MOBILE FORENSIC EVIDENCE: DATA EXTRACTION TO COURTROOM EVIDENCE

Kailashika Verma, LL.M. (Cyber Law and Cyber Crime Investigation), NFSU, Bhubaneswar, Odisha

ABSTRACT

Digital evidence has become a significant component of criminal adjudication, with its admissibility and procedural requirements, clearly laid down by law. Yet, in practice, its evidentiary value is often diluted at the stage of production before courts. This research work examines how digital forensic, with special refence to mobile forensics outputs, despite technical precision, often enter the courtroom as undifferentiated and large volumes of data. This makes it difficult to isolate and appreciate material that is truly of incriminating value. Upon observation of forensic practices and evidentiary principles, the study critically analyses the structural tendency of digital forensic reporting to favor exhaustive data extraction rather than a selective, context-driven presentation of material that is materially relevant.

This study proposes a change in digital forensic practice and procedure, suggesting a more hybrid, purposeful and investigative approach, as opposed to recovery-based process. The goal is to identify incriminating evidence without compromising scientific objectivity during the forensic investigation. By addressing the gap between data extraction, reporting and effective presentation, the research aims to strengthen the role of digital evidence and improve its usefulness in the criminal justice system.

Keywords: digital and mobile forensics, digital forensic evidence, digital evidence, forensic investigation, purposive forensics, forensic reporting, crime investigation, evidence collection.

1. Introduction

Smart mobile phones have become a central and indispensable component of human life, enabling instantaneous communication, entertainment, banking, commerce and governance, among many other features through internet connectivity. A large section of population of India owns and uses at least one mobile phone, carrying them with themselves, in pockets and purses, throughout the day. From a forensic perspective, this inseparable nature of mobile phones from their owners, and, the wide range of functionalities offered, make them a source of rich and reliable evidence. Further, the diverse set of data carried within smartphones also creates opportunities for investigation and analysis aimed at event reconstruction and drawing strong nexus of suspect with the crime.

However, the growing technical capability to retrieve data from mobile devices has not been matched by a corresponding clarity in its effective use before courts. In practice, digital forensic outputs frequently enter the courtroom in the form of extensive and undifferentiated datasets. While such outputs are technically accurate and comprehensive, they often lack the structure and focus necessary to assist judicial determination. The consequence is not an absence of evidence, but a difficulty in isolating material that carries real incriminating value. Courts are thus required to navigate large volumes of data without clear guidance on its evidentiary significance.

This challenge is further compounded by the distinct nature of mobile forensic evidence. Unlike traditional branches of forensic science, which typically present conclusions in probabilistic terms, mobile forensics deals with data capable of more direct reconstruction of events. Yet, questions of attribution, possession, and, user control continue to limit the evidentiary value of such material. The mere presence of incriminating content on a device does not, by itself, conclude upon who generated, accessed, or controlled that content at any given point of time.

This paper proceeds on the premise that the difficulty does not lie in the admissibility or technical reliability of mobile forensic evidence, but, in its translation into legally meaningful proof. It examines the processes through which mobile data is extracted, reported, and presented, and identifies a structural tendency towards exhaustive data production at the cost of evidentiary clarity. In doing so, it highlights a broader disconnect between forensic practices and the requirements of criminal adjudication.

The paper ultimately argues for a reorientation of mobile forensic practices towards a more context-driven and investigative approach. Without compromising scientific neutrality, forensic reporting must move beyond mere data recovery to the identification and articulation of material that is legally relevant. By addressing the gap between extraction and effective presentation, the study seeks to contribute to a more coherent and purposeful integration of mobile forensic evidence within the criminal justice system.

2. Nature and Characteristics of Mobile Forensic Evidence

Mobile forensics is a specialized branch of digital forensics that dedicatedly deals with mobile devices such as smartphones, tablets, SIM cards and removable storage media such as SD-cards. In context with forensic investigation in pursuance of criminal justice, mobile phones have emerged as one of the most significant sources of evidentiary material. The reason for such value is due to their embedded integration into an individuals personal, financial and social lives. Hence, mobile devices store and retain a substantial breadth of continuous data, such as activity logs, location logs, run and access times, usage history, etc., along with other forms of media.

