Significant difficulties have been experienced with the camera poles, pre-set mechanisms, camera functioning (involving the pan/tilt zoom mechanisms, iris failure and loss of operator control), VCR's, videotape identification systems and Help Points. Only the problems with the camera poles have been permanently rectified. The difficulties with the videotape library software, designed to provide definitive identification of tapes by allocating a bar code to all tapes used, proved insuperable. The company responsible for the installation of the CCTV scheme simply accepted defeat over this aspect of the system and reimbursed the fee. This is a serious defect as definitive tape identification is at the heart of the audit trail, which the recent House of Lords Report sees as central to the authentication of evidence (Science and Technology Committee 5th Report Para 3.31). Full certification of the system was not obtained during the period of the evaluation – it was eventually granted in May 1998 some 22 months late. There is no reason to suppose that either the company that installed the Doncaster system is any less competent than other companies in the same market or that they are more venal than other companies.

The Doncaster system was based on a precise statement of technical requirements, which were carefully researched in order that the design may deliver the stated objectives. It is necessary to focus attention not just on the realisation of the system but also on the appropriateness of the design. Experience of other CCTV sites suggests that even when realised the technical systems set up will not be capable of accomplishing the aims for which they have been installed because of fundamental design faults. These technical specifications may be more the result of what can be afforded, what is recommended by the installer or what is fashionable rather than tightly connected to the purposes of the specific scheme or indeed the appropriateness or otherwise of CCTV to these purposes.

But putting to one side lack of realisation or system failure, social control by means of CCTV has, at present, definite limits. For many people the panopticon has been the key concept used to describe how CCTV works (Lyon 1993 and 1994). However, the reality is that a CCTV system is not all seeing. The attention of the camera is unidirectional and arranging for multiple camera surveillance of one location does not eliminate the problem. Further, even

if the camera is 'witness' to an incident the actual screen event may not be spotted by control room staff. Even if the camera and the control room both 'witness' an event this does not necessarily mean that effective intervention will occur – effective intervention depends on operational police units being able and willing to respond to calls from the CCTV control room. It follows that the vision of the system is not 'totalising' and neither is it capable of recording all events. 'Total recall' depends on the camera witnessing all events. It may not be pointed in the right direction. Similarly though the camera may witness the event, the images may not be recorded or recorded in a format that is incapable of producing a picture quality that can be used for identification purposes.

There are also clear technological bottlenecks. When the camera witnesses the event and it is recorded, the images may not be available until a time consuming search is made of a multitude of tapes. For the Doncaster system all 23 cameras record in real time producing 23 hours for each hour. In a 24-hour period this would amount to some 16.6 million frames (Norris 1998:255). It is not surprising that the Doncaster study reveals that searching for images on tapes after the event is restricted to serious incidents or incidents, which are known to have occurred at a specific time and place. Even when located they may not provide an adequate image for identification purposes. A recent statement by Nick Ross attests to the poor quality of videotape evidence. In a recent programme (*Crimewatch* 24/02/98) Ross at last declared openly what has been known for some time, that the recorded picture quality produced by many CCTV systems installed in shops, shopping centres and town centres, is insufficient to ensure identification of offenders. The Doncaster CCTV scheme is unusual in that all town centre cameras images are recorded in real time and in colour using high quality SVHS format. But even if the picture is of 'evidential' quality further limits are apparent – unless the person can be recognised by camera operators or the police it is necessary to produce a sort of wanted poster to be used in the media (on *Crimestoppers* or *Crimewatch*). Identification is subject to the lottery of whether the right person sees the appropriate media programme! More recently, clear questions have been raised about the reliability of camera 'testimony' (Elliott 1998). The above also takes no account of the limitations imposed on CCTV systems derived from ineffective maintenance and parts wear.

Second, the effectiveness of CCTV systems depends on a number of human or organisational factors. Some of these factors are: clarity of purpose, agreement between managing partners over this purpose and its operationalisation and the establishment of good, clear working relations between the CCTV control room and the relevant area control room and operational police units. System operation also depends on the establishment of good working relations with the Crown Prosecution Service and the courts. There are at least two other factors, which might detract from effectiveness. The first concerns the possibility of strategies of independence amongst control room staff and police officers, which detract from the impact of the system. Clearly the development of forms of 'easing behaviour' amongst CCTV control room staff or police units may impact on the effectiveness of the system. The second factor concerns the life cycle effect first noted by Berry and Carter (1992). This phenomenon may be understood not as some mechanical process as is indicated by Berry and Carter. On the contrary, it may be understood as part of the social process of 'routinisation' (Weber in Gerth and Mills 1967:262) whereby new activity is increasingly rendered routine, pedestrian and even alienating. So, for example, if the system depends on incidents being spotted on the TV monitors in the control room the level of systematic watching of these monitors may decline with the life cycle effect as routinisation sets in.

The third factor to take into account is resistance or what Foucault (1979:308) calls 'the distant roar of battle' and Giddens (1985:11) the 'the dialectic of control.' Both authors suggest that all control strategies 'call forth counter-strategies on the part of subordinates' (Giddens 1985:11). Such counter strategies may display the full spectrum of behaviours ranging from individual acts motivated by the pursuit of gain or aggression to individual resistance and 'social crime' and protest. For example, in Doncaster, when the system was first installed there was considerable misuse of the Help Point system. Unsurveilled areas within the town centre have become the sites for illegal activities and unsurveilled corridors are used to escape tracking and to provide entry and exit from the town centre. There has also been some damage to and theft of cameras and proactive disablement of cameras (by using a lorry to knock the supporting pole over).

Davies notes the growth of organised, collective opposition including demonstrations against CCTV in Brighton (May 1997) and anti-CCTV workshops at the Glastonbury Festival and the Big Green Gathering (1998:249-250). He also notes that the Socialist Labour Party, the Green Party and the Liberal Party have expressed sympathy with such views. Further 'not-in-my-street or town' opposition is evident from local residents in Bingley, Bradford and Hove and by the councils of Birmingham (1993), Exeter (1992) and Lymington (1997). Individual acts of inchoate protest have occurred in Doncaster but no collective opposition has been noted.

Finally, evaluation research suggests certain limitations concerning the impact of CCTV systems. Public support seems strong but it is segmented and doubly conditional. It is conditional - based on a calculation - in which more surveillance (and therefore the surrender of civil liberties) is accepted in return for greater protection. This would seem to suggest that support for CCTV is contingent on results. It also suggests support for the notion of a 'Foucault paradox', that is, a situation where people consent to their own control. The public acceptance of surveillance implied by this paradox will not suit radicals and neither will its conditional character suit conservatives. Furthermore, public expectations about the impact of CCTV systems are high. Most people thought that the system would deter would-be offenders. It is an empirical question whether this is so. The present study suggests that some offenders are deterred at least in the gaze of the cameras. But CCTV affects only some kinds of crime in particular places. Thus certain kinds of acquisitive crime in town centres would seem to be affected. But assault in town centres seems relatively unresponsive to CCTV. CCTV may displace crime to other areas. CCTV depends for its primary effects on the maintenance of a sense of readiness and alertness, which is difficult to sustain.

The contribution of CCTV systems to improved detections or apprehensions is rather less well established. Indeed there is some evidence to suggest, particularly in the questionnaire data, that the potential protective shield of CCTV was understood to entail some sort of immediate response system. CCTV was seen to entail an offence being noticed by the cameras, observed on the control room screens and an operational police unit dispatched to

deal with the matter. Such actions do happen but they are not a common practice. Insofar as this does not happen public perception of protection is likely to be reduced. It is doubtful whether all expectations can be or are fulfilled. Schemes may be at the mercy of their own publicity, which probably contributed in part, to the high expectations and indeed the culture of fear surrounding crime. It is conditional in a second sense in that CCTV is a second best preference, police foot patrols being the publicly preferred means of crime control (Bennett and Gelsthorpe 1996).

