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# Crime Mapping in Police Value Shops: The Pocket Man Case of Child Sexual Abuse

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## **Abstract**

It took Norwegian police thirty-two years to capture the Pocket Man who was responsible for more than hundred sexual abuses over that same time period. This article presents a study police investigations of the abuses by applying the value shop configuration. Primary activities in the value shop are (i) problem definition; (ii) investigation steps; (iii) investigation decision; (iv) investigation implementation; and (v) police performance evaluation. As discussed in this article, each value shop activity had serious deficiencies in the investigations of Pocket Man cases. The police investigation is evaluated based on modus operandi and signature as well as crime mapping using geographical information systems.

*Keywords:* Geographic information system, crime mapping, modus operandi, crime signature, police service, knowledge management, value configuration, criminal case.

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# **Crime Mapping in Police Value Shops: The Pocket Man Case of Child Sexual Abuse**

## **INTRODUCTION**

Police in Norway had been hunting a child sexual offender linked to scores of assaults on young boys for more than thirty years. The first sexual abuse of a boy by this man occurred in 1976, and he got a fine for this abuse, but the man was not arrested until thirty-two years later in 2008. The man is nicknamed the “Pocket Man” by the press and public because he kept a hole in his trousers pockets. Victims were assaulted if they put their hand into his pocket (BBC, 2008; Mæland, 2010).

This paper examines the Pocket Man case as a criminal child sexual abuse investigation carried out within the framework of the value shop policing configuration (Gottschalk, 2007). The purpose of this paper is to illustrate the value shop configuration and its five primary activities, i.e. problem definition, investigation approaches, approach decision, investigation implementation, and performance evaluation (Sheehan and Stabell, 2007).

## **CHILD SEXUAL ABUSE**

Men such as the Pocket Man, who target young people for sex abuse, are offenders with the medical label pedophiles (Kierkegaard, 2008; Wolak et al., 2008). According to Dunaigre (2001), the pedophile is an emblematic figure, made into a caricature and imbued with all the fears, anxieties and apprehensions rocking our society today. Pedophile acts are - according to the World Health Organization (WHO) - sexual behavior that an adult major (16 years or over), overwhelmingly of the male sex, acts out towards prepubescent children (13 years or under). According to the WHO, there must normally be a five-year age differences between the two, except in the case of pedophilic practices at the end of adolescence where what matters is more the difference in sexual maturity.

However, the definition of criminal behavior varies among countries (Davidson, 2008). As will become evident from reading this article, pedophile acts in Norway are sexual behavior that a person acts out towards children of 16 years or under. There is no minimum age definition for the grooming person in Norwegian criminal law, but age difference and difference in sexual maturity is included as criteria for criminal liability.

The Pocket Man case was towards the end of police investigations mapped using the geographical information system (GIS) of Geodata as indicated in Figure 1.

