

Digitalization of criminal proceedings and the changing responsibilities of public prosecutors in India

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Abstract

The rapid digitalization of the criminal justice system in India has fundamentally transformed the manner in which criminal proceedings are initiated, investigated, prosecuted, and adjudicated. Technological innovations such as e-FIRs, electronic filing systems, virtual hearings, digital evidence management, video conferencing, artificial intelligence-assisted legal research, electronic summons, and online judicial databases have introduced unprecedented efficiency and transparency into criminal administration. The enactment of the Bharatiya Nagarik Suraksha Sanhita, 2023 (BNSS), Bharatiya Nyaya Sanhita, 2023 (BNS), and Bharatiya Sakshya Adhinyam, 2023 (BSA) has accelerated this transformation by embedding digital procedures directly into substantive and procedural criminal law. These reforms have significantly altered the institutional role and functional responsibilities of public prosecutors in India.

Traditionally, public prosecutors functioned primarily as courtroom advocates responsible for presenting evidence, examining witnesses, and assisting courts during trials. However, in the era of digital justice, prosecutors are increasingly expected to manage electronic evidence, supervise technologically sophisticated investigations, coordinate with cyber forensic experts, ensure compliance with digital procedural safeguards, conduct virtual prosecutions, and protect constitutional rights within technologically mediated judicial environments. The integration of digital tools has expanded prosecutorial accountability while simultaneously creating new ethical, procedural, and institutional challenges.

This article critically examines the digitalization of criminal proceedings in India and analyzes its impact on the evolving role of public prosecutors. It explores the legal framework governing digital criminal justice, including the Information Technology Act, 2000, the e-Courts Mission Mode Project, the BNSS, and the Bharatiya Sakshya Adhinyam. The study further evaluates how prosecutors are adapting to electronic evidence management, cybercrime litigation, virtual court proceedings, online witness examination, and data-driven prosecution systems. Special emphasis is placed upon prosecutorial responsibilities relating to privacy protection, cybersecurity, digital ethics, evidentiary integrity, and procedural fairness.

The article also examines major judicial developments supporting virtual proceedings and electronic service of summons under the BNSS. Contemporary developments indicate that

Indian courts increasingly recognize digital mechanisms such as video conferencing and electronic communication as legitimate components of criminal adjudication.

The study concludes that digitalization has transformed the office of the public prosecutor from a traditional litigation-oriented institution into a technologically integrated component of modern criminal governance. While digital justice offers substantial benefits in terms of efficiency, accessibility, transparency, and case management, significant challenges remain regarding infrastructure, training, cybersecurity, digital inequality, and protection of fair trial rights. The article recommends comprehensive prosecutorial training, technological modernization, institutional safeguards, ethical regulation of artificial intelligence, and coordinated reforms to ensure that digital criminal justice remains constitutionally compatible and socially inclusive.

Keywords: Digital Justice, Public Prosecutor, BNSS 2023, Virtual Courts, Electronic Evidence, Criminal Proceedings, Cybercrime, E-Courts, Digital Prosecution, Bharatiya Sakshya Adhiniyam.

INTRODUCTION

The administration of criminal justice has historically been regarded as one of the most significant functions of the modern State. Criminal proceedings not only determine individual guilt or innocence but also reflect the broader constitutional values of fairness, accountability, transparency, and rule of law. In India, the criminal justice system has traditionally relied upon physical documentation, oral testimony, manual filing systems, paper-based records, and conventional courtroom proceedings. However, the rapid advancement of information technology and digital governance has substantially altered the operational structure of criminal justice institutions.

The emergence of digital technologies has transformed nearly every component of criminal procedure, including investigation, evidence collection, prosecution, adjudication, and correctional administration. Electronic filing systems, online case management, video conferencing, digital forensic analysis, virtual courts, and artificial intelligence-assisted legal processes have introduced a new era of technologically integrated criminal justice. The Indian judiciary, executive agencies, and legislative institutions have increasingly embraced digital transformation as an essential mechanism for reducing delays, improving efficiency, enhancing transparency, and ensuring accessible justice delivery.

The COVID-19 pandemic significantly accelerated this process. During the pandemic, Indian courts adopted virtual hearings and electronic filing systems on an unprecedented scale. Video conferencing became an essential mechanism for ensuring continuity of judicial proceedings.

