**On the Threshold to Urban Panopticon?
Analysing the Employment of CCTV in European
Cities and Assessing its Social and Political Impacts**

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Flexible Technology, Structured Practices: Surveillance operations in 14 Norwegian and Danish organisations

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1 Background and methods

This is the third report from the Scandinavian contribution to UrbanEye, a multi-national comparative study of video surveillance of urban, publicly accessible spaces in Europe. The project, financed by the European Council, comprises participants from Austria, England, Germany, Hungary, Spain, and Norway, contributing studies from these six countries plus Denmark. In the two previous empirical stages of the project, we have studied legal frameworks and public discourses concerning video surveillance (work package 2) and mapped numbers and types of surveillance systems in the respective capital cities (work package 3). For more information about the project, including earlier work package reports, visit www.urbaneye.net.

Briefly summarising from the earlier work packages, Denmark was added to the project late in the planning process when it appeared that Denmark might be an "extreme case." According to a report to the European Parliament, video surveillance of public spaces was forbidden in Denmark. However, we soon found that this was not the case. Legal regulations in Denmark and Norway were virtually identical, although the respective laws were organised differently (video surveillance written into the Personal Data Act in Norway and as a separate act in Denmark), and were followed up by different agencies with different strategies (in Norway by the Data Protection Agency pursuing a strategy of registration, inspection, and regulation; in Denmark by the Crime Prevention Council pursuing a strategy of public debate).

Although these differences in strategies seemed to be reflected in media discourse in the two countries, with the media being less enthusiastic towards video surveillance and raising a broader spectrum of issues in Denmark than in Norway, the density of video surveillance installations in the two capitals was very similar. In both cities, between 34 and 38% of publicly accessible sites (shops, churches, schools, banks, etc.) along a central multi-functional street had some form of video surveillance. This placed Norway and Denmark fairly high in the range of surveillance densities found among the countries studied. Most of the systems found, however, were quite low in surveillance intensity. Few had operators watching the surveillance monitors regularly. Most merely tape-recorded the images from the cameras, and the tapes were for the most part only studied when something was found (by other means) to have occurred. For instance, if a salesperson caught a shoplifter "red-handed", a manager might check whether there was also evidence on tape that could be handed over to the police. Many systems were even less intensive than this, with no recording. Some were even "dummy systems" – non-functional cameras, or video surveillance signs with no cameras at all – put in place in hopes of a deterrent effect on crime. Of the 75 and 78 systems found on the respective Copenhagen and Oslo high street stretches, only two in each city were found to have active real-time all-day monitoring and two more per city to have real-time monitoring during opening hours only.

The goal of the current work package is to study, through interviews and on-site observation, the cultures and practices of video surveillance control room staff – to observe the observers. With so few systems actually involving real-time observers, the systems studied in this work package are obviously not representative of the overall status of video surveillance in these cities.

Others have conducted observation studies of surveillance control rooms before us (most notably Norris & Armstrong 1999, McCahill 2002). Conducted in Great Britain, these have studied control rooms of open street or shopping mall video surveillance systems. A key finding in these studies is that the operators, limited to what they can see on the screen, single out and target those they believe, on the basis of appearances, to be most likely to be deviant. This leads to the over-representation of groups culturally linked with criminal deviance, i.e. men, particularly if they are young and/or black (Norris & Armstrong 1199: 196). People thus categorised were mostly targeted "for no obvious reason", as opposed to because of their behaviour. At the same time, Norris and Armstrong also found a low rate of deployment, CCTV was mainly used to track rather than mobilise deployment (Ibid: 200). Their conclusion is that CCTV has a potential of becoming a tool of injustice through the amplification of differential and discriminatory policing (Ibid: 201). McCahill found, in his observation study of the CCTV control rooms in two shopping malls, a much stronger exclusionary practice. He concludes that there was a fifty-fifty chance that teenagers would be ejected when a guard was deployed (McCahill 2002: 146). Also in this study it was found that both suspicion and exclusions were based on categorical rather than behavioural targeting.

In addition to these British studies, there is also an ongoing study by Lomell of the first open street CCTV in Oslo, also focusing on control room activities. Lomell has followed this open street CCTV system from its beginning, and has both observed control room activities and interviewed operators and management. This study will be published in 2005, but some of the findings are included in this report.

The UrbanEye project aimed to explore the contextualisation of these findings through a cross-national comparative study. To what extent and in what ways might national contexts (legal frameworks, public discourses, cultural values, etc.) change the effects of video surveillance? Initially, our plan for the observation phase of the project was to study two CCTV systems per country – one open street system and one street-like shopping mall system – thus comparing the effects of video surveillance on public and privately owned street-like spaces across different national frameworks. Early in the project, however, we found that one feature of national frameworks was that some excluded open street surveillance. We then planned to compare shopping mall systems, with 120 hours of observation at a shopping mall in each country. This plan too had to be revised when another feature of national frameworks revealed itself: Countries differed regarding the openness of systems. In some countries access was relatively easy to obtain, while in others security practices were shrouded in secrecy and we found it

difficult to gain access to observe system operations. In Norway and Denmark we found some shrouding of systems, but not an impenetrable wall of secrecy. We were allowed access to a number of systems – some only for interviews with management, some for brief visits and interviews with employees, and some for observation periods of up to a few days. Summing up sites where we conducted more than a brief visit, we were able to observe a number of systems for a total of over 120 hours. Some of these systems were in open street or shopping mall settings, some in transport centres, one in a department store, and one in a cultural institution. Briefer visits also included other publicly accessible spaces (see next section). In all, the Scandinavian contribution to this work package turned out to be not so much a basis for transnational comparison (between Norway and Denmark or between these two and other European countries) as for comparison across site types.

2 Sites and data

Table 1 shows an overview of the sites we were able to access in Oslo. As mentioned earlier, we ran into problems finding a shopping mall that would accept our request to perform the planned observation study (60 hours). We ended up with shorter observation studies of a mall than we originally had planned. In Oslo we observed one mall for 21 hours. We were also able to get access to another interesting site, the major public transport centre. In this control room we observed for 24 hours. In yet another, very interesting CCTV system we did a flashlight observation study for 6 hours. This system is located in an exclusive commercial complex. Finally, we returned to the site of Lomell's ongoing study where we updated with 30 more hours of observation. We also did a "flashlight" observation here, preparing and "synchronising" our observations studies in Oslo and Copenhagen.

In addition to these observation studies, we have visited a traffic management system, and yet another shopping mall. At these sites we conducted interviews with management and brief visits to the control rooms.

Table 1: Work package 4 data sources in Oslo

Systems	No. of cameras	Management interviews	Operator interviews	Observation hours	Targeted surveillances
Open street system	6	2	4	30	78
Major public transport centre	ca. 300	1	-	24	35
Inner city shopping mall	ca. 100	1	-	21	61
Inner city shopping mall II	46	1	-	Flashlight	-
Exclusive commercial complex	70	1	(1)	6	6
Traffic management system	ca. 500	1	-	Flashlight	-
Total		7	4	81	180

In Copenhagen we visited two shopping centres hoping to obtain permission to do our 60-hour observation study as planned. At each we obtained an interview at management level (centre manager or security manager) and a brief tour of the control room. At one the tour served mainly to demonstrate to us that there was nearly no active surveillance to observe there. The other could have proven an interesting case: Cameras in many of the shops were monitored from the central control room. However, the centre was not willing to have us conduct an observation study there. We therefore turned to other cases, leaving the shopping malls as "flashlight studies".

Earlier in the project we had had two interviews and a tour of video surveillance at the airport. We had also had interviews at a department store and a cultural institution.

These three were all willing to allow us to conduct at least some observations at their control rooms. Operations at the airport control room seemed, however, too complex to be productively studied with only a few hours of observation. Furthermore, our flashlight study had already shown us that most of the surveillance conducted there was directed at areas where the public is normally denied access, thus falling outside the scope of this project. We therefore concentrated primarily on the department store as the context most like what we'd originally planned to study (shopping mall), adding smaller studies to assess the role of site context. The smaller studies included management and operator interviews and brief observation studies of control rooms at a cultural institution and at a public transport system. We also conducted a management interview at a traffic management system and a management interview and brief tour of the control room at a system monitoring several public toilet facilities. The data sources for Copenhagen are summarised in Table 2.

Table 2: Work package 4 data sources in Copenhagen

Systems	No. of cameras	Management interviews	Operator interviews	Observation hours	Targeted surveillances
Department store	160	1	2	38	68
Cultural institution	120	1	2	4	0
Public transport	150	1	1	1	0
Traffic management	5	1	-	-	-
Airport	70	2	-	flashlight	-
Public toilets	7	1	-	flashlight	-
Mall 1	10	1	-	flashlight	-
Mall 2	40	1	-	flashlight	-
Total		9	5	43	68

3 First impressions

Before embarking on our analysis, we wish to give the reader a general overview of key traits at the sites studied. How big are these surveillance systems? What do the control rooms look like? Who works in the control rooms? What tasks do they perform and how is their work linked to that of others? In this section we will paint a verbal picture of the seven sites where we spent most observation hours. Further sites where we conducted "flashlight" studies will be similarly presented in appendices.

3.1 Department store

According to the security manager, the department store was the first shop (other than banks) in Denmark to install a CCTV system. That was in 1990. History moves fast in this field, and one can almost do an "archaeology" of the system just by looking around the control room. The room is oblong. It is entered at one end of the lengthwise axis. Looking into the room, a long counter runs down the centre. To the right, near the door, are some shelves and a few odd pieces of furniture. Several outworn consoles and a camera are on the shelves. Facing the counter across a few feet of floor space is a wall with 66 monitor screens – all switched off. These represent the original system with two stationary cameras per screen. The operators demonstrated for us why the system was upgraded. They switched on the wall of black and white screens and in only seconds the flickering made us slightly dizzy.

Now the operators watch high-resolution colour monitors, one for each of the two workstations at the counter. These are working monitors, each controlled by a console. Using the console, an operator can select which cameras images will appear on the monitor. There are 160 cameras in all, of which 36 are PTZ or dome cameras, controlled from the operator consoles. Cameras being monitored are also being recorded in real-time on an analogue tape. In addition, there are six smaller monitors against the wall to the left of the counter, each above its respective tape recorder. These monitors can be set to show a sequence of cameras, or can be "parked" on a camera selected by the operator nearest them. To the left of these again, almost behind the operator at the far end of the counter, is a PC on which the operators keep a log of surveillance activities. And on the wall behind the operators is a bulletin board with various messages and reminders, for instance of ongoing investigations or suspects the police are asking shop security to be on the lookout for.

Behind that wall again is the security manager's office. He too has a monitor on his desk, on which he can see what the operators are tracking. Both the control room and the security manager's office are accessed through an outer office. The outer office is staffed with an administrative assistant. There is a seating area for guests (or arrestees), a coffee

maker and a refrigerator, a cloakroom and toilet, and a hallway leading via a storage room to the shop itself.

There are three operators/detectives on staff, of whom one or two are on duty at any given shift. Activities are concentrated primarily on protecting the store and its customers against theft. At opening and closing time, the security staff has tasks out on the shop floor. Otherwise security out in the shop is contracted out to a private security firm whereas the three video surveillance operators are all department store employees. All three were highly trained in security work before being hired by the store – two as police officers and one as a store detective.

Each of the operators follows his or her own preferred style of detection work, the security manager letting each staff member follow the strategies they find most productive. A is very selective in her targeting. She works mainly with the console and working screen, shifting from camera to camera and doing sweeps with PTZ and dome cameras. She concentrates on high-theft areas, some of which change from season to season, keeping a general overview until something or someone catches her eye. She prefers, however, to work out in the store where she can use all her senses. Therefore A alternates between watching the monitors and making rounds through the store, again with special attention to high-theft areas, following up with more targeted attention when she spots a known thief or someone behaving suspiciously.

B prefers to work from the control room. He uses one or two of the monitors on the side wall as additional working monitors, often pursuing two or three targeted surveillances simultaneously. He will set another monitor to watch one of the entrances because, as he says, "Sometimes you can see from the moment they enter the door whether they're here to shop or here to steal. It's something about their body language." If his current targeted surveillance(s) is (are) not showing any suspicious activity at the moment, he will watch an entrance or scan around a high-theft area to pick up another, yet still keeping an eye on the previously targeted suspects until he finds another more "promising" target. We observe his work through several shifts and he is almost never without at least one targeted surveillance ongoing on one or another monitor.

C's strategy is in some ways like A's in that he spends much of his surveillance time scanning, with fewer targeted surveillances than B. In other ways he is like B in that he prefers to work on the monitors. Where A likes to use all her senses and her ability to get close without being noticed, B and C like to have the overview they can achieve from ceiling-mounted cameras. Out "on the floor" they wear uniforms and make themselves visible (just the sight of a uniformed guard watching can sometimes get unruly youths to quiet down). All three strategies seem to work well. Although the security department is under no illusion that they can prevent theft entirely, they did catch a shoplifter or a pickpocket on each shift we observed.

3.2 Inner city shopping mall

This CCTV system is located in an inner city shopping mall in Oslo. There are nearly 100 cameras all in all, but only two dome-cameras. The two dome cameras, however, cover the largest, functionally most central area of the mall and are very actively used. The rest are stationary cameras, covering the mall, the toilets (not the toilet stalls, but the wash basin areas), the delivery bay, the car park, basement, etc. From our perspective as ordinary citizens, passing by or through this mall, we perceived it as simply a shopping mall. In our interviews we learned that the mall is a more or less integral part of a larger, multi-functional property, including a parking unit, an office unit and a hotel.

The control room is small and busy. It has many functions. There are alarms (emergency call buttons in the shops, fire alarms, escalator alarms, etc.), security guard services, access control, tools for loan. It is also the guards' coffee break room. There is only one operator on duty at a time, but in contrast to the exclusive commercial complex (see below), it was not only the most experienced and entrusted who functioned as operators. All the security guards (contracted from a security firm) took shifts in the control room, so that at times inexperienced security guards worked as video surveillance operators.

The guard on duty has one main monitor and four smaller monitors to watch. One of the four small monitors is divided into four sections (mainly images from the washrooms); another flashes through a series of cameras sequentially. There is also a pc that shows alarm messages on the screen, and there's a console for controlling the dome cameras. The work surface is packed, but neatly so, not cluttered. If we're facing this work area, behind us there is another desk with a PC. This PC is used to keep a log of all activities, including those of the guards on duty elsewhere in the building complex. Keeping the log takes up a great deal of operator time, and when working on the log the operator has his/her back to the monitors. The PC is also used for email.

