

The Implementation of Scientific Crime Investigation Mechanisms in Police Regional Office Proof Criminal Cases

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Abstract

Investigation is a critical stage in criminal proceedings aimed at uncovering evidence to illuminate the nature of an offense and identify its perpetrator or suspect. The application of Scientific Crime Investigation (SCI) methods in these investigations leverages a scientific approach drawn from diverse disciplines to enhance the collection and analysis of evidence. This study seeks to underscore the importance of integrating SCI into the substantiation of criminal cases and explore its operational implementation within police regional offices. This empirical juridical research draws upon library materials and field studies to examine the urgency and efficacy of SCI in criminal investigations. Data analysis employs a descriptive-qualitative method to elucidate how the SCI method functions as a systematic tool in gathering evidence crucial for courtroom presentation. The evidentiary robustness of SCI findings, including expert testimonies and forensic reports, lends them substantial weight as incontrovertible evidence obtained through rigorous scientific processes. Aligned with legal theories such as *bewijsmidellen*, *bewijsmnum*, *negatief wettelijk bewijstheorie*, *bewijskracht*, and *bewijsvoering*, the SCI method encompasses several key components: 1)



Identification, involving the examination of fingerprints to establish identities; 2) Digital forensics, for analyzing electronic and digital evidence; 3) Forensic psychology, aiding in the assessment of psychological states of victims, witnesses, and perpetrators; and 4) Forensic medicine, facilitating examinations related to injuries, poisoning, or fatalities conducted by forensic physicians. Each phase of the SCI method adheres rigorously to legal frameworks and procedural guidelines. By integrating these specialized disciplines, SCI enhances the investigative process, ensuring thoroughness and credibility in the pursuit of justice within the bounds of the law.

Keywords

Scientific Crime Investigation, Proving, Investigation

Introduction

In contemporary law enforcement, the application of scientific methods in crime investigation has become indispensable for achieving justice and ensuring public safety. The integration of advanced scientific techniques within police operations has revolutionized the approach to solving criminal cases, enhancing the accuracy and reliability of evidence collection and analysis. In addition, the investigation is a critical phase aimed at gathering evidence to resolve criminal cases by identifying perpetrators or suspects. Initiated promptly upon receiving a report or complaint of alleged criminal activity, this stage is essential for ensuring swift action by law enforcement to apprehend those responsible.¹

In the investigation process, it is imperative for the Police to exercise caution when searching for evidence to avoid mistaken identification of perpetrators of criminal acts. Investigators must ascertain at least two pieces of preliminary evidence before designating a person as a suspect. Upholding the principle of presumption of innocence is crucial before

¹ Riza Sativa, "Scientific Investigation Dalam Penyidikan Tindak Pidana Pembunuhan," *Jurnal Ilmu Kepolisian* 15, no. 1 (2021): 58, <https://doi.org/10.35879/jik.v15i1.295>.

implicating individuals as suspects in criminal cases, a practice underscored by scientific analysis. This approach aims to prevent investigators from infringing on human rights by mistakenly identifying suspects in criminal cases.

Scientific Crime Investigation (SCI) is a special method that police can use to help collect evidence. SCI is the scientific investigation of crime using a wide range of disciplines, both pure and applied as forensic science and legal science connected². In the SCI method, the suspect's confession is placed in the last position of evidence that will then be submitted to the court. SCI emphasizes scientific analysis from a variety of established disciplines to uncover a crime³.

Forensic case data is still inadequately integrated into the investigation and crime analysis process, despite proof of its tremendous potential in various scenarios, is required to embrace an extended role for forensic science that extends beyond the creation of evidence for the court⁴. Forensic science is one area that contributes. It applies knowledge from numerous disciplines to the natural sciences, chemistry, medicine, biology, psychology, and criminology to throw light on or establish the existence of criminal conduct through the analysis of case evidence⁵. New scientific, technological and legal developments, particularly the introduction of national databases for DNA and fingerprints, have led to increased use of forensic science in the investigation of crime⁶.

² Andra Fanizha Mendrofa, Jamaluddin Jamaluddin, and Budi Bahreisy, "Penguatan Alat Bukti Melalui Scientific Crime Investigation Dalam Tindak Pidana Pembunuhan Dengan Racun (Analisis Putusan PN Lhoksukon Nomor: 216/Pid.B/2019/PN.Lsk Dan 217/Pid.B/2019/PN.Lsk)," *Suloh: Jurnal Fakultas Hukum Universitas Malikussaleh* 10, no. 1 (2022): 66.

³ Sativa, "Scientific Investigation Dalam Penyidikan Tindak Pidana Pembunuhan."

⁴ Olivier Ribaux, Simon J. Walsh, and Pierre Margot, "The Contribution of Forensic Science to Crime Analysis and Investigation: Forensic Intelligence," *Forensic Science International* 156, no. 2–3 (January 2006): 171–81, <https://doi.org/10.1016/J.FORSCIINT.2004.12.028>.

⁵ Sativa, "Scientific Investigation Dalam Penyidikan Tindak Pidana Pembunuhan."

⁶ Anika Ludwig and Jim Fraser, "Effective Use of Forensic Science in Volume Crime Investigations: Identifying Recurring Themes in the Literature," *Science & Justice* 54, no. 1 (January 2014): 81–88, <https://doi.org/10.1016/J.SCIJUS.2013.09.006>.

The SCI method itself is described in Article 34 and Article 35 of the Regulation of the Chief of the Indonesian National Police No. 6 of 2019 on Criminal Investigation as "technical assistance for investigation" which is divided into five types, including: Forensic laboratory, for the examination and testing of evidence through special handling and treatment; Identification, to confirm the identities of suspects, victims, and witnesses in the event of a criminal offense as evidence; Forensic medicine, for the examination of suspects, victims, or witnesses who must be given special physical handling or treatment; Forensic psychology, for the examination of suspects, victims, or witnesses who require special psychological treatment; Digital forensics, for the examination and testing of digital evidence with special treatment.

