

# Criminological science

**Author Name: Deepak pandey,**

Second Year LLB Student at Thakur Ramnarayan College of law

**Co Author Name: Yadav Sugriv Dalsingar,**

Second Year LLB Student at Thakur Ramnarayan College of law

**Paper Submitted to:** Assistant professor of Law **Ms.Saranya Nair** of Thakur Ramnarayan College of law

## Abstract

The multidisciplinary discipline of criminological science studies the origins, effects, and management of illicit activity. It examines crime trends, illicit conduct, and the efficacy of prosecution tactics by combining viewpoints from sociology, psychology, law, forensic science, and criminal justice. This discipline addresses current challenges including criminal syndicates, cybercrime, and terrorism while also investigating theories of crime causation, including classical, biological, psychological, and sociological methods. Crime detection and prosecution have been improved by developments in forensic technology, such as digital forensics and DNA analysis. Furthermore, by assessing the efficacy of criminal legislation, rehabilitation initiatives, and community law enforcement, criminological science plays a critical role in policymaking. To better understand how society might lower criminal activity, victimology, recidivism, and crime prevention techniques are studied. Criminal investigators provide evidence-based strategies for crime prevention and criminal justice reform by utilizing both qualitative and quantitative research methodologies. With the use of big data analytics and artificial intelligence in crime prediction and law enforcement deciding, criminological research is still developing in the modern day. Criminology's multidisciplinary character guarantees that it will always be a vital and dynamic area for tackling the intricacies of crime and justice in society.

**Keywords:** Criminal behaviour, forensic science, digital forensic, recidivism, victimology.

## Introduction

Intellectual authorities, and legislators have long been captivated by the study of crime and its complex aspects. The fundamental tenets of comprehending crime, its causes, investigations, and effects include criminal behaviour, forensic science, digital forensics, recidivism, and victimology. In order to efficiently fight illicit activity, a combined effort is required due to the growth of crime and technology. To provide readers a comprehensive grasp of crime and justice, this introduction explores these five interrelated fields. We can better comprehend crime, its offenders, and its effects on society by combining the disciplines of criminal behaviour, forensic science, digital forensics, recidivism, and victimology. These fields have intricate intersections that provide insights into the reasons for criminal conduct, the techniques employed in crime investigation and resolution, and the long-term effects on both the innocent and the guilty. These fundamental ideas are examined in this introduction, with an emphasis on their importance within the larger framework of criminology and criminal justice.

**Criminal Behaviour: The Root of Crime** The term "criminal behaviour" describes acts or behaviours that are against the rules of society and cause injury to society, individuals, or assets. Petty thievery to serious crimes are all included in this broad category, and it is impacted by a variety of biological, psychological, social, and environmental variables. Creating successful preventive and intervention plans requires an understanding of illicit behaviour. Criminality theories include strain theory, social learning theory, and rational choice theory try to explain why people commit crimes. These theories offer a framework for examining the reasons underlying criminal activity and spotting trends that might guide policies as well as agency. Criminal conduct is dynamic; it varies over time in response to cultural shifts, technical breakthroughs, and societal changes. For example, new criminal activities like cybercrime have emerged as a result of the development of the internet and digital technology, necessitating the need of specialist investigative methods. This development emphasizes how crucial it is to keep improving our knowledge of criminal behaviour and modifying our responses to new dangers<sup>1</sup>.

**The Science of Solving Crimes:** By using scientific methods and concepts to look into crimes and evaluate data, forensic science plays a crucial part in the criminal justice system. By offering unbiased and trustworthy information that may be utilized to find offenders, clear innocent people, and guarantee justice is done, it closes the gap between criminal activity and the judicial system. Numerous fields are included in forensic science, including as toxicology, pathology, ballistics, DNA analysis, and fingerprinting. Additionally, forensic science is essential in connecting criminal activity to particular people. Forensic scientists may find suspects, create deadlines, and recreate events by examining the evidence. In addition to helping solve crimes, this procedure helps create compelling prosecution arguments. But depending too much on forensic evidence also brings up significant moral and legal issues, such the possibility of prejudice, contamination, or abuse of scientific results. With an emphasis on the investigation of crimes using gadgets and data, digital forensics has become a crucial

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<sup>1</sup> *HeinOnline*. Available at:

<https://heinonline.org/HOL/LandingPage?handle=hein.journals%2Femlj3&div=48&id=&page>

branch of forensic science in the modern day. Criminals have responded by employing digital tools to perform crimes including hacking, identity theft, online fraud, and cyberterrorism as technology becomes more and more ingrained in our daily lives. The recovery, examination, and preservation of electronic evidence—including information from computers, cell phones, networks, and cloud storage—are all part of digital forensics. The rapidly evolving discipline of digital forensics is a result of investigators' ongoing need to adjust to new technology and techniques employed by cybercriminals. This calls for a thorough comprehension of cybersecurity concepts, program, and technology. Digital forensic specialists track digital traces, extract data, and reveal concealed information using certain tools and methods. To make sure that evidence is gathered and presented in a way that complies with legal requirements, they frequently collaborate with law enforcement organizations, attorneys, and cybersecurity specialists. Additionally, there are connections between digital forensics and other branches of forensic research, such as cyberpsychology, which studies the motives and actions of cybercriminals. Investigators can create more successful preventive and intervention plans by comprehending the psychological elements that motivate digital crimes. Furthermore, the significance of digital forensics in safeguarding people and communities in the digital age is underscored by its critical role in tackling problems like cyberbullying, online abuse, and the exploitation of vulnerable populations.<sup>2</sup>

The propensity of people to commit crimes again after serving their time or getting out from imprisonment is known as recidivism. Because high recidivism rates suggest that current rehabilitation and reintegration programs may be inadequate, it is a major problem in the criminal justice system. Finding methods to lower recidivism and encourage effective readmission into society requires a comprehension of the elements that lead to recidivism. Since recidivism is a reflection of the continuation of unlawful activity throughout the years, it is directly related to the idea of criminal conduct. Researchers can learn more about the efficacy of criminal justice policies and treatments by examining recidivism rates and trends. This knowledge may help create evidence-based strategies that put healing and reintegration first, which will eventually make communities safer and society more equitable.

Victimology: The study of victims, their experiences, and how crime affects people as well as groups is known as victimology. It aims to comprehend the elements that lead to both fragility and strength as well as the psychological, emotional, and social repercussions of victimization. Policies and procedures that assist victims and aid in their rehabilitation are greatly influenced by victimology. Crime victims frequently suffer from a variety of detrimental effects, such as bodily harm, psychological distress, monetary loss, and social exclusion. Being victims may have long-lasting impacts on a person's relationships, psychological state, and general quality of life. Victimology looks at these effects holistically, taking into account how institutional, social, and individual variables interact. Victimology's focus on victims' needs and rights

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<sup>2</sup> Person, James and French (2023) *Solving Crimes Using Science: 14: Crime, science and policing: James, Taylor & Francis*. Available at: <https://www.taylorfrancis.com/chapters/edit/10.4324/9781003165828-14/solving-crimes-using-science-james-french>

within the criminal justice system is one of its main achievements. In the past, the emphasis on criminals and punishment has frequently caused victims to be ignored or neglected in court processes. Victimology promotes a more victim-centred strategy that acknowledges the value of offering assistance, safety, and chances to engage in the legal system. The idea of secondary victimization the extra suffering victims endure as a result of their involvement with the criminal justice system is another topic covered by victimology. Security insensitivity drawn out court proceedings or a lack of updates on the status of a case are a few examples of this. By tackling these problems, victimology aims to develop a more sympathetic and adaptable system that puts victims' welfare first.<sup>3</sup>

The Relationship between Victimology, Recidivism, Digital Forensics, Forensic Science, and Criminal behaviour: A thorough knowledge of crime and its effects is facilitated by the close connections between the domains of victimology, recidivism, digital forensics, forensic science, and criminal behaviour. While forensic science and digital forensics give the methods and instruments required for discovering and resolving crimes, criminal behaviour serves as the basis to clarify why people commit crimes. Victimology underscores the significance of helping individuals who are injured by crime, whereas recidivism shows the difficulties in dealing with recurrent criminal conduct. These fields interact to assist in the creation of successful criminal justice procedures and policies. For instance, studies on recidivism may influence rehab initiatives, and victimology insights can direct the development of victim support services. Public safety is eventually improved by law enforcement's capacity to solve crimes and prosecute criminals thanks to developments in forensic science and digital forensics. Furthermore, tackling new issues like cybercrime and the growing complexity of criminal investigations requires the convergence of various domains. Our methods for comprehending and preventing crime must change along with technology. By encouraging cooperation and creativity among these fields, we can create a society that is safer and more equitable.