3.3 Major transport centre

This CCTV system is located in the major transport centre in Oslo. The cameras mainly cover the indoors of this transport centre and the platforms. Parts of the main hall have a mall-like character, with a number of small shops. The transport centre's surveillance system covers the walkways, but not inside the shops. In addition, monitors show surveillance pictures from two entrance gates into railway premises elsewhere in Oslo. These monitors are used in connection with remote access control.

Entering the control room, we see nine computer screens and seven monitors switched on. Another monitor has a screen saver running. This last monitor, when activated, shows a map of the transport centre with the camera positions marked. The map software is not fully functional yet, but the intention is to use it as an operator guide for finding cameras for specific locations and vice versa. There are more than 300 cameras

in the system as of now. Fortunately, most of the operators are experienced and know the system well. Of the seven monitors in operation, one is set to show a "sweep" sequence from a dome camera. In addition to the seventeen PC and monitor screens, there are also a video player and monitor (switched off) and a television in the room. The television is also switched on most of the day, showing a "breakfast" program in the mornings and news and sports afternoons and evenings.

The PCs to the left in the control room are for fire alarms, call-up alarms and technical alarms (e.g. cooling systems) respectively. One PC to the right shows security alarms, for instance when a restricted access door is held open too long. Security alarms ring constantly, requiring operators to check the sources and switch them off. Most are false alarms, yet the operators must check each instance seriously. All in all, this is a very busy, multifunctional control centre, as indicated by its very name (it is called the "Service telephone"). The operators spend much of their time switching off (mostly false) alarms, admitting people through doors and gates, answering telephones ... they are even responsible for checking service vehicles in and out. All these functions are "multiplied" by the requirement that each activity be logged in a computer record. They do not, however, have security duties out in the area under surveillance. Those tasks have been contracted out to a private security firm, whereas the Service Telephone staff are employees of the (now privatised) property management section of the transport company. Surveillance is given low priority relative to other tasks that constantly make demands on operators' time, even on weekdays when there are two operators on duty. On weekends there is only one operator per shift.

3.4 Open street system

The CCTV open street system in Oslo has been running since November 1999, and is still defined as a trial project. Three of the four operators have worked there since the beginning, and all of them are highly dedicated and proactive in their work, doing more than their job descriptions expect from an operator.

The control room is located in a local police station in the area under surveillance. The door into the control room is open, and often the police officers use the control room as a sort of headquarters, informing the operators of their activities. Sometimes the operators directly ask the police officers to do something, at other times they call the Operations headquarters at the central police station. This depends on who (both operators and police officers) is on the shift.

Formally, the police officers are directed by the main Operations central, but the lines of command are at times blurred. The operators are not police officers, and therefore lower in rank hierarchically than police officers.

The control room is fairly large, compared with other control rooms, and in contrast with the other systems we visited, it does not have multi-functions such as alarms, calling

systems etc. There are four main monitors, and six small ones above these. The six show images from all six cameras in the system. One of the main monitors records the chosen images on that screen on a 3 hour video tape, and the images on this screen are also transferred to the Operations central at the police headquarters in Oslo. All six cameras are also recorded (in a sequence of short "snapshots") on another videotape.

There is a TV in the control room, mostly turned on, and three PC's where the operators have access to various police registers, such as a register of convicts, a continuous log (searchable) of police activities (called the PO-register), the census rolls, a search register (missing persons or wanted suspects). These registers are actively used during shifts, often in order to try and identify persons they watch on CCTV. One of the PC's has digital recording capability; it is used both to make highlight-tapes and to save "memorable" surveillance incidents.

The police radio is on, and is actively listened to. If operators hear about something happening in an area they can see on camera, they zoom in and transfer the image to the police headquarters.

During our resent observation study, four million Kroner (around 490,000 Euro) had been allocated to the police in order to try and stop the recruiting of young people to the drug environment. The CCTV system is also involved in this project, and one of the aspects of this is to document how many are stopped and checked. The operators therefore have an important job in documenting this on a special file in the PO-register.

3.5 Exclusive commercial complex

This CCTV system is located in an area of Oslo that is characterised by multiple functions and its exclusiveness.

The complex consists of 260,000 m^2 of floor space and 20-25,000 m^2 of outdoor streets, squares, parks, piers, and parking. The area is privately owned, though zoned for public access.[1] In the public access area there is a shopping centre (with no CCTV in the mall, only in a few shops and no image transfer to the control room), several major firms and businesses[2], theatres, cinemas, restaurants, pubs and bars, a park-like space and piers. The complex also includes several blocks of exclusive condos.

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1 From our interview with a manager: "The area is privately owned. Zoned for public access, but privately owned. So that means we have to take care of pretty much everything. It's only on emergency calls that we get any public authorities "fitted on top of" what we do, you could say. Other than that, the municipality isn't in here at all.

2 Manager: "It's clear that you have some pretty 'heavy' firms here. You have some of the world's largest shipping companies here; you have Norway's biggest legal firm in the complex; you have the main offices of the country's largest commercial bank, right? That's a lot of very 'heavy' activity, and that's something we're very much aware of."

The major part of the CCTV system is located in the outdoor part of the area, surveilling the streets and squares. The outdoor cameras is used most actively, and consist of PTZ and dome cameras. The rest of the cameras, mainly stationary cameras, cover areas indoors such as basements, entrances, back stairwells, parking building. The CCTV system is actively used to keep an eye on the large outdoor area, especially during the summer season.[3]

The control room is large, and is used by all the security guards as their off-duty room. They start and end all their shifts here, and take breaks. Not all the guards do surveillance work in the control room, however. Only the more experienced guards have surveillance duties, which are also combined with the function of shift manager.

In all there are nine monitors of different sizes in front of the operator. Behind the operator there are three more monitors. These are programmed to show sequential series' of images from the indoor cameras, but were not used at all during the shift we observed. Behind the operator there are also all in all four PC-screens.

Facing the nine monitor screens, the operator also has two control consoles. As each console controls different cameras and monitors, the operator has to use both of them.

There are also two two-way radios – one for contact with the security guards, the other used by the doormen of the restaurants and bars in the complex.

In addition to surveillance and communications with guards and doormen, the operator has several other tasks, most notably responsibility for responding to fire and robbery alarms, and building maintenance services (for which the evening and night shift operators are on call for business tenants and residents). These responsibilities cover the entire complex – the entertainment businesses, the offices, the residences, and the public spaces.

3.6 Cultural institution

The control room here is accessed through a series of other offices, like an old-fashioned "shotgun apartment". The back of the room, along the windows, functions as a hallway between the security manager's front office and personal office to the left and the personnel room (with coffee maker etc.) to the right. The control room is like an elongated alcove off this hallway. Within the shallow U of the alcove is a bookshelf with various handbooks and ring binders to the left. Below the shelves is a counter space with two telephones and two PCs. One of the phones is for the operators' personal use. The other is for emergency calls, which are all recorded. In the left "corner" of the U is a rack

[3] Manager: "There's no doubt it's the controllable cameras that give best value for money. There's no doubt about that. There we're very active, plain and simple, because in such a large area, there's nearly always something going on. Especially in the summer months, because then we get just insanely many people down here."

of video recorders and communications equipment, including a radio for direct contact with the fire department, a public address microphone, and controls for the emergency power system, light systems etc. To the right of the U is another bookshelf with binders and mail slots.

The long base of the U is where the surveillance monitors and controls are mounted. In all, there are eight screens and three keyboards. One of the screens shows fire alarm system information, one is used for doors with automatic alarms and for emergency call buttons, one is for the PC used to issue access cards, one is for the radio system, one is (or can be used as) a working monitor, showing whatever an operator chooses (via the video system keyboard) to see and recording it in real time. That screen, when not in active use, and the three remaining screens are set to show various sets of camera views, on split screens, in sequential rotations, and/or fixed to certain spots. What views are shown depends on the time of day. At night, outdoor cameras are shown and recorded, protecting against break-ins. During opening hours, indoor cameras are shown as well as certain gates and doors through which access is controlled by the operators. Some cameras are in infrequently used storage rooms. In case of a fire or break-in alarm from such rooms, the operator can check via the monitor, rather than traversing the immense building and passing through several locked and alarm-guarded doors to see what is happening.

Although the wall with the bank of monitors is the focal point of the office, although three operators and one UrbanEye researcher sat facing that wall through most our 4-hour visit, and although one of the operators spent much of those four hours giving instructions about the system to another operator (in training) and the UrbanEye researcher, surveillance was not really a priority activity. There were no targeted surveillances. Most of the operators' time was spent responding to calls from locked gates where workmen (renovations were in progress) had to be admitted. With a quick glance at the relevant screen, the operators confirmed that these were the workmen authorised to enter, and with a few keystrokes they opened the lock and admitted them. The operators also had various security and maintenance supervisory tasks around the building complex and were frequently away from the control room, for instance at a service window in the next room issuing access cards. Like many public organisations, this one has been through recent rounds of "restructuring" (a.k.a. effectivisation, or downsizing). Both the functions and staffing at the surveillance control room reflected this process, with tasks regrouped from several earlier functions and security staff recruited and retrained amongst high-seniority staff from those departments.

3.7 Public transport system

This was the newest and most high-tech of the systems we saw. In fact, it was so new and high tech that they were still de-bugging the system when we were there for our

interviews and flashlight observation. And yet, as our interview respondents pointed out, the system was already in some ways outdated. The video surveillance system had been planned and budgeted together with the transport system as a whole. Plans at that time were based on what was then recently developed but commercially available technology. By the time the budgets had made it through several layers of political decisions, and then been brought to fruition through several years of planning and building, popular technical expectations had already out-stripped what had initially seemed almost visionary. Thus, the company is already now, even before taking over ownership of the system from the providers still busy installing and de-bugging it, looking into ways to expand the services it will provide, and therefore the bandwidth on which it will provide them.

The operator team was also new, but only new as a team. All were employees of the transport system, and all had been recruited on the basis of earlier relevant experience. However, a broad spectrum of prior experiences had been deemed relevant, reflecting many facets of the emerging organisation – service, co-ordination, security, technical know-how. The operator we interviewed, for instance, had a background in logistics.

Entering the control room, we were struck, particularly in contrast to many control rooms we had seen before, by its being large and airy. There are three working stations, each with a U-shaped working space, a counter with several PCs, telephones, radios, in one instance also a public address microphone, a working monitor (showing images from a camera selected by the operator, and allowing the operator to control that camera if it is a dome or PTZ), and an emergency button that can cut all running power trains on the entire track system. Each workstation faces a bank of monitors between the workstation and the windows. (The windows represented a glare problem and were screened with mesh.)

Each working station addresses a specific function – rail operations, other technical aspects, and passenger services and security. Operators at this last workstation are responsible for video surveillance of public spaces within the transport system. They face a bank of 18 monitors, each showing a sequence of images from about 10 cameras in 6-second intervals (there are 195 cameras in operation). As the operator we interviewed put it: "You'd have to be very lucky to catch something happening just by watching those monitors." But it does happen. He told of another operator catching a movement in the corner of a screen – "What was that?" Searching via the working monitor, he found out it was a dog that had jumped down onto the track, and that the dog's owner was about to follow. There followed a sequence of actions – call out to the dog-owner on the public address system, send a station attendant to order the man back off the tracks, cut running power to the tracks, call the police ... the dog was saved, and the owner fined.

So the operators do watch the monitors. There are certain movements or patterns that do catch their eye. The operator we interviewed mentioned three things they look out for and, when they catch a fleeting glance, will switch over to the working monitor for closer inspection. One is anyone raising an arm. Most passengers at a railway station stand quietly with their arms hanging at their sides. Raised arms are unusual and may be an indication of violence. Another is when children run about unattended. Again, these break the pattern of people standing quietly facing the platform, waiting for the next train. Children running about can be at risk – they may get lost from their parents or even fall onto the track. The third thing mentioned as catching operators' attention, even in a short glimpse, was anyone moving too close to the edge of the platform and anyone or anything out on the track. This is what can trigger an operator to slam down the emergency button and cut all running power. Not only oncoming trains, but also the high voltage track itself can be deadly. However, only the above-ground stations need to be monitored for this. Many of the stations are fully enclosed. Doors to the track open only when a train is at the platform, with only millimetres between train and platform doors.

Most of the operators' time is spent responding to calls and alarms. There are call posts at each station and in each rail car. From the call posts, passengers can push either the information button or the emergency button. Either button puts them in telephone contact with the passenger information and security operators in the control room; the emergency button also triggers the nearest camera to turn towards the call post. Images are recorded on tape. From station call posts, images also appear on a control room monitor. There are also automatic alarms, for instance for fire. Most calls are requests for information about schedules or delays. During the hour we watched, there were a few such calls, and a large number of system-generated false calls – a problem being de-bugged at the time. Since the system opened, however, some calls and alarms had been real emergencies – violence or threats from unruly persons, lost children, health problems, and (in one case) a fire alarm – false, as it turned out, but nevertheless requiring evacuation of the station. In emergencies, two operators together divide up the work, actively using the video cameras together with direct telephone contact and (in some situations) public address contact and radio contact with police and fire departments.

4 Comparing sites: structures, practices, and social effects

Having introduced readers to our main sites through descriptive glimpses, we now move on to the presentation and analysis of our data. Our goal in this work package was to compare the workings of monitored video surveillance across different surveillance structures and frameworks. We have previously reported on national legal and cultural frameworks for surveillance in Norway and Denmark (Wiecek and Sætnan 2002a). Here we will also include in our analysis elements of the specific frameworks of the respective systems: Where are they located? What is their mandate? Who owns them? How large are they? How are they linked to other systems? What training do their operators have?

We will then look at how the operators actually conduct surveillance: Whom do they target for surveillance and why? What actions do they set into motion (deployments) vis a vis their targets?

Targeted surveillances and deployments are not the only activities carried out by video surveillance operators, nor are they the only important or consequential ones. They are, however, important in terms of certain types of potential social consequences such as crime prevention and social exclusion, both of which could alter the ways publicly accessible spaces are perceived and used. While those consequences certainly are hard to measure precisely, we may assume that, for instance, repeated eviction of recognisable categories of people from an otherwise publicly accessible space will result in social exclusion – not only in the specific and immediate exclusion of individuals, but also in the stigmatisation of whole groups of similar individuals, in such groups feeling unwelcome, etc.

Finally we examine whether variations in the practices and probable consequences we found can be explained in terms of variations in system structures. If so, then that opens possibilities for pre-evaluation of systems proposed for installation and for regulation of systems in operation.