Technical assistance in investigation is often used in the process of proving criminal cases because not all criminal cases can be uncovered easily⁷. For example, in criminal cases where there is lesser evidence found at the scene of the crime, such as murder cases where there is only the victim's body at the crime scene and no evidence is found that leads to the perpetrator of the crime. The SCI method is required in an effort to reveal the case by conducting a *Visum et Repertum* (VeR) in forensic medicine. VeR is important in revealing cases of rape, molestation, and murder of the perpetrator in committing his crime against the victim, so that it becomes an important element in proving the crimes of rape, molestation, and murder⁸.

Evidence in criminal procedure law is used to limit court hearings in an effort to seek and defend the truth, both from the defendant, legal counsel, public prosecutor, and judge⁹. The process of the criminal justice system in Indonesia starts with the stages of investigation, investigation, prosecution, examination in court, and implementation of court decisions

⁷ Aditya Warman, M. Syukri Akub, and Wiwie Heryani, "Efektivitas Penerapan Scientific Crime Investigation Terhadap Pembuktian Dalam Perkara Pidana," *Ilmu Hukum Prima (IHP)* 4, no. 3 (2022): 7, <https://doi.org/10.34012/jihp.v4i3.2129>.

⁸ Yusup Khairun Nisa and Johny Krisnan, "Kekuatan Visum et Repertum Sebagai Alat Bukti Dalam Mengungkap Terjadinya Tindak Pidana," *Varia Justicia* 11, no. 1 (2015): 188.

⁹ Ronaldo Iptakit, "Urgensi Pembuktian Alat Bukti Dalam Praktek Peradilan Pidana," *Lex Crimen* IV, no. 2 (2015): 89.

or execution. During the investigation stage, if evidence is lacking or nonexistent, it becomes challenging to pursue further action regarding a criminal event. Evidence, apart from being an initial requirement in the judicial process, also plays an important role in the examination process in court, which determines the fate of the defendant, whether he is acquitted or guilty.

The lack of goods and evidence and the absence of eyewitnesses can leave criminal cases unresolved, shrouded in mystery. To mitigate this, investigators must employ the Scientific Crime Investigation (SCI) method to gather evidence. Even small details can serve as crucial leads for investigators in uncovering a criminal case. It is essential for investigators to be meticulous and thorough in their analysis to ensure no evidence goes unnoticed. The availability of the SCI method is a welcome development for law enforcement, offering a promising avenue for resolving criminal cases. When conducting investigations using the SCI method, investigators must ensure adherence to the applicable regulations governing the investigation process, thereby ensuring the credibility of the SCI results.

The adoption of scientific methods marks a significant departure from traditional investigative practices, characterized by reliance on witness testimonies and circumstantial evidence. By leveraging disciplines such as forensic science, DNA analysis, ballistics, and digital forensics, law enforcement agencies can uncover crucial details and establish irrefutable links between suspects and crime scenes. This shift not only strengthens the investigative process but also reinforces the credibility of findings presented in courts of law.

Moreover, the systematic integration of scientific crime investigation mechanisms in the Police Regional Office represents a proactive response to the evolving nature of criminal activities. In an era dominated by technological advancements and sophisticated criminal networks, law enforcement agencies must continuously adapt and equip themselves with cutting-edge tools to stay ahead of perpetrators.

This paper explores how the Police Regional Office has embraced these advancements, outlining specific methodologies and technologies employed to substantiate criminal cases. By analyzing case studies and statistical data, it aims to elucidate the efficacy of scientific crime

investigation mechanisms in enhancing the efficiency and outcomes of police operations. Ultimately, this study underscores the transformative impact of scientific crime investigation on modern policing strategies, emphasizing its role in upholding the rule of law and safeguarding communities. Through a comprehensive examination of its implementation and outcomes, this paper seeks to contribute to the broader discourse on effective law enforcement practices in the 21st century.

Method

This research uses an empirical juridical approach. Juridical legal research aims to examine rules or norms by reviewing library materials as baseline material and seeking literature and regulations linked to the topic under investigation¹⁰. Empirical legal studies are conducted using primary data or data collected directly from the community¹¹. This type of legal research involves gathering information from people through interviews or direct observations in the field. This means that empirical legal research is founded on facts gathered through direct observation in the field. Based on the title and phrasing of the subject that the author will investigate, this research is a kind of empirical juridical legal research that examines the mechanism of SCI in criminal cases.

The author adopts a juridical-sociological research approach, which involves gathering data through field studies, including literature reviews, analysis of official documents, and interviews. This approach explores the interaction between community behavior as a result of the existing norm system. It examines how community behavior responds to statutory regulations and how this behavior, in turn, influences the formation of statutory provisions.

The research employs two main methods for data collection. Firstly, through document studies encompassing literature studies from books, legislative documents, and official websites. Secondly, conducting direct

¹⁰ Soerjono Soekanto and Sri Mamudji, *Penelitian Hukum Normatif (Suatu Tinjauan Singkat)* (Jakarta: Rajawali Pers, 2001).

¹¹ Ronny Hanitijo Soemitro, *Metodologi Penelitian Hukum Dan Jurimetri*, 4th ed. (Jakarta: Ghalia Indonesia, 2009), 10.

interviews with experts in their fields in accordance with the needs of research materials obtained from field studies.

Data analysis is the process of processing data consistently and systematically on certain phenomena. Based on the nature of this research, namely descriptive, where the data obtained in writing this research are both literature and field, and the analysis used, namely qualitative analysis. The data obtained is described not by using numbers but in the form of sentences of experts' opinions and laws and regulations to obtain and prioritize the existing picture or vice versa.