### **Objective:**

1 How effective are rehabilitation programs in reducing criminal behaviour and recidivism rates among juvenile offenders?

2 Is it possible to anticipate and stop recidivism among offenders who have committed cybercrimes using digital forensics technologies and techniques?

1 Depending on variables such program style, offender characteristics, and implementation quality, rehabilitation programs for young offenders have demonstrated differing degrees of efficacy in lowering criminal behaviour and recidivism rates. Decrease in Recurrence Treatment programs for young offenders are linked to a notable decrease in recidivism, according to meta-analyses and systematic reviews. Depending on the kind of intervention, these programs often lower recidivism rates by 9% to 17%. The kind of offender (e.g., violent vs. non-violent), the penal environment (institutionalized vs. non-institutionalized), and the

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<sup>3</sup> *UVT*. Available at: <https://pure.uvt.nl/ws/portalfiles/portal/1411974/INTRODUC.PDF>

calibre of program execution all affect how effective these programs are. Successful methods include family therapy, aggression replacement training (ART), and cognitive behavioural therapy (CBT). For instance, CBT lowers imprisonment rates by more than 10%, whereas ART lowers recidivism by 17%. It has been demonstrated that activities that offer job training, GED prior to and life skills cut recidivism by 9%. These initiatives tackle two major risk factors for reoffending: a lack of educational and job possibilities. Recidivism has been shown to be decreased by diversion programs and restorative justice efforts, which concentrate on reintegrating young people into their communities. These initiatives frequently incorporate family involvement, community service, and mentoring.

**Obstacles and Restrictions:** Studies show no discernible decrease in recidivism, while some even point to a rise in reoffending rates as a result of badly planned or executed programs. The efficacy of rehabilitation programs may be harmed by overload in juvenile institutions and inadequate financing. Systemic changes and more funding for evidence-based procedures are needed to address these problems. It's still difficult to strike a balance between punishment and rehabilitation since some programs may unintentionally stigmatize young offenders or ignore their special requirements.<sup>4</sup>

**Recommendation: Personalized Methods** Results can be improved by customizing rehabilitation programs to meet the unique requirements of each young culprit, including training in skills and treatment for psychological problems. **Teamwork and Consistency** Program quality and accessibility may be raised by establishing tools and encouraging collaborations between communities, non-profit organizations, and government authorities. **Prioritize Early Intervention** Early intervention programs that target risk factors including without a home, familial dispute, and dropping out of college have a higher chance of preventing delinquency and lowering recidivism rates.

**Literature Review:** In criminal justice policy making and research, there has been much discussion over how to handle young offenders. The subject of "what works" to lower recidivism among young offenders has guided the discussion in academia for the past forty years. In an effort to lower recidivism rates and address the root causes of juvenile delinquency, such as family strife, abuse, and school dropout, rehabilitation programs have become a crucial tactic. In order to assess how well rehabilitation programs work to lower criminal behaviour and recidivism among young offenders, this literature review synthesizes data from meta-analyses, systematic reviews, and empirical investigations. The rehabilitative model and the punitive model are the two main approaches that direct interventions for young offenders. In order to improve public safety, the rehabilitative model places a strong emphasis on giving young offenders the resources and assistance they need to successfully reintegrate into society. The punitive model, on the other hand, supports harsher penalties and deterrent-based methods of correcting behaviour. Studies show that rehabilitative programs especially those based on the Risk-Needs-Responsivity (RNR) model are more successful than punitive ones at lowering

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<sup>4</sup> *The ethics of research with prisoners: Current issues in criminal justice: Vol 19, no 3.*

Available at: <https://www.tandfonline.com/doi/abs/10.1080/10345329.2008.12036436>

recidivism. The kind of offender, program modality, and criminal justice environment are some of the variables that affect how effective rehabilitation programs are. When criminals receive parole from jail or probation, the impact of correctional interventions on recidivism has significant ramifications for public safety. Numerous research on those consequences have been carried out, some of which have looked into rehabilitation therapies and others at punitive measures. Although the breadth and methodology of systematic reviews (meta-analyses) of those research vary widely, the overall results show a remarkable degree of consistency. At most, supervision and punishments result in minor mean decreases in recidivism; in other cases, however, they have the reverse impact and raise the incidence of reoffending. In contrast, studies of rehabilitation treatment frequently show favourable and sizable mean recidivism outcomes.<sup>5</sup> Multiple research investigations have been conducted to examine the efficacy of back and aftercare programs for juvenile and young adult offenders. It is crucial to learn more about if afterwards is beneficial for certain categories of juvenile and young adult offenders and what features of aftercare programs influence its efficacy in order to enhance the smooth return to society and lessen future problematic and delinquent behaviour that endangers society. It is likely that re-entering juveniles are a varied population with a range of requirements for a smooth transition back into society (Sullivan, 2004). The success of re-entry or rehabilitation centres may be impacted by hazards for adolescent recidivism, such as age, number of past crimes, psychopathology, drug misuse, and peer delinquency (Loeber and Farrington, 1998, Loeber et al., 2008).