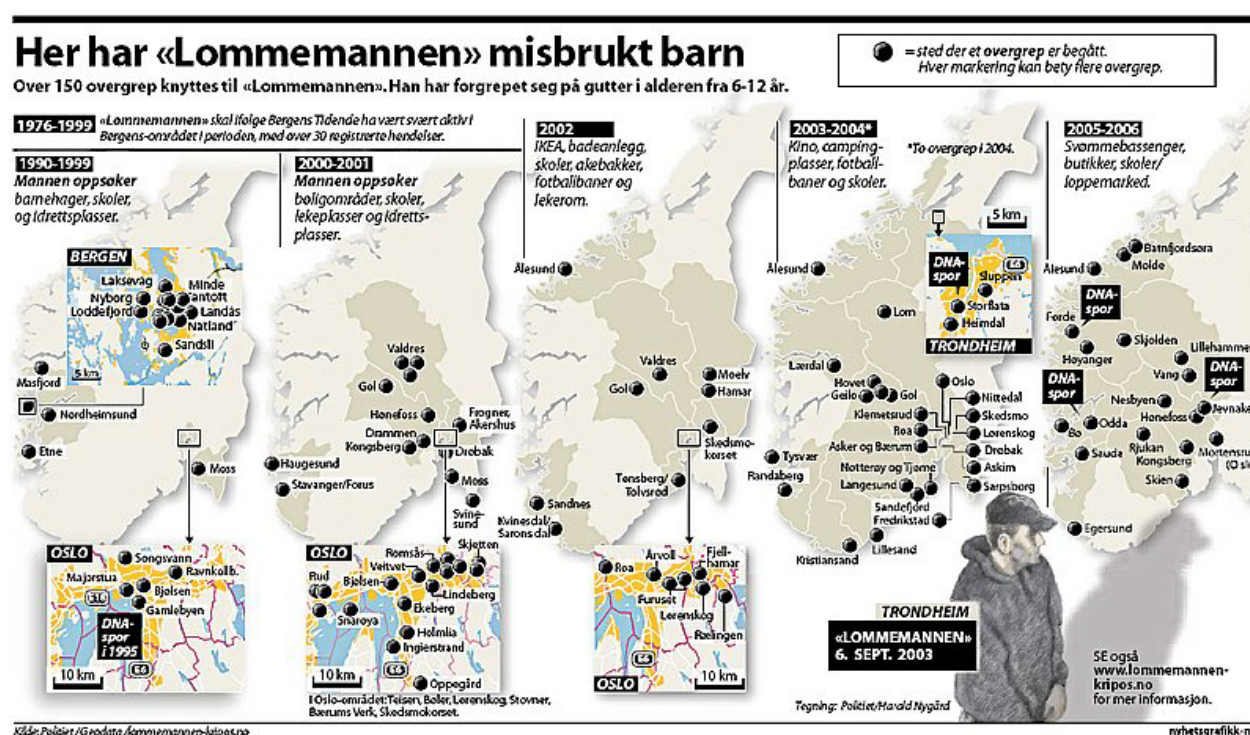


Figure 1 Places where the Pocket Man abused children.

## POLICE INVESTIGATION

Investigation is the police activity concerned with (1) the apprehension of criminals by gathering of evidence leading to their arrest, and (2) the collection and presentation of evidence and testimony for the purpose of obtaining convictions. According to Smith and Flanagan (2000), the process begins with an initial crime scene assessment where sources of potential evidence are identified. The information derived from the process then has to be

evaluated in order to gauge its relevance to the investigation. During the next stage, the information is interpreted to develop inferences and initial hypotheses.

The investigator can then develop this material into appropriate and feasible lines of enquiry. Actions have to be prioritized because of limited resources. Information is collected to test hypotheses and develop new assumptions. As more information is collected, this is then fed back into the process until the objectives of the investigation are achieved. Providing a suspect is identified and charged, the investigation then enters the post-charge stage, where case papers are compiled for the prosecution. Subsequently, the court process will begin.

Police investigation units represent a knowledge-intensive and time-critical environment. Successful police investigations are dependent on efficient and effective knowledge sharing. Furthermore, Lahneman (2004) argues that successful knowledge management in law enforcement depends on developing an organizational culture that facilitates and rewards knowledge sharing.

In this context, detectives as knowledge workers are using their brains to make sense of information. Knowledge is often defined as information combined with interpretation, reflection and context. This combination takes place in the brains of detectives. Knowledge assists investigators to make effective and accountable decisions during an investigation. It enables them to locate, gather and use the maximum amount of material generated by the commission of an offence to identify and bring offenders to justice (Centrex, 2005).