There is little evidence to suggest that the CCTV system in Doncaster improved traffic management or did very much to restore the waning fortunes of Doncaster town centre as a commercial area. Clearly a more general malaise is responsible for town centre decline. Many authors, though not agreed on its exact nature, would point to the existence of underlying causes, which are economic and structural in character (Bannister, Fyfe and Kearns 1998). Town centre CCTV systems set themselves a quixotic task if they make town centre revival a key aim. But in trying to accomplish the impossible they feed the 'strategic armouring' of the city (Davis 1990) or the 'fortress impulse' (Bannister, Fyffe and Kearns 1998:27). These processes have important consequences in terms of the unequal treatment of town centre users, the 'mallisation' of the town centre space, restrictions on the democratic control of public space and public freedom of town centre use.

Like other recent studies the Doncaster study found little significant reduction in overall fear of crime amongst the business group and school pupils. Town centre users and multi-storey car park users did show a significant decrease in overall fear of crime. It is notable that for all groups levels of fear of crime remained comparatively high (see Chapter 5 for details). The results would seem to suggest that CCTV systems have a relatively small intended influence on fear of crime. Clearly in large part this must be due to the overwhelming force of other factors operating to enhance general insecurities. CCTV has little influence on the broader factors contributing to the fear of crime. This gives succour to the view that there is a need to fit CCTV systems into broader crime and fear prevention programmes. As Smith (1986) argues, fear of crime is connected to economic and political marginality. McCahill

(1998) also notes that fear of crime is associated with deregulation and privatisation. Thus successful interventions must transcend mere target hardening and opportunity reduction measures. Insofar as these processes are part of much wider forces and general insecurities tied up with late modern societies then even this political intervention may be futile (Bottoms and Wiles 1997; McCahill 1998).

CCTV systems are limited by failing to address broader processes productive of the fear of crime. But they also suffer from less severe and more easily remedied problems. Clearly CCTV systems deal only with town centre vulnerability. This is only a small part of our experience. As Brown (1998) points out in relation to women, CCTV does not act on situations in ways, which are pertinent to the lived experience of threat. Moreover, the CCTV phenomena may itself contribute to enhancing fear of crime. The very notion of CCTV probably does sustain a fortress mentality inimical to reductions in fear of crime. Pre-publicity can, by taking a justificatory stance, overstate the risks of criminal victimisation. The publicity connected to the start up of the system, seen as so necessary to its deterrent effects, may well connect with these previous images leaving a sense, not of protection, but fear. Even if the claims for the system are correct – that crime in the town centre does decline – this may not diminish fear of crime given the views expressed in the surveys about the likelihood of crime displacement.

The evaluation revealed a rather mixed effect on crime. The introduction of CCTV did prevent some kinds of crime in the surveilled area (particularly some kinds of acquisitive crime). It also led to both displacement and diffusion of benefits effects. The net result of the scheme was a 6% reduction in offending in the five areas including and immediately surrounding, the town centre. This was accomplished without a significant increase in detections.

The system has also led to alteration in the management and deployment of police operational units. It has allowed for the early identification and assessment (in terms of officer

deployment) of town centre incidents. It enabled the re-deployment of officers from the town centre to the wider district.

The net result of this assessment is to suggest, in line with Lyon (1993: 654) that just as some predictions about 'the coming of an information society are overblown' so too are the claims made for CCTV both by critics and the proponents of CCTV schemes. The present author would concur with Lyon (Ibid.) that 'new technology is implicated in contemporary social transformations' and that thus an analysis drawing together 'new technology, social change and relations of power' is required. These issues are taken up in the section below concerned with the implications of this research for the future of social control.

At least some of the constraints on the operation of CCTV systems set out above may not be permanent. On the contrary such limits will be eroded by new technologies (Davies 1996; Graham 1998; Norris 1995; Norris, Moran and Armstrong 1998). For example, the development of data-matching systems like that of facial recognition may allow for the elimination of the lottery of television identification. But the development of new systems is both a matter of technological innovation and a civil liberties issue since these systems would require a database containing multiple photographic images of individuals. A further example, again at the edge of technological developments today, but likely to be the reality of tomorrow, are data co-ordination and collation systems. These have important implications as they allow for the collation of increasingly complex and detailed data sets. A further example concerns the development of intelligent image recognition systems which when perfected for public space CCTV may reduce the need for control room operator observation of incidents. Such developments are not necessarily of a benign character and sharply raise the question of accountability. The overall outcome of these changes is an empirical and contingent question. 'Intensified surveillance and totalitarian tendencies are intimately linked. [But] this is not something to lead us to despair, for administrative power and polyarchy are equally closely connected' (Giddens 1985:341).

'Sed quis custodiet ipsos Custodes?'

Nearly 2000 years ago, Juvenal, the Roman satirist, raised an important question relevant to modern CCTV systems. 'But who is to guard the guards themselves' (Partington, A 1996:384)? Accountability is an important issue. Surveillance and the growth of new technology are both inscribed into the heart of modernity and not surprisingly they have been harnessed to one another to achieve some form of control. 'The electronic eye' that results, as Lyon (1994: 214) reminds us, is Janus-faced, capable of 'control and care, proscription and protection.' Perhaps which of these that is operative depends upon, at least in some important part, accountability.

The Safety in Doncaster CCTV scheme management showed throughout the evaluation study integrity, clarity of purpose and a concern with the ethical implications of the system. The management group chose to open their system to a rigorous evaluation. This left the CCTV scheme potentially exposed to criticism, especially as the evaluation had been entrusted to an independent person, media interest was high and there was a strong chance of subsequent publications. In addition they set up an ethics sub-committee to decide on the vexed question of the release of videotapes. This sub-committee determined that the release of tapes was to be on a case by case basis and restricted to crime related matters in what they defined as 'the public interest.' They also developed, in conjunction with the local authority, a code of practice derived from the Local Government Information Unit document (LGIU 1994). At no time, during the evaluation, was any indication made which might have been interpreted as a desire to alter the conclusions drawn.

But the general context of these actions was one of voluntariness, discretion, ambiguity and the absence of a statutory framework of regulation. The movement to evaluation was partly 'forced' by funding bodies. But the requirement left much scope for choice – as no specification was made by the Home Office as to how evaluation should be conducted and how much should be spent on it. This state of affairs probably accounts for the proliferation of poorly organised non-independent studies in the field. And evaluation is no

substitute for democratic accountability, though it may be a way of rendering democracy effective.

Furthermore the adoption of a code of practice, though now necessary to secure Home Office funding, is subject to local variation and anyway not enforceable by the courts. The House of Lords Science and Technology Committee (5th Report 1998:4.11) report indicates that, unlike Doncaster, system managers have sold tapes to the media for purposes that are not crime related nor connected to the aims or purposes of the system.

The Safety in Doncaster scheme, like every other CCTV system in the country, was not regulated by specific legislation relating to CCTV. For 'there are no statutory, or other, controls on the use of public space CCTV systems' (House of Lords 1998 1998:4.9). The Data Protection Act 1984 does not apply. The only remaining regulatory framework is derived from 1984 Home Office Guidelines relating to the police use of equipment in general police surveillance operations. The guidelines are, of course, non-statutory and their relevance is questionable (Maguire 1998).

Further existing patterns of accountability do not seem to be effective in relation to their original targets. There is much concern about the effectiveness of police accountability procedures (Reiner 1994, Morgan and Newburn 1997). Furthermore, it is not at all clear whether the processes of accountability in relation to local government are effective. This is especially so where there has been no significant opposition for a long period making the operation of local government a virtual one party state. These conditions are found in local councils of Doncaster, Hull and Glasgow all of which have been experiencing difficulties connected to alleged local authority corruption.