Consequently, digital justice evolved from an optional administrative reform into an institutional necessity. The experience of remote adjudication demonstrated that technology could successfully support criminal proceedings without entirely compromising procedural fairness.

The transformation became more pronounced with the enactment of India's new criminal laws, namely the Bharatiya Nyaya Sanhita, 2023, Bharatiya Nagarik Suraksha Sanhita, 2023, and Bharatiya Sakshya Adhiniyam, 2023. These statutes formally integrated digital mechanisms into criminal administration by recognizing electronic evidence, electronic summons, audio-video recording of procedures, virtual proceedings, and digital communication systems. The BNSS specifically authorizes electronic proceedings and audio-video recording of evidence, thereby institutionalizing digital criminal procedure.

Digitalization has particularly transformed the role of public prosecutors. Traditionally, prosecutors functioned mainly as representatives of the State responsible for conducting criminal trials and assisting courts in securing convictions based on lawful evidence. However, technological advancements have expanded prosecutorial duties beyond conventional courtroom advocacy. Modern prosecutors are now expected to understand digital evidence, cyber forensics, virtual hearing protocols, electronic records management, cybersecurity principles, and online legal communication systems.

The growing importance of cybercrime, financial fraud, digital surveillance, and transnational electronic offences has further increased prosecutorial complexity. Public prosecutors must now coordinate with digital forensic laboratories, cybersecurity experts, investigating agencies, and technology specialists. They are also required to ensure admissibility and authenticity of electronic evidence under the Bharatiya Sakshya Adhiniyam and the Information Technology Act, 2000.

Simultaneously, digitalization has created several constitutional and ethical concerns. Questions relating to privacy, data protection, algorithmic bias, digital exclusion, cyber manipulation, and fair trial rights have emerged as critical challenges within technologically mediated criminal proceedings. Public prosecutors therefore carry an enhanced responsibility not merely to secure convictions but also to safeguard procedural fairness, constitutional morality, and human rights in digital environments.

This article critically analyzes the digitalization of criminal proceedings in India and examines the changing responsibilities of public prosecutors in this evolving legal framework. It evaluates legislative reforms, judicial developments, technological innovations, prosecutorial challenges, and constitutional implications associated with digital criminal justice administration.

EVOLUTION OF DIGITALIZATION IN INDIAN CRIMINAL JUSTICE SYSTEM

The process of digitalization in Indian criminal justice administration did not emerge suddenly. Rather, it evolved gradually through judicial modernization projects, technological governance reforms, and increasing reliance on electronic communication systems.

The foundation of judicial digitalization in India was laid through the e-Courts Mission Mode Project initiated under the National e-Governance Plan. The primary objective of the e-Courts project was to transform Indian courts through Information and Communication Technology (ICT) integration. The project aimed to improve judicial productivity, digitize records, enable online filing, and create transparent case management systems.

The first phase of the e-Courts project focused upon computerization of district courts and establishment of basic digital infrastructure. The second phase expanded ICT-enabled services including online filing, electronic payments, digital case tracking, and video conferencing systems. The ongoing Phase III envisions fully paperless courts, digitized records, artificial intelligence integration, and interoperable criminal justice systems connecting police, prisons, forensic laboratories, and courts.

The Information Technology Act, 2000 also played a foundational role by legally recognizing electronic records and digital signatures. It provided statutory legitimacy to electronic communication systems and enabled courts to recognize digital documents and online transactions.

Subsequently, Indian courts increasingly permitted video conferencing in judicial proceedings. In *State of Maharashtra v. Dr. Praful B. Desai*, the Supreme Court recognized video conferencing as a legally permissible mode for recording evidence. This judgment became a landmark precedent supporting virtual criminal proceedings.

The COVID-19 pandemic accelerated digital transformation dramatically. Physical restrictions compelled courts to conduct hearings through online platforms. E-filing systems became widely operational, and virtual courts emerged as essential instruments of judicial continuity.

The enactment of the BNSS, 2023 and Bharatiya Sakshya Adhiniyam, 2023 institutionalized digital criminal justice reforms. These laws formally incorporated provisions relating to:

- Electronic service of summons;
- Audio-video recording of evidence;
- Electronic communication systems;
- Virtual proceedings;
- Electronic records;
- Digital evidence management;
- Online procedural compliance.

