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The Role of Mobile Forensics as Electronic Evidence in Proving Murder Cases

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ABSTRACT

This study examines the role of mobile forensics as electronic evidence in proving murder crimes in Indonesia amidst the increasing complexity of crimes and perpetrators' efforts to eliminate digital traces. The study uses a normative juridical method with a descriptive-analytical approach through a literature review of relevant laws and regulations, court decisions, and scientific literature. The results of the study indicate that mobile forensics has an important position in the criminal evidence system because it is able to produce legally valid electronic information and/or electronic documents as recognized in the Criminal Procedure Code, the ITE Law, and strengthened by Constitutional Court Decisions. In murder cases, mobile forensics plays a strategic role in tracing communications, locations, metadata, and digital activities to reconstruct the chronology of events, identify the perpetrator, and strengthen the judge's conviction. However, the strength of its evidence is highly dependent on the authenticity, integrity, and reliability of the data, as well as compliance with legal procedures such as chain of custody, lawful seizure, and the involvement of digital forensic experts. This study concludes that mobile forensics has become an important instrument in modern criminal law evidence, but its optimization still faces challenges in the form of lack of uniform operational standards, limited human resources, and the need to strengthen regulations to create legal certainty, justice, and effective law enforcement in the digital era.

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1. INTRODUCTION

The development of information and communication technology has brought significant changes to various aspects of life, including the law enforcement system in Indonesia. The use of mobile devices such as smartphones is not only a means of communication but also a primary repository of various digital data reflecting individuals' daily activities.[1]In the context of criminal law, the existence of digital data has strategic value as evidence, particularly through a mobile forensic approach that enables the scientific and systematic identification, collection, analysis, and recovery of data from electronic devices. Mobile forensics is a crucial component of digital forensics, playing a role in uncovering hidden facts in a crime, particularly in murder cases, which often involve the perpetrator's efforts to cover up traces.[2]Thus, mobile forensics not only functions as an investigative tool, but has developed into a primary instrument in legal evidence based on technology and electronic data.

The increasing number of murders accompanied by attempts to destroy evidence demonstrates that perpetrators are increasingly aware of the importance of digital footprints in law enforcement. Perpetrators not only attempt to destroy physical evidence but also attempt to break the chain of electronic evidence, such as cell phone communications, location history, and other digital activity. This presents new challenges for law enforcement officials in uncovering the material truth of a crime.[3]The development of mobile forensic technology offers hope for overcoming these obstacles, as it can trace and even recover deleted or hidden data. However, legal debate remains regarding the status, evidentiary weight, and validity standards of electronic evidence in the Indonesian legal system, particularly in relation to the Criminal Procedure Code (KUHAP), which initially did not explicitly regulate digital evidence.

The development of crime in the digital era shows increasing complexity in the evidentiary process, particularly in murder cases, which are often accompanied by attempts to remove or disguise evidence. Criminals not only rely on conventional methods but also utilize technology to erase digital traces that could reveal their actions. This situation requires law enforcement officials to use a more modern, technology-based approach, one of which is through mobile forensics. Mobile forensics enables the identification, collection, analysis, and recovery of data from mobile devices such as smartphones that store various user digital activities. In the context of criminal acts, mobile devices can be a primary source of information for reconstructing the chronology of events, including the last communication, location movements, and relationships between the parties involved before the crime occurred. Mobile forensics plays a crucial role in uncovering hidden facts and strengthening the scientific evidence process.

The crime of murder can be classified under Article 338 of the Criminal Code as a crime of ordinary murder, or Article 340 of the Criminal Code if there is an element of premeditation. The main difference between the two articles lies in the existence of a well-thought-out intention, which in practice is often difficult to prove without the support of additional, indirect evidence. In this context, the existence of digital evidence becomes very relevant to trace communication patterns, the relationship between the perpetrator and the victim, and indications of planning before the crime occurred. The perpetrator's actions that attempt to remove, damage, or hide evidence,

[1]Herman et al., "The Use of Digital Forensics in Proving Criminal Acts of Defamation on Social Media Based on the ITE Law", Halu Oleo Legal Research 6, no 2 (2024): 588–603.

[2]M Ilham Maulana Firdaus, "Digital Footprints Behind Criminal Investigations: A Study of Evidence Management by the Samarinda Police"", Nusantara Research Journal 1, no 9 (2025): 359–68.