4.1 Structural variations among the cases

Indicators of system size

How big are these systems? There are some obvious aspects of them that could be considered "size": number of cameras, number of monitors, hours of operation, square meters of space observed, etc. Most interesting for us in terms of control room work is the number of cameras and monitors being observed. Looking at Tables 1 and 2, one can see that the number of cameras varies considerably. One should not, however, conclude that the number of cameras defines the intensity or effectiveness of a system, or even its geographical reach. The Oslo inner city mall where we did a 21-hour observation study, had more than 100 cameras. These cover the corridors of a 3-story

mall occupying half a city block. The nearby open street system has only 6 cameras, but these cameras cover a kilometre of busy public street plus a large public square more effectively than the 100 cameras in the shopping mall cover their small indoor space. In large part, this is due to the types of cameras installed.

There is a major difference between pan-tilt-zoom (PTZ) and dome cameras on the one hand and stationary cameras on the other. PTZ and dome cameras can be steered and focused by a control room operator to scan an area, zoom in close on a suspicious activity, track a suspect in motion, etc. Stationary cameras can only survey one place from one point of view. With a high density of stationary cameras a skilled operator can, for instance, track a moving object by switching the monitor from one camera to another; but the same operator can do so more effectively and also zoom in for close-up views with a single PTZ or dome camera.

Placement of cameras is also an issue. At the department store, a large number of cameras were needed, and they also had to be repeatedly moved, in order to maintain an overview over key areas. This because room dividers, display cases, and ad campaign banners were placed and moved according to aesthetic and presumed sales-boosting criteria rather than with regard to how they might affect the security department's ability to prevent shoplifting. Within an enclosed space, such as a mall or a department store, visual impediments can't always be compensated for simply by placing a zoom camera high above them.

And of course, if system size matters for surveillance intensity, then size in terms of numbers, types, and placement of cameras is only an indication of a potential for surveillance intensity. Actual intensity will depend on how the cameras are used. A large number of cameras may even reduce surveillance intensity if there are too many images for the operators to monitor effectively.

A pair of examples to illustrate the range of system sizes we encountered: If one looks at the inner city shopping mall, there were all in all more than 100 cameras, but only 2 of these were dome cameras. The rest of the cameras, all stationary, were hardly used at all. The open street system, by comparison, has only 6 cameras, but they are high resolution, well placed, PTZ cameras. The open street system, while among the smallest of our sites in terms of numbers of cameras, is possibly the most powerful in terms of area effectively surveyed and even (to some extent) controlled.

Number, types, and placement of cameras and monitors will be elements in our analysis of some of the systems described in more detail in section 3 below.

Times of operation may also prove to matter. Some of the systems we observed were monitored 24/7 (the transport systems, the traffic management system, the open street system (except weeknights), and the exclusive commercial complex), some were monitored only during business hours, but taped nights and weekends (the department

store, the shopping mall, and the cultural institution). None had off hours when they were neither monitored nor taped.

All of the systems monitored a substantial space in terms of square footage, the largest in terms of space being the open street system, which covers a broad square plus seven city blocks.

Compared to the overall picture of CCTV systems in the areas studied in earlier phases of the project (Wiecek and Sætnan, 2002b), these represent the upper end of the scale in terms of size, by whatever indicators we might measure it.

Ownership, linkages, and mandates

The systems we studied varied rather more in ownership structure and mandate than in size. While all came from the upper size range for CCTV systems in these two cities, they represented the full range of ownership forms, linkages, and system goals. We have studied two systems owned and operated by public agencies (the police system, the cultural institution), two systems owned and operated by recently privatised, formerly public transport companies, one in-house surveillance system in a private firm (the department store), and two systems contracted out to security firms.

Several, but not all of these systems also had some form of collaboration with other security services within the same space they had under surveillance. At the department store, most of the publicly visible security (guards at the doors) was outsourced to a private security firm. Collaboration between in-house and outsourced security operated fairly smoothly. Three of the systems studied in Oslo (inner city shopping mall, major transport system, and police surveillance system) are physically located in the same area. Furthermore, the area is patrolled by both private security guards and police, with overlapping mandates. Relationships amongst the four security organisations involved are sometimes strained, sometimes effectively co-ordinated.

System goals also covered the whole range of those we found in a more extensive mapping of systems in the two cities (Wiecek and Sætnan, 2002b).

Who's watching?

The systems we observed had different types of staff, following different routines. In the shopping mall in Oslo, the observers were the security staff, and they "took turns" on observing and being out in the mall. The longest period they observed the monitors at a time was 2 hours. On one shift, they observed for only 30 minutes at a time. This was the same at the exclusive commercial complex, but there only a few/the most experienced of the security guards were allowed to operate the system. As a team, the observers at the mall formed a "flat" organisation, whereas at the exclusive commercial complex the observers took the role of shift managers.

In the major transport centre in Oslo the observers worked whole shifts in the control room. They were "operators". That was their work. They were employed by the centre's property management company – formerly a section of the state railway company, now privatised. However, security staff in the station were from a private security company. Observers in the control room were in a sense hierarchically "superior" to the private security guards; the observers could direct guard activities, but not vice versa. However, aside from rare occasions when the observers did direct incident responses, the guards operated autonomously.

In the open street system in Oslo, the operators are employed as operators, and they are not police educated. That placed them in a subservient position to police on the street and in the area station.

In Copenhagen too, the operators reflected different recruitment and training policies. At the department store, the control room staff consisted of only three operators. These were supplemented by and collaborated with contracted private security staff out in the store. Surveillance operators also participated in shop security duties out "on the floor", but only the in-house security staff operated the video system. These three all had considerable security training before they were hired by the department store. Two (both men) had been police officers and the third (a woman) had been a detective at another store. As we shall see when discussing their surveillance practices, their professional training may well explain some of the differences between surveillance operations here and at the sites in Oslo. The security chief at the department store furthermore held regular staff meeting with the operators, where problems and policies were discussed. And the security staff was also involved in training sales personnel in how to spot shoplifters and pickpockets. In some ways, this placed them in a position of authority over shop staff and the contracted security guards. However, selling goods was the primary goal of the organisation as a whole, which rendered security functions in general subsidiary. Furthermore, the surveillance operators depended on shop clerks and security guards to be on the alert and to assist in responding to episodes. They therefore showed much diplomacy and humility in their interactions with the employees out on the shop floor.

The two other sites where we had some observation time in Copenhagen were a cultural institution and a public transport system. Both had recruited security staff from within their own ranks or from other public agencies. While some had done security work previously, others had had jobs relevant to security work in other ways, for instance as train conductors, building superintendents, security system maintenance staff, etc. Both sites had extensive in-service training programs for their surveillance staff. For instance, some staff members at the cultural institution had recently attended a course on conflict resolution. And at the public transport system, recently opened when we visited, all operators had trained for some months before opening and an emergency back-up control room was regularly in use for continued training.

At all three of the Copenhagen sites, we quickly sensed strong feelings of loyalty amongst the operators towards one another, their respective supervisors, and the respective institutions' central values. At the department store, surveillance operators expressed dedication towards preventing theft, protecting customers, and maintaining a congenial environment. At the cultural institution, emphasis was on safety and public accessibility, and again – the operators were full of admiration for their supervisor. At the transport system, emphasis was on safety for and information to the public and on contributing to smooth and prompt services. Here operations were still in the trouble-shooting phase and the supervisor, in a liaison role between daily operations and system completion, was apparently seamlessly woven into ongoing activities.

5 Targeted surveillances observed

5.1 Some sample scenes

Collaborations between control room staff, other security staff, police etc. varied significantly from site to site. Here we present examples from our field notes to illustrate some of the differences.

At the department store, the control room staff considered their own knowledge of what and whom to look for superior to that of the rented guards. For instance, they felt that the guards often judged people on general appearances

> Operator A is alone on duty. One of the security guards at a doorway calls in to report a suspicious person entering the shop. A scans with a PTZ camera near the entrance while checking the description and location over the radio connection with the guard. She confirms that she now has the person on screen and hangs up. The "suspect" is a shabbily clad man, apparently Danish, apparently in his 30's. Our camera is "following" him from above and behind as he moves inward into the store. When he turns, A recognises him as a known alcoholic and switches to another camera, explaining to me "I can't be bothered watching him because I know he's just on his way to buy something in the food and wine section."

Nevertheless, they made an effort to collaborate with the guards and show them respect, as they were in some situations dependent on a team effort:

> Operator B has been scanning over some of the areas with frequent thefts. At the wallet display he targets a man, perhaps late 20's or 30's, dark-skinned, somewhat shabbily dressed for this store (he is wearing a jogging suit), but it is not his age, gender, colour, or clothing that has attracted B's attention. The man is behaving suspiciously. As B zooms in on the man, he explains to us that the man seems to have his eyes everywhere but on the wallets he is lifting up. Furthermore, the man has a backpack slung over one shoulder, with the top only loosely fastened. This too is a suspicious marker, as it may be a place to tuck stolen goods away. We watch as the man chooses a wallet and walks away. He walks over to another department where he seems to talk to a salesperson about a sweater. When the salesperson leaves, we see the man turn towards a wastebasket by the wall. He takes out the wallet and drops something in the wastebasket, possibly the price tag? B is more and more alert, and so are we. The man puts the wallet in his pocket and heads towards an exit. As the suspect nears the exit, B contacts two guards on the radio. The suspect has two exits ahead of him. B describes the suspect and the guards confirm that they see him. Now the guards are outside the two exits, waiting to see whether the suspect will attempt to leave without paying. He does, and seconds later, we track the suspect, now with a guard at either elbow, coming back through the store towards the security office. Almost the entire arrest is on film, but for a few brief seconds outside the door. The suspect is being escorted to the office with no physical contact. It all seems very polite. When the police arrive, an officer is invited into the control room where the film is replayed and a copy made as evidence.

Since the operators are dependent on assistance, not only with arrests, but also in some other situations, they do not overtly criticise the guards when they point out "suspicious" persons. Instead, they follow these "suspects" briefly and, occasionally, phone back to the guards with their conclusions. They hope that the guards, if stable on the job, will eventually learn more sophisticated ways of identifying suspects. They have also made a training video for sales staff with the same goal in mind. The video is put together of clips from actual arrests, showing some of the behaviours and theft "tools" the operators use as markers: lifting up goods and looking over rather than at them, nervously shifting from foot to foot, "hiding" behind a hand and peeking over it, a bulky type of shopping bag that may be lined against theft alarms (watch out if things are being dropped into open bags), oversized coats (also expensive-looking ones), etc.

At the shopping mall, there was no organisational differentiation between the operators and the guards out in the mall. Where the department store guard deferred to the control room operator for a decision, guards at the shopping mall can act on their own and instructions may be given from guard to control room as well as vice versa. Here is one example from our observation notes:

> A guard calls the control room over the radio link. He identifies himself and his position and requests that the operator follow with the camera. He is about to eject an undesirable person. From the control room, we watch the ejection on our screen.

These three examples illustrate a number of differences we think are important between the sites – differences in initiation of targeting, types of suspicion, frequency of targeting, and actions taken; differences that can matter for the social structure of the space under surveillance. These episodes (and others like them) led us to hypothesise that differences in organisational structures, operator training, and surveillance system mandates all might lead to differences in the social effects of the systems, for instance in terms of social exclusion. They might also matter in terms of system effectiveness. Another example shows how complex collaborations towards effectiveness can be:

> Open street operator sees a suspect, apparently Norwegian (he later turns out to be a Russian asylum-seeker), selling pills to a young girl on the square. Operator's working screen also transfers images to a screen at Operations central (at the main police station). At this moment Operations central (O-1) happens to be watching; not much else seems to be going on since the police radio in the control room is quiet. Now we hear O-1 call the local station asking them to respond to the episode. They are busy with another episode, so O-1 calls other patrols. Some time passes as the nearest available patrol is some distance away. Meanwhile, operator follows the suspect with the cameras; the suspect has moved up the street where he meets another woman. Together, these two bike back to the square where another pill sale takes place. The woman enters the railway station. Operator continues to follow the suspect, shifting cameras, zooming in and out as she follows O-1's comments on the radio. O-1 is directing the patrol car, which is still on its way. When O-1 seems unclear about the suspect's location, operator zooms out a bit so O-1 can get reoriented. But O-1 does not give direct instructions to operator. Nor does operator offer advice over the radio connection to O-1. The operators are only allowed to

listen on the police radio; they are not supposed to send on it other than in emergencies. Finally, the patrol arrives. The man is arrested, but his customers have disappeared into the crowds. The area is densely covered by CCTV and on-site guards, but coverage is distributed among several systems. There was no co-ordination with other control rooms or security guards in the area.

How typical were these episodes among those we observed? How different were the episodes we observed at the various sites? And what social consequences can we see emerging from these patterns? These are questions we will address in the remainder of the report.

5.2 Patterns of targeted surveillances? Some methodological considerations

In the remainder of this chapter we will present descriptive statistics about the targeted surveillances we observed at our research sites. Before doing so, however, we want to remind the reader about the limited number of hours we observed these sites.

We have observed just over 120 hours of control room work, divided amongst seven control rooms. Most of those hours (113) we spent in the control rooms of four sites: The department store, inner city mall, major transport centre, and open street system. At each of these sites we observed three to five shifts. At one site (open street system) we also have access to another 204 hours of observations from Lomell's parallel study.

How typical were the shifts we observed? At the transport centre one operator raised that question. He speculated that operators at our other sites may have been more proactive in their surveillance work when we were present, perhaps in an effort to impress us, or even just to fulfil our expectations. While this may to some extent be true, we don't think such an effect lasted more that a few hours of the first shift. We found operators to be simply too busy, in some cases with non-surveillance work, to be able to maintain a "show" for our sakes of concentrating on surveillance.