Moreover, it is not clear whether any or all of the above procedures are applicable to the CCTV phenomenon. Most town centre CCTV schemes are owned neither by the police or the local council. Instead they are owned and run by hybrid organisations, based on multi-agency co-operation. In Doncaster it is not clear whether the methods by which the police

may be held accountable apply to the CCTV system staff most of whom were not serving officers but civilian staff employed by the Police Authority. Furthermore the technical ownership, though not the day to day control, of the system by the local authority distanced the CCTV scheme from police accountability procedures except those operating within the management of the force.

This is an important matter concerning the maintenance of democratic control over public organisations and the need to patrol the boundaries between protection and control. There is an urgent need to convert a voluntary, discretionary, ambiguous and permissive process into clear, statutorily defined procedures for holding CCTV schemes and their managers accountable. Insofar as some of these operators are police forces this will no doubt raise questions about the tangled issue of police accountability. The House of Lords rightly recommend that such systems (including data-matching systems) be subject to enforceable codes of practice, licensing, inspection and audit (Ibid.: Paras 4.17 and 4.21). The House of Lords report recommends bringing the matter under the ambit of the Data Protection Registrar by the inclusion of relevant sections in the Data Protection Bill introduced into parliament in January 1998.

But their view seems to be that this is a pragmatic issue connected to public credibility arguing that 'inadequate control of CCTV could lead to loss of public support' (Ibid.: Press release). This seems to be a fundamental error – the systems should not just seem to be, but be, accountable. Furthermore this raises questions about the effectiveness of the Data Protection Registrar. Maguire (1998), before the publication of the House of Lords report, suggests that the Data Protection legislation has certain flaws. The legislation as presently constituted does not convey a right to privacy. Many exemptions are allowed from the ambit of the registrar (including secret service work and policing operations). There are considerable problems concerning the practicalities of enforcement. Finally, there is a tendency to obtain compliance through persuasion rather than enforcement, which is a very weak form of regulation. It is too soon to tell whether these or any other limitations will apply. It must be added the proposed changes will not alter the bedrock problem for many systems, that is, a

lack of effective accountability procedures applicable to the individual organisations making up the multi-agency management group.

CCTV and the future of social control

What are the implications of the present study for the debate on the future of social control? Stan Cohen suggested in a paper entitled 'The Punitive City', that a movement was in progress from 'the concentration of control, to the dispersal of control' (1979:227). The 'concentration of control' had been achieved with the great incarcerations of the 19th century and 'dispersal' was, according to Cohen, being accomplished by the proliferation of community-based sanctions in the late 20th century. The movement toward dispersal was seen to possess four features. By 'blurring' Cohen meant a breakdown of a sharp distinction between institutional and non-institutional forms with the growth in halfway houses, hostels and day centres for offenders. He also suggested, using rather obscure fishing metaphors that the dispersal process both allowed the net of control to be thrown wider and the mesh thinned, that is, the level of intervention used to be escalated and/or focused on less serious infractions. Finally, Cohen suggests that the whole set of processes result in the community being penetrated to a greater degree by formal social control. Cohen sees this thesis as a development of the view suggested originally by Foucault (1977) who suggested that the disciplinary practices of the total institutions of the 19th century would move into the community in the late 20th century.

Matheisen (1983) added a further important nuance to the debate. He agreed with Cohen that there was a dispersal of discipline at work but that a central element of this was a process, which altered the target of intervention. He suggests a 'move fully away from individualism, and [a] focus on [the] control of whole groups and categories' (1983:139). Matheisen mentions specific measures that are likely to encourage the shift including, amongst other things, 'TV cameras on subways and in supermarkets, the development of advanced computer techniques in intelligence and surveillance...[and] a general strengthening of large privately-run security companies' (1983:139).

These theses have been variously criticised. Bottoms (1983) takes Cohen (1979) to task on a number of pertinent issues. First, Bottoms argues that confused metaphors are evident in Cohen's work. Cohen writes not about 'the punitive city' but the disciplinary society. Second, and more importantly, that though some dispersal of social control is evident, this is not necessarily disciplinary in character. Bottoms indicates that the growth of the use of the fine, the community service order and victim compensation are not 'consistent with the "dispersal of discipline" thesis' (1983:180). Bottoms also criticises both Matheisen (1983) and Shearing and Stenning (1981) for stretching the concept of discipline from 'training individuals' to *surveilling groups*. Third, that the expansion of the prison and community sanctions sector is the result, at least in part, of the growth in crime.

However, Bottoms does suggest that a dispersal of control is evident. He also suggests that 'Matheisen is right in perceiving a shift towards collective social control in modern western societies' (1983:182). Bottoms goes on to sketch in an alternative 'juridical thesis.' The substance of this view is that the formal system of control is both shrinking in scope (being privatised) and changing its rationale from a disciplinary to a juridical emphasis. The juridical emphasis is characterised by a retributivist justification for penal sanctioning.

These changes in penalty are seen to be connected to four movements in late capitalism. First, changes in the nature of law effecting a movement to 'bureaucratic-administrative' law where the criminal act is understood less as a moral offence, where administration is increasingly devolved away from *criminal justice* and there is increasing emphasis on the instrumental, rather than moral character of control. This is seen to have effects on social consciousness set out according to Berger, Berger and Kellner (1974), as 'orderliness, taxonomic propensity, predictability, ...justice based on impersonal weighing, non-separability of means and ends' (Bottoms 1983:188). Next changes connected to the rise of advanced technology are considered. These are seen to have implications for surveillance patterns. They are also seen to have implications for forms of social consciousness.

The third factor deals with changes in work patterns – notably a move toward the control of relations in the place of work by means of corporatism. Finally, the growth of welfare and corporatism is seen to be important as this has, largely consensually, allowed for the interpenetration of the private by the public.

In reviewing his thesis Bottoms concludes that it is not entirely inconsistent with Foucault (1977). Bottoms (1983:195) suggests that Smart (1983) indicates that in Foucault's later work the significance of disciplinary techniques fades to be replaced by mechanisms of insurance and security, where law becomes a norm set by the authorities. Bottoms sees that 'as societal power in the form of "the bio-politics of the population" has developed (through...technological developments...) so individual discipline ("the anatomo-politics of the human body") has become less necessary to the penal apparatus' and indeed the penal apparatus in general less necessary to social control.

Cohen, in later work in 1985 and 1987, offers a view of what he calls the second great transformation of social control. He argues that something is happening in the late 20th century but this cannot be understood as destructuring. 'The benevolent sounding destructuring package had turned out to be a monster in disguise, a Trojan horse' (Cohen 1985:38). The monster in disguise has the following main outlines: 'a gradual expansion and intensification of the system; a dispersal of its mechanisms from more closed to more open sites and a consequent increase in the invisibility of social control and the degree of its penetration into the social body' (Cohen 1985:84). He acknowledges Bottoms' points rather grudgingly and suggests that what remains is the 'over-riding fact of proliferation, elaboration and diversification' (Cohen 1985: 84) clearly no longer identified with the dispersal of discipline alone.

Matthews (1987) takes issue with many existing accounts arguing that attempts to understand the community corrections movement or decarceration have three central faults. What he calls 'globalism' amounts to a charge of overgeneralisation (from one 'client' sector to another, one institutional sector to another, one nation to another, one kind of control to

another) possibly rather too influenced by 'the vision of an all-encompassing totalitarian society' (1987:46). 'Empiricism' suggests the tendency in this work to dwell on observed facts, which do not give any clue to underlying relations, 'directionless statistical manipulation' (Matthews 1987:56). Finally, 'impossibilism' is characterised as a relentless pessimism about penal outcomes. The first and the third of these are probably seen to apply to Cohen 1985. It is worthwhile to note that Cohen is aware of both of these issues arguing the need to overcome analytical despair and adversarial pessimism (See Cohen 1985). Matthews also criticises Bottoms – in that he suggests that Bottoms 'does not fully appreciate the ways in which ...apparently non-disciplinary elements are linked to, and are ultimately dependent on, the prison' (1987:46).