Result and Discussion

A. Urgency of Scientific Crime Investigation Implementation in Criminal Case Evidence

Scientific proof is required to establish a causal relationship between illegal acts and their consequences. Because of the issue, experts are quite interested in studying this subject. According to the Criminal Procedure Code (KUHAP), criminal conduct cannot be disclosed without witness testimony and other evidence. This is a social phenomenon with numerous complex traits and difficulties. Forensic science links the commission of a criminal act to the finding of criminal behavior.

Evidence in a criminal case is a very vital part of the process, and at this stage a conviction is found on whether or not a criminal offense has occurred. The investigation process until the final decision is pronounced in court by the judge is closely related to evidence¹². Proof is important because sometimes witnesses, victims, and perpetrators involved in criminal cases to remain silent or provide false testimony. The evidentiary stage must be carried out objectively and impartially in drawing conclusions on the case at hand.

It can be understood that proof can only be obtained from evidence¹³. Article 1 point 2 of the Criminal Procedure Code regulates the

¹² Eddy O.S. Hiariej, *Teori Dan Hukum Pembuktian* (Jakarta: Gelora Aksara Pratama, 2012), 96.

¹³ Adami Chazawi, *Hukum Pembuktian Tindak Pidana Korupsi* (Malang: Bayu Media Publishing, 2013), 13.

investigation process, which is a series of investigator actions to seek and collect evidence with which to make light of criminal acts that occur and to find the suspect in the manner provided for in the law. Based on this phrase, it can be concluded that in an effort to make light of a criminal offense and find the suspect, evidence is needed.

Evidence that has been collected, assessed, and submitted by the investigator at the investigation stage will greatly affect the process of proof at trial (revealing material truth). This means that proof must be realized through an examination of the ultimate truth (*absolut truth/materiil waarheid*)¹⁴. The ultimate truth can be materialized by submitting valid evidence to the court obtained through the investigation stage carried out by the investigator scientifically through the SCI method.

SCI is a method that can be used in the investigation process by studying criminology scientifically. The application of SCI involves using various scientific disciplines, both pure and applied, which are then known as forensic science. The purpose of this method is as a tool or mechanism for assisting the criminal justice process as many legal events are related to scientific fields outside of law¹⁵.

SCI is a sort of investigation in which the evidentiary system applies forensic functions (such as forensic identification, forensic laboratory, forensic psychology, forensic medicine, and forensic experts) or science and technology¹⁶. By evaluating numerous types of evidence, it is possible to discover the conditions around the crime scene, link suspects to the crime, and trace a specific item to a specific source¹⁷.

¹⁴ Kurnia Dewi Anggraeny, "Law Enforcement Against Morality Crimes Through Restorative Justice by Gondomanan Police of Yogyakarta," *Prosiding Seminar Nasional Program Doktor Ilmu Hukum*, 2022, 231.

¹⁵ Radhingga Dwi Setiana, "Kontribusi Scientific Crime Investigation (Penyidikan Berbasis Ilmiah) Sebagai Upaya Penguatan Alat Bukti Dalam Proses Penanganan Perkara Pidana" (Kementrian Riset Teknologi dan Pendidikan Tinggi Universitas Brawijaya, 2016), 74.

¹⁶ Warman, Akub, and Heryani, "Efektivitas Penerapan Scientific Crime Investigation Terhadap Pembuktian Dalam Perkara Pidana."

¹⁷ Polri Bareskrim, *Mengenal Teknologi Identifikasi*, 1st ed. (Jakarta Pusat: Pusat Identifikasi, 2007).

In Yogyakarta in 2023, four situations stand out or attract the most attention from the general population. Two cases of mutilation were reported in Sleman. In the first mutilation case, the suspect HP planned to kill and mutilate the AI victim in order to get control of the victim's belongings. The perpetrator did this horrific deed (known as pinjol) as he was in debt to the internet. Meanwhile, W and RD committed the second act of mutilation on R, a Pangkal Pinang native attending a private institution in Yogyakarta. Two other major instances at this period were the shooting of villagers in Girisubo, Gunungkidul, and the discovery of 3,000,969 grams of cannabis¹⁸.

Based on the results of an interview with Ms. KOMPOL Angela Yohana, M.K., M.Psi as the Psychology Section of Kasubbagpsipers Bagpsi HR Bureau POLDA Yogyakarta Special Region (interview on March 6, 2023), it was explained that the use of the SCI method at the investigation stage can assist investigators in carrying out their duties. Investigators may have difficulty asking victims or suspects to give statements as the provided statements may be inappropriate or exaggerated, or the victims and/or suspects may not want to give any statements at all. Investigators can request the assistance of psychology experts to assist in the process as it can determine a person's psychological condition, and psychology experts can provide direction on the right method or way to conduct an examination of victims and perpetrators.

Based on this, the application of SCI with the help of an expert can give advice on what investigators should do. It is important so that the investigator does not make mistakes in carrying out his duties. Moreover, the evidence should not be done by force but based on established procedures, thus SCI in this condition is very necessary.

The collection of evidence must be based on scientific analysis so that the investigator does not make mistakes in determining the suspect. It is at this stage that the role of SCI is required to maintain the quality of evidence found and collected by investigators, which will then be submitted in the process of proof at trial. According to Mr. AIPTU Muhammad Nurul Fajri as Kanit 3 Identification of Yogyakarta Special

¹⁸ "Kriminalitas Di Yogyakarta Turun Di 2023, Ini 4 Kasus Paling Menyita Perhatian - Solopos.Com | Panduan Informasi Dan Inspirasi," n.d.

Region Police (interview on February 15, 2023), the importance of conducting investigations using the SCI method is because not all criminal acts can be revealed using logic alone, but there needs to be a tool that can help the process of disclosing criminal cases during investigations as it could be that small things at the crime scene can be key in disclosing criminal cases.