2 Since criminals frequently use modern technologies to perpetrate crimes like fraud, data breaches, and identity theft, the advent of cybercrime has presented serious difficulties to international security. The high incidence of recidivism among cybercriminals who often resume illicit activity even after being caught and punished is one of the most urgent issues. The recovery, examination, and preservation of digital evidence is the focus of the field of digital forensics, which has become an essential weapon in the fight against cybercrime. This study examines the efficacy, difficulties, and prospects of digital forensics technology and methods in preventing and preventing recidivism among cybercrime perpetrators.

Recognizing Recidivism in Cybercrimes The anonymity offered by the internet, the low chance of being caught, and the large incentives connected with cybercrime are some of the variables that affect recidivism among criminals. Cybercrimes, in contrast to typical crimes, frequently leave below digital fingerprints that may be examined to comprehend the behaviour of the perpetrator and forecast future acts. However, it is challenging to successfully predict and prevent recidivism due to the dynamic nature of cybercrime and the quick advancement of technology. Finding and examining digital evidence—such as IP addresses, email headers, and file metadata—that may be utilized to track down hackers and comprehend their tactics is a critical function of digital forensics. Steganography analysis programs, such as StegSpy and

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<sup>5</sup> Lipsey, M.W. and Cullen, F.T. (2007) *the effectiveness of correctional rehabilitation: A review of systematic reviews*, *Annual Review of Law and Social Science*. Available at: <https://www.annualreviews.org/content/journals/10.1146/annurev.lawsocsci.3.081806.112833>

Hiderman, have demonstrated efficacy in uncovering concealed information inside digital files, potentially exposing indications of illicit activities. Law enforcement may create profiles of offenders and forecast their chance of reoffending by methodically examining such data. Artificial intelligence (AI) and machine learning are two examples of advanced digital forensics tools that make it possible to analyse massive datasets and find patterns and trends in the behaviour of cybercriminals. AI-based solutions, for example, can identify illegal access attempts by analysing keyboard dynamics, giving early indicators of possible recidivism. Furthermore, threat intelligence systems use block chain technology to make it easier to share details about new cyber threats, allowing for preventative actions to stop reoffending. By keeping an eye on their internet activity and making sure that court-imposed limitations are followed, digital forensics may assist aftercare programs for convicted cybercriminals. Real-time cloud-based intrusion detection systems, for instance, may monitor criminals' digital traces and notify law enforcement of questionable activity. These initiatives provide convicts chances for rehabilitation and reintegration into society in addition to discouraging recidivism. With the aid of related techniques, legal implications, and its overall influence on the justice system, artificial intelligence (AI) has been thoroughly incorporated into online criminal investigations. A variety of legal papers and academic literature served as the primary source of data for this study, which took a multipronged approach that included qualitative, descriptive, and analytical techniques. Through its investigation, this study clarified the crucial role artificial intelligence (AI) plays in law enforcement, including in areas like arrest procedures, emit options, sentencing procedures, recidivism prediction, identification of criminal activities and patterns, and the capture of suspects using sophisticated voice evaluation methods. In improving the analysis and arrangement of case data, the results highlight the revolutionary potential of machine learning approaches. In order to maximize the use of AI in digital inquiries into crimes, the research offers a number of proposals. In order to support sound judgment, these guidelines support the prioritizing of high-risk situations by incorporating data from a variety of sources. Furthermore, the study promotes the use of AI in suspect recognition, crime prediction, and security measure reinforcement. It also emphasizes how crucial it is to put AI-powered biometric identification (Bio-ID) systems into place in order to strengthen identity verification procedures. Finally, the study promotes the use of sophisticated visual analysis techniques in intelligent surveillance technologies to proactively prevent illegal behaviours. At the same time, it highlights how machine learning may streamline case management procedures, producing accurate recommendations and improving the criminal justice system's overall effectiveness. Emails, chat logs, and metadata are just a few of the crucial digital artefacts that may be extracted as evidence using a variety of specialist tools and techniques that are strategically connected to AI-enabled technology. These pieces of evidence are both legally admissible and trustworthy. Therefore, variety is essential to the science of digital inquiry supported by AI applications, which uses state-of-the-art technologies to guarantee accuracy, thoroughness in embracing a range of digital evidence categories, and uncompromising adherence to established legal frameworks. But these developments also come with legal and ethical obligations. Ensuring impartiality, protecting privacy, and maintaining the integrity of the evidence are crucial. In order to gather and defend technological proof in relation to lawsuits, a variety of tools, like artificial intelligence, text recognition, and statistical analysis, must be used, even though AI-assisted digital applications encompass a