The BNSS permits criminal proceedings to be conducted electronically and recognizes audio-video recording during trials and investigations. Similarly, the Bharatiya Sakshya Adhiniyam strengthens the legal framework governing electronic evidence and digital records.

Recent judicial decisions have further validated digital criminal procedures. The Bombay High Court upheld service of summons through WhatsApp under the BNSS, thereby affirming the legal validity of electronic communication in criminal proceedings.

Thus, digitalization has evolved from administrative experimentation into a legally recognized and institutionally embedded component of Indian criminal justice.

CONCEPT AND ROLE OF PUBLIC PROSECUTORS IN INDIA

The office of the public prosecutor occupies a central position in the Indian criminal justice system. Public prosecutors are appointed by the State to represent the interests of society during criminal proceedings. Their role extends beyond merely securing convictions; they are considered officers of the court entrusted with ensuring fair administration of justice. Under

the traditional criminal justice framework, public prosecutors primarily performed the following functions:

- Conducting criminal prosecutions before courts;
- Presenting evidence on behalf of the State;
- Examining and cross-examining witnesses;
- Assisting investigating agencies;
- Advising police during investigations;
- Filing appeals and revisions;
- Ensuring procedural compliance.

The prosecutor is expected to act impartially and fairly rather than functioning as a partisan advocate. The Supreme Court of India has repeatedly emphasized that the prosecutor's duty is to secure justice and not merely convictions.

However, digitalization has transformed prosecutorial functions significantly. Prosecutors now operate within technologically complex environments involving:

- Electronic evidence;
- Digital documentation;
- Cybercrime investigations;
- Online hearings;
- Artificial intelligence-assisted legal systems;
- Digital surveillance data;
- Electronic forensic reports.

Consequently, the responsibilities of prosecutors have expanded from conventional courtroom advocacy to technologically integrated legal management.

LEGAL FRAMEWORK GOVERNING DIGITAL CRIMINAL PROCEEDINGS IN INDIA

Information Technology Act, 2000

The Information Technology Act, 2000 provides legal recognition to electronic records and digital signatures. It forms the foundational legal framework supporting electronic governance and digital evidence in India.

The Act recognizes:

- Electronic records;
- Digital authentication;
- Cybercrime regulation;
- Electronic communication systems;
- Admissibility of electronic documents.

The Act significantly influences criminal prosecutions involving cyber offences, electronic fraud, hacking, identity theft, and online financial crimes.

Bharatiya Nagarik Suraksha Sanhita, 2023

The BNSS represents one of the most important legislative reforms in Indian criminal procedure. It incorporates multiple provisions promoting digital justice administration.

Key digital provisions include:

- Electronic FIR registration;
- Audio-video recording of statements;
- Virtual hearings;
- Electronic summons;
- Digital communication systems;
- Electronic evidence recording.

The BNSS authorizes trials and inquiries through electronic mode.

Sections relating to electronic recording of evidence strengthen prosecutorial efficiency and witness accessibility.

Bharatiya Sakshya Adhiniyam, 2023

The Bharatiya Sakshya Adhiniyam modernizes evidentiary law by recognizing:

- Electronic records;
- Digital documents;
- Electronic communication;
- Metadata;
- Audio-video recordings;
- Electronic authentication mechanisms.

The Act significantly affects prosecutorial obligations regarding admissibility and integrity of digital evidence.

E-Courts Project

The e-Courts Project aims to create:

- Paperless courts;
- Online judicial administration;
- Digital case management;
- Electronic filing systems;
- Video conferencing infrastructure.

The project has substantially improved prosecutorial coordination and case monitoring systems.

DIGITALIZATION OF CRIMINAL PROCEEDINGS

Electronic Filing and Case Management

Digital filing systems have transformed prosecutorial administration by enabling:

- Online filing of charge sheets;
- Electronic submissions;
- Real-time case tracking;
- Digital document access.

These systems reduce paperwork, improve efficiency, and facilitate coordination between courts, prosecutors, and investigating agencies.

Video Conferencing and Virtual Hearings

Virtual hearings became widely accepted during the pandemic period. Video conferencing now facilitates:

- Witness examination;
- Remand proceedings;
- Bail hearings;
- Expert testimony;
- Prosecutorial arguments.

The BNSS formally legitimizes electronic proceedings.