Mr. AIPTU Muhammad Nurul Fajri, as Kanit 3 Identification of Yogyakarta Special Region Police (interview dated February 15, 2023) added, "Forensic medical science can identify causes such as the time of injury, find out the cause of the injury that appears from the victim, and the tools used to cause injury, and ensure all of these things are caused by crime. The results of the examination will then be outlined in a written statement in the form of a *Visum et Repertum* (VeR). The content of the VeR contains information on the results of the examination of the victim's condition, such as the type of injury, the cause of the injury, when the victim died, and the cause of death based on expert testimony from the examining doctor.

Based on this explanation, the implementation of SCI is conducted by someone who has special expertise. The stages of implementation are carried out on the basis of a request for assistance from the investigator to the expert. The results of the SCI itself are in the form of examination results and expert testimony. This means that the results of this SCI can be used as evidence in the trial process, as stipulated in Articles 183 and 184 of the Criminal Procedure Code.

The SCI method is based on the application of various scientific disciplines, meaning that it requires an expert in the required field to provide his opinion and testimony in the investigation. Article 1, point 28 of the Criminal Procedure Code explains that expert testimony is information provided by a person who has special expertise on matters necessary to shed light on a criminal case for the purpose of examination. Further explanation is contained in Article 120 of the Criminal Procedure Code, namely that the investigator may request the opinion of an expert who has special expertise, where the information provided by the expert is pronounced on oath or promise before the investigator.

Experts in criminal procedure law in Indonesia are mentioned in several articles, both in the Criminal Procedure Code and in provisions

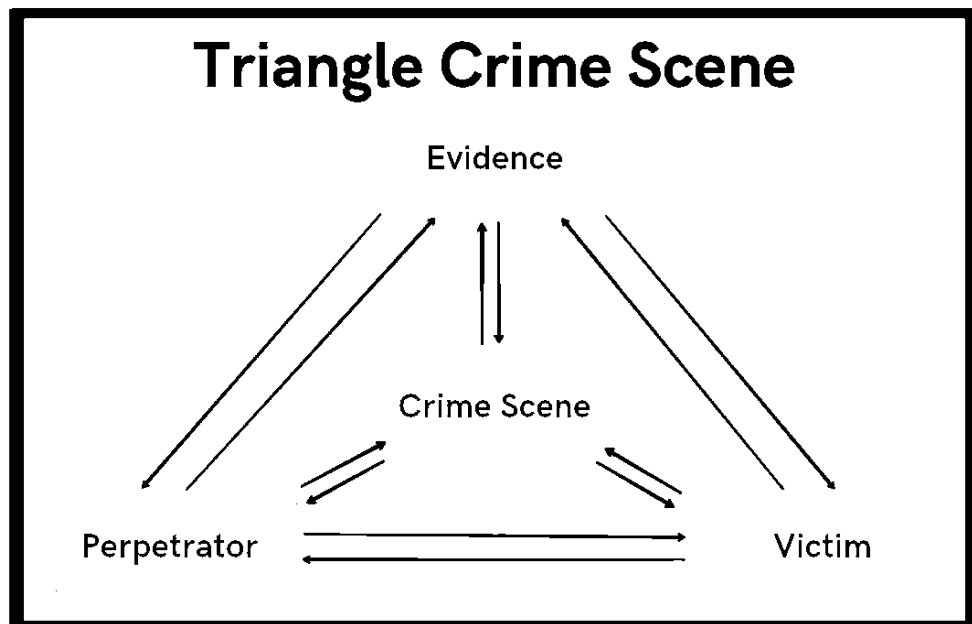
outside the Criminal Procedure Code. This means that in the handling of general and special crimes, the application of the SCI method carried out by experts in their fields is very important. The role of an expert who uses the SCI method can strengthen the evidentiary process in court.

Article 14 paragraph (1) letter h of Law No. 2 of 2002 on the Indonesian National Police, specifically the Investigator, organizes police identification, forensic laboratories, police medicine, and police psychology in carrying out his duties. The same thing is also regulated in Article 34 and Article 35 of Perkap No. 6 of 2019 on criminal investigation, which in conducting investigations is supported by technical investigation assistance (scientific crime investigation) in the form of identification, forensic laboratories, forensic medicine, digital forensics, and forensic psychology. This means that if the investigator has difficulty conducting an investigation, he can ask for assistance from people who have special expertise to assist him in proving a criminal case.

According to D. Aji Kadarmo, Sp., FM, a forensic doctor at Bhayangkara Hospital, Yogyakarta Special Region Police (interview dated March 3, 2023), the application of SCI in the context of proving criminal acts serves as a bridge between victims, evidence, and perpetrators obtained through the results of crime scene processing. This implies that if any of these elements are absent at a crime scene, SCI can help in finding these shortcomings.

In line with this idea, which in the evidentiary system according to the basic science of criminology is known as the triangle crime scene theory, there is an interrelated chain between evidence, victims, and perpetrators¹⁹. These three elements are important and interrelated elements at a crime scene. The crime scene is the center point, or core, of the linkages and relationships among these three elements.

¹⁹ Andi Hamzah, *Hukum Acara Pidana Indonesia* (Jakarta: Sinar Grafika, 2000), 258.

FIGURE 1. *Triangle Crime Scene*

Source: Processed by the author

Based on this figure, the author can conclude that the purpose of the investigation is to find the perpetrators of criminal acts, where at the scene of the crime there are victims and evidence. Through proof using the SCI method, it is hoped that a fact can be found that leads to the perpetrator of the crime. Technically, technical assistance for investigation (SCI) aims to answer the questions of who, why, how, with what, where, and when the criminal offense occurred.

Based on the figure, the author concludes that the primary objective of an investigation is to identify the perpetrators of criminal acts, particularly when victims and evidence are present at the crime scene. By using the SCI method, investigators aim to uncover facts that lead to the perpetrator of the crime. Technically, the purpose of scientific crime investigation (SCI) is to address key questions such as who, why, how, with what, where, and when the criminal offense occurred.

This proof becomes easy when all elements of the crime scene triangle are fulfilled. However, investigators may encounter challenges if any of these elements are lacking, making it difficult to gather evidence. Recognizing this challenge, the application of the SCI method becomes

crucial to bridge this gap by leveraging forensic science to prevent investigative errors through thorough examination of available evidence.