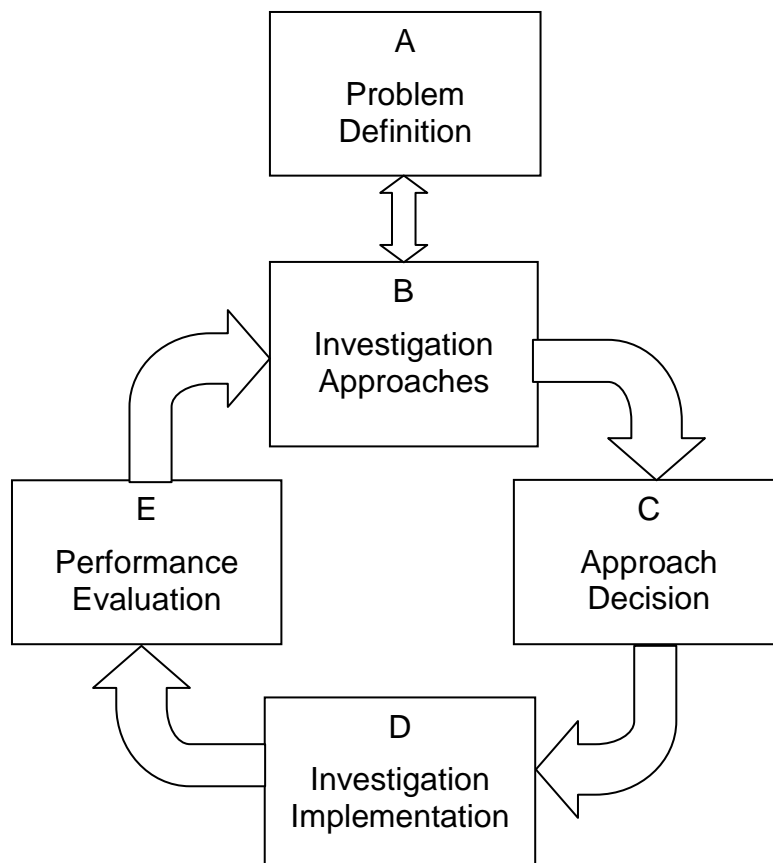
## **VALUE SHOP CONFIGURATION**

Investigation and prevention of criminal child sexual abuse has the value configuration of a value shop. As can be seen in Figure 2, the five activities of a value shop are interlocking and while they follow a logical sequence, much like the management of any project, the difference from a knowledge management perspective is the way in which knowledge is used as a resource to create value in terms of results for the police organization. Hence, the logic of the five interlocking value shop activities in this example is of a law enforcement situation and how it engages in its core business of conducting reactive and proactive investigations.

The sequence of activities starts with problem understanding, moves into alternative investigation approaches, investigation decision, and investigation implementation, and ends

up with criminal investigation evaluation. However, these five sequential activities tend to overlap and link back to earlier activities, especially in relation to activity 5 (control and evaluation) in policing units when the need for control and command structures are a daily necessity because of the legal obligations that policing unit authority entails. Hence, the diagram is meant to illustrate the reiterative and cyclical nature of these five primary activities for managing the knowledge collected during and applied to a specific investigation in a value shop manner.

Furthermore, Figure 2 illustrates the expanding domain of the knowledge work performed in crime investigations, starting at the top with problem understanding and ending at the edge with evaluation of all parts of the investigation process before a possible new round is initiated.



*Figure 2 The knowledge organization of investigation and prevention units as value shop activities*

These five primary activities of the value shop in relation to a financial crime investigation and prevention unit can be outlined as:

- A. *Problem Definition.* This involves working with parties to determine the exact nature of the crime and hence how it will be defined. For example, a physical assault in a domestic violence situation depending on how the responding officers choose and/or perceive to define it can be either upgraded to the status of grievous bodily harm to the female spouse victim or it may be downgraded to a less serious common, garden variety assault where a bit of rough handling took place towards the spouse. This concept of making crime, a term used on how detectives choose to make incidents into a crime or not, is highly relevant here and is why this first activity has been changed from the original problem finding term used in the business management realm to a problem definition process here in relation to policing work. Moreover, this first investigative activity involves deciding on the overall investigative approach for the case not only in terms of information acquisition but also as indicated on Figure 1 in undertaking the key task, usually by a senior investigative officer in a serious or major incident, of forming an appropriate investigative team to handle the case.
- B. *Investigation Approaches.* This second activity of identifying problem solving approaches involves the actual generation of ideas and action plans for the investigation. As such it is a key process for it sets the direction and tone of the investigation and is very much influenced by the composition of the members of the investigative team. For example, the experience level of investigators and their preferred investigative thinking style might be a critical success factor in this second primary activity of the value shop.
- C. *Approach Decision.* This solution choice activity represents the decision of choosing between alternatives generated in the second activity. While the least important primary activity of the value shop in terms of time and effort, it might be the most important in terms of value. In this case, trying to ensure as far as is possible that what is decided on to do is the best option to follow to get an effective investigative result. A successful solution choice is dependent on two requirements. First, alternative investigation steps were identified in the problem solving approaches activity. It is important to think in terms of alternatives. Otherwise, no choices can be made. Next,

criteria for decision-making have to be known and applied to the specific investigation.