For instance, on the collection of a smart phone from a crime scene, a variety of data may be acquired from it. Firstly, a mobile phone may carry SIM(s) and additional storage media. The data that can be procured therefrom, collectively, are: communication records, media files, browsing histories and internet logs, software and application data, geolocation logs, metadata and time stamps, and records of user interaction. Some deleted information may also be recovered. All of this data and information acquired is capable of reconstructing timelines, identifying nexus between individuals and places, tracing behavioral patterns and establishing the events related to commission of an offence. Consequently, mobile forensic evidence differs from many traditional forms of forensic evidence in that it is not merely corroborative, but often reconstructive in nature.

Another core characteristics and point of distinction with regards to mobile forensics from other branches of forensic sciences is the nature of outcome of investigation. Such as in a case of DNA forensics, if a sample is collected, it will give out some probability-based outcome; either the being is identified (such as human blood, human hair, animal blood, animal hair, etc.) or the sample is matched with another suspicious exhibit and their match probability is calculated and concluded as a result of the forensic analysis and investigation. However, in case of Mobile

forensics, the findings are in the form of large volumes of data which can be used to potentially draw nexus between the device and person as well as person and incident of crime. While, the mere presence of incriminating material on a mobile phone, does not automatically establish authorship, possession, or control; the evidence is of 'primary' nature. It is due to this space for doubt that, even upon the electronic evidence being primary in nature, the value is still corroborative. Courts assess the issues of attribution, authenticity, and contextual relevance before assigning evidentiary weight to such material.

Another defining feature of mobile forensics evidence is the complexity and volume of findings. Contemporary forensic tools are capable of extracting varied data which is extremely voluminous; from seized devices with much technical precision. However, the data that is extracted is a mix of relevant and irrelevant information. Hence, the large outputs, in practice may overwhelm investigators, prosecutors and courts. A consequence of it is the loss of meaningful information, which can be treated as relevant evidence, in the data noise; creating a recurring and concerning problem.

This paper proceeds on the premises that the difficulty does not lie in the admissibility or technical reliability of mobile forensic evidence, but in its translation into legally meaningful proof. It examines the processes through which mobile data is extracted, reported, and presented, and identifies a structural tendency towards exhaustive data production at the cost of evidentiary clarity. In doing so, it highlights a broader disconnect between forensic practices and the requirements of criminal adjudication.

3. Legal Framework Governing Mobile Forensic Evidence in India

The legal recognition and framework for admissibility of electronic and mobile evidence in India has developed significantly since the enactment of the Information Technology Act, 2000[1] at the beginning of this century. The law duly acknowledges the integration of mobile devices into daily lives, their variety of usages along with commission of crime; and their value as evidences. The Act of 2000 made significant changes in the Indian Evidence Act, 1872 through inclusion of provisions relating to the recognition, requirements and relevance of electronically stored information. The position of law now stands further reinforced and restructured under the Bharatiya Sakshya Adhiniyam, 2023[2]; a component of India's new

[1] Information Technology Act, No. 21 of 2000 (India).
[2] Bharatiya Sakshya Adhiniyam, No. 47 of 2023 (India).

criminal law regime.

The data procured from mobile devices finds its admissibility under the Bhartiya Sakshya Adhiniyam; Section 2(1)(d) of which includes *"electronic and digital records"* within the definition of "*document*", while Section 2(1)(e) recognizes such records as "*evidence*"[3]. Further, the conditions of such admissibility are laid down under Sections 61 to 63 of the same legislation, wherein requirements for admissibility such as scientific examination and certification thereof is necessary for establishing the authenticity and integrity of the electronic evidence which serves central for reliance on secondary electronic evidence.

An important aspect of the legal treatment of mobile forensic evidence is the distinction between the original electronic device and the copies or outputs generated from it. Indian courts have increasingly recognized that where the original device itself is produced before the court, it may constitute primary electronic evidence. By way of this premise, mobile devices seized from suspects and scenes of crimes constitute primary electronic evidence.