This proof will be easy to do if all elements of the triangular crime scene are fulfilled. Investigators will certainly encounter difficulties if one of these elements is not fulfilled, so it will be difficult for investigators to find evidence. Departing from this, the application of the SCI method is required to close this gap by using forensic science to avoid investigation errors by examining existing evidence.

B. Strength of Evidence Using Scientific Crime Investigation Methods

Indonesia adopts a negative proof system (*Negatief Wettelijk Bewijstheorie*) in which the judge decides the case based on the judge's belief in the presented evidence. The judge obtaining his belief requires at least two pieces of evidence (*Bewijs minimum*), as stipulated in Article 183 of the Criminal Procedure Code. The formation of the judge's belief is based on the results of the examination of evidence submitted in the trial process.

One of the other important things in evidence is the evidentiary power of the evidence submitted. The strength of this evidence lies in the relevance, suitability, and admissibility of the evidence submitted. According to Ian Dennis, the strength of evidence (*bewijskracht*) is assessed at the end of the trial process. The court assesses the suitability, relevance, and admissibility of the evidence collected to determine its capability or relevance in proving capable or worthy of proving the facts of legal events²⁰.

In relation to this theory, the application of SCI is to ensure the truth value of evidence. The SCI method is carried out in a scientific investigation conducted by experts with the aim of realizing evidence that can support evidence in the trial. A scientific examination of evidence (physical evidence) can add value to the material truth of each criminal case that will be revealed. This means that the results of the SCI method

²⁰ Hiariej, *Teori Dan Hukum Pembuktian*.

can be related to the type of evidence into which SCI can transform it, especially letters, expert testimony, and instructions²¹.

According to IPTU Robertus Wulian Kristama, S.H., as an Investigator of the Cyber Subdit unit of the Yogyakarta Special Region Police (interview on February 28, 2023), explaining the application of SCI, for example, in digital forensics, an examination of electronic evidence is carried out, and the results of the examination will be in the form of digital evidence. In order for this electronic evidence to be understood, it needs to be added to the examiner's expert testimony so that indirect clues will be obtained because the evidence and expert testimony will be interrelated.

Based on this information this information, it can be concluded that employing the SCI method for evidence examination will produce evidence in the form of result certificates, further supported by expert testimony from the examiner. This indicates that SCI outcomes are admissible as evidence that can be presented in court (*Bewijsmiddelen*).

Article 1, point 28 of the Criminal Procedure Code explains that expert testimony is information provided by a person who has special expertise to shed light on a criminal case for the purpose of examination. Article 186 of the Criminal Procedure Code states that expert testimony is what an expert state in court. Expert testimony is an opinion given by an expert in accordance with his or her knowledge. An expert can be heard in court about a certain matter based on the judge's consideration that the person is considered to have special expertise in that field²².

Expert testimony is needed to provide an explanation of the evidence submitted and to explain matters that are beyond the knowledge of legal science²³. IPTU Robertus Wulian Kristama, S.H., as an investigator of the Cyber Subdit unit of the Yogyakarta Special Police (interview on February 28, 2023), explained related to the theory of evidence (*Bewijsvoering*) how to present and explain evidence in court. The person who has the competence to do this is someone who has special expertise. Even though

²¹ Setiana, "Kontribusi Scientific Crime Investigation (Penyidikan Berbasis Ilmiah) Sebagai Upaya Penguatan Alat Bukti Dalam Proses Penanganan Perkara Pidana."

²² Hamzah, *Hukum Acara Pidana Indonesia*.

²³ Hiariej, *Teori Dan Hukum Pembuktian*.

the letter evidence submitted contains expert testimony that conducts the examination, the one who can explain the meaning of what is contained in the letter is the examining expert, so the expert will be needed in proof at trial.

Based on this explanation, the author concludes that the way of filing evidence (*Bewijsvoering*) against evidence obtained through the SCI method and submitted at trial is carried out by requesting assistance again from the expert examiner. Expert testimony at trial becomes important when the judge may not understand the content or intent of the submitted evidence. The expert has an important role to play in explaining more detail the evidence in question in order to convey the intention of the evidence submitted as a whole.

Proving criminal cases through the SCI method holds significant importance as it aids in the investigation process and identifies evidence crucial for courtroom presentation. This endeavor aims to instill confidence in the judge, ensuring decisions are based on valid and irrefutable evidence as it is obtained through a scientific process during the investigation process by an expert.

Proving criminal cases using the SCI method is clearly very important as it aims to assist in the investigation process and find evidence that will then be submitted in court. This is done in order to create confidence in the judge in deciding a decision based on valid and irrefutable evidence as it is obtained through a scientific process during the investigation process by an expert. This means that the application of the SCI method aligns with the theories of *Bewijsmidellen*, *Bewijsminimum*, *Negatief Wettelijk Bewijstheorie*, *Bewijskracht*, and *Bewijsvoering*.