[3]Bayu Wicaksono et al., "Juridical Review of the Strength of Electronic Evidence in Proving Criminal Cases According to Law Number 8 of 1981 concerning Criminal Procedure Law Bayu", Journal of Legal Sciences 2, no 8 (2026): 19–35.

including digital evidence, can be qualified as obstruction of justice as regulated in Article 221 of the Criminal Code. Legally, this shows that not only the primary act (murder) is punishable, but also subsequent actions that hinder the law enforcement process, including deleting data on electronic devices such as cell phones.

The evidentiary system in Indonesian criminal procedure law has experienced an expansion of the meaning of evidence. This is emphasized in Law Number 11 of 2008 concerning Electronic Information and Transactions as amended by Law Number 19 of 2016. Article 5 paragraph (1) states that electronic information and/or electronic documents are valid legal evidence, which simultaneously expands the scope of evidence as regulated in the Criminal Procedure Code. Thus, the evidentiary regime is no longer limited to conventional evidence such as witness statements or letters, but also includes digital evidence sourced from electronic devices. Mobile forensics has a strategic role as a scientific method for obtaining, securing, analyzing, and presenting digital data from mobile devices. Legally, the results of mobile forensic analysis such as communication data (chat, calls), metadata (time, location, duration), and digital activity history can be used to construct a criminal event, including proving the element of intent or planning in the crime of murder. In fact, in some cases, digital evidence can function as an indication that strengthens the judge's conviction as regulated in the negative legal evidence system (negatief wettelijk bewijsstelsel).

The evidentiary power of mobile forensics is not absolute. Legally, its validity depends heavily on the fulfillment of the principles of authenticity, integrity, and reliability. This means that the data acquisition and analysis process must be carried out in accordance with standard digital forensic operating procedures, including maintaining the chain of custody to prevent data manipulation or contamination. If these procedures are violated, digital evidence has the potential to lose its evidentiary power or even be declared invalid in court. There are several challenges in implementing mobile forensics in Indonesia, including limited human resources with digital forensic competencies, the absence of comprehensive and uniform national standards, and the potential conflict between law enforcement needs and privacy protection. This situation indicates the need for strengthened regulations that specifically govern the procedures for collecting, examining, and using digital evidence to ensure legal certainty and avoid disputes in court.

This study aims to legally analyze the role of mobile forensics as electronic evidence in proving murder in Indonesia. Specifically, this study examines the legal status of mobile forensics in the criminal evidence system, examines the evidentiary power of electronic data generated from digital forensics processes, and identifies obstacles and challenges in its implementation. Furthermore, this study also contributes to the development of regulations and law enforcement practices that are more adaptive to technological developments, in order to realize an objective, accurate, and equitable evidentiary process in the digital era.

2. METHODS

The research method used in this study is a normative juridical approach with a descriptive-analytical nature. This approach was chosen to examine and analyze the role of mobile forensics as electronic evidence in the criminal law evidentiary system in Indonesia. The data used in this study is secondary data obtained through literature studies, including laws and regulations such as the Criminal Procedure Code (KUHAP), the Electronic Information and Transactions Law (UU ITE), Constitutional Court decisions, and scientific literature relevant to the topic of digital forensics and criminal law evidence.

Data collection techniques were conducted through documentary studies, examining various primary, secondary, and tertiary legal sources. Furthermore, the data were analyzed qualitatively using legal interpretation methods and conceptual approaches to understand the status,

evidentiary strength, and challenges of using mobile forensics in murder cases. This analysis aims to provide a comprehensive overview of how electronic evidence is generated, assessed, and used in the criminal justice process, as well as to formulate recommendations for strengthening regulations and law enforcement practices in the digital era.

3. RESULTS AND DISCUSSION

3.1 The Position of Mobile Forensics as Electronic Evidence in Indonesian Criminal Law

The development of information technology has brought fundamental changes to the criminal law evidence system in Indonesia, particularly with the emergence of various forms of digital evidence originating from electronic devices, including smartphones. Mobile forensics, as a branch of digital forensics, presents itself as a scientific method used to extract, analyze, and interpret data from mobile devices for the purposes of legal evidence.[4]In the context of criminal law, mobile forensics not only serves as an investigative tool but also plays a strategic role in presenting electronic evidence that can be used in court. The importance of mobile forensics is growing, given that most modern human activity is recorded on digital devices, making electronic data a primary source of information in uncovering crimes. Understanding the legal position of mobile forensics within the Indonesian legal system is crucial to ensuring its use has strong legal legitimacy.