The Supreme Court of India in *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal*[4] clarified that the requirement of certification of electronic evidence arises principally where secondary electronic evidence is sought to be produced before the court. Meaning, where the original electronic record itself is produced before the court, the requirement of accompanying certification becomes less rigid.

This distinction acquires particular relevance in cases involving mobile phones. A mobile device is not merely a storage instrument. In many investigations, it effectively becomes the primary site from which communication patterns, movements, photographs, internet activity, and user conduct are reconstructed. The evidentiary significance therefore lies not only in the extracted chats or screenshots placed before the court, but in the device as an original electronic source itself. Certain High Courts have also acknowledged this position. In *Raj Kumar v. State of NCT Delhi*, the Delhi High Court observed that where the original mobile phone containing the electronic material was itself produced, the insistence on a Section 65B certificate would not arise in the same manner as it would for secondary copies.[5] This judicial approach reflects an important interpretative shift. Courts now appear more conscious of the fact that electronic

[3] *Supra* at §§ 2(1)(d), 2(1)(e).
[4] *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal*, (2020) 7 SCC 1.
[5] *Raj Kumar v. State*, CRL.A. 232/2016 (Del. HC).

evidence cannot always be treated identically to conventional documentary evidence. At the same time, recognizing a mobile phone as primary electronic evidence does not automatically resolve questions of attribution or guilt. The presence of incriminating material on a device may establish existence of data, but not necessarily authorship, control, or intent. That distinction remains central to criminal adjudication and perhaps explains why courts continue to exercise caution even in cases involving apparently strong digital material.

4. Mobile Forensic Examination

The evidentiary value of mobile forensic evidence is closely tied to the manner in which it is collected, preserved, examined, and eventually produced before the court. Unlike conventional physical evidence, digital material is inherently volatile and vulnerable to alteration, whether intentional or accidental. The credibility of the evidence often depends not only upon what is recovered from a device, but also upon whether the process of recovery itself inspires confidence.

The forensic process ordinarily begins at the stage of seizure. Mobile phones are frequently recovered during arrest, search operations, surveillance actions, or pursuant to disclosure by the accused. At this stage, investigating agencies are expected to ensure preservation of the device in a manner that prevents tampering, remote access, or data modification. This becomes particularly relevant because contemporary smartphones remain continuously connected to cloud services, networks, and remote synchronization systems. Improper handling at the point of seizure may therefore compromise the integrity of potential evidence even before forensic examination begins.

The Bharatiya Nagarik Suraksha Sanhita, 2023 empowers investigating authorities to conduct search and seizure operations in relation to material relevant to criminal investigation. In practice however, the procedural handling of mobile devices still varies significantly across investigations. While specialized agencies may follow established digital evidence preservation protocols, routine seizure practices often continue to treat mobile devices similarly to ordinary physical objects, despite their fundamentally different evidentiary nature.

Following seizure, devices are generally forwarded to forensic laboratories for scientific examination. The role of the forensic examiner at this stage is primarily technical. Through specialized forensic tools and extraction software, the examiner attempts to acquire and

preserve the data stored within the device without altering its original state. Depending upon the condition and security architecture of the device, the extraction process may involve logical extraction, file system extraction, or physical extraction methods.[6] These processes are designed to recover both visible and deleted data, including chats, call records, application logs, photographs, browsing history, metadata, and location information.

Internationally, digital forensic examination is guided by certain widely accepted principles concerning preservation, integrity, and handling of electronic evidence. Internationally, digital forensic examination is guided by certain widely accepted principles concerning preservation, integrity, and handling of electronic evidence. The Association of Chief Police Officers (ACPO) in the United Kingdom laid down one of the earliest and most influential principles of digital evidence handling, emphasizing that no action should change data which may subsequently be relied upon in court.[7] Similar concerns relating to integrity and repeatability are also reflected in the guidelines developed by the National Institute of Standards and Technology (NIST), which stress upon preservation of original evidence and proper documentation of forensic processes during acquisition and examination.[8] The Scientific Working Group on Digital Evidence (SWGDE) has likewise emphasized methodological consistency and reproducibility in forensic procedures involving electronic devices.[9]

The Indian position has also increasingly moved toward strengthening forensic and digital investigative infrastructure. Government initiatives relating to forensic modernization, expansion of cyber forensic laboratories, and digitization of criminal investigation processes indicate a growing institutional recognition of the role of electronic evidence within contemporary criminal justice administration.[10] At the same time, the rapid increase in cyber enabled offences and digital dependency has also resulted in substantial growth in the volume of electronic evidence reaching investigative agencies and forensic laboratories.[11] This expansion, while technologically significant, has simultaneously intensified practical concerns relating to examination capacity, evidentiary management, and meaningful presentation of extracted material before courts.

