Incident Management and Incident Response: The case of Sweden

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Abstract
This paper reports from an ongoing field study of police practice in Sweden. The field study consists of direct observations and conversational interviews. The paper discusses current police everyday practice in a district of Sweden in relation to the reactive policing model and to the problem oriented policing model. The paper proposes a tentative taxonomy combining the two models and discusses effects of applying it. The paper concludes that changes to current practice could increase efficiency in the Swedish police. The long term goal with the research is through close studies of the field identify implications valuable in the process of designing new functionality in current CAD (computer aided dispatch) systems.

Keywords
Incident management, incident response, reactive policing, problem oriented policing, ethnomethodology

INTRODUCTION
The dichotomy of, on the one hand, incident driven policing and, on the other hand, problem oriented policing has been on the police agenda for two decades. The problem oriented policing model, and especially variations of community policing has received massive interest from the research community. A large number of studies has been conducted to investigate the outcome and effects of community policing initiative (Frank, Brandy, & Watkins, 1997; Oliver & Bartgis, 1998; Ponsares, 2001; Seagrawe, 1996). The studies generally conclude that community policing has potential, but there are various challenges in the implementation. In much of the research, the incident driven, professional, reactive policing model receives extensive critique for being passive, paramilitary and outdated by the problem-oriented model. Rather making a distinction of the two models, this paper attempts to examine how they are related in the daily police practice, and pragmatically suggest how they could be related. In this research computer forensics is understood in a wide sense as the increasing dependence of law enforcement on computing and the ubiquity of computers that followed from the computer revolution (Berghel, 2003; Kruse & Heiser, 2002). Computer forensics came from law enforcement – a community that arrests, investigates, seizes, locks up, and stores physical objects. Hence, computer forensics is about the “preservation, identification, extraction, documentation, and interpretation of computer data” (Kruse & Heiser, 2002), and specifically in this case about their own use of the technology and its data.

The long term goal with this research is through close studies of the field identify implications valuable in the process of designing new functionality in current CAD (computer aided dispatch) systems. The police as well as most other organizations put extensive hope in the use of IT to increase efficiency. Police and different types of information technology has been investigated by for instance (Baber, Sharples, Broadman, Price, & Haniff, 2001; Benson, 1993; Manning, 1996; Nunn, 2001). A variety of research methods has been applied in police IT research. This research is an analysis of data from an ongoing field study of police work in Sweden.

Therefore the question guiding this research is: How should Swedish police structure incident response and incident management to become more efficient?

The remainder of the paper has the following sections. First a short background of the context for the research, the police in Vastra Gotaland. This is followed by a brief discussion on research methodology and data analysis. The result section discusses four types of incident response and incident management. The paper ends with a discussion and conclusion.

BACKGROUND
There are a total of 17000 people employed by the police in Sweden with 9 million inhabitants. Sweden consists of 21 counties and each of the county has its own police authority. The authorities are part of the national Swedish police force and controlled by the National Swedish Police Board. The authorities have separate budgets based on number of inhabitants and past needs. Each chief is granted rather wide autonomy to organize the work to best meet the need of the districts.
This research is carried out in the county of Vastra Gotaland. The police authority in the county has 3500 employees where 2700 are sworn officers and 800 are civilians. The Vastra Gotaland district covers 6 percent of Sweden. It is 300 km from North to South and almost as from east to west. There are 1.5 million people living in the county whereof 700000 are living in the area of residence city Goteborg. Goteborg has one of the largest harbors of Europe. The county has 49 municipalities and has land border Norway and sea border to Denmark. There are 57 police stations distributed, where half of them offer 24 hours service to its community.

Vastra Gotaland has four dispatcher centers, one large for the Goteborg urban area (called LKC) with up to ten operators at each shift and three smaller (with 4 operators) to cover the rest of the county. All operators are sworn officers. They all use the same CAD (computer assisted dispatch) system. See for instance (Chu, 2001) for a description of CAD systems. The same operators do call taking and dispatching of patrols. Usually the same operator who has received a call from the public, dispatch the patrol(s). There are not separate call taking and dispatch units. The calls received are characterized according to priority, where 1 (one) is the highest priority and where police assistant is required immediately (such as crimes in progress). Priority 2 and 3 requires police assistants but are not emergencies (for example cold break-ins and traffic accidents with no injuries). A record of the incident (an HR) is always created in the CAD system. A priority 4 call renders in a HR in the CAD database but no action is taken by a patrol (for example a call concerning a stalled vehicle on a minor road.)

The operator works autonomously as she take the call, decides priority and if found necessary, she dispatchers a patrol(s) to assist at the incident. The operator does rarely involve the sergeant in the daily call taking. When dealing with a more delicate incident she signals to the sergeant, who is located close by, for assistance in dealing with the incident. Most operators do regularly also work as beat officer, and a number of patrol officers are trained as operators and work as such at occasions. The fact the operators and patrol officers are sworn officers and take part in each others work have positive effects as communication of especially the tacit knowledge is possible to do.