The evidentiary system in Indonesian criminal law still adheres to Article 184 of the Criminal Procedure Code (KUHAP), which regulates five types of evidence: witness testimony, expert testimony, letters, clues, and defendant testimony. This provision does not explicitly address electronic evidence because the KUHAP was drafted before the development of digital technology. This necessitates interpretation and expansion of the meaning of evidence to accommodate technological developments.[5]In practice, electronic evidence generated through mobile forensics is often classified as either documentary or indicative evidence, depending on the form and substance of the data presented. For example, extracted digital conversations can be viewed as electronic documents equivalent to letters, while communication patterns and location data can serve as clues that strengthen a judge's confidence in a case.

An important development in the recognition of electronic evidence occurred with the enactment of Law Number 11 of 2008 concerning Electronic Information and Transactions as amended by Law Number 19 of 2016. Article 5 paragraph (1) of the ITE Law stipulates that electronic information and/or electronic documents and their printouts constitute valid legal evidence. This provision is the primary legal basis that legitimizes the use of mobile forensic results in criminal evidence proceedings.[6]With this recognition, Indonesia's evidentiary system has expanded from its conventional nature to become more adaptable to developments in digital technology. In fact, the ITE Law has shifted the evidentiary paradigm from one solely relying on physical evidence to one based on electronic data, which has unique characteristics such as easy replication, digital storage, and the need for specialized expertise to access.

[4]Mochammad Aditia Gustawinata, Lastuti Abubakar, and Ema Rahmawati, "Reconstruction of the Role of Digital Forensics in Cyber Crime Investigation: A Critical Analysis of the Construction of Criminal Law in Indonesia Mursyid", Jurnal Tana Mana 6, no 2 (2025): 46–48, https://ojs.staialfurqan.ac.id/jtm/article/download/736/452/.

[5]Anneke Mawlidya, "Application of Digital Forensics in Identifying Fraud Perpetrators and the Role of Digital Forensics as Evidence", Journal of Law and Citizenship 5, no. 8 (2024): 1–10.

[6]Deslita Cahya Artanti en M Ruhly Kesuma Dinata, "Transformation of Evidence in the Digital Era: A Legal Review of the Use of Device Location Data as an Indication in the Crime of Article 365 of the Criminal Code"", Locus Journal of Academic Literature Review 5, no 1 (2026): 124–29.

The strengthening of the position of electronic evidence is also clarified through Constitutional Court Decision Number 20/PUU-XIV/2016, which affirms that electronic information and electronic documents are an extension of valid evidence in criminal procedure law. This decision provides legal certainty that electronic evidence, including that generated through mobile forensics, has equal standing with other evidence as regulated in the Criminal Procedure Code. Thus, there is no longer any doubt regarding the legality of using digital evidence in criminal justice processes, as long as it is obtained through legal and legally accountable procedures. This also demonstrates that the Indonesian legal system has adapted to technological developments, although normatively there is still a need to update the Criminal Procedure Code to more explicitly regulate electronic evidence.

Mobile forensics cannot be viewed as evidence in itself, but rather as a scientific method or process that produces electronic data that is then used as evidence. The evidentiary strength of mobile forensics depends heavily on the quality of the forensic process, including data collection, storage, analysis, and presentation. Principles such as authenticity, integrity, and reliability are key requirements for electronic evidence to be admissible in court.[7]The concept of chain of custody, or control of evidence, is also crucial to ensuring that the data obtained remains unchanged from the time it is first seized until it is presented in court. Without these guarantees, the validity of electronic evidence could be questioned and even rejected by the judge.

The role of mobile forensics is also strengthened through the role of digital forensic experts in the judicial process. Expert testimony explaining the methods and results of mobile forensic analysis is crucial in providing judges with an understanding of the meaning and relevance of electronic data presented as evidence. In many cases, the complexity of technology makes it impossible for judges to directly understand digital evidence without expert assistance. The presence of forensic experts bridges the gap between the technical and legal aspects of evidence. This expert testimony falls under the category of valid evidence as stipulated in Article 184 of the Criminal Procedure Code, further strengthening the position of mobile forensics in the criminal evidence system.