Lowman, Menzies and Palys (1987) bring together the work of Cohen (1985, 1987) and others. They argue that there are certain key developments evident. Community corrections have been promoted for non-progressive reasons. Old institutional structures have been strengthened. The alternatives proposed have been absorbed into the old system. Any new structures are neither cheaper nor more humane. The criminal justice system has expanded and has thrown its net wider. The poor are increasingly neglected. Minor offenders within the system are subjected to more intrusive patterns of control. Serious offenders are increasingly seen as incorrigible. Finally, the entire population is the subject of increased surveillance. They thus suggest a new model based on 'transcarceration.' They mean by this a system of 'help-control' (Lowman, Menzies and Palys 1987:9) for delinquents and deviants which percolates throughout society.

Shearing and Stenning (1985) provide another useful view here. They find themselves in agreement with much of the substance of Bottoms' (1983) critique of Cohen (1979). Indeed they see Bottoms' arguments to be in fundamental agreement with their own conclusions about private security namely that such control is 'preventative rather than punitive..., [relies]... on strategies of disciplinary control and makes resort to more punitively orientated public criminal justice system only as a last resort' (Shearing and Stenning 1985:335). However, they note that Bottoms disagrees with them, as noted above, on the issue of

whether control is 'disciplinary.' Indeed they note that he criticised Matheisen for the same reason – that these forms of control are not concerned with individual training but group surveillance.

Shearing and Stenning argue that within Foucault (as suggested by Bottoms above) discipline is used both as a generic concept (what Bottoms calls, following Foucault, bio-politics) which is not fully worked out and the thoroughly developed notion of carceral discipline (what Bottoms, using Foucault, calls “the anatomo-politics of the human body” or moral discipline). Shearing and Stenning argue that the moral discipline of the carceral has given way to the instrumental discipline of private security. They use the term moral to denote the fact that criminal justice defends order and that order is ‘the expression of a community of morally righteous people’ (Shearing and Stenning 1985: 338). In contrast, private control adopts an instrumental view of order - order is seen as instrumental usually geared to maximising profit. With this logic surveillance shifts from the ‘morally culpable’ offender to groups where the opportunity for offending exists.

Indeed the focus shifts from offenders to those who create opportunities for offending. Attention moves to focus on groups. In Disney World the control function is embedded into the ‘woodwork’. That is control is embedded into other functions and thus becomes almost invisible and consensual. Further, such control is maintained by physical threat but also ‘its capacity to induce co-operation by depriving visitors of a resource that they value’ (Shearing and Stenning 1985:348). Shearing and Stenning suggest that this new world is more like Brave New World than 1984. Within this world ‘people are seduced into conformity by the pleasures offered by the drug soma rather than coerced into compliance by the threat of Big Brother’ (Shearing and Stenning 1985:349). They end on a particularly relevant note referring to the observations of Beryl Bainbridge who on re-visiting British city centres again after some years of absence, noted that they were dominated not by churches or town halls anymore but by shopping centres.

Of course, Disney World control may not be reserved for all – physical coercion remains the armour of 'have-a-good-day' polite, 'consensual', instrumental order. As Bauman (1987) points out the majority may be seduced into conformity by consumption but the rest – flawed consumers - are subjected to repression.

It is clear that observers argue that social control is dispersing into the community. The form this control takes is very often concerned with whole groups of people either to detect the 'flawed consumers' from whom the rest need to be protected or to armour the rest against lapses in their defensive lines. Control is instrumental not moral. That is its purpose is understood to be about the defence of limited goals like the maximisation of profit or the protection of consumption. It is increasingly built into the 'woodwork,' consensual and invisible. It is increasingly practised by agents outside the criminal justice system or by hybrid organisations. The criminal justice system is shrinking and experiencing a changed rationale from moral discipline to punishment.

The present study may be seen to throw light on these issues. First, is a dispersal of control happening in the late 20th century? Second, what form is this control taking? Cohen (1985:13) suggests that 'there have been two transformations ... in the master patterns ...for controlling deviance in Western industrial societies.' He goes on to suggest that though there is some disagreement about why the prison emerged in the 19th century there is considerable agreement that this has happened. However, he suggests that with regard to the second great transformation, based on a possible dispersal of control into the community, there is agreement neither about what is happening nor why. Perhaps now, in the late 1990's, this position has changed – as the review above suggests, all work points in the direction at least about what has happened, that is, a dispersal of social control.

Town centre CCTV systems undoubtedly contribute to the dispersal of social control. Previously unsystematically surveilled parts of an increasing number of town centres are subjected to its admittedly, blinking gaze. Huge numbers of people are now subjected to this surveillance. This in itself represents an escalation of intervention. Some, however, will

experience, perhaps, quite considerably escalated attention being tracked and traced through the town and maybe stopped and questioned by operational police units summoned by the CCTV control room. Even now 'known' shoplifters may be disallowed from using some public space. The potential use of these systems is great – allowing for further dispersal of control through facial recognition systems, data collation and intelligent image recognition.

Furthermore the CCTV system does contribute to 'blurring' though not as Cohen suggests between institutional and non-institutional boundaries but between the public and the private with city centres coming to look increasingly like private malls. It contributes to blurring in another sense also namely, the blurring of private actions and public knowledge of private actions. Finally, quite clearly the CCTV system effects the process of penetration, of patterns of formal (but not necessarily public) systematic surveillance into previously public, but only irregularly supervised, conduct.

But what is the nature of this control? Clearly it does emanate from a 'hybrid' organisation which is neither conventional criminal justice nor local or national government. It is based on a partnership, a significant element of which at least in the start up phase, was local business based involving some of the town centre key players. In many ways it has been the precursor to town centre management initiatives. Undoubtedly the ambiguity surrounding the status of these organisations has been used as a strategy of independence by certain partners. This is not to say that these strategies have necessarily disadvantaged all protagonists nor affected all parties in the same way. These bodies have tended to take an instrumental view of crime. They are therefore not unlike the agencies that Bottoms (1983) suggests may come to dominate crime control. Nor is the control they introduce unlike that of Disney World.

Finally, the form this control takes is clear. It is about the surveillance of groups of people. The effect is, on the one hand, to protect one group from the opportunities they may provide for crime and, on the other hand, to limit the deviant or criminal actions of others. Whether this form of control is 'disciplinary' in some sense is probably secondary to

understanding its nature. Indeed as Norris and Armstrong (1998:16) indicate, the reluctant translation of the term 'surveiller' as 'discipline' was, though encouraged by Foucault, rather arbitrary and could well have been rendered as 'surveillance and punish.' What is clear is that both may act coercively (by the use of direct intervention) and ideologically (by the operation of habituated anticipatory conformity). The relation implied here is one of power – whether this is understood as necessarily or contingently legitimate or illegitimate is clearly a variable factor. However, contra Bottoms (1983), the growth in surveillance by CCTV has not been accompanied by any shrinkage in the conventional criminal justice system. Further, rather than becoming 'juridical' in emphasis, aside from the short movement in the 1988-1992 period, the formal criminal justice system has become increasingly concerned with instrumental emphases itself, a trend captured by Feeley and Simon (1992) in the notion of 'the new penology.'