Operators were, however, aware of our presence; our presence and our questions (we interviewed operators in the control room as time allowed) did seem to cause them to reflect on their work in ways they might not do on a daily basis. At one site, on our second shift there, an operator expressed concern that on the previous shift he might have targeted a disproportionate number of persons with minority "racial"[4] appearance. He had worried about this during the night, when thinking back on the shift we had

[4] We are aware that racial categories probably have no basis in biological difference, at least not in differences that would matter to the mandates of the surveillance systems we observed. However, they do exist as social categories, to which people are often sorted on the basis of appearances. And appearances are all a video operator has to go on. For one of our variables, we coded whether targeted subjects appeared, either in terms of skin colour or clothing or both, to be persons generally classified in that city as belonging to a minority racial or ethnic group. This variable could then serve as an indicator to test for racial or ethnic targeting/discrimination on the part of the operators.

observed. We will discuss this episode later, but mention it now because it illustrates three points about the validity of our data. First: the operator did worry about this. Our presence did cause him to reflect on his work in ways he might not ordinarily do. Second: He worried about this only after the shift was over. During the shift he had been too busy to think about what we were seeing and what we, as researchers, might make of it. Third, he himself brought up the issue of race. We had not mentioned this as one of our concerns. It was, independent of us, a concern of the organisation. The head of security at the store, himself a man with a multinational background, maintained an awareness within the organisation of the dangers of racial discrimination – not least dangers to surveillance efficiency (anyone might steal) and to the cosmopolitan image of the store.

Aside from effects of our presence, the shifts we observed may also be atypical in other ways. We may have conducted our observations at times when there was more or less than usual going on in the cameras' field of view. At the department store, the head of security thought we ought to observe the Christmas shopping season. That didn't fit our schedule, however, so we observed in what may have been a pre-Christmas lull. We also missed the tourist season there, which had dropped off a month or two before. At the inner city shopping mall we did observe in Christmas shopping season, but high-activity seasons are no more typical than low seasons, only more desirable from a sales point of view. At the exclusive commercial complex activities are at their highest in summer; we were there in winter (but perhaps we can observe again later). And of course, we don't know how slow and busy seasons affect the frequency of the behaviours surveillance is directed against.

Keeping all this in mind, we are reasonably confident that what we have observed is at least roughly representative of what normally (whatever that is) goes on in the control rooms at these sites. Nevertheless, our results should be considered with some caution, mainly because of the limited number of observation hours at each site.

5.3 Frequency of targeting

We have previously discussed indicators of system size, arguing that various aspects of size say something about the potential surveillance intensity of systems. Potential. From there, the actual surveillance intensity depends on how the systems are used. Do operators stare blankly at the screens? Do they turn their backs and perform other tasks? Are they proactive, zooming in on suspects and tracking them with PTZ and dome cameras?

We focused our study on targeted surveillances. We defined a targeted surveillance as any episode where an operator took control of the cameras (by zooming and/or panning or by switching among stationary cameras to follow a subject) for at least 30 seconds.

For each such episode, we filled out a data sheet recording who or what was watched, why, and what (if anything) was done to follow up on what was seen.

So how frequent were such targeted surveillances? How intensively were the systems used? Table 3 shows the number of targeted surveillances we observed per site/per hour of observation time:

Table 3: CCTV systems observed

	Observation hours	Targeted surveillances (TS)	No. of TS per hour
Department store	38	68	1,8
Shopping mall	21	61	3,0
Major transport center	24	35	1,5
Open street	30	78	2,6
Total	113	242	2,1

We found that the shopping mall system was most actively used, with an average of 3 targeted surveillances per hour. The major transport centre had only half of the ratio. This was the largest surveillance system, but also the control room where the operators had the greatest proportion of other tasks in addition to surveillance.

All in all, the operators can of course influence the number of targeted surveillances, assuming there are people present to target. For instance, the exclusive commercial complex we observed for 6 hours during a cold evening/night in November, and the area was empty of people most of the time, leaving hardly any to target. In contrast, the shopping mall, department store and transport centre are very busy areas, crowded with people most of the opening hours.

The open street system also covers a busy stretch of public space. The six city blocks are packed with shoppers, commuters, tourists, and/or "pub crawlers," depending on the hour and day of the week – Sundays and a few early morning hours being exceptions most weeks. In addition, one corner of the square at the near end of the street is a major site for drug traffic in Oslo. The system is actively used, especially in targeting drug traffic. For instance, this year a project has been directed at attempting to stop the recruitment of young people to the drug scene. The CCTV system has played a major role in this project and the operators are highly dedicated in this work. Compared to Lomells observations in 2001, when there was an average of 1.4 TS per hour, and 2000 with 1.3 TS per hour, the system is currently being used much more proactively.

Targeting frequency varies. We have seen that it varies between systems. We have seen that it varies within systems over time. But it may also vary between categories of population using the space under surveillance. We now ask: Who is targeted?

5.4 Targeted persons

While number of targeted surveillances says something about the average intensity of surveillance, intensity does vary by categories of persons in the field of view. Some are subjected to more surveillance than others.

As Table 4 shows, it is mostly men who are targeted (75%). The proportion of men amongst surveillance targets was largest in transport centre and open street systems. In department store and shopping mall, women were a slightly larger minority amongst targets. In none of these spaces, however, was there any obvious majority of men present. In all systems, therefore, men run a higher risk of being targeted than women.

Similarly, young adults (in their 20's and 30's) run a higher risk of being targeted than do children, teens, middle-aged or elderly persons. Across sites, from 60 to 70% of targeted persons appeared to be in their 20's or 30's. Again, as with gender, surveillance at the mall and department store was somewhat less age-discriminating than at the transport center and open street systems.

Table 4: Characteristics of the primary person under surveillance

	Department store	Shopping mall	Major transport centre[5]	Open street	Total
Sex					
Male	66 %	72 %	82 %	82 %	75 %
Female	34 %	24 %	19 %	18 %	25 %
Don't know	-	4 %	-	-	1 %
Total	(n=71) 100 %	(n=50) 100 %	(n=27) 101 %	(n=76) 100 %	(n=224) 101 %
Age					
Child	-	2 %	-	-	-
Teenager	16 %	14 %	19 %	18 %	17 %
Twenties	28 %	18 %	22 %	40 %	29 %
Thirties	34 %	42 %	48 %	29 %	36 %
Middle-aged	18 %	10 %	7 %	11 %	13 %
Elderly/frail	1 %	2 %	4 %	-	1 %
Don't know	3 %	12 %	-	3 %	5 %
Total	(n=71) 100 %	(n=50) 100 %	(n=27) 100 %	(n=76) 100 %	(n=224) 101 %
Appearance					
Smart/formal	-	-	-	1 %	-
Uniform	-	-	4 %	8 %	3 %
Subcultural – fashion	11 %	4 %	15 %	4 %	8 %
Casual Indistinct	78 %	40 %	52 %	54 %	58 %
Scruffy	6 %	54 %	30 %	30 %	28 %
Don't know	6 %	2 %	-	3 %	3 %
Total	(n=71) 101 %	(n=50) 100 %	(n=27) 101 %	(n=76) 100 %	(n=224) 100 %
Ethnicity					
Dominant ethnic group	59 %	72 %	74 %	78 %	70 %
Minority ethnic group	32 %	22 %	22 %	20 %	25 %
Don't know	9 %	6 %	4 %	3 %	5 %
Total	(n=71) 100 %	(n=50) 100 %	(n=27) 100 %	(n=76) 101 %	(n=224) 100 %

Going deeper, but still only skin deep into the identities of targeted persons, did dress and/or ethnic appearance seem to be targeting "triggers"? With the exception of the shopping mall, the majority of targeted persons at our observation sites were indistinguishable from site populations as a whole in terms of dress. They were neither

[5] Percentages in this column should be read "with a grain of salt", since the total number of targeted persons is only 27, making each instance a substantial percentage of the whole.

more formally nor more shabbily dressed than was typical for that space, nor were they in uniform, nor were they wearing apparel typical of a specific sub-culture (for instance gypsy garments, or hip-hop attire. At the shopping mall, however, the majority of targets were "scruffy" – i.e. looked ragged, unwashed, wearing what appeared to be cast-off clothing. "Scruffies" are numerous in this area of town, including also at the transport centre and in the open street area, however not so numerous as their proportion of the targeted population. They are clearly overrepresented among targeted persons, especially at the shopping mall where 54% of targeted persons were characterised as scruffy. Even the 30% "scruffy" targets at the transport centre and the open street area overrepresents their proportion of the areas' populations, where thousands of persons clad "casual, indistinct" pass through in the course of a day, while less than a hundred "scruffies" spend long stretches of time there. Thus, at all three of these sites, scruffy appearance seems to be a basis for operator suspicions. This is in sharp contrast with the department store, where only 6 % of the targeted were characterised as being scruffy. Of course, even this number may well over-represent the number of scruffy persons present in the store, most of which caters to middle-class and wealthier customers. However, several episodes confirmed that the CCTV operators here did not consider scruffy appearance sufficient grounds for suspicion. See for instance the episode described on page 17/18, where an operator drops a scruffy target, radioed in by a guard, when she recognises the man as a local alcoholic going to the food department to buy beer.

Finally, what about apparent ethnicity? From the distance of the control room, "ethnicity" pretty much boils down to skin colour, although gesture and clothing could also be factors, at least in theory. We coded targets Northern-European in appearance as apparently "dominant ethnic group." Anyone else targeted, i.e. anyone dark-skinned or Asian-looking, we categorised as "minority ethnic group." Of course, the latter may well be native-born Norwegians or Danes, as may the former be foreigners. We have no census data regarding racial appearances, not even for the countries or cities as a whole, not to mention for the specific areas under surveillance. However, we do have some city-wide census data on nationality. Public census data show that 15.1 % of Oslo residents[6] and 8.5% of Copenhagen residents[7] are immigrants from other Non-Western countries. These numbers are substantially lower than the 20-32% of targeted persons we observed to be of minority ethnic appearance. Even allowing that many tourists pass through or seek out the areas under surveillance by the systems we studied (although mostly in other seasons than when we studied them), and even allowing, as noted above, that appearances do not equate to nationalities, it would seem that persons of minority ethnic appearance more readily fall under CCTV operators' suspicion than do persons of

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[6] Immigration and Immigrants 2002, table 2.1.6 in Statistical Analyses : 50. Statistics Norway: http:www.ssb.no/english/subjects/02/sa_innvand_en/sa54/tab/2.1.6.html

[7] Data from http://www.statistikbanken.dk, table RAS111.

dominant ethnic appearance. Perhaps most surprising here is that the department store showed the largest proportion of minority ethnic appearance among targeted persons. The head of security there made a point of avoiding ethnicity-based targeting, and the operators made a point of targeting on the basis of behaviours rather than appearances. One operator, concerned that the previous day's targets might have been disproportionately dark-skinned, mentioned that he thought the private security guards, less trained than the operators in observing behaviours and avoiding ethnicity-based targeting, might be a source of ethnic discrimination. In the next section, we will examine whether targets reported by the guards were more disproportionately of minority ethnic appearance than those initiated by the operators themselves.

Summing up so far, these results do not reflect the average visitors to these spaces. Though we don't have census-like numbers for comparison, even a mere visual impression shows that the average visitor is not a scruffy, foreign man in his thirties. The population passing through these areas looks more like the general populations of Norway and Denmark. The numbers for targeted persons thus reflect who disturbs the picture, or who makes the operators feel "there is something wrong with this picture". Several of the operators described the art of surveillance by referring to "looking for something wrong in the picture". In the settings studied in Oslo, being scruffy, being male, being black or brown makes the operator (or the security guard, or the police) stop up and follow you.

Of course, these attributes may be more representative of the criminal population than of the general population. It may be that people targeted for other reasons, for instance for suspicious behaviours, are disproportionately male, 20's or 30's, scruffy and of minority ethnic appearance. Statistics on convicted criminals do tend to show a predominance of young men, socio-economically marginal to the general population. Then again, that may be an artifact of the surveillance attention paid to that segment of the general populace.

5.5 Who initiates the targeting?

Early in this project, we imagined that video operators would be the primus motors of surveillance activities. We soon learned that this might not necessarily be so. Video operators' surveillance work can be directed from outside the control room, as well as vice versa. See for instance the episodes discussed on page 18. To what extent were the control rooms we observed proactive or reactive, self-directed or other-directed? Table 5 shows the distributions of who initiated targeted surveillances at our four primary sites.

Table 5: Who initiated the targeting

	Department store	Shopping mall	Major transport centre	Open street	Total
System operator	75 %	38 %	66 %	82 %	67 %
Private security patrol	17 %	33 %	9 %	1 %	15 %
Store detective	4 %	-	-	-	1 %
Police	-	-	-	13 %	4 %
Management	-	-	6 %	-	1 %
Other	4 %	30 %	20 %	4 %	13 %
Total	(n=71) 100 %	(n=61) 101 %	(n=35) 101 %	(n=78) 100 %	(n=245) 101 %

(Percentages may not add up to 100 due to rounding)

There are interesting differences between the different sites when we look at who initiates the targeting. Across all sites, operators initiated 67 % of targeted surveillances. But the operator is not the major source in targeting people in all systems. The open street system is the most proactive system, where the operator initiates targeting in 82 % of all TS. The department store is also a very proactive system, with the operator initiating surveillance in 75 % of the TS. Another 4% were initiated by the operators while working out on the floor as store detectives.

On the other end of the scale, the shopping mall is the most reactive system. Here the operators working from the control room only initiated the targeting in 38 % of the cases. The private security patrol (who are also system operators, but who were at the time working out in the mall) initiated nearly as many, 33 % of the targeted surveillances, the remaining being initiated by others (primarily shop staff pressing the alarm button). Another way of putting it is that the system is highly integrated. Not only do operators in the control room deploy security guards outside, but guards and shop staff also make active use of the video operators. Why? We think there are structural explanations for this: Guards also do shifts as video operators and both take their breaks in the control room. Thus the two roles are in close contact.

In the major transport centre, on the other hand, there is a more marked division of labour between the operators and the security guards. The operators are in-house security, and are recruited from the railway company. Their background is from the railway company; most of them have worked both as conductors and in the former railway security, a job that is now outsourced to a private security company. The railway company had previously had a strong company identity that included a strong union identity. It may be that the whole privatisation/outsourcing process left a "bad taste"

with some of those who remained. Whatever the reason, co-operation between the operators and the security guards was at times limited and uneasy.[8]

Some further indicators of integration vs. distance between surveillance operators and other security roles: In the shopping mall the operators and guards share a shift journal; the operator on duty is also responsible for writing it. In the major transport centre the private security patrols' shift journal is not the operators' responsibility. They do not normally read each other's shift journals. The private security guards have their own staff room for coffee breaks and their own cloakroom, separate from those of the surveillance operators. It is not normal for the security guards to visit the control room. One of the operators said right out that "we don't want them in here," that they felt the security guards' job was to patrol the transport centre. In the shopping mall, the control room is used as a coffee break room for the security guards. On busy shifts they use the period when it is their turn to watch the monitors as a chance to rest, to get something to eat, and also to read the newspapers etc.