- D. *Investigation Implementation.* As the name implies, solution execution represents communicating, organizing, investigating, and implementing decisions. This is an equally important process or phase in an investigation as it involves sorting out from the mass of information coming into the incident room about a case and directing the lines of enquiry as well as establishing the criteria used to eliminate a possible suspect from further scrutiny in the investigation. A miscalculation here can stall or even ruin the whole investigation. Most of the resources spent on an investigation are used here in this fourth activity of the value shop.
- E. *Performance Evaluation.* Control and evaluation involves monitoring activities and the measurement of how well the solution solved the original problem or met the original need. This is where the command and control chain of authority comes into play for investigation and prevention units and where the determination of the quality and quantity of the evidence is made as to whether or not to charge and prosecute an identified offender in a court of law.

## **THE POCKET MAN CASE**

The 55-year old man was arrested in the city of Bergen in Norway in 2008 and charged with 67 assaults, but police suspected him of 150 attacks, and media suggested the real number to be 400 (BBC, 2008). The Pocket Man had a hole in his trouser pocket through which young boys put their hand to touch his penis. He had lured boys in numerous localities and was characterized by the police as a dangerous serial criminal. The Pocket Man born March 20, 1952 was a millionaire who ran his own garage. Andersen was active in motor sports for many years. He is divorced and has two children. He was sentenced to nine years in prison in 2010 (Mæland, 2010).

In the following, the actual police investigation of the Pocket Man is evaluated as described by Ørn et al. (2009) in terms of five value shop activities.

### **A. Problem Definition**



Understanding criminal child sexual abuse requires knowledge among police officers who have been informed by victims or others in the public. If a police officer does not understand the issues, then the officer might have a tendency to exhibit reluctance and misinterpretation of reported abuse. When Norwegian police received reports about sexual abuse, information was interpreted at local police stations. Most officers at local police stations are generalists rather than specialists who have only basic knowledge of child abuse. Therefore, the problem definition was limited to a registration and random interpretation leading to case acquittal. If the information had been communicated to the headquarter of a police district or even better to the national criminal police center, then it would be more likely that the problem would have been defined in a way as to start think of a potential pocket man or pocket men. The problem definition is the critical starting point in serial crime cases and is discussed further below.

### **B. Investigation Approaches**

As a consequence of the specialist knowledge gap, many individual pocket man cases received no priority and were dismissed. This was partly caused by police misjudgment and failed coding of cases in terms of offences and relevant laws. In addition, there were typically very little information available about the offender. Furthermore, only 73 out of 166 cases (44 %) were reported to the police on the same day the offence occurred. Within five days, 105 cases (63 %) of the cases were reported to the police. Because of such delays, several time-critical investigation approaches became less relevant.

The most important source of information was each child. However, the police was often reluctant to interview the child. The police spoke to or interviewed the child in 64 out of 166 cases (39 %). In 102 cases (61 %) there were no information obtained from the victim by the police. In 20 of the 64 cases (31 %) where the police talked to the child, a later interview was also conducted by a judge. In 44 out of the 102 cases (43 %) where the police did not talk to the child, a later interview was conducted by a judge. In two cases the child/the parents refused interview by police or judge.

In total, only 20 out of 166 victimized children (12 %) did get a chance to tell what had happened to both police and judge. According to Norwegian criminal law, a witness below the age of 16 years has to be interviewed by a judge in cases of sexual abuse. The main rule is

that a judge interview has to take place within two weeks after the case became known to the police. Therefore, a violation of this rule occurred in most cases, as only 64 out of 166 children were interviewed by a judge.

The victim is considered the most important source of information early on in a criminal investigation. The victim can provide information that guide the identification of relevant investigation approaches. However, the police spoke only to 39 % of the children. Two main reasons for this kind of police sub-performance were identified by Ørn et al. (2009). First, police officers at local police stations do not have the knowledge or competence (including skills and abilities) to conduct an interview with a child in a way that both provides useful information as well as protects the child from further harm. Second, local police did not consider the case to be serious.

The police based most of its judgment on information from third persons. Relatives were interviewed in 86 cases (52 %). Since the police based so much on parents and other relatives, this will have influenced them to collect information from the children by themselves. Therefore, each child might have been influenced in a way that the investigators did not know and certainly did not control.

### **C. Approach Decision**

The choice of investigative steps is more dependent on priorities in the case than in the previous activity of identifying investigation approaches. It is in this choice activity that the police have to consider costs and benefits of investigative steps. Benefits are concerned with what different investigative actions will lead to in terms of information, while costs are concerned with resources needed. Resources are always scarce, and the severity of the crime and the practicality of investigation will influence the extent to which resources are allocated to the case.