Chapter 9 has offered a reading of the implications of the thesis as a whole for understanding CCTV systems. Four main elements have been discussed. The movement to CCTV systems has been largely unsupported by well-founded evidence of significant impact. It is thus seen to have been produced by social pressures and to carry a significant opportunity cost. CCTV systems suffer from important limitations, generally ignored by both their supporters and critics. These limitations derive from technological, organisational and human sources. They act to impose limits on what such systems are likely to achieve in reducing crime, fear of crime and traffic problems and increasing detections and town centre use. CCTV systems, despite their capability to erode civil liberties, have been found to be virtually unregulated and the managing agencies either so hybrid or based on already unaccountable groups, so as to avoid any checks and balances on their activities other than those that are self-imposed and voluntary. Finally, the movement toward CCTV is seen as part of a more general process, which has seen the creation of a 'new penology' in tertiary crime prevention. For primary prevention this has meant control dispersed into the community exercised by multi-agency coalitions, focused on groups not individuals (potential victims, spoiled consumers) and based on 'anticipatory conformity.'

The final chapter summaries the key arguments concerning the main research objects and considers a research agenda for CCTV.

Chapter 10 Conclusion

Three topics are dealt with in this final chapter. First, the key findings concerning good practice in the conduct of evaluation research are set out. Next, the conclusions of the thesis regarding the impact of town centre CCTV systems are summarised. Both topics have been considered using two methods. A critical reading of the existing evaluation literature in social policy, crime prevention and CCTV research has been undertaken. This has been complemented by the evaluation of a large town centre CCTV system. The detailed study of the Doncaster CCTV system has offered the opportunity for self-critical reflection. It has also enabled the determination of the effects of CCTV in one location. Finally, some neglected features of CCTV systems are set out and used to articulate the basis of a future evaluation research agenda.

A framework for evaluating CCTV systems

The framework developed is based on a general conception of the role of evaluation as 'critical practice' and contains a number of considerations. It is applicable to any crime control programme provided cognisance is taken of the specific features of the programme and the skills of the evaluator. First, sound evaluation must not only show a critical analysis of the policy space occupied by the CCTV project, but a reflexive awareness of its own context.

Second, an evaluation of CCTV requires attention being given to both implementation and impact assessments. Assessment of the implementation of a CCTV project must include consideration of the realisation of the technical and human systems and the effectiveness of accountability policies and practices. The impact assessment must take account of the agreed, articulated aims and unintended consequences of the CCTV scheme.

Third, a systematic overall strategy is required. This will probably depend on quasi-experimental models. But the conventional approach here needs to be modified to deal with processes as well as outcomes. The modified strategy needs to be capable of discovering why and how the system impacts on crime and what it is about particular crimes and offenders that makes them susceptible to the influence of CCTV. For example, the exploration of the crime reduction effects of a CCTV system still requires a before/after general strategy but must also attempt to specify a number of other factors. These include a determination of the nature of the social environment in which the effects are evident, the exact mechanisms of the effects and the combination of constraint (greater surveillance, active guardianship) and subjective judgement that produce particular outcomes.

Fourth, as innovations like CCTV have the potential for generating controversy, there is a need to give attention to a wide variety of opinions by consulting a diverse range of stakeholders. This places an emphasis on the need for varied methods of data collection, as well as the need to communicate the results to a wide audience. Evaluation needs to be democratic in data collection and dissemination.

Fifth, the high profile and complex nature of CCTV and its effects means that the only viable approach is the appointment of an independent evaluator. Independence must, once established, be maintained. Emphasis needs to be placed on the importance of analytical rigour in processing the data collected making use of appropriate statistical methods and attempting to maximise the length of the experimental period.

Feasibility may be maximised by the creation of an evaluation research bargain or contract. The contract can be used to consolidate the features of critical research practice into a formal agreement. The evaluation research bargain needs to cover a number of issues including the programme aspects subjected to evaluation and the main strategies and designs and types and sources of data to be used. It should also cover dissemination practice, the criteria by which accomplishment will be determined, role of the evaluator and

the points of contact between the agencies involved. Finally, critical practice cannot take for granted its own *raison d'être*. Critical self-awareness about fitness of purpose is necessary.

The nature and impact of town centre CCTV systems

Two limitations apply to attempts to generalise from the findings of evaluation studies of CCTV. First, CCTV systems vary in the nature of the area surveilled, the character of the system installed and the form of management instituted, making extrapolation difficult. Account also needs to be taken of how the effects of a system were measured as clearly different and/ or deficient methods will produce different results.

The literature review suggested that previous research had given little attention to implementation assessment. However, the Doncaster evaluation found that although the system had been developed and managed by a multi-agency partnership little attempt had been made to locate the CCTV scheme in a broader strategy for crime prevention. Similarly the evaluation showed that the main CCTV control room did provide a proactive function. It also showed that the release of videotapes had been restricted to legitimate purposes and that the Help Points, when used, had provided a satisfactory response. But the evaluation also revealed that significant problems concerning the realisation of the technical system were evident, that the release of videotapes was operated within a permissive regulatory framework and the Help Points had been the subject of severe technical faults.

The studies reviewed in Chapter 3 and the results of the Doncaster evaluation, show that public attitudes towards CCTV systems are complex, multi-faceted and segmented in nature. There is considerable support for, or at least acceptance of, CCTV systems. But this is not consensual nor is it without ambivalence and reluctance. Significant proportions of people are concerned about the civil liberties implications, the possible unintended consequences and the actual effectiveness of CCTV systems.

The limited literature on CCTV systems offers patchy treatment of scheme aims. Only the Doncaster evaluation has studied the impact of CCTV on traffic management. It found that there was little evidence to suggest that the CCTV system has had a marked impact on traffic management though the evidential base of this claim was restricted.

The impact on town centre use is limited as shown by the Doncaster study and Bulos and Grant (1996). The evidence is ambivalent regarding reductions in the fear of crime. It may be that CCTV does reduce fear of crime in some specific places (multi-storey car parks) and with some specific groups (town centre users). But the overall effect is quite small and levels of fear of crime remain comparatively high.

The primary focus of attention of all evaluations has been crime reduction reflecting the high priority this aim is given by CCTV schemes. Nevertheless, evaluation practice is far from unproblematic with general lack of robustness of strategy, design and analysis being evident. Some significant issues are given little or no attention including questions of displacement and diffusion of benefits. The Doncaster study found that for 'all offences' a reduction of 16% was evident in the surveilled area though time trend data suggested that such a decrease was likely without the introduction of CCTV. The rate of reduction found by other town centre studies varied from 10 to 21%.

CCTV does seem to impact in different ways on different offence categories. The impact is greatest for 'instrumental' crimes. Theft from motor vehicles decreased by 49% in Doncaster (50 to 58% elsewhere) and theft of motor vehicles decreased by 45% in Doncaster (47% to 58% elsewhere). A decrease in burglary/ burglary other of 25% was noted in Doncaster (elsewhere 47 to 57%). Criminal damage also showed a decrease of 32% in Doncaster (19 to 42% elsewhere). But time trend data for burglary and criminal damage in Doncaster show that such decreases were likely before the introduction of the CCTV system.

The impact on assault and public order offences is much less marked and more variable, with increases being noted in some areas including Doncaster. This probably

indicates both changes in the way offences are prosecuted as well as the relatively inflexible character of the behaviour that is prosecuted. The differential effects of CCTV are confirmed by the results of work on non-town centre systems.

In Doncaster changes in the surveilled area seem to have been accompanied by displacement of crime to outlying areas particularly the 'townships.' A diffusion of benefits effect may also be evident in Doncaster in the locality immediately adjacent to the surveilled area. The net effect of these changes for Doncaster has been that, over a one-year period, there was a 6% decrease in crime in the surveilled and immediately adjacent areas amounting to some 930 offences. Other studies did not follow this matter through sufficiently to draw realistic conclusions.

The impact on detections seems to be uncertain. A small but not significant increase, from 48% to 50%, was noted by the Doncaster evaluation. Of the town centre studies only Short and Ditton (1996) explored this issue and found an increase in detections from 50% to 58%. Chatterton and Frenz (1994) found an increase in burglary detections from 25% to 33% in sheltered accommodation for the elderly.