wide range of data spanning electronic devices, network records, mobile data, and content sourced from social media platforms. This serves as the study's justification because it is essential to look into and carefully consider the complex legal aspects and the resulting effects of using AI in the field of digital investigations. The "normative juridical research method" and the "scientific research method," two well-established approaches in the field of legal studies, were both used in this study's data collection efforts. Both primary and secondary sources were used in the data collecting process. The original data included a range of fundamental legal documents, such as legislative opinions, foundational legal codes, and a variety of technical and scientific resources related to criminal procedural laws, rules, regulations, and related paperwork. A thorough review of the body of research on criminal procedure legislation and forensic investigation, with an emphasis on the use of artificial intelligence, was one of the secondary data sources.<sup>6</sup>

**Literature Review:** Cybercrime has increased in tandem with the quick development of digital technology, calling for sophisticated strategies to stop and deter such crimes. The science of retrieving and examining data from digital devices, known as digital forensics, is essential to detecting, apprehending, and preventing cybercrime. Beyond the immediate investigation and punishment, however, there is increasing interest in using digital forensics to predict and stop cybercrime criminals from reoffending. With an emphasis on monitoring, predictive analytics, rehabilitation, and ethical issues, this literature review investigates the potential of digital forensics tools and methods in tackling recidivism. Digital forensics' function in investigating cybercrimes Because it offers the instruments and procedures required to gather, store, and examine digital evidence, digital forensics is essential to cybercrime investigations. In order to prosecute criminals and comprehend their methods of operation, this evidence is essential. Each of the subdomains within the field such as network forensics, mobile forensics, and cloud forensics focuses on distinct facets of digital crime. Sophisticated technologies and methods, such block chain for evidence integrity and machine learning for predictive analytics, have been introduced by recent developments in digital forensics. These developments improve the capacity to monitor and examine cybercrime activity, laying the groundwork for predicting similar crimes in the future. Keeping an eye on and overseeing cybercriminals one of the most important aspects of recidivism prevention is post-release monitoring. Continuous monitoring of criminals' internet activity is made possible by digital forensics tools, which guarantee adherence to court-mandated limitations. Methods like device scans and traffic analysis on the network can identify questionable activity, such utilizing hacking tools or browsing dark web forums. Internet access limitations and the requirement to install monitoring software are common probationary requirements. By offering in-the-moment notifications and comprehensive information on the actions of offenders, digital forensics technologies can enforce these requirements. In addition to discouraging reoffending, this proactive strategy offers useful data for additional research. Psychological Habits and Forecasting a promising

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<sup>6</sup> *View of digital criminal investigations in the era of artificial ...* Available at: <https://cybercrimejournal.com/menuscrypt/index.php/cybercrimejournal/article/view/189/71>