C. The Implementation of a Scientific Crime Investigation Mechanism in Police Regional Office Proof Criminal Cases

1. Identification

According to forensic science and criminalistics, the term identification is an attempt to find similarities between humans, animals, and objects by comparing them with humans, animals, or

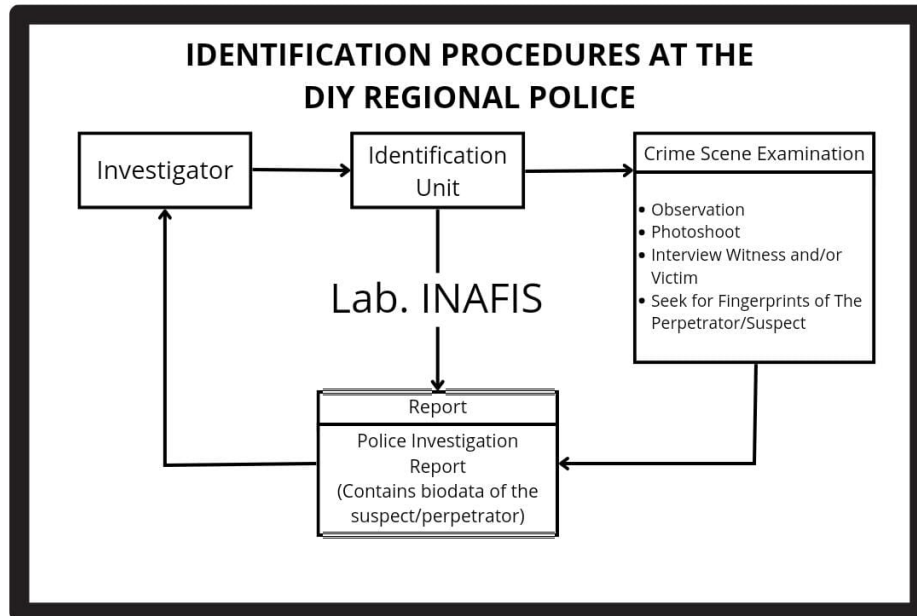
other objects with the intention of finding similarities between the two things²⁴. Identification in the investigation is conducted to find the identity characteristics of both the perpetrator, victim, and goods or objects. The implementation of this identification is done by identifying fingerprints (*dactyloscopy*) on a person or a person's fingerprints on an object. The process of identifying a person can also be done by facial identification methods, through photos, videos, or directly.

Mr. IPTU Muhammad Nurul Fajri, as Kanit.3 of the Yogyakarta Special Region Police Identification Unit, explained that in carrying out identification, there are several stages that must be carried out, namely as follows:

- a. Investigators request assistance from the identification unit;
- b. Visiting the scene of the crime;
- c. Photographing every corner of the crime scene before entering the crime scene to maintain the authenticity of the crime scene if, at the time of processing the crime scene, there are marks or evidence damaged by both human and animal factors;
- d. Observing the scene of the crime to determine the type of criminal offense;
- e. Interview witnesses who observed the incident or victims about how it happened. Additionally, ask witnesses and/or victims to demonstrate the condition of items suspected of bearing the perpetrator's fingerprints. Furthermore, elicit information from witnesses and/or victims regarding the characteristics of the perpetrator.
- f. Photographing evidence at the crime scene and taking samples of the perpetrator's fingerprints;
- g. Matching fingerprints using the AK-23 digitizing tool;
- h. Make an official report of the results of the examination that contains all the perpetrator's biodata.

²⁴ Dianor Sutra, "Fungsi Kepolisian Sebagai Penyidik Utama: Studi Identifikasi Sidik Jari Dalam Kasus Pidana," *Jurisprudence* 1, no. 1 (2012): 74.

FIGURE 2. Procedure of Identification Implementation at Yogyakarta Special Police Identification



Source: Processed by the author on April 4, 2023.

2. Digital Forensics

Digital forensics is a branch of forensics used in investigations to find digital evidence that will strengthen or weaken physical evidence. At first, digital forensics was synonymous with computer forensics, but it evolved to become broader by analyzing all types of devices that store digital data. The application of digital forensics is carried out on data on digital devices that are locked, hidden, or deleted.

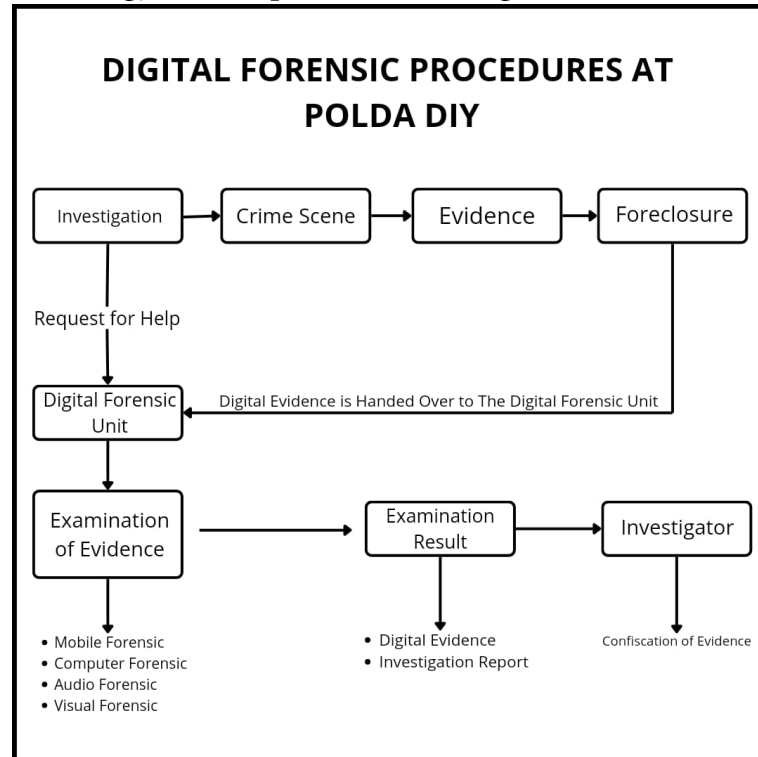
The four categories of digital forensics are as follows:

- a. Mobile forensics, for mobile devices such as cellphones and tablets;
- b. Computer forensics, for computer devices, laptops, and notebooks;
- c. Audio forensics, for voice recording devices;
- d. Visual forensics, for image recording devices such as CCTV.