At the department store we also find organisational differentiation. In-house security is responsible for video surveillance, but on-floor guard services are largely outsourced to a private security firm. Guards are not as thoroughly trained as the in-house security staff, nor are they included in weekly security staff meetings where security policy and strategy issues are discussed. Here, however, when guards (occasionally) or shop clerks (more rarely) call the control room and alert them to someone suspicious, the operators do track that person at least briefly, and they do call back to report on what they have seen. This, we gather, is a policy issue; the security department seeks to train clerks and guards to be more alert and more accurate in identifying likely shoplifters. According to the operators, racial targeting is not a necessary outcome of the sensory limitations of CCTV, but of lack of training and experience. Nevertheless, this system, with 79% of its targeted surveillances initiated by its highly trained and experienced operators, had the highest proportion of ethnic minority persons targeted. Were the 8 targeted surveillances initiated by guards or clerks so racially skewed as to explain this high rate of minority targeting? At least in part, yes. At the department store, 29 % of the operator/store

[8] As evidenced by this episode from our field notes: A guard calls up and asks the operators to follow an elderly Norwegian man with certain identifying traits (hair, clothing, etc.). He has threatened someone. Operator responds, "Yeah, OK." over the radio, but doesn't want to follow up. Operator is evidently angered by the request, and the other operators concur that the request is unreasonable. They don't define this as their job; seem insulted even, uninterested in any case. The operators do not steer the camera as directed, do not even make a note of the identifying traits transmitted by the guard. "How are we supposed to find him?" Too many people, don't want to do it, etc. The operator doesn't look for the man, nor does he send any response back to the guard, nor does the guard call back to ask how the search is going.

From more general field notes following this episode: The operators seem quite "snooty" in their tone towards the guards when the latter fail to understand a directive from the control room or fail to speak clearly over the radio. This came to a head when one of the guards wanted them to follow/search for a man who had been rowdy. They wanted none of that! This wasn't so much work avoidance as more a sort of power struggle as to who is in charge. It's clear that for now orders may go from the operators to the guards, but not the other way around.

detective-initiated and 6 of the 12 (50 %) security guard initiated TS were of a person with minority ethnic appearance. TS initiated by security guards did raise the percentage targeting persons with minority ethnic appearance, but the percentage initiated by in-house security staff was also higher than the percentage of minority persons in the population as a whole. The same was the case for all our data across the four main sites: 23 % of operator/store detective initiated TS were of a minority ethnic-looking person compared with 39 % of security guard initiated TS.

At the open street system, the most pro-active system with 82 % of its TS initiated by system operator, formally has almost an opposite hierarchy from the department store and transport centre. Here the operators are *not* the "head of operations", at least not if the main Operations central is involved in the case. If so the operator's role is reduced to making sure the incident is filmed and recorded in a best possible way. The police officers at the main Operations central direct the police officers at the incident, make all the decisions and inform the officers at the scene as to what they see on the screen (transmitted from the operator at the control room). If the staff at the Operations central are uncertain on some details, they sometimes say on the police radio link that they will phone and ask the operator. If it is a Yes/no question, the operator often, listening to the police radio, but not being allowed to use it, "nods" or "shakes" (pans back and forth) the camera, as a silent sign to the Operations central.

The police officers at the local police station, however, had various ways of positioning themselves against the operators, depending on more individual work-styles and how "formally" they behave in their work. Some act as if the operator is the same as the Operations central, directing them. At other times the police officers demonstrate or make clear "who's in charge," and refuse to take "orders" from the operators. But as one can see from the table, the police initiated targeting in 13 % of the cases in the open street system. This shows that at least in some cases the police officers at the local station actively use the CCTV system, involving the operator in their footpatrolling work.

5.6 Reasons for targeting

Organisational position of surveillance services and surveillance mandate, explicit and implicit, are perhaps most clearly reflected in the reasons for targeting. Targeting reasons, as we perceived them, are shown in Table 6 below:

Table 6: Reasons for targeting

	Department store	Shopping mall	Major transport centre	Open street	Total
Theft from store	87 %	15 %	-	1 %	29 %
Theft from person	1 %	2 %	-	3 %	2 %
Vandalism/criminal damage	-	2 %	-	-	-
Other property crime	-	-	-	1 %	-
Violent theft from person	-	-	-	1 %	-
Assault/fight	-	-	3 %	1 %	1 %
Unruly/disorderly/ nuisance behaviour	6 %	8 %	29 %	6 %	10 %
Traffic violation/problem	-	-	3 %	-	-
Person in need of help	-	2 %	6 %	3 %	2 %
Personnel management	-	-	11 %	-	2 %
Drugs	-	3 %	-	46 %	16 %
No obvious reason	4 %	48 %	34 %	23 %	25 %
Other	1 %	21 %	9 %	14 %	11 %
Don't know	-	-	6 %	-	1 %
Total	(n=71) 99 %	(n=61) 101 %	(n=35) 101 %	(n=78) 99 %	(n=245) 99 %

In coding reasons for targeting, we took note first of what the operator spontaneously explained to us. If no explanation were offered, we asked (time permitting) or guessed on the basis of what we could see on the screen.

Looking at the table one can see the structured practices of the different systems, and also some major differences between the contexts surrounding the systems. We will discuss the major reasons at the different sites.

Department store surveillance practice was nearly all about preventing and detecting theft from store. This came as no surprise, although surveillance in such stores might, in some cases, also be directed towards raising the average status of the customers by excluding "undesirable" clientele. At this particular department store, however, that did not seem to be the case. Although persons with ethnic minority appearance were at higher risk of being targeted, there was also a conscious effort not to target on bases other than behaviour. Furthermore, there was no effort to eject potential customers unless and until criminal behaviour was actually seen and recorded.

This was in sharp contrast to surveillance at the shopping mall. One might have expected that there too, surveillance would be about preventing theft from the stores and their customers. Here, however, the surveillance we observed was not that of the stores, but

of the property developer. The developer's interest is in the rental value of the property, and while the occurrence of theft might be a factor, so is the general attractiveness of the populace using the space. Furthermore, this shopping centre was located in an area where drug addicts and sellers were a highly visible presence. Much of the surveillance effort was directed at excluding this segment of the population, or people who might appear to belong to this segment, from the mall. Here, therefore, many were targeted and many of these targets were ejected simply because they looked unsavoury. People who looked shabby were ejected even if they were shopping and paying for goods. In at least one instance, guards stood by and watched as a scruffy-looking couple paid for their purchases, and then escorted them out of the mall.

The major transport centre and the open street system are in the same area of the city. At these sites, however, less surveillance effort was invested into ejecting undesirables. The public transport system is open to all citizens, as long as they follow the rules that apply to passenger behaviour. Public drinking or drug consumption would break those rules, but appearing likely to do either would not. At the transport centre, furthermore, responsibility for maintaining public order has been outsourced to a private security firm. Transport company surveillance activities are directed towards safety and service issues. The private security guards may well be evicting "undesirables" from the premises, but doing so with less involvement from the video surveillance operators.

The open street system, organised by though not within the police, is concerned with drug sales and use as illegal activities. However, they have until recently had the policy of tracking down major pushers rather than small-time user/sellers. They have also concentrated on preventing recruitment of new, young addicts. Meanwhile, they left small-time users and sellers more or less alone, preferring to have them gather within range of the cameras rather than drive them away where it would be harder to keep an eye on them. Recently, however, city politicians, under pressure from local businesspeople, have demanded that the police change to a "zero tolerance" policy.

No obvious reason

The most striking result in reason for targeting at the mall, is that in nearly half of the cases, the reason was "no obvious reason". This, of course, is not the operators words. This is our interpretation of the main cause for targeting a person. If the person neither behaved in a certain unruly or suspicious way nor was in a location where the operators expected trouble, and if the operator did not offer any other explanation, we coded "no obvious reason" for targeting.

And who is targeted for "no obvious reason"? Scruffies. Just being a scruffy, entering a mall or at transport centre, walking steadily into the area, is not in itself unruly or

disorderly. If the scruffies appeared to be influenced by drugs and/or alcohol, we coded this at "unruly/disorderly/nuisance behaviour"[9].

In all the sites in Oslo, and most strikingly at the shopping mall and transport centre, scruffies were under active surveillance as soon as they entered the area. This is in contrast to the Department store in Copenhagen. When operators at the mall and also at the transport centre saw a scruffy, they reacted instantly by calling the security guards, and the security guards immediately approached the scruffies. Here is one typical example:

> Early on our first afternoon two scruffies/apparent addicts enter the mall. The operator immediately calls the security guard who then approaches them and talks to them. The operator follows the situation on camera. The security guard then calls back on the radio that, "They are not high; they said they were here to shop, so I will let them have a look around." However, the guard follows them around, the camera also. Half a minute after they "get to look around" they leave the mall. The guard calls on tha radio that, "They are on their way out, so you can follow them with the camera." The operator calls the guard after they have left the premises. The whole episode lasts for four minutes.

These two were not ejected, but as we will show later, many of these "No obvious reason"-TSs were followed up with ejection[10]. At the shopping mall we even overheard one new, unexperienced guard being told by a more experienced one that when he was guarding the main entrance, if druggies/scruffies entered, he should eject them immediately[11].

Also at the major transport centre, targeting of scruffies turned out to be a major activity, but not all the time. When the operators occasionally scanned the seating areas, they always stopped when they saw someone scruffy sitting there, even though they seldom were of any nuisance.

Other

In the mall the CCTV system was actively used in response to "armed robbery alarms". That is to say that shop personnel had pushed an alarm button. This is a button that all

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[9] If we look at all scruffies who were targeted (62 across all sites), 40 % of these were targeted for "No Obvious reason", 20 % for Drugs , 13 % Unruly etc., and 11 % "Other" (for the most part transmitted)

At the shopping mall the picture is even more dramatic: 70 % (19 of 27) of all the TS of scruffies were for "no obvious reason". In only 2 of the 27 cases where scruffies were targeted at the shopping mall, were coded as "Unruly/Disorderly/Nuisance Behaviour"-

[10] In all there were 21 ejections in our observation data. We registered the following reasons for these: In 52% of cases where the target was ejected, there was "No obvious reason". Another 10% were coded as "Don't know", which amounts to pretty much the same. "Unruly etc" accounted for 33% of the cases.

[11] From field notes: Today a new, "green" guard is on duty. His is therefore given some extra follow-up, instructions, etc. Nevertheless, he does his rounds alone. When he reports that he is going down to the ground floor, the shift leader replies, "You remember what you're supposed to do on the ground floor?" He respons: "The Restaurant-round?". Shift leader: "Yes, and watch who enters. If it's a druggy or a drunk, then show them out."

the shops can press in emergency, when they are in immediate need of a security guard. In the mall this system is called an armed robbery alarm, but it is much more widely used than in robbery situations. We coded these as "other" in reasons for targeting. The operators' first task when the alarm goes off is to immediately send at security guard. This was often followed by turning a camera toward the shop. Since the operators could not control or view cameras inside the shops, the operator seldom saw what was going on inside. The operator had to wait for the security guard to call back and tell what was the reason for the alarm, and often they did not call back. During the observation period the reason was never robbery (although on one occasion it was shop lifting); most often it was because "unwanted customers" (read: scruffies, drug addicts) had entered the shop. It could also be even less "serious" problems, need for assistance, (too) many customers in the shop. The threshold for pushing the alarm button was low. Calling it "robbery alarm" was misleading, and made every situation more dramatic than necessary. At the major transport centre they have the same alarm system, there they call it a "calling alarm", a more appropriate name.

Unruly behaviour

Unruly behaviour was a category that occurred almost exclusively at the Major transport centre. Most of these episodes are on a very "mild" level, for instance someone drunk enough to walk unsteadily. Nevertheless, this can be enough to put the person concerned in a different category, legally speaking, when it comes to ejection from a public space. Obviously, however, there will always be borderline cases. Often it was difficult to decide whether it was "no obvious reason" or "unruly behaviour".

Drugs

Nearly half of the targeted surveillances at the open street system were about drugs. Typically at all our study sites, when we asked operators what they looked for on their screens, their first answer was that they scanned the screens for anything "out of the ordinary," anything that disrupted the normal picture. As mentioned above, the major drug scene in Oslo is located in the open street surveillance area. During the daytime, the major "disturbance" in the picture for the operators is the drug addicts gathering in one spot in order to buy and sell. These drug activities were at once both ordinary for the setting and yet illegal. They form a main target of surveillance when nothing else is going on in the area. On the one hand, drug sales are constantly going on there. Admitting that drug consumption probably can't be stopped completely, the police would even rather have these small sales activities concentrated in one easily monitored space, something they can only achieve by leaving most sales activities undisturbed. The operators and patrolling officers tend to initiate intervention when they observe violence erupting on the drug scene, when young children approach it, or when big-time operators appear amongst the small-time dealers and users. This keeps this area relatively

safe - and therefore attractive - for small-time drug dealers/users. They are to some extent protected from one another while not persecuted by frequent arrests. On the other hand, drug sales are, after all, illegal. If nothing more urgent is going on, this provides a constant source of potential intervention suggestions for the operators and arrests for police officers. When police officers (local patrols or the city-wide drug squad) feel the need to make such an arrest, they often stop by the control room first to pick out an arrestee on the screen. They do not need to wait for the operators to initiate an intervention, but can use the cameras' vantage point at their own initiative.

5.7 Type of suspicion

This variable was perhaps misnamed in our field note forms. While the previous variable was about what a target was suspected of, this variable is about how the suspicion arose.

One value of this variable overlaps with another variable discussed above: source of targeting. If the source was someone calling in to the control room or pushing a "panic button", we coded this as "transmitted" even in instances where we knew (for example from overhearing the radio conversation) what had triggered the transmitters suspicions.

Table 7 shows the distribution of types of suspicion across sites. Again, we can see that the sites differed significantly in their structures and practices.