The different investigative steps have varying costs and benefits:

- a. Classifying and coding the case
- b. Child communication and interview
- c. Judge interview with child

- d. Crime scene investigation
- e. Securing biological evidence
- f. Securing electronic evidence
- g. Questioning the neighborhood
- h. Interviewing witnesses
- i. Professional use of photo exhibits
- j. Photo confrontations
- k. Production of reports

Several of these investigative steps will have reduced benefits as time passes after the assault. How many of these eleven investigative steps were applied depended on the seriousness of the crime as perceived by the local police station, the extent of information provided by the victim, and the time elapsed since the offense occurred. Costs were considered either in isolation for one specific child abuse or as a series of offenses. One of the weaknesses of the Pocket Man investigation for more than three decades was the lack of connection, thereby considering each case separately, which lead to relatively high cost estimates as compared to estimated benefits. As a consequence, few and sometimes none of the eleven investigative steps were decided for implementation.

#### **D. Investigation Implementation**

The different investigative steps were carried out the Pocket Man crime case as follows:

- a. *Classifying and coding the case.* Police employees coding discipline when using information technology systems determines the quality of data collection supplied to investigators and analysts when they search for cases in various knowledge work support systems. Missing coding discipline and unskilled use of systems when entering data into systems causes problems for later retrieval of information and comparison of findings. Also, the level of knowledge about a case will influence the extent of correct coding. Unfortunately, since many police officers as local police stations did not understand the sexual abuse crime, then their coding often became insufficient and misleading.

- b. *Child communication and interview.* According to the police guide for interviews of children, the first interview should concentrate on facts: what happened; where did it happen; when did it happen; who were present; description of the offender; procedure applied by the offender; and how the offender left the crime scene. Unfortunately, many local police officers were not aware of the police guide for interviews of children. One of the mistakes was the involvement of too many police officers who had contact with the child, which did not lead to trust and continuity needed for the child to open up and tell freely.
- c. *Judge interview with child.* This interview is expected to be the main source of information about child sexual abuse. It has the purpose of collecting detailed information about the offense and collecting answers to all questions that the child is best to answer. Unfortunately, few children were interviewed and many of the interviews were far from perfect as could be studied from video recordings. Reasons for non-perfect interviews include that the child had a bad day, the interview might have been postponed, technical problems by video recording emerged, and long travel distance from home to court made the child tired. Some children did not have a vocabulary needed to tell and explain issues such as shame, guilt, fear and what had actually happened.
- d. *Crime scene investigation.* This has to occur quickly after the incident to make sure that all forensic evidence is identified and properly collected. Both child and geographical place may be considered as crime scene. Traces on the crime scene are exposed to weather, traffic, cleaning and other evidence destroying factors over time. Unfortunately, in only 35 cases (21 %) were written reports produced based on crime scene investigations. Some of these reports include pictures and descriptions of the crime scene. Technical forensics was conducted in only 18 cases (11 %). 11 of those 18 cases were reported to the police on the day of the offense. Unfortunately, in 53 out of 73 cases reported to the police on the day of the offense, no crime scene investigation was carried out.
- e. *Securing biological evidence.* Biological evidence from the crime scene was possible to collect from the child or goods provided to the child from the offender in 51 cases (31 %). Biological evidence was impossible to collect in 98 cases (60

%). In the remaining 16 cases (9 %) it is unknown whether it was possible or not. Out of 51 possible cases, 46 were reported to the police within 15 days.