Despite its strong legal basis, mobile forensics' position as a tool of electronic evidence still faces various challenges in practice. One major challenge is the lack of a uniform Standard Operating Procedure (SOP) for handling digital evidence in Indonesia. Differences in the methods and tools used in forensic processes can lead to different analysis results, which ultimately impact the strength of evidence in court. Furthermore, the limited human resources competent in digital forensics also hinder the optimal use of mobile forensics. Not all law enforcement officers have sufficient technical capabilities to handle electronic evidence, often relying on specific institutions such as police forensic laboratories.

Human rights protection is also a concern in the use of mobile forensics. The process of extracting data from mobile devices must be conducted with due regard for legal aspects, such as obtaining valid seizure and search permits in accordance with criminal procedure law. Without proper procedures, the evidence obtained may be deemed legally inadmissible and potentially dismissed by a judge. The balance between effective law enforcement and the protection of individual rights is crucial when using mobile forensics as evidence.

The position of mobile forensics as electronic evidence in Indonesian criminal law can be said to have strong legal legitimacy through the Electronic Information and

[7]Dinda Restya Anggraeni en Marsha Salsabila, "Legal Analysis of the Role of Digital Forensics in Proving Criminal Acts in Indonesia", Indonesian Legal Media (MHI) 2, no 2 (2024): 593–600, https://ojs.daarulhuda.or.id/index.php/MHI/article/view/580.

Transactions Law (ITE Law) and various Constitutional Court decisions that affirm the recognition of the expansion of electronic evidence in the criminal evidence system. In the construction of criminal procedural law, mobile forensics does not stand as an independent evidence, but rather as a scientific method that produces electronic information and/or electronic documents that can then be qualified as documentary evidence or clues, and can be strengthened through expert testimony in court. This indicates a transformation of the evidentiary paradigm from one that was originally based on conventional evidence to one that is technology-based. In practice, mobile forensics results are able to reveal causal relationships, chronology of events, and even patterns of perpetrator behavior through analysis of communication data and metadata. Thus, mobile forensics functions not only as a technical aid, but also as an important instrument in building judges' confidence within the framework of the statutory evidence system in a negative manner.

The evidentiary power of mobile forensics remains limited and dependent on procedural validity. This means that legality is determined not only by the existence of the electronic data itself, but also by the process of its acquisition and management. In this regard, the principle of due process of law is crucial, particularly regarding the legality of device seizures, search warrants, and guarantees of non-violation of privacy rights. Without these requirements, digital evidence has the potential to be questioned and even excluded in court. Normatively, there is still a gap, or at least incompleteness, in technical regulations related to operational standards for mobile forensics in Indonesia. The absence of uniform national standards regarding procedures for the acquisition, analysis, and reporting of digital forensic results creates potential disparities in law enforcement practices. The limited human resources with digital forensic competencies also poses a structural obstacle that can affect the quality of evidence. More comprehensive regulatory strengthening is needed, both in the form of laws and binding technical guidelines, to ensure legal certainty and uniformity of practice. Furthermore, increasing the capacity of law enforcement officers through training and certification in digital forensics is an urgent need. With this step, it is hoped that the use of mobile forensics will not only be legally valid, but will also be able to fulfill the three main objectives of the law, namely justice, legal certainty, and utility in the Indonesian criminal justice system.

3.2 The Role of Mobile Forensics in Uncovering Murder Crimes

The development of digital technology has significantly changed the way law enforcement officers investigate crimes, particularly in increasingly complex murder cases that often involve systematic efforts to eliminate traces of the crime. In this context, mobile forensics has become a crucial tool, enabling investigators to trace, identify, and reconstruct criminal events using data stored on mobile devices.[8]When perpetrators attempt to conceal a crime by eliminating physical evidence, such as moving or hiding the victim, digital evidence becomes the primary source for uncovering the material truth. This situation demonstrates the crucial role mobile forensics plays in situations where conventional evidence is limited or has been manipulated, thereby bridging information gaps in the investigation process.

Mobile forensics plays a role in tracing the victim's last activities before the crime, including their last communication, last location, and interactions with certain parties who could potentially be perpetrators or key witnesses. Data obtained from mobile devices serves as the starting point for systematically constructing a chronology of

[8]Stefania Kandida en Sena Tiba, "Indonesian Legal Media (MHI) Implications of Rejection of Electronic Evidence Without Digital Forensic Verification: Decision Study and Juridical Analysis", Indonesian Legal Media 4, no 1 (2025): 865–68, https://doi.org/10.5281/zenodo.17946561.

events, evidence-based.[9] This allows investigators to identify patterns of relationships between the parties involved and determine the direction of their investigation in a more targeted manner. This demonstrates that mobile forensics serves not only as a technical tool but also as a strategic instrument in the investigation of murder crimes.