Based on the results of an interview with IPTU Robertus Wulian Kristama, S.H., as an investigator of the Cyber Subdit unit of Ditreskrimsus Polda Daerah Istimewa Yogyakarta (interview on February 28, 2023), he explained the implementation of digital forensics carried out by the Digital Forensics unit of Ditreskrimsus Polda Daerah Istimewa Yogyakarta as follows:

- a. Investigators conduct a crime scene and collect evidence related to digital or electronic devices;
- b. The digital evidence is then confiscated based on a confiscation letter from the investigator;
- c. Investigators then request assistance in writing a letter containing what data is needed in the evidence and submit it to the digital forensic unit;
- d. The investigator must then explain or present what is wanted in the digital evidence to the digital forensic unit;
- e. If the administrative requirements have been met, the forensic digital unit then makes a submission to the superior or leader, if accepted, an examination can be carried out, if rejected, an official report is made and submitted to the investigator;
- f. The forensic digital unit conducts an examination of digital evidence by:
 - 1) Data collection and data recovery;
 - 2) Sorting the necessary data (filtering);
 - 3) Analyzing data that has been sorted.
- g. The results of the examination are then poured into an external hard drive containing all the data required by the investigator;
- h. The digital forensic unit also makes explanations related to the data taken into the Minutes of the Inspection Results;
- i. The external hard disk evidence is sealed by the digital forensic unit, then handed over to the investigator;
- j. The investigator then confiscates the evidence submitted by the digital forensic unit.

FIGURE 3. Implementation Procedure for Digital Forensics in the Yogyakarta Special Police Digital Forensics



Source: Author processed March 7, 2023

3. Forensic Psychology

Psychology is the study of the human psyche, thus it can be applied in every human life, including in the legal world²⁵. The application of psychology in the legal world is known as forensic psychology," which is used in order to assist the process of disclosing criminal cases. According to Ms. KOMPOL Angela Yohana M.K., M.Psi., as the Psychology Section of Kasubbagsipers Bagpsi HR Bureau POLDA Yogyakarta Special Region (interview on March 6, 2023) explained, forensic psychology plays a crucial role in helping the examination phase of criminal acts, offering assistance in investigations through psychological examinations of victims, witnesses, and/or perpetrators.

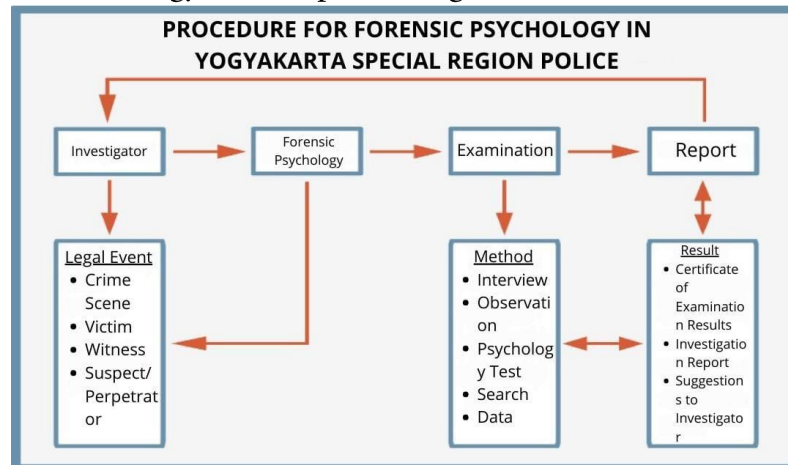
²⁵ Yusti. Probawati, "Peran Psikologi Dalam Investigasi Kasus Tindak Pidana," *Indonesian Journal of Legal and Forensic Sciences* 1, no. 1 (2008): 26.

Ms. KOMPOL Angela Yohana M.K., M.Psi., as the Psychology Section Head of Subbagpsipers Bagpsi HR Bureau of Yogyakarta Special Region Police (interview on March 6, 2023), explained the Forensic Psychology procedure applied at Yogyakarta Special Region Police as follows:

- a. Investigators request assistance from the Forensic Psychology Section through a written letter;
- b. Forensic Psychology: the letter is received and then processed to state that they are ready to assist the investigator;
- c. Investigator and psychologist coordinate for the next steps;
 - 1) The investigator escorts the victim and/or perpetrator to meet with the psychologist, or;
 - 2) The psychologist comes to meet the victim, witness, and/or perpetrator;
 - 3) The place can vary, including the office, psychological counseling room, crime scene, integration room, detention facility, and others.
- d. Psychological examination by conducting:
 - 1) Interview, asking various things of the examinee related to the ongoing case;
 - 2) Observation of victims, witnesses, and/or perpetrators during the examination, whether examined by the investigator and/or psychologist;
 - 3) Psychological Tests, giving tests to the examinee to find out conditions such as intelligence, personality, temperament, and emotion based on the results of the test answers from the examinee;
 - 4) Data Search, tracing cases handled based on pre-existing data, personal identity data, BAP results, diplomas (education), and others related to the examinee.
- e. Preparation of a psychological examination report by forensic psychology that contains all information related to the results of the psychological examination (conclusions) of victims, witnesses, and/or perpetrators as well as suggestions on what the investigator should do in carrying out the investigation stage;

- f. The report is submitted to the investigator (who requested the assistance).

FIGURE 4. Implementation Procedure for Forensic Psychology in Yogyakarta Special Region Police



Source: Processed by the author on April 4, 2023.

4. Forensic Medicine

Forensic medicine is one of the branches of medical science that utilizes medical science to assist law enforcement. Article 133 paragraph (1) of the Criminal Procedure Code explains that, for the benefit of the investigation, the investigator has the right to request the assistance of judicial medicine, doctors, or other experts for the purpose of examining victims of injury, poisoning, or death. The examination carried out by forensic medicine is a *visum et repertum*.

VeR is a written report made by an examining doctor who has been sworn at the request of an investigator for the benefit of justice. The purpose of the VeR is to find the cause of the victim's injury or death, such as the type of injury, cause of injury, cause of death, time of death, and others. Forensic medical examinations can be carried out on the following matters²⁶:

- a. Examination of the scene of the crime (TKP);
- b. Examination of living victims;

²⁶ Y.A. Triana Ohoiwutun, *Ilmu Kedokteran Forensik* (Pohon Cahaya Yogyakarta, 2015), 16.