- f. *Securing electronic evidence.* Electronic evidence from the crime scene was possible to collect in 69 cases (42 %). In addition, electronic evidence was collected from other sources in 16 cases (10 %). 10 out of those 16 cases were reported to the police on the same day.
- g. *Questioning the neighborhood.* The purpose of this investigative step is to get in touch with witnesses who might have seen the offender's appearance and behavior, who might have tips about potential witnesses, and who have witnessed the actual offense. Unfortunately, neighborhood questioning was applied in only 12 cases (7 %). 11 out of those 12 cases were reported to the police on the same day. This implies that in at least 56 out of 73 cases reported on the same day, no questioning of the neighborhood was carried out. In the remaining 6 cases it is in the aftermath not possible to conclude whether questioning was applied by the police. Benefits from questioning diminish as time passes by, because witnesses leave the area and people forget. However, routine activity theory suggests that many of the same persons will be in the area the next week at the same time when the crime was committed. A disadvantage of questioning the neighborhood as an investigative step is the exposure of the child's history to neighbors, friends and classmates.
- h. *Interviewing witnesses.* There were two kinds of interviews in the Pocket Man case. First, there were family members who could tell what the child had told them. Second, there were witnesses who had observed directly things that were related to the offense, related to the offender, or related to the child before, during or after the offense. There were very few interviews of witnesses who had information directly related to the offense. Even if the offender trapped the child in a deserted area, the offender was in traffic areas both before and after the offense. Unfortunately, witnesses were not identified immediately, since very few neighborhood questionings were carried out.
- i. *Professional use of photo exhibits.* A photo exhibit is used when there is no specific suspect in the case, while a photo confrontation is applied when there is a

distinct suspect. It is important not to show too many pictures to a witness because the memory picture of the real offender will be weakened. Pictures for a photo exhibit are chosen based on a preliminary description of the offender, which the witness may have provided at an earlier stage. Unfortunately, photo exhibits were only performed in 24 cases (15 %).

- j. *Photo confrontations.* There are strict guidelines in Norwegian police about when, where and how to perform photo confrontation. Such confrontations can create many error sources, and there is a danger of innocent persons becoming suspects, as well as a danger of guilty persons not being recognized. The witness is required to have a memory picture and have described the offender explicitly before the police should decide on photo exposure for confrontation. Unfortunately, photo confrontations were only performed in 13 cases (8 %).
- k. *Production of reports.* Some of the cases had many different documents because several investigation steps had been applied. To get an overview of the cases, it is important to edit and organize material according to a recognizable and reusable pattern. Each victim is assigned a case file. Unfortunately, some cases were mainly organized chronologically, thereby preventing easy access to different kinds of offenses and different kinds of interviews.

Ørn et al. (2009) evaluated the overall police performance for these investigation steps in the Pocket Man case. They found varying quality in the investigations. They concluded that patterns should have been identified much earlier, which would have prevented the man from continuing his crime for thirty-two years. The common denominator for the cases was that the victim was a young boy aged 5 to 12 years, and that the offenses were carried out in public places with a substantial risk of being detected.

### **E. Performance Evaluation**

Norwegian police seldom apply the fifth value shop configuration activity of performance evaluation. Very few police investigations are evaluated as part of the police service process. None of the investigations in the Pocket Man case were evaluated. This may seem surprising as so many different police stations in so many different police districts worked on the case for more than three decades. According to general guidelines in the Norwegian government,

all agencies are expected to evaluate their activities at different levels. The goal of an evaluation is to collect information on effectiveness, efficiency, results, costs and benefits.

When a police unit is given the task of evaluate its performance, it is given the opportunity to reflect and learn from own experiences that can lead to behavioral as well as systems changes.

## **DISCUSSION**

The failure of initial police work in the first primary value shop activity, i.e. problem definition, was considered by Ørn et al. (2009) as the main reason why the Pocket Man could continue his sexual offenses for so many years.

Police priorities in criminal investigations are closely linked to cost-benefit calculations. Such calculations are based on an initial assessment of the seriousness of an offense as it corresponds to considerations of the law, as well as an assessment of available information of the offence and the offender available to the police so far. In addition, the attorney general has instructed police districts to prioritize explicitly minor crimes where there is evidence to suggest that the same offender is committing the crimes. This instruction requires thorough police work at the problem definition stage.

However, a circular argument seems to emerge here. Since each crime seems to be a minor offense, it is not investigated. Therefore, links between crimes are not discovered, and the same offender is never identified. A solution to this circular situation is for certain kinds of crime to have priority whether or not they seem serious in each case. Links between cases will only emerge in police investigations when each sexual abuse of children is thoroughly explored by the police in the problem definition phase of the value shop.

Norwegian prosecution legislation § 5-10 requires all police districts to send a message to National Criminal Police in cases of rape and other sexual offences against children that are committed in peculiar ways. With this legation, one might think that the circular argument is avoided in practice. Unfortunately, this is not the case, since most police officers are unaware of this legislation, and because National Criminal Police seldom conduct further investigations when they receive such a message. The only action conducted by this national

police unit in the Pocket Man case, was to publish each message on a police web page so that local police districts can compare new cases with old ones.