One of the primary roles of mobile forensics is to reconstruct digital communications between victims and other parties. Mobile devices store various types of communication data, such as text messages, call history, and conversations via internet-based applications. Through forensic data extraction techniques, investigators can access this data, even deleted data. Analysis of these digital communications allows identification of the last parties to interact with the victim, the content of the conversations, and communication patterns that may indicate conflict, threats, or specific motives. Thus, mobile forensics not only uncovers facts but also helps understand the social relationships and interaction dynamics underlying criminal acts.

Mobile forensics plays a crucial role in location tracking, helping to determine the movements of victims and perpetrators before and after an incident. Location data can be obtained through GPS, cellular operator base station data, or application metadata stored on mobile devices.[10]This information can be used to determine the victim's last known location and link it to the crime scene. Location data from the perpetrator's device can also indicate their presence near the crime scene, thus strengthening suspicions of involvement in the crime. Thus, mobile forensics significantly contributes to strengthening evidence through an objective and measurable data-driven approach.

Mobile forensics also plays a significant role in identifying suspicious digital activity patterns before and after an incident. For example, sudden data deletion, changes in communication patterns, or the use of new devices can indicate attempts to erase digital traces. In many cases, perpetrators attempt to erase communication history to avoid tracking, but through sophisticated digital forensic techniques, the data can still be recovered. This demonstrates the ability of mobile forensics to uncover data manipulation attempts by perpetrators. These indications can also be used to prove intent in the crime.

Mobile forensics plays a role in integrating various types of digital evidence into a coherent sequence of events by constructing a timeline. Communication data, location, time, and other digital activities are analyzed in an integrated manner to depict the chronological sequence of events. This timeline is crucial in the investigative process because it can help investigators determine the time of the incident, identify the parties involved, and strengthen the legal framework for criminal cases.[11]With systematic reconstruction, the proof process becomes clearer, more focused, and based on accountable evidence.

Analysis resultsMobile forensics has high evidentiary value because it is objective and data-driven. Unlike subjective witness testimony, digital data provides a more accurate picture of the events that occurred. Digital evidence generated through mobile forensics can be used to strengthen other evidence, such as witness testimony and physical evidence, thus forming a stronger evidentiary structure. In fact, under certain circumstances, digital evidence can become the primary evidence that determines the direction of the

[9]Seri Mughni, Legal Protection for Cybercrime in Cyberlaw in Indonesia: Technological Developments and Legal Challenges in Realizing Cybersecurity, 2025.

[10]Zuyu Gianto, "Use of the Post Check and Trace IMEI Applications to Find the Whereabouts of Suspects in Theft Crimes", Jurnal Sakato Ekasakti Law Review 4, no 2 (2025): 172–80.

[11]Nisep Rahmad Fitriati, Inayah Faniyah, "Technical Obstacles to Investigating Criminal Acts of Manipulation", Journal of Legal Issues 51, no. 4 (2022): 390–400, https://ejournal.undip.ac.id/index.php/mmh/.

investigation and court decisions, thus confirming the vital role of mobile forensics in the modern criminal law evidence system.[12]

Table 1. Analysis of Articles Related to Murder Cases

No	Regulation	Chapter	Brief Contents	Relevance to the Case
1	Criminal Code	Article 338	Anyone who intentionally takes the life of another person	Used if the murder is committed without prior planning
2	Criminal Code	Article 340	Murder committed with premeditation	It is relevant if it is proven that the victim was murdered in a premeditated manner before being buried.
3	Criminal Code	Article 221	Hiding the perpetrator or helping to avoid investigation	Burying the victim's body can be categorized as an effort to eliminate traces of the crime.
4	Criminal Code	Article 55 paragraph (1) point 1	Participation in a crime (perpetrator, ordering, participating)	Used if there is more than one perpetrator in the case
5	ITE Law No. 11 of 2008 in conjunction with Law No. 19 of 2016	Article 5 paragraph (1)	Electronic information as valid legal evidence	Becoming the legal basis for the use of mobile forensics as evidence
6	ITE Law	Article 32 paragraph (1)	Prohibition on damaging, removing, or hiding electronic data	Relevant if the perpetrator deletes or manipulates digital data
7	ITE Law	Article 48 paragraph (1)	Criminal sanctions for violations of Article 32	Regulates the threat of punishment for destroying digital evidence
8	Criminal Procedure Code	Article 184	Types of valid evidence in criminal law	Be the basis of the evidence system including electronic evidence as an extension
9	Constitutional Court Decision No. 20/PUU-XIV/2016	-	Strengthening of electronic evidence	Strengthening the position of digital evidence in proof