The Doncaster evaluation found that even with modest reductions in crime the system was probably cost effective in its own terms this largely being due to the very high costs of prosecution and sentencing within the criminal justice system. But such calculations of cost effectiveness ultimately depend on the responsiveness of the criminal justice system to crime reduction. Otherwise CCTV expenditures represent additional, not alternative, costs. Only limited exploration of this issue has been undertaken by other studies.

The account offered of the impact of CCTV systems carries a number of implications. First, CCTV systems have clear weaknesses. These are connected to defective design, lack of realisation of the technical specification, technological 'bottlenecks' and problems of human resource management and subversion or resistance. Second, their phenomenal growth has been largely unsupported by independent studies of their impact and that they

have considerable opportunity costs. Third, CCTV systems pose important questions about their own and their host organisation's accountability. Finally, such systems do have the potential for extending control of groups into the community.

Neglected features of CCTV systems - a future evaluation research agenda

The Doncaster evaluation and other studies have neglected certain features of CCTV systems. The study of these features is justified both because their exploration will allow us to understand CCTV systems better, and it will enable more precise specification, not just of the effects of CCTV, but why these effects are found. These comments are made in the context of the general good practice guide summarised in the first part of this chapter.

First, the broader strategic claims about CCTV connected to the revival of city centres must be systematically assessed. These claims concern town centre management issues and centre on CCTV being seen as capable of promoting town centre use and better traffic co-ordination. In particular, work here needs to be focused on direct determinations of actual changes. For example, the impact of CCTV on patterns of town centre use needs to be ascertained by checking actual changes with some effort going into determining the meanings people attribute to such changes in their routines. Since more people using the town centre is still only an ancillary feature of the real ambition here, which is to engineer an economic revival of town centres, some consideration of more direct measures is necessary. Methods of data collection here will have to overcome the twin problems of commercial confidentiality and the desire on the part of business groups, to 'talk up' the very changes that are the subject of study.

Second, there is some need to examine rigorously the impact of CCTV on fear of crime. In attempting this task studies need to get closer to the phenomenon by means of qualitative accounts, avoid skewed contextualising and treat fear of crime as intuition exploring both the extent of such intuitions but also the effects of socio-economic change and the introduction of CCTV.

Finally, the study of the direct impact of CCTV on crime would benefit from attention being given to three features. First, the impact of CCTV on the immediate crime event needs further detailed study. This requires an investigation of the CCTV control room construction of alerts, the role of key characteristics of CCTV systems and the police response to CCTV alerts. It also requires a consideration of the way in which CCTV systems impinge on victims and potential victims (to directly protect, to induce greater caution) and offenders (to deter, to apprehend). Therefore attention needs to be paid to how CCTV impacts on different kinds of offenders, potential victims and on-lookers. The impact of CCTV on different offence groups also needs careful study. In particular the relationship between changing patterns of assault and the installation of CCTV requires investigation. Careful consideration of the processes of displacement and diffusion of benefits is necessary and how they may be offence specific. Clearly the study of the crime event requires a diverse data collection strategy.

Second, regard needs to be taken of the reverberations set in train by CCTV within the broader criminal justice system. There is an urgent need to explore the use of videotapes by the Crown Prosecution Service and the courts. The impact of CCTV on policing policy and policing styles also needs further study. Similarly the practice of accountability procedures for CCTV require careful consideration.

Finally, evaluation research cannot ignore the broader questions deriving from the study of CCTV. These concern how CCTV meshes with broader patterns of social control. They also concern understanding CCTV in relation to trends in late modern societies and in broader patterns of surveillance.

The above section may look like the standard ending of any academic work – calling for more research. But there is a genuine and vital need to understand the practical and theoretical significance of CCTV in particular and surveillance in general. This is necessary because modern societies have surveillance inscribed into their heart. It is reassuring that such a sentiment also suggests that the task of surveilling the surveillers will be carried out!

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APPENDIX

Table 1A Safety in Doncaster (SID) Steering Group membership: from inception - December 1995.

Group name	No.	%
Doncaster MBC	6	38
Police	5	31
Business	5	31
Totals	16	100

Table 2A SID Steering Group membership: December 1995 - September 1996.

Group	No.	%
Doncaster MBC	2	40
Police	3	60
Totals	5	100

Table 3A SID Ethics Sub-committee membership.

Group	No. of representatives	%
Doncaster MBC	3	37
Police	3	37
Legal profession	1	13
Chairperson	1	13
Totals	8	100

Table 4A SID Steering Group attendance: inception - September 1996.

Group	Before Dec 1995			After Dec 1995		
	No	As % of attendees	As % of possible attendances	No	As % of attendees	As % of possible attendances
Doncaster MBC	55	36	25	5	55	50
Police	58	38	26	4	45	40
Business	39	26	17	-	-	
Totals present	152	100	68	9	100	
Absences	72	-	32	1	-	10
Total possible attendances	224	-	100	10	-	

Table 5A SID Ethics Sub-committee attendance: December 1995 - September 1996.

Groups	No	As % of attendees	As % of possible attendances
Doncaster MBC	11	41	34
Police	11	41	34
Legal profession	2	7	6
Chairperson	3	11	9
Total present	27	100	-
Absences	5	-	16
Total all attendances	32	-	

Table 6A Doncaster CCTV system - an analysis of fault reports and faults: January-September 1996

Period	Fault reports*	Faults	Faults per day
January- March	42	42	0.55**
April- June	37	44	0.48
July- September	35	42	0.46
Overall	114	128	0.49

* Fault report statements alluded to more than one fault per statement

** Fault report statements started in mid January 1996.

Table 7A Doncaster CCTV system - faults by type: January - September 1996

Fault type	Jan-Mar	Jan-Mar	Apr-Jun	Apr-Jun	Jul-Sep	Jul-Sep	Total	Total
	No	%	No	%	No	%	No	%
Control room	2	5	3	7	2	5	7	5
Help point	3	7	3	7	4	10	10	8
Cameras	30	71	34	77	32	76	96	75
Camera Pre-sets	2	5	1	2	1	2	4	3
VCR's	3	7	3	7	3	7	9	7
Camera Wobble	2	5	-	-	-	-	2	2
Totals	42	100	44	100	42	100	128	100

Table 8A Doncaster CCTV system - camera faults: January- September 1996

Period	Iris faults No (%)	Pan, tilt, zoom faults (PTZ) No (%)	Picture loss No (%)	Loss of control of the camera No (%)	Total No	Total %
Jan - Mar	4 (13)	6 (20)	7 (23)	13 (43)	30	99
Apr - Jun	4 (12)	5 (15)	12 (35)	13 (38)	34	100
Jul - Sep	5 (16)	2 (6)	11 (34)	14 (44)	32	100
Overall Total No's	13 (14)	13 (14)	30 (31)	40 (42)	96	101

Table 9A Doncaster CCTV system - recorded response time from report to fault clearance: January - September 1996

Response time	January- March		April- June		July - September		Totals	
	No	%	No	%	No	%	No	%
Under 4 hours	13	31	3	8	6	17	22	19
4- under 8 hours	10	24	13	35	13	37	36	32
8 – under 12 hours	3	7	1	3	1	3	5	4
12 – under 24 hours	3	7	6	16	2	6	11	10
Over 24 hours	5	12	2	5	1	3	8	7
Not classified	8	19	12	34	12	34	32	28
Totals	42	100	37	101	35	100	114	100

Table 10A Doncaster CCTV system main control room logbook: nature of events October 1995 – September 1996

Nature of event	Totals No	Totals %
Not classified	159	3
Social service	565	11
System issues	405	8
Suspicious persons/objects	1138	22
Miscellaneous offences	519	10
Motor vehicle offences	236	4
Assault	182	3
Public order	827	16
Burglary/ alarm activation	530	10
Criminal damage	151	3
Theft/fraud/robbery	328	6
Theft of/from motor vehicles	225	4
Totals	5265	100