- c. examination of dead victims;
- d. Examination of evidence in the form of a human body or human body parts.

AKBP dr. D. Aji Kadarmo, Sp. FM, as the forensic doctor of Bhayangkara Hospital of Yogyakarta Special Region Police (interview on March 3, 2023), explained the procedure for the implementation of forensic medicine at Yogyakarta Special Region Police, as follows:

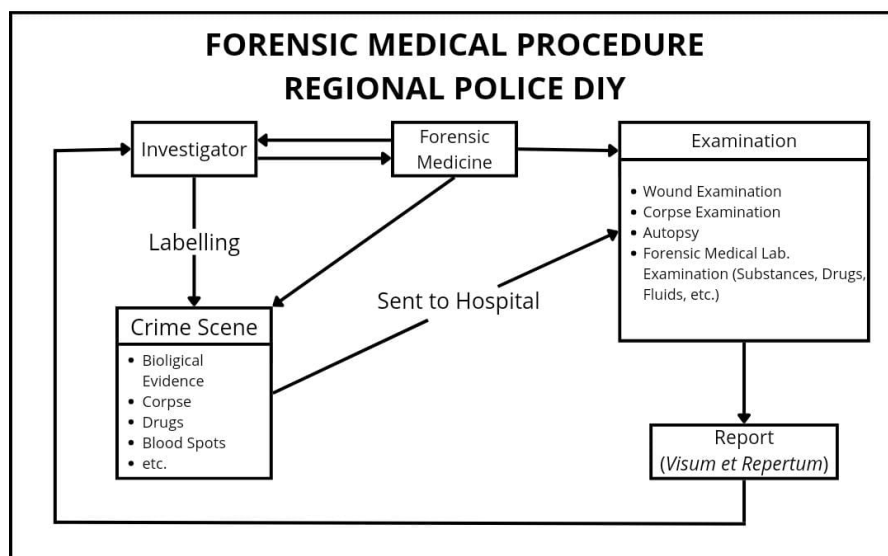
- a. Investigators conduct investigations and examinations of suspected criminal offenses;
- b. Investigators request assistance from forensic doctors, either verbally or in writing, to assist the investigation process. This assistance can include participating in the crime scene investigation (helping to collect biological evidence or bodies) or conducting autopsies;
- c. The forensic doctor arrives and proceeds to examine the crime scene to locate biological evidence and other items relevant to the victim, such as drugs, bloodstains, and so on;
- d. After concluding the crime scene examination, the forensic doctor prepares a report, presents it to the investigator, and provides direction on what steps must be taken based on the findings of the evidence;
- e. Based on the forensic doctor's direction, the investigator labels the victim and completes the necessary correspondence or administration;
 - 1) Labeling is carried out to ensure that the corpse or evidence sent to the hospital is the one requested by the investigator or forensic doctor who examines the crime scene.
 - 2) The request or administration letter contains what the investigator wants or needs, such as:
 - a) Wound examination for surviving victims;
 - b) Body examination for external examination;
 - c) Post-mortem examination for internal examination.
- f. The investigator sends the victim or corpse to the designated hospital;

- g. The victim or corpse is received, then the doctor checks the completeness of the file and what is requested by the investigator in the examination of the victim or corpse;
- h. The forensic doctor conducts an examination of the victim or corpse;
 - 1) Examination of wounds on victims who are still alive:
 - a) Wound examination or interview with the victim regarding the condition and complaints suffered by the victim;
 - b) Treatment;
 - c) Photographing the wound or forensic photos.
 - d) Recording the findings on the victim (conclusion).
 - 2) Examination of the corpse (external examination):
 - a) Examination from head to toe of the corpse;
 - Knowing the location of the wound;
 - Knowing the type of wound;
 - Knowing the width of the wound;
 - Find out the time of death;
 - Find out the cause of death.
 - b) Photographing the wound/forensic photography;
 - c) Recording the findings on the victim (conclusion).
 - 3) Surgical examination of the corpse:
 - a) External examination;
 - b) Internal examination;
 - Opening of the head, neck, chest, abdomen, or other cavities;
 - Sampling/internal organs;
 - Examination of samples or internal organs is conducted in a forensic medicine laboratory;
 - Return of internal organs.
 - c) Photographing wounds or forensic photography;
 - d) Recording of findings on the victim (conclusion).
- i. Examination results are sent to the investigator;
- j. The body performed by VeR is returned to the investigator.

Based on the explanation of the procedure, it is clear that the

implementation of scientific crime investigation (SCI) at the Yogyakarta Special Region Police is carried out in a structured manner. Starting from the investigator's request for the required forensic field or type, the examination is carried out in stages and systematically. This needs to be done so that the results of SCI can be accepted as evidence that can be submitted in court. Investigators and experts who carry out the SCI method must be careful and pay attention to the implementation process to avoid procedural defects in the evidence obtained.

FIGURE 5. Forensic Medicine Implementation Procedure at Yogyakarta Special Region Police



Source: Processed by the author on April 4, 2023.

Conclusion

The implementation of SCI in the investigation stage has an important role, especially in terms of evidence, as its purpose is to assist in the investigation process to find evidence that will then be submitted in court. The evidentiary power of the results of SCI in the form of letters and expert testimony can be used as valid evidence and cannot be refuted because it is obtained through a scientific process by an expert, so the SCI method is in line with the theory of evidence, including bewisjmidellen,

bewijsmimum, negatief wettelijk bewijstheorie, bewijskracht, and bewijsvoering. Every investigation process is conducted in accordance with applicable laws and regulations. The application of the SCI method in investigations can be done as long as it is carried out in accordance with established procedures. Investigators can use the SCI method, among others: identification, digital forensics, forensic psychology, forensic medicine.

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*Truth never damages a
cause that is just.*

Mahatma Gandhi

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