Video conferencing has particularly assisted prosecutors in securing timely testimony from officials, forensic experts, and medical witnesses. Uttar Pradesh reportedly recorded over 50,000 evidentiary proceedings through video conferencing, significantly reducing delays and expenses.

Electronic Service of Summons

Electronic service through email, messaging applications, and online communication platforms has accelerated procedural efficiency.

The Bombay High Court recognized WhatsApp service of summons as legally valid under the BNSS. This development substantially affects prosecutorial responsibilities concerning procedural compliance and witness management.

Digital Evidence Management

Modern criminal prosecutions increasingly depend upon:

- CCTV footage;
- Mobile phone data;
- GPS records;
- Social media content;
- Email communications;
- Digital forensic reports;
- Blockchain records.

Prosecutors must ensure:

- Chain of custody;
- Electronic authenticity;
- Metadata verification;
- Compliance with evidentiary standards.

Artificial Intelligence and Data Analytics

Artificial intelligence tools are increasingly used for:

- Legal research;

- Case prediction;
- Evidence analysis;
- Transcription;
- Translation;
- Judicial data management.

The Supreme Court's initiatives regarding AI-based transcription systems reflect growing technological integration within judicial administration.

CHANGING RESPONSIBILITIES OF PUBLIC PROSECUTORS

Management of Electronic Evidence

One of the most significant prosecutorial transformations relates to electronic evidence management.

Prosecutors must now understand:

- Cyber forensics;
- Metadata analysis;
- Digital authentication;
- Electronic chain of custody;
- Data recovery systems.

The prosecutor's role increasingly involves technical evaluation of electronic records under the Bharatiya Sakshya Adhiniyam.

Coordination with Cyber Experts

Modern prosecutions frequently require coordination with:

- Cyber forensic laboratories;
- Digital investigators;

- Technical consultants;
- AI specialists.

This interdisciplinary collaboration has expanded prosecutorial complexity.

Conducting Virtual Prosecutions

Virtual hearings require prosecutors to:

- Manage digital courtroom procedures;
- Present electronic exhibits;
- Coordinate online witness examination;
- Ensure procedural fairness.

Virtual advocacy demands technological literacy alongside conventional legal skills.

Protection of Digital Privacy and Constitutional Rights

Digital criminal justice raises serious concerns regarding:

- Privacy violations;
- Surveillance abuse;
- Unauthorized data collection;
- Digital profiling.

Public prosecutors must ensure constitutional compliance during technologically mediated investigations.

The right to privacy recognized in *K.S. Puttaswamy v. Union of India* significantly influences digital prosecution standards.

Ensuring Fair Trial Rights

Technological efficiency cannot override procedural fairness. Prosecutors must ensure:

- Equal digital access;

- Fair opportunity to defend;
- Transparent disclosure of electronic evidence;
- Non-manipulation of digital records.

Cybercrime Prosecution

Cyber offences including:

- Identity theft;
- Online fraud;
- Data breaches;
- Cyberstalking;
- Cryptocurrency crimes;
- Ransomware attacks

require specialized prosecutorial expertise. Digital prosecutors increasingly function as techno-legal professionals.

CHALLENGES FACED BY PUBLIC PROSECUTORS IN DIGITAL CRIMINAL JUSTICE

Lack of Technological Training

Many prosecutors lack specialized training in:

- Cyber forensics;
- Electronic evidence;
- AI systems;
- Data analytics.

Capacity building remains inadequate.

Infrastructure Deficiencies

Digital prosecution requires:

- High-speed internet;
- Secure digital platforms;
- Advanced forensic laboratories;
- Integrated databases.

Rural and subordinate courts continue to face infrastructural limitations.

Cybersecurity Risks

Digital justice systems face threats including:

- Hacking;
- Data breaches;
- Malware attacks;
- Unauthorized surveillance.

Prosecutors handling sensitive data face enhanced cybersecurity responsibilities.

Digital Divide

Unequal technological access creates procedural inequality.

Victims, witnesses, and accused persons from marginalized communities may face digital exclusion.

Evidentiary Manipulation

Electronic evidence may be:

- Altered;
- Fabricated;

- Deep faked;
- Tampered with.

Prosecutors must ensure authenticity and reliability.

Ethical Concerns Regarding Artificial Intelligence

AI-based criminal justice tools raise concerns regarding:

- Algorithmic bias;
- Automated profiling;
- Discriminatory outcomes;
- Lack of transparency.