The role of mobile forensics in solving murder cases is not without its challenges. One of the main challenges is the ever-evolving complexity of technology, including increasingly sophisticated device security systems and the use of encryption, which can hinder data extraction. Furthermore, the limited availability of human resources with expertise in digital forensics also hinders the optimal use of mobile forensics. In this case, the success of the investigation depends heavily on the ability of law enforcement officers to utilize forensic technology optimally and professionally.

The legal aspect is a crucial factor in the use of mobile forensics as a tool in the process of proving criminal acts. The process of collecting, securing, and analyzing digital data must be carried out in accordance with applicable legal procedures, including obtaining valid seizure and search permits based on the provisions of criminal procedure law. This aims to ensure that the evidence obtained has legal force and does not violate human rights, particularly regarding privacy and personal data protection. The application of mobile forensics must always adhere to the principles of legality, accountability, and

[12]mansikanal haq Siti Farhana, Anis Rifai, Saida Putri Syafia, "Regulation of Online Gambling Crimes According to the Economic and Technological Legal System in Indonesia", Begawan Abioso 16, no 2 (2025).

transparency so that the results of the analysis can be accepted as valid evidence in court. Mobile forensics plays a vital role in solving murder crimes, especially in situations where the perpetrator attempts to eliminate or conceal evidence. Through its ability to extract, recover, and analyze digital data, mobile forensics can uncover facts that are not readily apparent and assist investigators in reconstructing events objectively and scientifically. This approach makes a significant contribution to strengthening technology-based evidence that is more accurate and accountable. Thus, mobile forensics not only functions as an investigative tool, but has developed into a primary instrument in the criminal law evidence system in the increasingly complex digital era.

3.3 Legal Analysis of the Evidential Strength of Mobile Forensics in Murder Cases

A legal analysis of the evidentiary power of mobile forensics in murder cases indicates that electronic evidence generated through digital forensics has an increasingly strategic position in the Indonesian criminal justice system. In the context of criminal procedural law, valid evidence is normatively regulated by Article 184 of the Criminal Procedure Code (KUHAP), but technological developments have encouraged an expansion of interpretations of this type of evidence.[13]Through the ITE Law, specifically Article 5 paragraph (1), electronic information and/or electronic documents have been recognized as valid legal evidence, thus providing a strong legal basis for the use of mobile forensic results in the evidence process.[14]

The strength of mobile forensic evidence lies in its objective, data-driven, and scientifically verifiable nature. Unlike witness testimony, which can be influenced by subjectivity or memory limitations, digital evidence generated through forensic processes has a high degree of accuracy because it originates from electronic systems that automatically record activity.[15]In murder cases, particularly those involving the destruction of evidence, such as the burial of the victim's body, mobile forensics can fill in the gaps in information that cannot be obtained from physical evidence. For example, through analysis of location and communication data, investigators can reconstruct the chronology of events more precisely, determine the time of death, and identify parties connected to the victim. Thus, mobile forensics not only serves as supplementary evidence but, in many cases, can be the primary piece of evidence that determines the direction of the investigation.

The evidentiary power of mobile forensics is not absolute and must still meet strict legal requirements to be admissible in court. The principles of authenticity, integrity, and reliability are key requirements in assessing the validity of electronic evidence. The concept of chain of custody is also crucial to ensuring that the data obtained remains unchanged from the time it is first seized until it is presented in court.[16]In practice, every stage of the mobile forensics process, from device seizure and data extraction to analysis and reporting, must be conducted in accordance with legal and well-documented procedures. Failure to comply with these

[13]Ni Putu Sri Virdayanti, "Conceptual Analysis of the Use of Technology in Criminal Investigations in Indonesia", Journal of Legal Studies and Citizenship Education 1, no. 3 (2025): 333–39.