DATA COLLECTION AND ANALYSIS

This research started in May 2001 and consists to this date of 400 hours of first hand observations following an ethnographical approach (Agar, 1996; Ferrell & Hamm, 1998; Hammersly & Atkinson, 1995; Orr, 1996). The research is in progress and is planned to be completed by the end of 2004. The overall aim of the research is to investigate a number of dimensions of police practice. This paper is concerned with the dimensions of incident response and incident management.

The observations have been mainly as “third” person in a two-officer patrol. As such I have followed the patrols in their daily work. Notes have been taken during observations when possible. Any time it has been difficult to take notes due to a sensitive or chaotic situation, or during night when it has been to dark, or when the officers I was riding with gave my note taking some suspicious glances, notes had to be written down after the shift. The notes were reviewed after each shift to ensure satisfactory completeness of what had been observed during the shift. I have also conducted informal conversational interviews with officers during patrol. I have been observing operators, and listening in to the conversations, both with caller and with the patrols, at LKC for 50 hours. The research is guided by an ethnomethodological understanding of social order (Dourish & Button, 1998). That is, the ambition is to identify and understand how the people under study themselves articulate and continuously produce social order through social action in their context. The data for this research is sought in how the police officers in various positions produce order in their practice, i.e., how professionals think in action (Schön, 1983). Fieldwork that merely describes and codifies what relevant persons do in the workplace may well be missing out on the constitutive practice of how they do what they do, the interact ional what of their activities (Button, 2000). I have also conducted a number of conventional more formal interviews with sergeants, dispatcher operators and superintendents. These interviews, however, have been less valuable the observations. In the interviews it has been difficult to go beyond the plans or the schoolbook answer to police practice and organization rather their own understanding and own wording. See for instance (Suchman, 1987) for a discussion on plans and situated action. All above serve as data collection for the research.

The notes from the observations and interviews has then been analyzed and categorized, and re-categorized. A number of broader categories have emerged and in this paper some findings concerning incident response and incident management are presented and discussed. Other aspects of police work identified in the field study are beyond the scope of this paper and will be presented elsewhere.

RESULTS

This section summarizes the findings from a small portion of field study. Due to limited space in the paper excerpts from the study are kept to a minimum. Four police activities are compiled from combining incident
response and incident management, and reactive policing and problem oriented policing. The activities illustrate how incidents can be reacted to and managed.

Reactive Policing and Incident Response
During observations at the large dispatcher center, LKC, it soon became obvious that the operators did not relate the incidents at hand to previous incidents. The CAD system does not provide this functionality automatically for operators. Each incident is treated more or less isolated from previous and historical incidents. The operator answer the call and fairly quickly decides the priority to assign to the call, and if necessary dispatch a patrol. The operator might be aware of previous incidents at an address for instance, but only if she has been involved in dealing with the incident, or knowledge of major incidents through word of mouth. Patrols are dispatched to incident after incident and limited effort is put into some analytical activity to determine if the incidents are related, or in previous incidents are related to the incident at hand.

The dispatcher receives calls where police assistance is required, decides if that is the case, dispatch a patrol or put the incident on hold (priority 2 or 3). The operators work towards a blank screen on their CAD terminal as they try to keep the number of active HR as small as possible. Many times during the field work, operators has made very clear that their goal is to convince patrols to take all the waiting HRs with priority 2 and 3, to make the blank screen. Retrieved stolen vehicles (code 57) is a recurring example. In Sweden, due to legal and insurance matters, the police have to attend the retrieved vehicle at the site. The patrols hate 57ns. Operators with a bunch of 57ns can spend extensive time to persuade some patrol to help out.

Reactive Policing and Incident Management
As soon as the incident has been reported as accomplished by the patrol, the operator make some additional notes on the incident in the CAD system, such as outcome and some additional references to time (i.e., when the patrol left the site of the incident) and mark the record as completed. For the operator as well as the patrol, the incident is over. The completed HR incidents are stored in a database and available for analysis using statistical methods or visual techniques to identify patterns of incidents. Here is an interesting problem: Swedish police has very limited legal possibility to use this data for analysis in detail. Much of the data used for the analysis is made anonymous in terms of identity of people involved and the exact address for certain situations. This for integrity reasons.

The dispatchers professionally deal with each situation and document the necessary information in the HR in the CAD system. When completed, the HR is marked as completed by the operator and then transferred to the archive database by the sergeant. The HR is (often) later used, together with the patrol officer’s report(s), in investigations of the incident.

Problem Oriented Policing and Incident Response
Where as the dispatcher central is the focal point in the reactive policing model, the station sergeant is somewhat the equivalent in the problem oriented policing model. Incidents can be reported to the station sergeant through direct calls from the public or from the dispatcher if the call has priority 2, 3 or 4. Depending on the nature of the incident, the station sergeant analyzes the incident at hand and via the local CRM (crime relation management) system to locate related information. Hence, the sergeant can most often relate the incident to previous from the top of his head. With this information, appropriate action is taken. The following excerpt from the field study exemplifies this.