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[6] Eoghan Casey, Digital Evidence and Computer Crime 265–72 (3d ed. 2011).
[7] Association of Chief Police Officers, *Good Practice Guide for Digital Evidence* 7 (5th ed. 2012).
[8] Nat'l Inst. of Standards & Tech., *Guidelines on Mobile Device Forensics*, NIST Special Publication 800-101 Rev. 1 (2014).
[9] Scientific Working Group on Digital Evidence, *Best Practices for Computer Forensics* (2018).
[10] Ministry of Home Affairs, Government of India, *Modernisation of Forensic Capacities Scheme* (India).
[11] Nat'l Crime Recs. Bureau, *Crime in India Report 2022* (2023).

These developments demonstrate that the contemporary challenge in mobile forensics is no longer confined to technical recovery of data alone. Increasingly, the concern appears to be how recovered information is organized, interpreted, and translated into evidence that remains comprehensible and legally useful within the adjudicatory process.

An important distinction must however be maintained between forensic examination and forensic investigation. Scientific examination concerns the technical retrieval and authentication of data. Investigation, on the other hand, concerns interpretation of that data in relation to the alleged offence. In practice, forensic laboratories frequently receive broad and generic requisitions from investigating agencies. Requests such as "retrieve all chats," "extract complete phone data," or "analyze device contents" are not uncommon. Consequently, forensic outputs often prioritize comprehensive extraction over evidentiary relevance.

This approach reflects a largely recovery-oriented understanding of digital forensics. The emphasis remains upon successful extraction of maximum available data, rather than identification of material that is materially significant to the facts in issue. As a result, forensic reports may contain extensive volumes of raw data with limited contextual organization. While such reports may satisfy technical completeness, they do not always assist effective evidentiary appreciation before courts.

The issue becomes more pronounced because mobile forensic evidence differs substantially from other branches of forensic science. Traditional forensic disciplines such as serology, fingerprint examination, or ballistic analysis usually communicate findings in comparatively focused and probabilistic terms. Mobile forensics, by contrast, has the capacity to reconstruct timelines, behavioral patterns, communication networks, and user activity with considerable specificity. Yet this reconstructive potential often remains underutilized when forensic reporting is reduced to mere extraction and reproduction of data.

At present, the forensic process appears structurally inclined towards neutrality through over inclusion. Examiners frequently avoid selective identification of incriminating material in order to preserve scientific objectivity and avoid allegations of interpretative bias. While this caution is understandable, its practical consequence is that courts are often confronted with large quantities of technically recovered material without sufficient evidentiary prioritization. The burden of identifying legally relevant evidence therefore shifts back onto investigators, prosecutors, and judges, many of whom may not possess specialized technical expertise.

The process from seizure to extraction thus reveals a central tension within mobile forensics. The scientific capability to recover data has evolved considerably, but the mechanisms for translating that data into coherent and legally meaningful evidence remain comparatively underdeveloped. This disconnect forms one of the most significant practical challenges in the contemporary use of mobile forensic evidence within criminal adjudication.

5. Evidentiary Noise, Attribution, and the Limits of Mobile Forensic Proof

The growing dependence upon mobile forensic evidence in criminal trials has introduced a different kind of evidentiary challenge, one that is less about admissibility and more about interpretation. Modern forensic tools are capable of extracting varied data which is extremely voluminous; from seized devices with much technical precision. Text messages, photographs, call and location details, application data and even deleted files can be recovered and extracted through forensic examination. However, upon such data retrieval, challenge arises in determining what part of the data carries incriminating value.