[14]Herdino Fajar Gemilang en Handar Subhandi Bakhtiar, "Reviewing Digital Forensic Science on Electronic Evidence in Information Crimes and Electronic Transactions", Journal of Legal Studies 12, no September (2024): 45–56.

[15]Annisa Nur et al., "The Effect of the Use of Forensic Technology on the Accuracy of Suspect Identification in the Investigation Process", Journal of Legal Studies and Citizenship Education 2, no. 1 (2025): 132–41, https://jurnal.globalscients.com/index.php/jkhpk.

[16]Gebby Cantika Sinaga, "Criminal Law Policy on Electronic Evidence: Between Existence, Obstacles to Use, and the Urgency of Regulating It in the Criminal Procedure Code", Acta Law Journal 1, no 1 (2022): 26–34.

procedures can potentially invalidate the resulting electronic evidence, or even exclude it, due to a violation of the principle of due process of law.

Legal analysis also needs to consider the various challenges faced in using mobile forensics as evidence in murder cases. One major challenge is the potential for digital data manipulation, which can obscure the truth if not analyzed in depth by competent experts. Furthermore, technological developments such as encryption and increasingly sophisticated device security systems can hinder the data extraction process. In this context, the role of digital forensics experts is crucial in explaining analysis methods and results to judges for comprehensive understanding. Therefore, although mobile forensics has high evidentiary value and is legally recognized, its effectiveness depends heavily on the professionalism of law enforcement officers, adherence to legal procedures, and adequate regulatory support to address the dynamics of crime in the digital era.

4. CONCLUSION

The conclusion of this study indicates that mobile forensics has a very important and strategic position as electronic evidence in the criminal law evidentiary system in Indonesia. Legally, the existence of mobile forensics has gained legitimacy through the ITE Law which recognizes electronic information and/or documents as valid evidence, and is strengthened by various Constitutional Court decisions that affirm the expansion of the meaning of evidence in criminal procedural law. Mobile forensics functions not only as a technical instrument, but also as an integral part of the modern, technology-based evidentiary system.

In the context of murder, mobile forensics plays a significant role in uncovering legal facts beyond the reach of conventional evidence. Analysis of communication data, location data, and digital activity allows for a chronological, objective, and scientifically based reconstruction of events. This has implications for strengthening the evidence for elements of the crime, including intent and planning, which are often difficult to prove directly. Thus, mobile forensics plays a role not only as supporting evidence but also as a determining factor in shaping the judge's conviction in rendering a verdict. The use of mobile forensics as electronic evidence is not without its challenges, both technical and legal.

Normatively, the strength of evidence depends heavily on the fulfillment of the principles of authenticity, integrity, and reliability, as well as the implementation of a strict chain of custody to ensure there is no data manipulation. From a procedural law perspective, the legality of the process of acquiring digital evidence, such as seizure and search procedures, is also a crucial factor in determining whether the evidence is valid in court. There remains a technical-operational regulatory gap regarding mobile forensics standards in Indonesia, which has the potential to create disparities in law enforcement practices. The limited human resources competent in digital forensics also poses a structural obstacle that affects the optimal use of this evidence. Legal reform is needed through strengthening more comprehensive regulations, developing integrated standard operating procedures (SOPs), and increasing the capacity of law enforcement officers through training and certification in digital forensics. With this strengthening, mobile forensics is expected to function optimally as electronic evidence that is not only legally valid but also capable of ensuring the fulfillment of the principles of justice, legal certainty, and utility in the Indonesian criminal justice system in the digital era.

SUGGESTION

Based on the research findings, more comprehensive efforts are needed to strengthen the role of mobile forensics as electronic evidence in Indonesia's criminal justice system. Furthermore, increasing human resource capacity and standardizing procedures for handling digital evidence are urgently needed to ensure the validity and

strength of evidence in court, thereby supporting an objective, transparent, and just legal process.

1. There is a need for updates to criminal procedural law that explicitly regulate the position and procedures for using mobile forensics as electronic evidence to ensure legal certainty and uniformity of practice.
2. Law enforcement officers need to improve their mobile forensics capabilities through ongoing training and certification to make the evidence-gathering process more accurate and professional.
3. An integrated SOP is needed regarding the management of digital evidence to ensure the authenticity, integrity, and validity of data in legal processes.

The government needs to provide adequate technology, facilities, and budget support to make the digital evidence analysis process more effective and optimal.

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