Prosecutors must prevent technological injustice.

Judicial Approach Toward Digital Criminal Proceedings

Indian courts have generally supported technological modernization while emphasizing constitutional safeguards.

Important judicial trends include:

- Recognition of video conferencing;
- Acceptance of electronic evidence;
- Validation of electronic summons;
- Encouragement of digital case management.

Courts have simultaneously stressed:

- Fair trial protections;
- Privacy safeguards;
- Due process requirements.

Recent High Court decisions confirm increasing judicial acceptance of electronic criminal procedures under the BNSS.

Comparative Perspective

Countries such as:

- United States,
- United Kingdom,
- Singapore,
- Estonia

have extensively integrated digital criminal justice systems.

Indian prosecutors may learn from international best practices involving:

- Digital evidence protocols;
- Cybercrime specialization;
- AI ethics frameworks;
- Prosecutorial training models.

RECOMMENDATIONS

Specialized Prosecutorial Training

Regular training programs should be conducted regarding:

- Cyber law;
- Electronic evidence;
- AI systems;
- Digital forensics.

Strengthening Infrastructure

Government investment is necessary for:

- Secure servers;
- Digital courts;
- Forensic laboratories;
- Cybersecurity systems.

Ethical Regulation of AI

India should establish:

- AI accountability standards;
- Transparency requirements;
- Bias prevention mechanisms.

National Digital Prosecution Policy

A comprehensive digital prosecution framework should regulate:

- Electronic evidence;
- Virtual hearings;
- Cybersecurity;
- Prosecutorial conduct.

Interdisciplinary Collaboration

Prosecutors should collaborate with:

- Cyber experts;
- Data analysts;
- Digital investigators;

- AI specialists.

CONCLUSION

Digitalization has fundamentally transformed the architecture of criminal justice administration in India. The integration of electronic communication systems, virtual courts, digital evidence management, artificial intelligence tools, and online judicial infrastructure has introduced a technologically advanced framework for criminal proceedings. The enactment of the BNSS, Bharatiya Sakshya Adhiniyam, and related reforms demonstrates the Indian State's commitment toward modernizing criminal justice administration through digital governance mechanisms.

This transformation has profoundly altered the institutional role of public prosecutors. Prosecutors are no longer confined to conventional courtroom advocacy; instead, they now function within technologically sophisticated environments requiring expertise in electronic evidence, cyber forensics, virtual adjudication, and digital procedural safeguards. Their responsibilities increasingly include management of digital records, supervision of cyber investigations, coordination with technical experts, and protection of constitutional rights in technologically mediated proceedings.

Digital criminal justice undoubtedly offers substantial benefits, including faster case disposal, reduced procedural delays, improved transparency, enhanced witness accessibility, and efficient case management. Technological reforms such as video conferencing and electronic summons have significantly improved prosecutorial efficiency and judicial accessibility. However, digitalization also creates significant constitutional, ethical, and institutional challenges. Concerns relating to privacy, cybersecurity, algorithmic bias, digital exclusion, and evidentiary manipulation continue to threaten procedural fairness. Without proper safeguards, digital justice may unintentionally compromise equality before law and fair trial guarantees.

Therefore, the future of digital criminal justice in India depends upon balanced reform. Public prosecutors must receive specialized technological training, digital infrastructure must be strengthened, cybersecurity systems must be enhanced, and ethical frameworks governing artificial intelligence must be carefully developed. Most importantly, technological efficiency must remain subordinate to constitutional morality and human dignity.

The evolving digital era has transformed public prosecutors into techno-legal custodians of justice. Their future role will not merely involve prosecuting offences but also safeguarding democratic values within an increasingly digitalized criminal justice ecosystem.

FUTURE SCOPE

The future scope of digital criminal proceedings in India lies in the wider integration of artificial intelligence, blockchain technology, digital forensic systems, and fully paperless courts within the criminal justice framework. Further research may be conducted on the constitutional implications of virtual trials, data privacy, cybersecurity, and the admissibility of emerging forms of electronic evidence. There is also significant scope for studying the impact of digitalization on access to justice, prosecutorial ethics, and protection of fair trial rights in rural and technologically disadvantaged regions. Comparative analysis with international digital justice systems may further help in developing a balanced and technologically efficient prosecutorial framework in India.

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