In practice, forensic reports frequently contain exhaustive extractions of device data. The process of forensic examination begins with a letter from an appropriate authority, usually the police or other investigating agencies. The letter requesting forensic examination of an exhibit, along with the particulars thereof, also specifies the scope and extent of examination and analysis. Ranging from entire chat histories, image folders, application records, and system generated logs are often reproduced as part of the forensic output. While such reports may satisfy technical standards of completeness, they do not always assist effective evidentiary appreciation. Courts and investigating agencies are left to navigate extensive datasets in search of materially relevant information. As a result, genuinely significant evidence may become buried within large quantities of neutral or irrelevant data. The issue therefore is not necessarily absence of evidence, but absence of clarity.

This problem becomes more complicated because digital evidence rarely speaks for itself. Unlike a conventional document, a chat message or a location record cannot always be understood in isolation. Questions of attribution further complicate the matter. Courts have consistently exercised caution in treating the mere presence of incriminating material on a device as conclusive proof against an accused person. A mobile phone may establish existence of data, but not necessarily authorship or control. Devices may be shared, remotely accessed, manipulated, or used by multiple individuals over a period of time.

The Supreme Court of India has also acknowledged the distinct nature and value of electronic evidence from conventional forms of physical, chemical and biological evidence. In its judgment in the case of *Anvar P.V. v. P.K. Basheer*[12], the court recognized the inherent vulnerability of electronic records which is precisely why special procedural safeguards are necessary when dealing with digital and electronic evidence. This understanding was further reinforced in *Arjun Panditrao Khotkar v. Kailash Kushanrao Gorantyal*[13]. The stress upon maintaining authenticity and reliability in the process of admitting e-evidence is not a sign of reluctance of reliance on technology, but to ensure integrity of evidence and ensuring of justice.

At the same time, mobile forensic evidence has a quality that makes it particularly valuable in criminal investigations. Unlike many traditional forensic disciplines that largely provide expert opinions in probabilistic terms, mobile forensics often allows investigators to reconstruct sequences of events with considerable detail. Communication records, internet activity, timestamps, location traces, and patterns of device usage can collectively provide insight into behavior and chronology in a way that few other forms of evidence can. Yet, despite this potential, forensic reporting in practice often remains focused on broad extraction and preservation of data rather than contextual interpretation of material that may actually assist adjudication. In attempting to remain completely neutral and exhaustive, forensic outputs sometimes end up presenting everything equally, even where only certain portions may carry real evidentiary significance.

The challenge, therefore, is not one of forensic capability alone. It is equally a question of evidentiary translation. Mobile forensic evidence must eventually move beyond technical recovery and become legally comprehensible proof. Unless relevant material is identified, contextualized, and presented in a manner that meaningfully assists adjudication, the increasing volume of digital evidence may continue to produce more information without necessarily producing greater evidentiary certainty.

6. The Legal and Scientific Disconnect in Forensic Reporting

One of the more understated difficulties in the use of mobile forensic evidence within criminal trials lies in the disconnect between scientific examination and legal utility. Presently, forensic reporting in digital investigations appears to function largely through an extraction centric

[12] *Anvar P.V. v. P.K. Basheer*, (2014) 10 SCC 473.
[13] *Supra 4*

model, where the primary objective is successful recovery and preservation of data from the device. From a scientific standpoint, this approach is understandable. Forensic laboratories are expected to maintain neutrality, avoid interpretative overreach, and preserve the integrity of electronic material through technically sound procedures. Yet, the problem begins when scientific completeness is mistaken for evidentiary usefulness.

Forensic reports that make their ways to the court are often huge, bulky and often the opportunity to revisit and examine them is lost because of want of specific tools, systems and infrastructure. The reports are technically accurate and procedurally compliant, but they frequently stop at the stage of reproduction. Very little distinction is made between material that is merely recoverable and material that is legally significant to the facts in issue. As a consequence, courts and investigating agencies are often left to independently identify what part of the forensic output actually contributes toward proving the offence alleged. This creates a situation where evidence exists, but its probative value is insufficiently articulated. The issue is not necessarily attributable to lack of expertise within forensic laboratories. Rather, it appears to stem from the institutional understanding of the role of forensic science itself. Traditionally, forensic examiners are trained to function as neutral scientific experts whose responsibility ends with objective recovery and authentication of material.[14] Any attempt to selectively identify incriminating portions may sometimes be viewed as entering the domain of investigation or advocacy.