method for predicting recidivism is forecasting, which is fuelled by artificial intelligence and machine learning. Forecasting algorithms can detect high-risk persons by examining previous information including prior crimes, internet conduct, and social media activity. Digital forensics frameworks can use these models to offer targeted interventions and early warnings. The technique's application, however, presents ethical questions, especially in light of prejudice and false positives. To prevent unfair treatment of people based on faulty predictions, it is crucial to ensure the accuracy and fairness of these models. Rehabilitating and Redirecting Skills Recidivism has been found to be decreased by rehabilitation programs that reroute convicts' technological talents toward jobs in cybersecurity or hacking ethically. By confirming the legitimacy of offenders' actions and guaranteeing adherence to treatment regimens, digital forensics may assist these programs. Forensic audits, for instance, can verify that criminals are participating in authorized cybersecurity training instead of turning back to illegal activity. Training in awareness and education are also essential elements of recovery. Such programs can demystify the criminal justice system and promote law-abiding conduct by teaching offenders about the dangers and repercussions of cybercrime as well as the capabilities of digital forensics. Effectiveness must be balanced with moral and legal issues when using digital forensics to reduce recidivism. Since ongoing surveillance and data collecting may violate people's rights, privacy rights are a serious problem. To establish the limits of surveillance and guarantee that screening processes are open and responsible, precise legislative frameworks are required. Allocating resources is another difficulty because adequate surveillance and rehabilitation need large expenditures for staff, equipment, and training. To guarantee the effectiveness of these programs, lawmakers must give them top priority when allocating funds. A multifaceted approach to reduce recidivism requires cooperation between social services, forensic specialists, and prosecutors. The efficiency of monitoring and rehabilitation programs may be increased by interagency cooperation, which can make it easier to share resources and information. The creation of decentralized forensic protocols and encryption resistant to quantum algorithms are potential future developments in digital forensics. These developments will tackle new issues and guarantee that digital forensics will always be useful in the fight against cybercrime. Equipment and methods in digital forensics have a great deal of promise for predicting and stopping cybercrime criminals from reoffending. These solutions can offer a thorough framework for addressing the underlying causes of cybercrime and lowering reoffending rates by utilizing surveillance, predictive analytics, rehabilitation, and ethical concerns. However, careful execution, teamwork, and constant innovation to meet new obstacles are necessary for these projects to succeed. Online surveillance, culprit recognition, and evidence extraction have all been transformed by the use of AI, machine learning, and big data in law enforcement. Artificial intelligence (AI) systems have transformed digital law enforcement by improving the gathering, identifying, processing, and analysing of electronic data for digital evidence that may be used in court. A key component of this change is interpretable artificial intelligence (XAI), which makes decision-making clear and intelligible (Arshey & Viji, 2021; Heaton, 2013). Additionally, the significance of AI's openness in court procedures is underlined, guaranteeing the validity of the evidence offered (Ahmed & Rahman, 2021). By making the decision-making process more transparent, AI algorithms greatly enhance the precision and openness of digital investigations.

**Research Methodology:** The current study uses qualitative methods of inquiry to examine how artificial intelligence may be used into the field of digital investigations into crimes. In keeping with the technological aspects of electronic and illegal investigative research methodologies, the goal of this qualitative research project is to build a theoretical framework for the application of AI techniques in the context of criminal investigation. As a result, the research methodologies used in this study include logical, informative, and qualitative analyses. This research includes both the primary and secondary sources.

**Conclusion:** Sociology, psychology, law, forensic science, and criminal justice are all used in the interdisciplinary discipline of criminological research to investigate the causes, consequences, and management of crime. It addresses contemporary topics including cybercrime and terrorism while looking at crime patterns, prosecution strategies, and theories of crime causation. Crime detection has been enhanced by developments in forensic technology, such as DNA analysis and digital forensics. In order to influence policy, the sector also assesses community law enforcement, rehabilitation initiatives, and criminal statutes. Criminology helps to lower crime by researching victimology, recidivism, and crime prevention. It keeps developing with AI and big data, guaranteeing its applicability to crime and justice.

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<sup>1</sup> *Hein Online*. Available at:

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<sup>2</sup> Person, James and French (2023) *Solving Crimes Using Science: 14: Crime, science and policing: James, Taylor & Francis*. Available at: <https://www.taylorfrancis.com/chapters/edit/10.4324/9781003165828-14/solving-crimes-using-science-james-french>

<sup>3</sup> *UVT*. Available at: <https://pure.uvt.nl/ws/portalfiles/portal/1411974/INTRODUC.PDF>

<sup>4</sup> *The ethics of research with prisoners: Current issues in criminal justice: Vol 19, no 3*. Available at: <https://www.tandfonline.com/doi/abs/10.1080/10345329.2008.12036436>

<sup>5</sup> Lipsey, M.W. and Cullen, F.T. (2007) *the effectiveness of correctional rehabilitation: A review of systematic reviews, Annual Review of Law and Social Science*. Available at: <https://www.annualreviews.org/content/journals/10.1146/annurev.lawsocsci.3.081806.112833>

<sup>6</sup> *View of digital criminal investigations in the era of artificial ...* Available at: <https://cybercrimejournal.com/menuscript/index.php/cybercrimejournal/article/view/189/71>