Table 11A Doncaster CCTV system main control room logbook: action taken or requested October 1995 - September 1996

Action Taken or Requested	Totals Oct 1995 - Sep 1996 No	Totals Oct 1995 - Sep 1996 %
Initiated by CCTV control room. Totals	1506	28.6
No further action necessary	[297]	[19.7]
Referral to other body	[936]	[62.1]
Control room initiated current observations(COBS)	[273]	[18.1]
Initiated by area control room/ operational police units/ other – actions taken by CCTV control room. Totals	3760	71.4
Current observations of people/events/vehicles (COBS)	[3593]	[95.4]
Examine tapes (TOBS)	[165]	[4.5]
Not classified	[2]	-
Grand total	5266	100

Table 12A Doncaster CCTV system main control room logbook: the nature of formal actions taken October 1995 - September 1996

Type of formal action	Totals Oct 1995- Sep 1996 No	Totals Oct 1995 - Sep 1996 %
Not classified	43	4
Social service	231	21.4
Crime control- offence type		
Miscellaneous offences	95	8.8
Motor vehicle offences	66	6.1
Assault	87	8.1
Public order	274	25.4
Burglary	35	3.2
Criminal damage	52	4.8
Theft/fraud/ Robbery	138	12.8
Theft of/from motor vehicle	56	5.2
Totals	1077	99.8

Table 13A Doncaster CCTV system main control room logbook: system arrests and other formal actions January - September 1996

Offence	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Social service	4	6	10	3	5	12	15	12	9
Miscellaneous offences	2	1	3	3	5	2	3	1	1
Assault	2	2	2	2	5	3	4	1	1
Burglary	1	2	3	-	-	0	0	1	0
Criminal damage	-	1	1	2	2	4	2	7	2
Public order	9	12	12	8	7	8	11	11	13
Theft/fraud/ Robbery	2	3	3	-	1	3	3	4	2
Motor vehicle offences	1	-	1	2	1	0	1	1	1
Theft of/from motor vehicle	1	-	1	2	-	0	3	0	0
Not classified	-	-	-	1	-	0	0	0	5
% CCTV system attributable of all formal actions taken	34	32	36	33	29	30	34	34	30

Table 14A Doncaster CCTV system main control room logbook: the nature of calls made from Help Points to the main control room October 1995 - September 1996.

Nature of calls	Oct 1995- Sep 1996 No	Oct 1995- Sep 1996 %
Not classified	14	4
Social service	85	25
Suspicious persons/objects	22	6
Miscellaneous offences	49	14
Motor vehicle offences	5	1
Assault	41	12
Public order offences	49	14
Burglary/alarm activation	4	1
Criminal damage	23	7
Theft/fraud/ Robbery	40	12
Theft of/ from motor vehicle	14	4
TOTALS	346	100

Table 15A Doncaster CCTV system main control room logbook: outcomes resulting from Help Point calls October 1995 - September 1996.

Type of outcome	Oct 1995- Sep 1996 No	Oct 1995 - Sep 1996 %
Formal actions For criminal offences made up of:	61	17.6
Miscellaneous offences	[5]	
Motor vehicle offences	[2]	
Assault	[12]	
Public order	[23]	
Theft/fraud/ Robbery	[8]	
Criminal damage	[8]	
Theft from/of motor vehicle	[3]	
Formal action other	54	15.6
Informal action	106	30.6
Not traced	25	7.2
No further action necessary	62	17.8
Outcome not known	38	11
Totals	346	99.8

TABLE 16A Significant variation in attitudes towards CCTV in Doncaster amongst Town Centre Users and Multi-storey Car Park Users by fear of crime type. Significance level 5%.

Item	Town centre users		Multi-storey car park users	
	Before	After	Before	After
1. Deter potential offenders	Robbed, MVS MVB, BA, Insult	Robbed, SA MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	MVS
2. Lead to the apprehension of offenders	Robbed, MVS, MVB, BA	Robbed, SA, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	Robbed, Insult
3. Make people feel safer	Robbed, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	-
4. Make more effective use of the police	Robbed, SA, MVS, MVB, BA, Insult	Robbed, SA, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	BA
5. Encourage more use of the town centre or car parks	Robbed, MVS, MVB, BA, Insult	Robbed, SA, MVS, MVB, Insult	DAY MVS, MVB, BA, Insult NIGHT MVS	DAY:- NIGHT: -
6. Make people more cautious	Robbed, SA, MVS, MVB, BA, Insult	Robbed, SA, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	-
7. Be cost effective	Robbed, MVS, MVB, BA, Insult	Robbed, BA, Insult	Robbed, MVS, MVB, BA, Insult	-
8. Invade privacy	Robbed, MVB, BA, Insult	Robbed	Robbed, MVS, MVB, BA, Insult	-
9. Scare off otherwise legal activities	Robbed, MVS, MVB, BA, Insult	Robbed, SA, MVS, MVB, BA, Insult	NA	NA
10. Displace crime	MVS, MVB, BA	Robbed, MVS, MVB, BA, Insult	Robbed, MVS, MVB, BA, Insult	-
11. Raise problems connected to the ownership of and access to, tapes	Robbed, MVS, MVB, BA, Insult	Robbed, SA, MVS, BA, Insult	Robbed, MVS, MVB, BA, Insult	-
12. Reduce police foot patrols/ car park staff	Robbed, MVS, MVB, BA, Insult	Robbed	Robbed, MVB, MVS, BA, Insult	MVS
13. Less likely to report offences	NA	Robbed, MVS, MVB, BA	NA	-

Key:

Robbed = being fearful of being mugged or robbed

SA = being fearful of rape or sexual assault (women only)

MVS = being fearful of having a motor vehicle stolen

MVB = being fearful of having a motor vehicle broken into and something stolen

BA = being fearful of being attacked

Insult = being fearful of being insulted or bothered by strangers.

NA = question not asked

Table 17A Reasons given for increasing or decreasing Doncaster town centre use. No (%)**INCREASING USE**

Group	Safer because of CCTV	Better shops/ Town centre improving	More to spend/ Want to spend More	Totals
Multi- storey car park users	26(59.1)	12(27.3)	6(13.6)	44(100)
School pupils	34(54)	14(22)	15(24)	63(100)
Town centre users	82(77)	5(5)	19(18)	106(100)

DECREASING USE

Group	Fear of criminal victimisation	Fewer shops/ decline	Less to spend /want to spend less	CCTV invades my privacy	Total
Multi-storey car park users	1(25)	2(50)	-	1(25)	4(100)
School pupils	3(37)	1(12)	2(25)	2(25)	8(99)
Town centre users	-	8(27)	19(63)	3(10)	30(100)

TABLE 18A Doncaster: burglary and burglary other.

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-21.42	-	-
Town centre streets under CCTV	-25.0	S DEC	NS INC
Commercial areas of townships	+26.14	S INC	S INC
Residential areas adjacent to the town centre	+15.48	NS INC	S INC
Doncaster central district(A1)	-25.6	S DEC	S DEC
Doncaster east and west districts.	-1.94	NS	NS INC
The remainder of the South Yorkshire Police Force area.	-1.95	NS	S INC

Key:

* Close to significant at the level specified.

** Numbers small -aggregated into quarterly periods

*** Numbers too small even when aggregated

NS= Not significant

S= Significant

Tests:

2ANOVA(T) = 2 Way Analysis of Variance and Tukey's method.

LOBF= Line of best fit and t tests

TABLE 19A Doncaster: other thefts

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-14.8	-	S DEC**
Town centre streets under CCTV	+2.3	NS	NS DEC
Commercial areas of townships	+42.4	S INC	S INC
Residential areas adjacent to the town centre	+5.3	NS	S INC
Doncaster central district(A1)	-6.9	NS	S DEC
Doncaster east and west districts.	-1.8	NS	NS DEC
The remainder of the South Yorkshire Police Force area.	+1.66	NS	NS DEC

TABLE 20A Doncaster: shoplifting.