However, mobile forensics differs from several conventional forensic disciplines in one important respect. Disciplines such as serology, fingerprint analysis, or ballistic examination generally provide focused expert conclusions on specific evidentiary questions. Mobile forensic examination, on the other hand, generates behavioral and chronological data capable of reconstructing human activity in considerable detail.

At present, this interpretative dimension remains structurally underdeveloped within forensic reporting. Investigating agencies frequently send broad requisitions to forensic laboratories seeking complete extraction of device contents, without sufficiently identifying the evidentiary issues requiring examination. In response, forensic outputs often prioritize maximum data recovery rather than issue-specific investigation. The process thus becomes technologically comprehensive but legally diffuse. In attempting to preserve scientific neutrality, reports

[14] *Supra* 6 at 41-46

sometimes become detached from the practical requirements of criminal adjudication.

This disconnect eventually affects courtroom appreciation of digital evidence. Judges are often confronted with highly technical and voluminous records without any meaningful evidentiary prioritization. Prosecutors similarly may not possess the technical expertise required to navigate extensive forensic datasets. The result is that mobile forensic evidence, despite its potential strength, may underperform during trial not because the evidence is weak, but because its significance is insufficiently translated into legally comprehensible form.

The concern here is not that forensic laboratories should abandon neutrality or assume the role of investigators. Scientific independence remains fundamental to the credibility of forensic evidence. Nevertheless, there appears to be a legitimate need for a more context responsive and investigative orientation within digital forensic reporting itself. Such an approach would not require examiners to determine guilt, but rather to identify and organize material that bears direct evidentiary relevance to the facts under investigation. Without some degree of contextualization, the growing sophistication of forensic technology may continue to generate greater quantities of data without necessarily improving the quality of proof before courts.

The problem, therefore, is not simply technological. It is institutional and interpretative. Mobile forensic evidence today stands at an intersection between science and law, yet the two often continue to operate in parallel rather than in coordination. Bridging this gap may ultimately become essential if digital evidence is to realize its full evidentiary value within the criminal justice system.

7. Recommendations: Towards a More Context Responsive Framework for Mobile Forensics

The increasing dependence upon mobile forensic evidence in criminal investigations makes it necessary to reconsider the present structure of forensic reporting and examination. At present, the system appears heavily oriented toward extraction and preservation of data, often treating completeness of recovery as the primary objective. While technical thoroughness remains essential, the evidentiary usefulness of digital material cannot always be measured merely by volume of extraction. In many cases, the real difficulty begins after the forensic process is completed, when courts and investigating agencies are required to interpret large quantities of data without sufficient contextual guidance.

A more effective approach may require mobile forensics to evolve beyond a purely recovery based model toward a more context responsive and investigative framework. This does not suggest that the forensic examiners should assume the role of investigators or compromise scientific neutrality. Rather, it suggests that the forensic reporting should become more pro-active and answer the factual issues relevant to the investigation. Identification of communication patterns, sequencing and reconstruction of events and timelines, or highlighting material directly connected to the alleged offence may significantly improve the evidentiary value of forensic outputs without undermining objectivity.

Such an approach would also require better coordination between investigating agencies and forensic laboratories at the stage of examination. Presently, requisitions sent for forensic analysis are often broad and mechanically worded, seeking complete extraction of device contents without clearly identifying the evidentiary purpose of the examination. More issue specific requisitions may enable forensic analysis to proceed in a manner that is legally focused while remaining scientifically independent.

There is also a broader institutional dimension to this issue. A possible procedural solution may lie in adopting a more structured, two layered model of forensic reporting in cases involving mobile devices. The first component may consist of a complete forensic extraction archive containing the entirety of recovered device data, preserved primarily for purposes of evidentiary integrity, transparency, and future verification. Such preservation remains necessary because electronic evidence is inherently capable of r- examination and subsequent scrutiny during trial.[15] However, alongside this technical archive, a second and more issue oriented evidentiary report may also be prepared.