Table 7: Type of suspicion

	Department store	Shopping mall	Major transport centre	Open street	Total
Categorical	4 %	15 %	26 %	19 %	15 %
Locational	18 %	3 %	3 %	14 %	11 %
Personalised	7 %	5 %	3 %	8 %	6 %
Transmitted	24 %	62 %	29 %	15 %	31 %
Behavioural	45 %	13 %	34 %	42 %	35 %
Protectional	-	2 %	3 %	-	1 %
Don't know	1 %	-	3 %	1 %	1 %
Total	(n=71) 99 %	(n=61) 100 %	(n=35) 101 %	(n=78) 99 %	(n=245) 100 %

Behavioural

The department store maintained the clearest focus on behavioural grounds for suspicion. Of course, this may be a coding artifact due to the staff there taking the extra trouble to explain their work as we watched. We think, however, that it was more an effect of three factors: Leadership focus on behavioural rather than categorical suspicion, a highly trained staff, and a mandate directed towards one main goal: protecting the store from theft. Locational and personalised targeting was also directed towards the

same goal. Personalised targets were almost exclusively known shoplifters or pickpockets. Localised targets were instances where, when little else was going on, the operator scanned an area with a high rate of theft and picked out as a target the most "suspicious" person in the area even though that person hadn't exhibited very clearly suspicious behaviours. Even in most of these cases, the operator was able to construct a behavioural reason for targeting that person – a hand lifted to the face, gazing about the room, shifting from foot to foot, gathering up suspiciously many garments to try on – but location was the basis for picking up the target in the first place.

The open street system also had a primary mandate clearly related to behaviour: preventing crime, and especially drug crimes at day time and violent crime at night. Also preventing young people from becoming drug addicts was an important task. Thus, like categorical suspicion, behavioural suspicion here was mainly about scruffy people and drug addicts. If a person was selling or buying drugs, and/or clearly "high", we coded this as behavioural suspicion.

Transmitted

In nearly a third of the targeted surveillances the operators suspicion is transmitted, most often from the security guards outside in the surveilled area (or the police in the open street system). This is a consequence of who initiates the surveillance, as discussed in section 5.5 above.

With 62 % of all TS "transmitted", the mall has the most reactive CCTV system of those we studied. We now ask <u>why</u> the security guards, especially at the mall, involved the CCTV systems in their work. One answer to this is probably the role of the control room, and the role of the operator, as a "headquarters" for control activities in the area. Another reason may be related to the CCTV system's capacity to document control activities. A third may be the capacity of the cameras to serve as extra, and in some ways more powerful, "eyes" – e.g. the ability to zoom in from a distance without being seen, or the ability to view from high above.

Even when requests were transmitted, the decision to use the CCTV system remained the operators'. Most often they used the system, or tried to, although often they didn't get a good look at the persons or episodes pointed out to them, for instance because there were no cameras with a view to the place involved. One example from field notes:

> In the afternoon one of the youngest, most inexperienced security guards at the mall calls the operator. The guard tells the operator that there are two scruffies/drug addicts in the bakery, sitting at a table eating. The operator tries to get a look at the two persons, but the camera does not cover the area in the bakery where they are. The operator then tells the guard that they are allowed to stay if they are not too "high". The guard replies that they are not visibly high, but that they look a bit awful. The operator then replies that they must be allowed to eat there, they are after all human beings – and then to me: "Or what"?

In this example the security guard seeks to use the system, in its "headquarters" role, to assist her in her decision on the ground. The system operator cannot see the spot in question, but nevertheless takes responsibility for a decision. In other instances the security guard functioned as "extra eyes" for the CCTV system/the operator or vice versa; the camera can zoom in closer on a person than a security guard can without being noticed, whereas a guard's physical presence can be used to check for reactions, eavesdrop on conversations, examine dropped objects, etc. In some instances, the birdseye view offered by the camera is sought out, perhaps for the distance it offers: One security guard told that he often goes into the control room to follow a suspicious person or situation, "It is in here that you get to see what really is going on. I prefer to go in here to observe what's happening. To be anonymous. To withdraw."

Turning a camera on a person or situation can also function as documentation of both the suspect's actions and of interactions between suspects and security personnel, as in this example:

> At the major transport centre one of the security guards calls the operator and asks him to put the camera on five people in the shopping area of the centre. The guard tells the operator that the three men are all plainclothes police officers, and that the girls are pickpockets. The police officers are checking some papers. The guard says that "It would be good to have them on tape." He also tells another guard to go and have a look at the girls.

The reason for the security guard initiating this surveillance is obviously to tape record the image of the girls. However, in none of the sites, except the open street system the recorded tapes were actively used by the operators or security guards during the observation study. We only experienced one situation where the recorded tapes were used. This was at the major transport centre, when the customs and the police came to the control room searching for recordings of a suspect in a criminal case (illegal import of drugs)[12]. In all four sites they used analogue tape recording, and with the exception of the open street system the tapes were not actively used. This is an important feature of the systems we observed: They were not using the recorded images actively, the systems were almost exclusively used in "real time". The manager of the mall pointed to the old-fashioned recording system as an explanation[13] for why it was not used more for post-

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[12] From field notes: "Noon at transport centre control room. Operator from open street system and two customs officers enter. Operator helps them find video tapes that document a person standing on the platform, waiting for a train from abroad. Difficult to find the tape. The platform cameras are stationary and it's difficult to find one that covers the part of the platform where the suspect was standing. The recordings are not good either: The tape records from several cameras at 3-second intervals; the equipment is old and worn; one tape recorder no longer records the time; the images are backlit. Furthermore it's not clear precisely what they are looking for. Therefore it takes a lot of time to find the tape, etc."

[13] *So one could say that the system is used actively?* It is used actively, daily. It's a shame that there isn't. Now it's digital recording, as you probably know, that's the hot thing. Unfortunately, we don't have that here. We probably will get it. But there are many demands on a budget. We've been to a couple of demonstrations of digital recording, and it's ... it's simple. But it costs money. But once you have it, it's there. *So how is it now, then? Do you record just from certain cameras, or ...?* No. I think we have 7

facto documentation. New digital recording will perhaps change the systems, but our experience is however that the operators are most concerned on "here-and-now" situations, and are not focused on that kind of tasks. Since so few of the TS's are about crimes, there is not much point in using the recordings of them afterwards.

One last example of transmitted suspicion: At the shopping mall one morning the security guard calls the operator. He had just passed two young minority-ethnic men who didn't look him in the eyes when he tried to catch their gaze. He had found that suspicious. The operator finds them on camera and follows them through the mall, leaving the mall after two minutes.

Categorical

At the mall and the open street system, the next most frequent type of suspicion (15% and 19% respectively) was categorical. At the transport centre, this suspicion type was a close third in frequency (26%), following behavioural (34%) and transmitted (29%).

Categorical suspicion at these sites is often about scruffies, especially at the mall, where eight of nine categorical suspicions were of scruffies. Also the security guard "transmitted suspicion" was often of scruffies. At the mall, if the security guards do not see the scruffies first and alarm the operator, the operator spots the scruffies and alarms the security guards. In the major transport centre there were probably many incidents the operator never witnessed when a scruffy was approached and ejected by the security guard. As mentioned earlier, the security guards and operators do not co-operate that closely (or in that "direction") at the major transport centre. Of course, if the operator saw a scruffy he wanted to eject, he had to use the security guard to approach him, but we suspect this was not the case the other way around.

At the open street system, other categories were also "triggers" for operator attention. They were on the lookout for children as part of a project to assist children and avoid their entering the "druggy" environment. During the few days we observed in Fall and Winter 2002-2003, however, there were no children observed entering the drug scene.

5.8 Deployments and outcomes

Of course, watching can be a pretty passive and unobtrusive form of intervention. Video surveillance becomes far more noticeable, far more effectfull (literally full of effects), when observation becomes a basis for deployment and practical intervention. How often

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video players that actually cover everything. But it's a big job, you know. So there are a lot of cassettes. And you can't ... they have to be reused within a week. So they get worn out, and it takes time to search on them, and the quality is so-so, and ... So you have to have pretty good cassettes all the time. You can't replace them too infrequently. Not that that's such a gigantic cost these days, a video cassette. But you have to remember to do it, and every so often someone claims his car got a dent or this or that, right? And in those cases it would have been a thousand times simpler with digital recording, compared with playing through a video tape. *Yes, that's an enormous job.* That's exactly what it is.

did this happen in the systems we observed? How often did video observations lead to deployments into the field of view? And what practical interventions were effectuated?

In this regard too, the systems varied considerably at the four sites where we observed targeted surveillances. In total, 36 % of the targeted surveillances resulted in a deployment. Site by site, deployments as a percentage of targeted surveillances ranged from 69% at the shopping mall via 46 % at the major transport centre, to 22% at the open street system and only 18% at the department store.

This variation in rate of deployment shows that the open street and department store systems, while highly proactive on the first stages of a targeted surveillance, i.e. proactive in finding persons to watch, are not a very interventionist when it comes to deployment. But as we shall soon see, once there is a deployment, in many cases the target is arrested. This was the case for over a third of deployments from the open street system. It was also the case for about a third of those deployments at the department store in which the suspect was contacted at all. The shopping mall, on the other hand, has a very high rate of deployment, most of which end in ejections.

Table 8 shows the number of deployments at each site and the outcomes of those deployments.

The most "serious" outcome; someone being arrested, accounted for only 10 % of the total deployments, mostly at the open street system. The most common result was that the target was let go. But especially at the shopping mall and transport centre there is a high percentage of "don't know" in this table. Our experience with the systems tells us that many of these probably resulted in an ejection, but we only coded the outcome as an ejection when we were certain about this.

Table 8: The outcome of the deployment

	Department store	Shopping mall	Major transport center	Open street	Total
Target(s) let go	92 %	21 %	25 %	47 %	37 %
Target(s) made to leave (ejected)	-	36 %	31 %	6 %	24 %
Targets(s) arrested	8 %	2 %	6 %	35 %	10 %
Don't know	-	41 %	38 %	12 %	30 %
Total	(n=12) 100 %	(n=42) 100 %	(n=16) 100 %	(n=17) 100 %	(n=87) 101 %

The reason for the high number of "don't know's", is that in these systems the operator often were "through" with the TS as soon as the security guard came to the scene. These systems were often very busy, and the operator often had other things to do. Probably because many of these TS were about scruffies being routinely ejected, the operator were also not very concerned or interested in the outcome. This was routine activity. In contrast, arresting someone is more exciting and interesting (and important in

documenting the incidents). At the department store, however, guards were not mandated to eject suspects on their own. All deployments were followed from the control room and we have no "don't know" outcomes.

At the department store, there were 12 deployments, 18% of the targeted surveillances. Most of these involved discreet follow-up investigations, e.g. checking a wastebasket to see whether the paper a suspect had torn up and thrown away was a price tag, or checking a dressing room after a suspect left to see whether any security tags had been removed and hidden. We saw only four instances in which a suspect was contacted in any way, plus a fifth that arose from an operators detection work out on the floor. One of the four plus the fifth ended in arrests. In another, a possible arrest was avoided when the guard offered to hold a large unpaid item at the nearest checkout counter; the suspect left shortly thereafter without collecting the item. In the two remaining instances, the operator asked a guard to show himself near the suspects, once in order to calm down a group of unruly young boys (it worked) and once to see if the suspects reacted nervously to the guard (they didn't and the surveillance was ended). In all, it would seem that surveillance at the department store is kept discreet unless and until theft from the store or its customers is pretty much proven. This is in keeping with their policy; they seek to be unobtrusive an thereby inoffensive to the store's customers.

The open street system is not so much discreet as understaffed on and/or underintegrated to the deployment end. Here it is only the police who are mandated to act in the field of view. If the police are busy with other tasks, then there is not much point for the operators to call for a deployment to incidents they have spotted on the screen – not unless the incident constitutes an emergency situation. Furthermore, the video operators are not themselves police officers and have therefore little authority with the police.

A discussion on the high rate of ejections at the shopping mall and transport centre

That brings us to the question of the high rates of ejections at the shopping mall and the transport centre. One of the questions at the start of our project was whether video surveillance of public-access spaces could lead to systematic social exclusion from such spaces. Here we seem to have found two spaces where that may be the case. But why?

What is the communication network in the different control rooms? Who contacts the control room, and whom do the operators contact? Who is being ejected? What are the systems mandated to do, and what are they actually doing?

In about a third of all the situations where there is a deployment from these two systems, the target is ejected. The number is high, and probably higher, since the category "Don't know" is also very high. This last category is high because often the operator would end the surveillance after the security guard had come to the scene. If

the security guard didn't report back to the operator what the result was, we would code "Don't know". At both sites, we noted that there were also ejections initiated by the guards on their own without contacting the control room and without the operators in the control room observing the incident. Though we know of such episodes, we did not record them in our data as they were not part of control room operations.

In all, there is no doubt that the there is a high rate of ejections, at least in part due to practices within the CCTV systems, at the shopping mall and the transport centre. Again, as with targeted surveillances, this is about scruffies.

The shopping mall was the site with the most merciless ejection practice. We experienced several cases where scruffies were ejected without any prior incident or situation. They were just not wanted in the mall. It was our strong impression was that this was because of their appearance, not their behaviour. In several incidents others (the information desk, shop staff) alarmed the operator about an intoxicated person, but when the guard reported back, they often reported that the suspects were not visibly intoxicated. They were scruffies, but not intoxicated. While an intoxicated person is often a nuisance to others, and can be ejected on that grounds, and whereas fashionable restaurants and hotels often have dress codes that would exclude someone clad in ragged, dirty, or ill-fitting clothes, there is no tradition for excluding people from public streets or from ordinary shops on such a basis. By excluding them from the shopping mall, this street-like space changes character; and as more and more shops are located in private malls, so too does the character of whole cities change. At the transport centre, the main station of a publicly owned railway, now with several of its functions privatised and a mall within the station – such a change is perhaps even more dramatic: This was once a publicly owned space where only criminal or nuisance behaviour would qualify for (temporary) exclusion.

A CCTV system is a powerful system when it comes to spotting people with certain characteristics in a crowd. A CCTV system in effect multiplies the number of security guards in a space – at least in terms of the number of "eyes" watching, or the number of spots within the space being watched at any given time. If deployments are effectuated on the basis of what all those eyes see, and if deployment times are quick, then it is also as if there were more guards' bodies, feet, and hands available. The head of security at the exclusive commercial complex stated that concerning that particular area, the CCTV system was the equivalent of 4-5 security guards on constant patrol.

The spaces we are dealing with here are in a grey zone, legally. The shopping mall is a privately owned public space. The owner, represented by the security guards, has a right to exclude unwanted customers; however, they need a reason for not wanting them. If you look scruffy, but in other ways do not bother the other customers (you don't smell bad, you are not intoxicated), this is not in itself a legal reason for ejecting you. The security guards know this. They need a reason for ejecting them. But the mall owners do

not want scruffies destroying the exclusive image of the mall. The more attractive the average clientele in the mall, the more attractive the building is to tenants and the more valuable the property. The security guards are therefore caught between the law and their contract-holders. In the daily running of the mall, the contract-holder wins, it seems.