Generally, the Ørn et al. (2009) evaluation revealed that the responsibility to conduct secondary investigations in crime categories defined by § 5 legislation was never defined or described neither locally, regionally, nor nationally in Norway. Secondary investigations are supposed to be conducted by National Criminal Police based on messages from police districts. Information available for such investigations is limited to structured data that are registered in the criminal information system STRASAK. Sometimes, unstructured data in various documents in electronic police systems is available as well.

We find that two barriers existed in the Pocket Man case that prevented the development of a sound and thorough problem definition. Firstly, responsibility for investigative tasks was not defined. Secondly, information sources were not sufficiently available to generate insights that could link various crime incidents. In addition, methodological challenges in establishing a complete problem definition emerged.

Secondary investigations carried out by the police to link cases are called comparative analysis. The purpose of information collection in an isolated criminal case is to clarify objective and subjective terms for guilt or non-guilt in that specific case. The purpose of secondary investigations, however, is to compare cases and reason whether or not the same criminal may be responsible for several cases and then develop a hypothesis with consequences, which can be explored and tested by means of parallel rather than sequential investigations.

In cases where there are no fingerprints, DNA, pictures, videos or other forensic evidence, such an hypothesis has to be based on Modus Operandi (MO), which is the physical procedure applied by the offender, and/or signature, which is the psychological procedure applied by the offender. Kocsis (2007) argues that in order to link cases into a series, there are certain requirements to an MO of the offender. MO has to be consistent in several crime incidents and sufficiently special to enable separation of the act of an offender from acts of other potential offenders. Often, the offender refines his MO through his series of offenses so that the MO changes and becomes less consistent. While MO can evolve over time, signature can be more consistent, because the signature expresses an offender's more stable fantasies and expectations.



Ratcliffe (2008) argues that comparative analysis based on MO as well as signature comprises several sources of error. Firstly, witnesses as secondary sources of information tend to tell about offender activities and provide less information relevant for MO and signature. Typically, the witness is a victim who paid selectively attention to MO and signature. Since police investigators often consider selective information as unreliable and partly irrelevant for prosecution of a specific crime incident, this information is rarely recorded electronically in relation to MO and signature in police information systems. Secondly, hypotheses developed in comparative analysis often remain untested when basic data in case files is missing.

Data that are most thoroughly and correct recorded in computer information systems are typically information about place and time of crime (Ratcliffe, 2008). Time-geographic analysis and use of geographical information systems are therefore by some scholars and practitioners considered more reliable than MO/signature methodology when the goal is to detect serial crime cases. GIS tools visualize law offences in a way that create insights into geographical travel patterns of the offender (Gottschalk and Tolloczko, 2007). Based on computer maps, investigators can detect the criminal's operational zone, buffer zone, transport method, time-related routines and other issues to enable computation and identification of potential home base of the offender (Stangeland, 2005; Dahl, 2008).

The Pocket Man operated over very long distances in Southern Norway. When long distances are a part of the criminal's MO, it is useful to conduct activity analysis. Dahl (2008) applied activity analysis to estimate whether or not the same criminal with reasonable likelihood might be responsible for several offences and to estimate the likely home base for the offender. These kinds of analyses can also reveal whether one or more criminals might be connected to each criminal act, and to what extent each trip is financially sound in transport economics terms by including several offences, and to what extent there are variations in crime intensity. Activity level analysis can also reveal whether it is possible and likely that the same offender is responsible for criminal acts that occurred close in time, but distant in geography. An activity analysis combines time and geography data to map what kind of trip each criminal act might be part of a series. Each trip associated with offense(s) are categorized into five classes: 1) raid in the neighborhood, 2) goal-oriented evening walk, 3) day or weekend trip in the region, 4) one to four hours' drive each way, 5) long distance trip

with overnight stay outside own living region, outside popular public places, outside tourist routes and outside tourist season.

GIS tools enable time analysis, calculate travel distances and travel times, and visualize cases that are assumed to belong to the same series. Visual patterns provide useful insights into geographical accumulations of criminal offences. Maps that show play grounds, schools, public swimming halls and other areas where children frequently are present, enable allocation of criminal offences into a context that identify relevant and irrelevant cases in an efficient manner.