This secondary report need not compromise scientific neutrality or selectively suppress material. Rather, its purpose would be to organize and identify data that bears direct relevance to the factual issues under investigation. Timelines of communication, correlations between device activity and alleged incidents, recurring interaction patterns, geolocation references, deleted material linked to the occurrence, and other contextually significant findings may be presented in a more structured and comprehensible manner. In many ways, such an approach would resemble the focused reporting already visible in certain traditional forensic disciplines, where the expert report does not merely reproduce raw observations but explains their

[15] *Supra* 4

evidentiary significance in relation to the matter under examination.[16]

A distinction of this nature may also reduce the practical burden presently placed upon courts and prosecutors who are often required to independently navigate voluminous forensic datasets without specialised technical assistance. Importantly, the objective here is not to transform forensic examiners into investigative authorities, but to improve the intelligibility and evidentiary utility of digital forensic outputs within criminal trials. As digital investigations become increasingly data intensive, the effectiveness of forensic evidence may depend as much upon organization and contextual presentation as upon extraction capability itself.

Digital evidence today exists at the intersection of law, investigation, and technology, yet these fields often continue to operate in isolation from one another. A limited integration of legal understanding within forensic processes may therefore assist in improving the manner in which technical findings are translated into admissible and materially relevant evidence. This need not alter the neutral character of forensic science. Instead, it may help ensure that technologically accurate findings are also capable of meaningful judicial appreciation.

Ultimately, the objective is not to reduce forensic reporting to selective advocacy, but to improve evidentiary clarity within criminal adjudication. As digital evidence continues to occupy a more central place in criminal trials, the effectiveness of mobile forensics will increasingly depend not only upon what data can be recovered, but upon how coherently that data can be connected to legally relevant facts before the court.

8. Conclusions

The role of mobile forensic evidence within criminal adjudication has expanded considerably over the last decade. Mobile phones today are no longer peripheral objects in criminal investigations. They frequently function as repositories of communication, movement, behavior, and chronology, often providing investigators with a detailed digital reconstruction of human activity. The legal framework governing electronic evidence in India has also evolved substantially through statutory recognition under the Bharatiya Sakshya Adhiniyam, 2023 and judicial interpretation by the Supreme Court. Questions relating to admissibility are now far more settled than they once were.

[16] *Supra* 6 at 31

Yet, despite these developments, the practical use of mobile forensic evidence continues to present important challenges. This paper has attempted to show that the central difficulty is not necessarily the absence of forensic capability or technological infrastructure. Rather, the issue lies in the manner in which digital material is extracted, organized, interpreted, and ultimately presented before courts. The present structure of forensic reporting appears largely extraction centric, prioritizing comprehensive recovery of data while often leaving evidentiary interpretation to investigators and judges. In many cases, the consequence is that materially significant evidence becomes obscured within large volumes of technically accurate but insufficiently contextualized information.

The paper has also highlighted the distinct nature of mobile forensic evidence. Unlike several traditional branches of forensic science that largely operate through probabilistic conclusions, mobile forensics possesses a reconstructive quality capable of assisting courts in understanding sequence of events and patterns of conduct. At the same time, concerns relating to attribution, authorship, and manipulation continue to justify judicial caution toward digital material. This makes contextual interpretation particularly important in the process of proving electronic evidence.

The study therefore argues that the future effectiveness of mobile forensic evidence may depend upon developing a more context responsive and legally informed framework of forensic reporting. Such an approach need not compromise scientific neutrality or transform forensic laboratories into investigative agencies. However, a greater degree of coordination between forensic processes and evidentiary requirements may substantially improve the manner in which digital evidence is appreciated within criminal trials.

Ultimately, the value of mobile forensic evidence cannot be measured only by the quantity of data that technology is capable of recovering. Its real evidentiary strength lies in the ability to meaningfully connect digital material to legally relevant facts. As criminal investigations continue to become increasingly technology driven, the challenge before the criminal justice system will not simply be to recover more data, but to ensure that recovered data can function as coherent and reliable proof before the court of law.