It was early fall, and I was following the station sergeant in a municipality of approximately 25,000 people. He receives a call from the dispatcher sergeant concerning a barking dog. The dispatcher sergeant explains the situation and the location and suggests that a patrol should be sent to deal with it. The station sergeant does not agree: “It’s better if I call. We know about these people. It’s some old dispute. If you send a patrol, they’ll be gone for an hour for nothing. I’ll take care of it over the phone.”

Problem Oriented Policing and Incident Management
Incident management from a problem-oriented perspective is basically to collect and update information concerning incidents and situations in the municipal area of police operation in the CRM system. Information on priority one incidents in the area are retrieved from the CAD system for analyze. The key factor here is to maintain the information up to date, and to use data collection and analyze methods and tools that correspond with the problem oriented policing style practiced in the district. For instance, strong community policing orientation will require channels for communication and data exchange between the police and other actors in the community. The dissemination of information to promote a proactive and preventative approach to reduce crime and disorder has shown some potential (Brown & Brudney, 2003). Currently, due to legal issues, there are very limited possibilities for the municipal police agency to have their own computerized tools for data storage.
manipulation etc. For example, one station had previously video taped the walking style of all local offenders. Each misdemeanor and felon was video taped when walking. The tapes were then used to introduce the new officers to the locals since running after them would probably be the most likely way the new officers would meet the person. The initiative with videotape was discontinued by the chief shortly due to integrity problems.

**Incident Response and Incident Management**

In the figure below the four activities are related in a sequence that utilize recourses, mainly patrols, and information in a more efficient manner than currently. An ordinary call from the public could be managed in the following sequence: The call is taken as (A1) and if considered priority one, a patrol is dispatched, and when completed, the incident is moved to (A2), and then to (B1). If lower priority than one when taken as (A1) the call is re-routed to (B1), and when completed it is moved to (B2).

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<tr>
<th>(A). Reactive policing</th>
<th>(B). Problem oriented policing (PoP)</th>
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<td>If the incident is priority 1 (one) the operator dispatch patrol(s) to the incident and takes responsibility for documentation and communication with the patrol. If it is considered priority 2 or 3 the operator redirect the incident to the station sergeant in the municipal area.</td>
<td>The incident communicated to the sergeant is related to previous incidents documented in the municipal area. Possible relation or causality to previous incidents is determined. The station sergeant reacts in an appropriate mode. The outcome of dealing with the incident documented in the CAD.</td>
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<tr>
<td>After the priority one incident is completed the outcome is documented in the CAD system. The sergeant responsible for the municipal area of the incident is notified.</td>
<td>The summary of the incident is available for the dispatcher. The incident is integrated in the CRM system for continuous analysis of the incidents in the municipal area. Quality processes are established to ensure the actuality and relevance of the data.</td>
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Figure 1: Incident response and incident management in relation to reactive and problem oriented policing.

**DISCUSSION AND CONCLUSION**

Different policing models has been discussed and proposed since the modern police was formed. Two models have received most interest: the reactive professional policing model and the problem oriented policing model. This research has attempted to use the strengths of each and propose a taxonomy of four police activities as outlined in the result section. Below each activity is briefly discussed.

**Incident Response Through Reactive Policing**

There is a substantial risk that patterns of crime and disorder are neglected if incidents are treated as isolated situations. There are additional risk that this occurs if the operators goal are to complete HRs as quickly as possible with only a limited, if any, analysis of possible relation to other incidents.

**Incident Management in Reactive Policing**

Current legal problems of accessing the complete data for analysis and visualization of incidents will result in poor quality of the information to be used for the problem oriented work.

**Incident response in problem oriented policing**

The delegation of priority 2 and 3 HRs to the station sergeant will increase the possibility that recurring incidents and causal relations are identified. The municipal problem oriented unit can then responded to the incident in a more efficient manner than if dispatch to the isolated incident.
Incident management in problem oriented policing

A municipal police mandate to locally data storage, manipulation, retrieval etc. can result in a more powerful management of incidents. The autonomy currently at county level should be applied on the municipal level.

So to conclude. The research question raised in this paper was: How should Swedish police structure incident response and incident management to become more efficient?

The paper suggest that the county based police authorities should strive to distribute lower priority HRs from the dispatcher centers to the municipal station sergeants. The result of this would be that more incidents could be managed in a problem-oriented manner. Assigning the responsibility of responding and managing lower priority incidents to the station sergeants is suggested to have a great potential. The overall aim with this research is design and development of computer based support. Additional and more structured data on dispatch of patrols will be collected. And the following phase in this research is to design prototype functionality in the CAD system for station sergeant based on the findings in the fieldwork.

The quality of the information captured and produced in the processes of incident management and incident response is crucial for providing a chain-of-custody in the case of committed crimes. A change of current structure and current work practice is of course a challenge and there are several major problems involved in this. A pedagogical and practical contribution of the proposed taxonomy is that it does not dichotomies reactive policing and problem oriented policing, but instead attempts to discuss them as coexisting. The overall paradigmatic migration of the modern police from a paramilitary reactive professional force to a problem oriented, community close, and long term collaboration with other actors is positive. There are, however, incidents where the professional police force is the appropriate technology, but these incidents are not managed isolated from previous similar incidents.

REFERENCES


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