However, GIS tools become less effective when basic information from cases is missing. When few cases become known to the police, then visualized patterns tend to become so diffuse that they do not help progression in an investigation. Estimates in Norway indicate that only about five percent of all sexual offences against children become known to the police (Sætre, 2007). This percentage is higher where the crime was committed by a person that the child did not know, but boys in particular tend to keep silent even about this kind of sexual abuse (Sætre, 1999 in Kvam, 2001). Despite the fact that many complaints arrived at different police stations over time in the Pocket Man case, very few of the cases were reported right after the abuse. Typically, cases were reported after some time and especially after the Pocket Man case was hypothesized in the media.

Ørn et al. (2009) argues that the police needs to apply triangulation in investigations of serial child abuse by triangulating the two different methods. In this way, the strengths of MO and signature methodology and the strengths of GIS tools can be combined and eliminate weaknesses of one of the methods.

All hypothesis-based investigations have the potential of forming mental bias among investigators and senior investigating officers. One reason for bias is the limitation of human cognitive capacity to focus attention on certain aspects to the detriment of other aspects of a case. Emotionally, detectives search for mental reward often found in confirmation of previous assumptions, which support the assumption that they are on the right track. Counterintuitive information on the other hand indicates that detectives have not been on the right track. This insight can cause demotivation and disappointment that sometimes leads to an ignorance of such information (Lai, 2004).

Bias can cause two kinds of serious problems in MO-based comparative analysis. Firstly, the investigation can pay too much attention to only one MO, which causes the selection of serial cases for comparative analysis to be limited to this particular MO, even when the offender is likely to apply several MOs or variations of one MO. Secondly, the investigation can fall into the trap of assigning all offenses with the same MO to one particular offender.

In the Pocket Man case, it was for many years assumed that the MO was such that he only found his victims outdoor in a public place. This opinion about his MO did not change even after January 20, 2006, when his DNA was found following an offense in a public swimming hall. Other MO elements matched perfectly, though, such as asking a young boy to look for a piece of paper on the floor, which was a typical procedure applied outdoor as well to establish a relationship to the victim.

The recent insight that the Pocket Man also showed up in public swimming halls to commit offenses against young boys did indeed change and correct the problem definition and opened up for a wider perspective in the police investigation. The Pocket Man had previously been arrested for assaults towards young boys in public swimming halls in 1999. This case was finally included in the comparative analysis. Iterative activities of the value shop did finally enhance and correct investigators' problem definition, which made the investigation move to the final arrest of the Pocket Man.

There are several avenues for future research based on this study. Firstly, some of the knowledge management value shop activities might be linked more directly to a policing context by using examples of other police systems in use in different parts of the world that could potentially be integrated or run in parallel with different value shop activities in order to increase the stock of knowledge available to police investigators. Such examples would also make the documentation more accessible to other police jurisdictions for at present it is largely dependent on a Norwegian context.

One of the weaknesses of the Pocket Man investigation, as already pointed out, is the lack of connection between many sexual abuse cases over the 32 year period before his arrest. In police language this is known as 'case linkage blindness'. Case linkage systems such as the Viclas system developed by the Canadians – whilst used for tracking violent offenders – is one such example of a system that seeks to overcome this case linkage blindness

phenomenon in police investigations. Therefore, future research might focus on linkage in the value shop activities to connect to linkages in cases.

Furthermore, at the value shop activity E – performance evaluation – the point was made that very few police investigations are evaluated as part of the police service process. While this is true for Norway and many other countries, this is not a universal practice. For example, in Singapore the Police Force regularly conducts what they term ‘After Action Review’ (AAR) as part of their knowledge management approach to police investigations.

## CONCLUSION

It took Norwegian police thirty-two years to again capture the Pocket Man who probably was responsible for more than hundred sexual abuses over that time period. This paper has analyzed police investigations of the abuses by applying the value shop configuration. Each value shop activity had serious deficiencies in the investigations of Pocket Man case incidents, with the first step as the most critical.

The first value shop activity is problem definition where the crime problem is understood. If it is not understood, then the remaining value shop activities become a failure as illustrated in the Pocket Man case. If the problem is understood, then the complete case of several incidents can be investigated in parallel, thereby avoiding information silos for each incident. Information from several incidents enables comparative analysis, which can create a reasonable foundation of evidence to arrest and prosecute the offender at an earlier point in time, thereby limiting the number of victims.

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