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-	-	-
Town centre streets under CCTV	-11.34	NS DEC*	NS INC
Commercial areas of townships	+29.47	S INC	S INC **
Residential areas adjacent to the town centre	+26.19	NS INC	***
Doncaster central district(A1)	+0.52	NS INC	NS DEC
Doncaster east and west districts.	+19.3	NS INC	NS INC
The remainder of the South Yorkshire Police Force area.	+1.31	NS INC	NS INC

TABLE 21A Doncaster: theft from motor vehicles

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-	-	-
Town centre streets under CCTV	-49.39	S DEC	S DEC
Commercial areas of townships	+18.6	S INC	S INC **
Residential areas adjacent to the town centre	-10.69	NS DEC	S INC
Doncaster central district(A1)	-19.9	NS DEC	NS INC
Doncaster east and west districts.	-12.88	NS DEC	S INC
The remainder of the South Yorkshire Police Force area.	+1.28	NS INC	S INC

TABLE 22A Doncaster: theft of motor vehicles

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-	-	-
Town centre streets under CCTV	-44.8	S DEC	S DEC
Commercial areas of townships	+30.09	S INC	S INC **
Residential areas adjacent to the town centre	-14.17	NS DEC	NS INC
Doncaster central district(A1)	-1.17	NS DEC	S INC
Doncaster east and west districts.	+8.92	NS INC	S INC
The remainder of the South Yorkshire Police Force area.	+15.52	NS INC	S INC

TABLE 23A Doncaster: criminal damage.

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	+30.0	***	***
Town centre streets under CCTV	-31.99	S DEC	NS* DEC
Commercial areas of townships	+50.99	S INC	S INC **
Residential areas adjacent to the town centre	+2.5	NS INC	S INC
Doncaster central district(A1)	-10.16	NS DEC	NS INC
Doncaster east and west districts.	+12.75	NS INC	NS INC
The remainder of the South Yorkshire Police Force area.	+9.37	NS INC	NS DEC

TABLE 24A Doncaster: assault

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	+7.23	S INC	NS INC
Town centre streets under CCTV	+6.82	-	NS DEC
Commercial areas of townships	-	-	-
Residential areas adjacent to the town centre	-17.11	NS DEC	S DEC
Doncaster central district(A1)	-2.75	NS DEC	S DEC
Doncaster east and west districts.	-6.05	NS DEC	NS DEC
The remainder of the South Yorkshire Police Force area.	-10.18	NS DEC	S INC

TABLE 25A Doncaster: other offences.

AREA	% BEFORE /AFTER	2ANOVA (T) 5%	LOBF 5%
Town centre licensed premises	-95.65	***	***
Town centre streets under CCTV	+26.46	NS INC*	S INC
Commercial areas of townships	+8.0	NS** INC	NS INC**
Residential areas adjacent to the town centre	+6.14	NS INC	NS INC
Doncaster central district(A1)	+3.2	NS INC	S INC
Doncaster east and west districts.	-6.57	NS DEC	NS DEC
The remainder of the South Yorkshire Police Force area.	-2.08	NS DEC	S DEC

Table 26A Summary of changes in Doncaster surveilled streets as measured by recorded crime data before/after by offence category.

Offence category	% overall change	2ANOVA(T) Significant	LOBF Significant
All offences	-16	Yes	No
Burglary/ burglary other	-25	Yes	No
Other thefts	+2	No	No
Shoplifting	-11	No*	No
Theft from motor vehicles	-49	Yes	Yes
Theft of motor vehicles	-45	Yes	Yes
Criminal damage	-32	Yes	No*
Assault	+7	No	No
Other offences	+26	No*	Yes

*= Close to significant.

Table 27A Summary of possible displacement and diffusion of benefits effects in Doncaster as measured by recorded crime data before/after by offence category.

Offence categories	Evidence of displacement	Evidence of diffusion of benefits
All offences	To Townships	Doncaster central
Burglary/ burglary other	To Townships	Doncaster central
Other thefts	To Townships	-
Shoplifting	To Townships	-
Theft from motor vehicles	To Townships	-
Theft of motor vehicles	To Townships	-
Criminal damage	To Townships	-
Assault	None	-
Other offences	Area under surveillance?	-

Table 28A Advantages of the Doncaster CCTV system indicated by key workers %(No)

Advantage	Magistrates	Police	Traffic Wardens
The CCTV system has assisted in:			
1. Police operations/ special operations	95.8(46)	80.0(56)	-
2. Better targeting/ use of police resources	85.4(41)	67.8(48)	-
3. Providing useful evidence for charging purposes	91.67(44)	100(70)	-
4. Directly apprehending offenders	91.67(44)	98.6(69)	-
5. Drawing attention to suspicious behaviour	97.9(47)	95.7(67)	-
6. Identifying criminal behaviour	54.2(26)	42.8(30)	-
7. Providing incontrovertible evidence of guilt	87.5(42)	-	-
8. Providing evidence useful for sentencing purposes	77.0(37)	-	-
9. Rapid response to calls for back up	-	75.7(53)	80(8)
10. Tracing and tracking suspects	-	100(70)	-
11. Providing a swift response to incidents	-	74.3(52)	-
12. Providing assistance with road traffic accidents	-	-	100(10)
13 Providing an aid in relation to vehicle surveillance	-	-	80(8)
14 Reduce crime in the town centre by deterring would-be offenders	90(43)	81(57)	100(10)

Table 29A 'Spontaneous' advantages of the Doncaster CCTV system indicated by key workers. % (No)

Advantage	Magistrates	Police officers	Traffic wardens
Not answered	75(36)	39(27)	70(7)
Provides useful evidence	19(9)	30(21)	20(2)
Detects crime	0	16(11)	0
Prevents crime	6(3)	10(7)	0
Safety of officer/ warden	0	3(2)	10(1)
Better use of resources	0	3(2)	0
Totals	100(48)	101(70)	100(10)

Table 30A Doncaster CCTV system: disadvantages indicated by key workers %(No)

Disadvantage	Magistrates	Police officers	Traffic Wardens
Crime displacement	14.6(7)	22.8(16)	20(2)
People playing up to cameras	0	0	0
People discouraged by cameras presence from reporting offences	0	0	0
People relying too much on cameras as a form of crime prevention	0	18.6(13)	0
Tape access too restricted	6.2(3)	2.8(2)	0
System operates on different priorities to	6.2(3)	11.4(8)	20(2)
Monitors me	-	24.3(17)	60(5)
Communications with control room too slow	-	8.6(6)	10

Table 31A Doncaster CCTV system: 'Spontaneous' disadvantages indicated by key workers % (No)

Disadvantage	Magistrates	Police officers	Traffic Wardens
Not answered	14.6(7)	42.8(30)	80(8)
Coverage of system not adequate	6.2(3)	14.3(10)	20(2)
Picture problems	16.7(8)	1.4(1)	0
No disadvantages	41.7(20)	15.7(11)	0
Video viewing problematic	6.2(3)	11.4(8)	0
Raises civil liberty issues	4.2(2)	0	0
Problems re other agencies	6.2(3)	0	0
Tendency to focus on trivial matters	0	4.3(3)	
Negative impact on policing	0	10(7)	0
Cost	4.2(2)	0	0
Totals	100(48)	100(70)	100(10)

Table 32A Doncaster: criminal victimisation in non-town centre locations No (%)

Group	Town centre users		School pupils	
	Before	After	Before	After
Yes	96 (10)	103 (10)	3 (4)	8 (5)
No	873 (90)	891 (90)	60 (90)	135 (89)
Don't Know	-	-	4 (6)	8 (5)
Totals	969 (100)	994 (100)	67 (100)	151 (99)