In the interviews with managers, they touched upon this issue, but not directly. Since both the shopping mall and the transport centre are very close to the city's drug dealing scene, drug addicts and/or scruffies are a daily challenge. The manager at the shopping mall is pleased that in spite of its localisation, there is not much "crap" [his term] in the mall[14]. One security guard said: "Yes, it's clear there are some druggies who come in here, but the come out again pretty quick. I think the railway station has the biggest problems with them."

The CCTV manager at the transport centre also admitted that, "We could have preferred that the drug scene wasn't out there, because it brings with it a lot that we struggle with, to put it that way. They're not always the most stable people." When we agreed that, "No, and you're their nearest neighbour," the manager went on to say that, "Yes. So it's a good thing, that we can keep track and send folks out when we see that there's something."

Lomell had several interesting discussions with security guards at all three Oslo sites concerning this issue. They all knew that this is a difficult grey zone. They all knew what was legally correct in theory, but in practice they behaved differently. Some examples from field notes at the shopping mall:

> Operator sees a druggy/scruffy at the convenience store. Calls up a guard: "Can you go down there before we get an alarm?" The guard, who is still in the employees' room by the control room, goes out. The druggy leaves the convenience store as soon as the guard appears. The operator can't see well into the convenience store, but follows the druggy with the cameras once he leaves the store and until he is out of the mall, headed for the subway station. The TS episode lasts 3 minutes. After the TS, there ensues a discussion about druggies in the mall. The operator has worked at other malls and knows of some, including the exclusive commercial complex, where druggies are barred from access. He feels it's important to be kind, that some druggies do their shopping at the mall's grocery store, and that they should in principle be allowed to do so. He is aware that there are grey zones here. The convenience store is defined as such a "grey zone": Some druggies "sneak in and shop there." This results in many alarms as the convenience store is mostly staffed by young girls.

[14] *As contractors for operations here, are you pleased with the CCTV system?* Yes, we're pretty pleased with it; it keeps an eye on things in the public areas here, where there is most traffic. We have the dome cameras here; they cover all of this floor and the entrances past the grocery store and from the side by the railway station – that's where traffic is heaviest. The escalators are also covered well with good dome cameras. We catch a lot of people there, those who catch them. The guards are very good; they recognise them. So it's pretty good in here; not so much crap here, to put it that way at any rate, even if we're in about the worst part of town imaginable.

> A guard calls the operator to tell that he is escorting two "scum" [his term, two scruffy men] out of the mall. The operator adjusts the cameras to follow what is happening. The guard calls again, "Now the scum are out." The operator is a bit embarrassed and says, "He's actually nice to them," clearly afraid I would take the language badly, or is it just that the guard is unaware that I'm there? Or perhaps he does know? This is an older, experienced guard; he has a flippant tone over the radio. Episode takes 1 minute.
>
> Shortly after previous episode: Operator sees a scruffy (homeless? druggy?) looking for money under a fruit machine at the convenience store. Calls guard. He makes the point of saying that the man hasn't done anything wrong; maybe not even a druggy, etc. He may be "making amends" for the previous episode. Guard replies, "I'll remember to talk to him before I hit him, then." Before the guard arrives, the man begins looking for empty bottles in trash bins. The guard talks to the man, who is allowed to go. Episode takes 3 minutes.
>
> Next day: Information desk calls over the radio, "Go to grocery store." Operator directs a camera towards the store. Information desk reports a very intoxicated druggy who asked for directions to the grocery store. Guard finds the man and reports back that he doesn't look intoxicated. Allows the man to finish his purchase from the bakery before asking him to leave. Reports again, "He said he had been high, but now he's on his way down." 5 minutes.
>
> Alarm from optician's store. Guard deployed; camera directed. Two druggies (man and woman) exit and go to cosmetics store. Operator sees this and sighs, "Now we'll get an alarm from there too." Sends guard and directs camera towards cosmetics store. The guard is now in the store, watching them. Guard escorts them out of cosmetics store. They stop in front of grocery store. Guard reports back on radio, "For your information, they actually shopped at the cosmetics store and paid for their purchases." Operator answers, "Well, that's nice." The two enter the grocery store, followed by camera and one guard. 15 minutes.

Also at the major transport centre, scruffies were an issue. If a scruffy entered the premises and sat down on a bench, he or she could be approached, but not that easily ejected. There was always the possibility that they were passengers going somewhere. It also seemed as if the shops in the transport centre had higher tolerance for scruffies than those in the shopping mall. The alarm didn't go off as soon as a scruffy entered a shop. The targeted people were also more aware of their rights. They knew they could not be that easily ejected from a transport centre as from a mall. They protested, said they would report the guards to the police, etc. All in all, the transport centre is more "public" than the mall. But also more attractive, because of the seating areas, public restrooms, and platforms. In the mall, there was nowhere to rest or sit down except in the cafés. Thus, not only the structures and practices of the CCTV systems, but also of the buildings themselves, affected the nature of the spaces in terms of public access. Some episodes from our field notes at the transport centre:

> Intoxicated Norwegian woman sinks down at one of the benches by a fast food outlet. Guards sent. Woman is sent out, but it takes time to get her to leave. Meanwhile much discussion about how none of the shops want "that sort of thing" by their entrances. At the same time, it's clear that the addicts are more aware of their rights at the transport

centre, and so are the operators. Operators have also worked as guards, and have many examples that the police are less inclined to show people out than the guards are. Often the police take the addicts' side in conflicts.

7:09 am. Camera follows scruffy man, 30's, around the transport centre. The man sits down on a chair. Operator "parks" a camera on the man. "Lazy, good-for-nothing." Operator comments that these aren't polite terms to use, but that's what the man is. After a while, operator again takes interest in the man, zooms in, says (as if to the man), "And you, my dear friend, what's bothering you?" Zooms back out. Phones security company: "On your way back, there's a good-for-nothing sitting there with those typical pants." Security guard walks over, talks to man. The man goes to a ticket window to buy a ticket. Guard stands off to the side and waits. Apparently man doesn't buy a ticket. Unclear whether man is shown out or leaves voluntarily at this point. He has empty bottles in a plastic bag. Guard enters control room 8:30 am. Both watch as man goes to convenience store and buys a soda. Many comments on this: first that the transport company ought to have a bottle return automate so the good-for-nothings could cash in their bottles for tickets (unclear whether this is meant seriously or facetiously), then how uneconomic it is to buy soda at the convenience store for three times grocery store prices, especially for someone who doesn't have money but has to turn in bottles to pay. [I comment: They may meet less hassle at the convenience store.] Discussion continues as if to man under surveillance: "Doesn't look like you intend to leave, exactly. Are you planning on sitting down there? Think you're invisible? Blending in, huh?" Operator and guard amuse themselves about the man as he sits on a chair outside the convenience store. But they let him sit there as the guard has said that he was not intoxicated. Nevertheless, they leave a camera on him. They talk about what the addicts learn at "Good-for-nothing school" on the square outside, that they learn what to say to guards who want to show them out: "I'm just taking the train to Skien." The guards often demand that they go buy a ticket then. Although he has other tasks and other targeted surveillances, the operator parks a camera on this man. But he doesn't watch him constantly. Watches TV. Before the guard leaves the control room they talk about what he will say to the man, "This seat is reserved for passengers. There's a reserved-sign under the seat." But the guard does not go over to the man again. The operator finally sets the camera back on automatic scanning after 46 minutes.

1:40 pm. Scruffy, possible addict, headed for door. Guard sent in case he sits down outside. 2 minutes.

2:15 pm. Man from railway company enters control room and asks for help removing two scruffy addicts in their 30's who are sitting on a bench on a platform. He has spoken to them. Two guards are sent. "They said they were waiting for a friend coming in by train from Lillestrøm." "That's what they're always waiting for." The two are very intoxicated, and one seems to have vomited. It takes a long time to show them out. Camera on them the whole time. Guards are calmly persistent. 11 minutes.

At the exclusive commercial complex those interviewed did not directly talk about this issue, and there were no incidents while we were there.

The operator told that at the guest harbour at the commercial complex, there were some of the residents (in the boats) who were fairly "down and out". They "should have been ejected" (according to the operator), but because they lived there, they couldn't be.

Summing up

Ejections were a substantial aspect of video surveillance operations at several of our study sites. In large part, these ejections were pre-emptive. That is to say, the majority were in response to appearances and categorical suspicions; only a minority of these ejections were in response to observed criminal or nuisance behaviours or to recognised individuals known to have engaged in such behaviours on the premises on earlier occasions.

6 Conclusions

This study breaks new ground in two ways. First, where public debate and regulation of video surveillance has focused on privacy issues, we have taken up hypotheses from earlier research findings: The sensory limitations of the video screen and the distance between observer and observed seems to encourage the application of categorical suspicions based on a narrow range of readily observable traits. This raises a concern that video surveillance may become an instrument of systematic, categorical social exclusion from otherwise publicly accessible spaces. One of the key aims of our study was to see whether such social exclusion was occurring. We found that social exclusion did take place, but in varying degrees across sites.

Second, where earlier observation studies of video surveillance control rooms have all been conducted in open street or shopping mall systems, we have added several other types of publicly accessible spaces, allowing us to compare across a variety of structural aspects and raise new hypotheses as to the factors affecting social exclusion and other functions of video surveillance.

Given the small number of cases we were able to study, and the limited time we studied each, or findings are better suited to raising hypotheses than to reaching conclusions. With this caution in mind, we do feel that structural factors might explain a good deal of the variations we found in control room operations and consequences. We found the systems to be directed at a number of functions: crime prevention/detection, information and service to the public, safety, and social exclusion. A number of structural features of the systems seemed to have a significant impact on which functions were targetted and how effectively they were achieved.

Functions of the space under surveillance

It came as no surprise that video surveillance in shops was directed primarily at shoplifting, in the open street system at a broader spectrum of crimes, in railway stations at service and safety functions, in the cultural institution at access control and theft of artifacts, etc.

However, surveillance functions were not restricted to those most obvious for the respective spaces. We found spaces where operators were constantly, unofficially expanding their mandate, and spaces where operators, also unofficially, cut back on a mandate overload by giving low priority to some activities in their job description.

One explanation for this may be the fit between mandated activities and available time. Thus we might expect mandate expansion to occur where operators find few occurrences of the events they are directed to watch for. Correspondingly, a control room with an overload of tasks relative to available staffing will have to find some order of priorities.

It is a legal requirement that video surveillance systems have a stated purpose, and that this stated purpose be reasonable when balanced against the public's interest in privacy. At the very least, our findings show that this requirement is not a guarantee for such balance. While we found that the primary purpose of these systems was as claimed for that particular system and/or for other systems in similar spaces, and while we found that some systems kept close to their stated purpose, we also found examples of both expansion and contraction of functions.

Placement of video surveillance operations in the social structure of the space

Expansion and contraction of functions may in part be explained by boredom or work overload, but there were also other factors that seemed to create dissonance between the functions of a space and the functions of surveillance in that space. One such factor was the organisational placement of surveillance operations. Was surveillance run by employees of the organisation responsible for the primary functions of the space? Or was it outsourced? Or rented along with a lease on the space? Or delegated to the police?

One interesting example here is the shopping mall. While one might expect shoplifting to be the primary target of surveillance in the mall as in the shops themselves, the mall surveillance systems we observed could not actually view what was going on in the shops. While they could respond to calls from the shops, for example to track a suspected shoplifter leaving a shop, they could not catch a shoplifter in the act and move to intervene. Instead, they tended to take pre-emptive action by excluding whole categories of the public seen as likely thieves or nuisances. This can also be interpreted as acting in the interests of the property owner rather than those of the shop-owning tenants, and it was the property owner who had contracted with the private security firm for surveillance services. In principle, a property owner is interested in the rental value of the property, and an attractive public raises the rental value of the space while a scruffy public lowers it. While shopkeepers have some interest in having a general public in the mall that makes it attractive to other shoppers, they also have an interest in keeping anyone there who is spending money, no matter their appearances. This may help explain why we saw so many categorical suspicions and evictions at the shopping mall while the department store surveillance staff only evicted persons actually observed stealing and even declined to watch some scruffy persons reported to them by others: "I can't be bothered watching him because I know he's just on his way to buy something in the food and wine section."

Video surveillance policies and leadership

Official policies do seem to count, however. While we saw some expansion and contraction of stated functions, we also took note that the operators we met spoke with considerable admiration of their immediate supervisors. They were well aware of their

supervisors' policies and lauded these as exemplary. For instance, the head of security at the department store was quite explicit about the need to guard against racial prejudice. A man with a multi-national background himself, he was personally aware of the odious nature of such prejudice and proud of the cosmopolitan atmosphere of the store. In this, he clearly set the tone among the store's surveillance operators. Of course, avoiding prejudice is always a careful balancing act when registered criminal behaviours make it statistically reasonable to suspect some groups. The operators at the department store, in their running commentary as we observed their work, while crediting their boss with the goal of achieving that balance, were reflexively aware of their struggle to maintain it.

Surveillance operator training

What the department store operators relied on to help them maintain non-prejudicial practices, was their skill in observing subtle behaviours. By targeting behaviour rather than appearance, and by refraining from direct intervention unless and until a criminal act was clearly recorded, they avoided much of the tendency towards social exclusion we saw at some of our other sites. However, targeting behaviour while observing from a distance with the sensory limitations of a video screen, requires a good deal of training. Two of the department store operators had police training and experience; the third had been a store detective for many years. The private security officers at the same store had substantially less training, and although working without the distance and sensory limitations of the CCTV system were far more likely to raise categorical suspicions towards scruffy- and/or foreign-looking persons.

Of course, police or detective training may not be the only training relevant to CCTV operations. At the cultural institution, protection of artifacts against theft was only a potential bi-product of video surveillance work. Most of the operators' time was spent on access control functions, and security tasks were more likely to be directed at nuisance-type disturbances or even at fire protection than at theft. The operators here had substantial seniority from front line access control, building maintenance work, and front line public security work. They were also sent on in-service courses, for instance in non-violent conflict resolution techniques. The two railway control centres also had surveillance of spaces where theft and the general appearance of the public were lesser issues than safety and service. Here too we were told that operators were recruited from among the ranks of long-term railway security staff and also among people with a broad range of relevant skills and training (e.g. in logistics, public relations, etc.).

In terms of regulating the actual practices of video surveillance, our findings raise the question of whether it might be equally important to demand relevant operator training as to demand relevant system goals.

Organisational relationships of surveillance operators to actors in the field of view

Finally, we will point to one more structural feature of the systems we studied that seemed to be consequential for their effectiveness and functions: the relationships of surveillance operators to operators in the field of view. Each of the cases we studied represented a different structure of such relationships. Taking the four we studied most closely:

- At the department store, video surveillance operators also went out onto the shop floor as detectives or guards. However, in large part they depended on collaboration with shop clerks and private security officers for deployments out among the public. In these relations there was a complex hierarchy: In-store security outranked private security. In security issues they also outranked shop clerks, but in general security was a service function to sales, which were the primary function of the store. Thus the surveillance operators sometimes acted as consultants, sometimes requested assistance, and always followed up at least briefly when surveillance requests were phoned in even though they often disagreed with the suspicion raised.
- At the open street system, surveillance operators, as civilians in a police organisation, had lower status than the police officers. They could not direct police officers to take action, nor could they explicitly direct police action underway in their field of view. In order to capitalise on the advantages of camera-enhanced vision, they had to diplomatically, discreetly, subtly use the cameras and radio as directive devices without seeming to take control over the situation. They also had to allow some episodes to go unaddressed when police were otherwise occupied or uninterested.
- At the shopping mall, private security staff alternated between video monitoring and guard duty out in the mall. Collaborations were close and could be initiated in either direction. This made for rapid and effective response to situations, but, as we have seen, for socially uncritical response in many instances.
- At the major transport centre, video surveillance operators were organisationally separate from railway security staff, private security staff, and police – all with overlapping patrolling/monitoring mandates within the same space. Collaborations were at times tense and reticent, especially between private security and video surveillance.

None of these organisational structures seems ideal, but then probably none could. Various, potentially conflicting interests are in play here, each with some legitimacy – e.g. a desire for economic efficiency and belief in outsourcing vs. a duty to provide job

security, an interest in effective protection against shoplifting vs. an interest in a congenial, non-suspicious environment for shoppers, and so forth.

Consequences for future research and regulation

Summing up, our findings confirm earlier results that point to social exclusion from public spaces as a potential negative consequence of the spread of video surveillance. Our findings also bring that issue a step further by indicating that this may not be simply a consequence of the technology itself, of the distance and sensory limitations it entails, but may be a consequence conditioned by various structural aspects of surveillance systems. Of course, with only a brief study of a handful of cases to build on, our findings are more hypotheses than conclusions. Nevertheless, these hypotheses are worth pursuing, not only for the intrinsic value of knowledge itself, but because if structural features of surveillance systems have predictable consequences for the social effects of surveillance, then they may provide "handles" via which to regulate surveillance practices.

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8 Appendix I: Flashlight observations in Oslo

Traffic control centre

The Oslo traffic control centre has one of the most advanced road-surveillance systems in the world. This is mainly because of the many road tunnels in Norway, only Japan has more road tunnels than Norway. In four of the most heavily trafficked and advanced tunnels, they even have automatic incident detection: In the event of "abnormal" images, e.g. a stopped car, a fire, or (more surprisingly) birds in the tunnel, the image freezes and the operators are alerted by an acoustic signal. Especially in the case of fire, this advanced system is highly effective. A standard smoke detector needs a certain density of smoke and takes about one minute to warn of a fire. The automatic incident detection system takes 10 seconds.

As of the date of our interview, the control centre had 500 cameras in operation. New cameras are installed almost daily. These are both analogue cameras that they call up (for instance at mountain passes) and fiber optic installations sending images continuously. No recordings are made. Insurance companies and some public agencies used to request copies of tapes, but have now learned that there are none available. The images are only used then and there. The reasoning behind this is that the aims of the system do not include detection or the like, only traffic management, assistance at accidents, traffic alerts, etc. The main purpose for the cameras is safety. In road tunnels the worst scenario is fire.

The traffic control centre logs about 15,000 incidents a year. This number reflects all the incidents where some form of action is taken. Many of these are detected by the surveillance cameras, but it can also be that somebody phoned to the centre. They do not register whether the incident was detected by the cameras.

Images are transmitted to a total of 20 monitors, mounted in an arch around the operator's workspace. The workspace also holds the operators' computer screens and 3 working monitors to which operators can direct images from cameras that are being closely watched or where something in particular is happening. In addition, there is one split-screen monitor (9 images at a time) for the security cameras around the control centre building and its entrance.

The control centre itself is large, light and modern. The 20 monitors are placed at some distance from the operators. This is conducive to maintaining a general overview, and the tendency is to look for "disturbances" in this overall picture. If something catches an operator's eye, then the camera is "brought down" onto one of the working monitors.

Images on the 20 overview monitors are logically sequenced, with a new image every second. The logic applied in this instance is geographical, each screen showing a series of

images from one motorway or one tunnel. so that the operators "follow " a road on a monitor. This enables the operators to "read" the flow of traffic.

A police officer from the police traffic centre has an office adjacent to the operators. This office is provided rent free by the roads authority. The police officer has access to police communications equipment and can maintain contact with highway patrols etc. The police officer represents four police districts and serves as liaison between these and the roads authority. Collaboration is not without its problems, as the police and the roads authority often have different interests. The police need to measure, mark, photograph, collect evidence ... whereas the roads authority is most concerned with keeping traffic flowing. In the event of road accidents, these two agendas can clash. However, the hierarchy of authority is clear – the police have greater authority out on the roads – and both parties report being satisfied with the liaison functions.

Our interlocutor, a manager at the roads authority, reported that a resident near a motorway once protested the installation of surveillance cameras along the road, as these might be able to film inside his home. The outcome of this protest remained unclear, although we probed for information in the interview. Our interlocutor felt it was not the roads authority's problem. The roads authority had registered the system with the Personal Data Agency, but the manager apparently felt that they could not be held responsible for how the cameras were placed or how protests against the cameras were handled. Although the system did not include a block-out function (as some have shown us elsewhere), and although most of the PTZ cameras clearly had the potential to zoom in on private property, the manager didn't seem to understand how this could be a problem. It is worth noting here that as we made our "flashlight" visit to the control room, one of the operators zoomed in on a gas station just to show the image quality from the PTZ cameras; it was excellent.

9 Appendix II: Flashlight observations in Copenhagen

In addition to the main sites in Copenhagen, we also had interviews, sometimes including glimpses of control rooms, at six other sites. These are briefly described below:

Airport

At the Copenhagen International Airport (Kastrup) we interviewed the security manager on two occasions and were given a tour of the control room on our first visit.

The airport, like any airport, covers a far larger area than that normally encountered by the public. In addition to the public spaces of the terminal buildings, there are non-public areas in the terminal; the landing strips, taxi lanes and airplane parking spaces; air freight, private plane, and sea plane terminals; storage, office, fuelling, and maintenance facilities; all surrounded by unused spaces, various access points, and a several miles of fence and coastline. Security concerns are similarly varied and serious. In addition to theft, pickpocketing, public nuisance, minor property damage, and occasional interpersonal violence – as in any shopping mall – there are also occurrences of grand theft and larceny from freight storage facilities and the increasing worry concerning terrorism directed at international travel. And too, there the concerns of any large, service-oriented facility: fire safety, access control, queues and crowds, public service announcements ... And the deployment of video surveillance to support all these security and service functions has been built up gradually over many years in an evolving and growing building complex. Thus it came as no surprise that this was the most complex control centre we encountered.

The control centre was in some ways similar to that of the new light rail system, here with two banks of 18 monitors and a division of responsibilities between them. These monitors scan a then current total of 50 PTZ or dome cameras and 15 stationary cameras, with that number growing. However, here the control room was more cramped and less easy for us as first-time viewers to get an immediate understanding of the room and the work conducted there than at the light rail control room. This may in part be because this was not in a space purpose-built for the work as it is currently conducted, in part because we had not seen so many control rooms at the time of our visit.

Nor was it surprising that so much emphasis was put on operator training here. The manager emphasised that,

> Their background should be that they were employed in security before, that is that they should come from one of our security departments. I don't take in anybody without that background. It has to be security, either as a port civil servant or from airport security control. So they know the airport and how things function in security. Then we train them up on how the cameras work. With their background, they know what to look for. [...] We have the world's longest education in security. We have 6 months' training here. [...]

> That's why I want people from those two departments, because they have security training. Rather than taking in someone from 'off the street'; that's taking too much of a chance.

Another difference between surveillance work at the airport and the underground, was the rotation of duties. Whereas operators at the underground spent whole 8-hour shifts at the monitors, operators watching key security cameras at the airport were on 2-hour rotations, leaving the monitors to do other tasks, "because he has to be 100% focussed on what's going on there."

In addition to events operators catch on the monitors, they also respond to alarm calls from service counters. If an alarm button is pushed, for instance by someone staffing a check-in counter if he/she feels threatened or sees a passenger with an acute health problem, then several cameras in the area are automatically trained on that spot and the surveillance operator co-ordinates the deployment of security staff. The manager reports that, "We have about 3 first aid deployments every day, 2 ambulance calls, 1-2 fire alarms, 3-4 alarms from the counters. Most of them are false alarms."

Shopping malls

We interviewed at two shopping malls, hoping to fulfil the project's initial plan of conducting the observation study at one shopping mall per capital city. Both had video surveillance cameras and recording devices installed. One of the malls did not have operators watching the cameras on a regular basis. Their goals with the surveillance system were deterrence and post facto detection, not deployment and intervention into ongoing events. Their system had been installed in response to police and media criticism after a child was kidnapped, presumably from their premises, and they did not have video footage to document and thereby help clear up the crime. They had plans to expand the system dramatically, from 10 cameras to 82, but that would depend on economic issues. But at the time of the interview, with only 10 cameras and no operators on duty in a control room, the mall was not an observation study site candidate.

The other mall would perhaps have been an interesting case to study, in light of our findings from elsewhere linking structural aspects of surveillance to its functional impacts. This mall might have constituted an intermediary case, structurally positioned somewhere between "Inner city shopping mall" and "Department store". Here there were no cameras in the shared indoor spaces of the mall, but some of the shops subscribed to a monitoring service operated by the mall. While the individual shops were still responsible for their camera installations and recording, the mall offered to monitor the images and deploy emergency assistance from a central control room. Of 65 shops in the mall, about 8-10 subscribed to the central monitoring service. Images from cameras in these shops, along with those from a few cameras outside the building, were directed to 4 monitors in the security department office. This meant that the control room staff were able to

observe and intervene in actual shoplifting occurrences, as opposed to the situation at "Inner City" (and probably most malls), where operators could not observe actual events unfolding in the shops but could only judge people by appearances as they passed through the mall doors and street-like spaces. Nevertheless, even though the operators had the potential to observe events in real time, watching the screens was only an intermittent activity at this mall, alternating with patrolling and other tasks.

Public toilets

Earlier in our project, we had noticed that public toilets along the High Street where we were counting surveillance systems had video surveillance signs. It turned out that the Road and Parks Department of the municipality was responsible for that system.

Of a total of 75 public toilets in the city, four are equipped with video surveillance. One aim of this system is to keep the public toilets, especially the handicap toilets, available to the public rather than their being occupied by the homeless as shelters. The cameras cover the entrance area to the toilets. If a visibly handicapped person seeks to enter the toilet, he/she must signal for the operator's attention. The operator then signals the remote-controlled lock and buzzes the person in. The operator has numerous other tasks and only occasionally watches the monitor.

Images from this system are not recorded. While anyone in need of assistance can, in theory, signal for operator attention, the cameras (all stationary) do not cover enough of the area to allow the operators to assess many situations. Nor can this non-recorded system document abuses for use as evidence in court cases. Thus in one instance of rape near one of these cameras, the cameras were of little use. Nevertheless, users' sense of safety was mentioned as an additional goal for the system, along with prevention of vandalism and violence.

Traffic control

The Roads and Parks Department is also responsible for another CCTV system – this one directed at traffic flow. By equipping two automatic counting stations with cameras that could register vehicle license numbers and software for license recognition, it became possible to measure not only the number of vehicles passing a given point at various times of the day, but also the time it took them to reach from point A to point B. This information is then available as a service to drivers, both as SMS messages (to subscribers) and on roadside signs that signal estimated driving times to key locations. It is thought that this can reduce driver stress. Drivers can seek to avoid areas experiencing delays. Drivers can, over time, learn what areas to avoid at what times. Delayed drivers can alert people they are planning to meet as to their expected arrival time. The information can also be useful in planning contexts.

Railway stations

Copenhagen is serviced by three more or less separate railway systems: A new subway system, owned and operated by a private consortium (one of our cases discussed above); Danish Rail's (DSB) suburban rail system; and, DSB's intercity and international rail system. The latter two, though owned by the same state-owned company, are operated separately. The suburban rail system was, at the time of our project, in the process of installing video surveillance in about 70 stations, with an average of 7 cameras per station. This system will be a network of stand-alone mini-systems, whereby staff at each station can monitor their own station area. In addition, they are investigating the possibility of installing video surveillance in about 240 trains, but this was only in the pre-planning stages when we interviewed their video system manager. These systems are aimed at improving passenger safety, and were funded in a package deal that also included increased staffing at stations and on trains.

In keeping with the spirit of public works, this system is rather more thoroughly regulated than those we encountered at shopping malls and in shops. For instance, when asked whether legal rules were the reason why tapes were never kept longer than 30 days, the system manager replied:

> No, we've made our own ethical rules. In Danish law ... there are no rules about ethics. There are just rules about what you may or may not do, concerning installation of cameras. There are no ethics rules. There's nothing there about who is entitled to see the pictures, how long you may keep them, what you can use them for. There are some rules about data protection ... but that doesn't explicitly cover those pictures.
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> So we've made our own ethical rules, where we have made it clear who can see the tapes, that they have to be signed for if they're handed over to the police, that no private persons can see them, when they are to be erased and when they are to be locked in. We have rules for all this, so that we don't risk seeing pictures from here in the newspapers in some situation or other. We don't want any of that.
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> (...) We've also signed an agreement ... that's the most important part. We've signed an agreement with the employees' unions. Because some places we have surveillance at the ticket counter, out of concern for armed robbery, but there we're obliged to ensure that images of the employees aren't used to control what they do. So there we've done two things: First of all we've installed a special recording device that records for 24 hours, then records over that again. Secondly, we've locked it in. So I'm the only person with a key. That is, if something has occurred, then I'm to unlock it and hand the tape over to the police. None of the station staff, not even the stationmaster, can do this. Nobody else can get in there. And finally, we have an agreement with the unions that this can't be used against the employees unless it's a police matter.