ARTIFICIAL INTELLIGENCE IN COMBATING CHILD TRAFFICKING AND ONLINE EXPLOITATION: A SOCIO-ECONOMIC OFFENCE PERSPECTIVE

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ABSTRACT

Online exploitation and child trafficking are some of the most serious socio-economic crimes of the twenty-first century, which feed on poverty, inequality, and digital vulnerabilities. The spread of internet and social media has given new avenues to this vice where traffickers find it easier to recruit and groom children and use them. Conventional policing systems which are usually reactive and resource limited fail to cope with the transnational and technologically advanced nature of such crimes. It is against this backdrop that Artificial Intelligence (AI) can be seen as a disruptive technology, with its predictive analytics, facial recognition, online content surveillance, and cross-boundary data analysis features to pre-empt and counteract exploitation. Nevertheless, AI implementation in the considered sensitive field is not unproblematic. Problems of privacy, algorithm discrimination, protection of children rights, and adherence to constitutional protection need to be closely examined. It is in the framework of the socio-economic offence that this paper critically explores the opportunities and constraints of AI to combat child trafficking and online exploitation and locates it within Indian and international legal provisions. It interacts with the laws like; the Bharatiya Nyaya Sanhita, 2023, the Protection of Children from Sexual Offences act, 2012, and the Information technology act, 2000, as well as international law, like the UN Convention on the rights of the child and the Palermo protocol. Using the comparative-based experiences of other jurisdictions, including the European Union and the United States, the paper will justify the adoption of a middle ground; making use of the preventative power of AI without compromising ethical, legal, and human rights.

Keywords: Artificial Intelligence; Child Trafficking, Online exploitation, Socio-Economic offences, Cyber Law, Privacy, Human rights, Law enforcement, India, International Law.

1. Introduction:

Online exploitation, and child trafficking is one of the vilest socio-economic crimes, based on structural inequality, including poverty, illiteracy, displacement, and digital vulnerability, and exacerbated by globalisation and the pace of change in the technological world. Although legislation frameworks and international instruments, such as the Bharatiya Nyaya Sanhita, 2023, the Protection of Children from Sexual Offences Act, 2012, and the Information Technology Act, 2000, exist, as well as foreign instruments, such as the UN Convention on the Rights of the Child and the Palermo Protocol, implementation is mostly reactive and piecemeal and is unable to keep up with the sophistication of traffickers who take advantage of digital anonymity, encrypted networks, and cryptocurrencies. Artificial Intelligence (AI) in this context provides humanity-altering opportunities, where law enforcement shifts a reactionary intervention approach to proactive detection via the use of predictive analytics, facial recognition, natural language processing and big data surveillance that has already become successful in other parts of the world through initiatives like the AI-run online abuse detection programs in Europol. Nonetheless, the use of AI in the fight against child exploitation has complicated ethical, legal, and human rights issues, especially the privacy, algorithm bias, accountability, and protection of the rights of children. The present paper critically analyzes the application of AI in child trafficking and online exploitation as a socio-economic offence, placing it in the context of the Indian and international bodies of law, comparing models, and providing recommendations on how AI can be incorporated into the strategies of law enforcement in a responsible, rights-based, and effective way.

2. Conceptual Framework

Socio-economic offence is a special category of crimes that do not just harm the victims on the personal level, but the general social and economic order of the State. They are generally characterized as crimes that are committed due to financial reasons, target structural weaknesses and become of extensive social impact. In *Mafatlal Industries Ltd. v. Union of India*, the Supreme Court of India noted that socio-economic crimes tend to be more damaging than traditional ones due to being motivated by profit motives, reinforced by poverty and inequality, and have a lasting impact on the social landscape.[1] Child trafficking and online exploitation clearly qualify as a case in point since they cause a lack of trust in institutions and

[1] *Mafatlal Indus. Ltd. v. Union of India*, (1997) 5 SCC 536 (India).

exploit the marginalized populations.

In the Indian laws, child trafficking has been made illegal by several clauses. The definition of trafficking in Section 143 bharatiya Nyaya Sanhita, 2023 (equivalent to the Section 370 IPC, 1860) is to recruit, transport, harbor, or receive an individual through use of threats, force, or coercion to exploit them. The Protection of Children from Sexual Offences Act (POCSO) Section supplementary to this Act specifically addresses the sexual exploitation of children and the Juvenile Justice (Care and Protection of children on an international level) United Nations Convention on the Rights of the child (UNCRC) and the Palermo Protocol are an appendage to national legislation and states have to punish trafficking and ensure the safety of children in situations where transnational activity is involved.[2]

Along with the increase in internet penetration, the internet exploitation has emerged as a parallel aspect of trafficking, taking the shape of child pornography, grooming, live-streamed abuse, and trade in illicit content on dark web. The Information Technology Act, 2000, especially sections 67B and 69A, has been used in India to offer a guideline on how to punish the publication, transmission, and access to child sexual abuse material over the internet.[3]

AI overlaps these crimes through the provision of solutions to detect, forecast, and disrupt the criminal act. For example, Natural language processing, can determine grooming habits in the chat room, and facial recognition and deep learning can follow missing children across the Internet and even in physical locations. Still, the definition of trafficking and exploitation as socio-economic crimes can ensure that the legal counteraction is not purely punitive but structural, which addresses some of the root causes of such phenomena as poverty, digital illiteracy, and the lack of enforcement measures.

3. Research Objectives

This paper is intended to critically analyze the convergence of Artificial Intelligence (AI) and child protection, prioritizing the case of trafficking and internet exploitation as a socio-economic crime. These are analytical and prescriptive objectives, which are aimed at grounding the debate both in an Indian and a comparative global context.

The most important research objectives are:

[2] United Nations Convention on the Rights of the Child, Nov. 20, 1989, 1577 U.N.T.S. 3; Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime, Nov. 15, 2000, 2237 U.N.T.S. 319.
[3] The Information Technology Act, No. 21 of 2000, §§ 67B, 69A (India).

3.1. To conceptualize child trafficking and online exploitation as a socio-economic crime by addressing its structural etiology, socio-economic impacts, and status quo criminal law.

3.2. The use of Artificial Intelligence can be evaluated in the combating trafficking and exploitation through such tools as predictive analytics, facial recognition, natural language processing, and dark web monitoring.

3.3. To critically examine ethical, legal and compliance questions of AI implementation, more so in the field of privacy, data protection, algorithmic bias and responsibility.

3.4. To conduct a comparative analysis of world practices, by referring to AI-based projects in the European Union, the United States, and India, it is necessary to determine strengths, weaknesses, and reformulation lessons.

3.5. To determine the compatibility of AI-based anti-trafficking measures and constitutional guarantees and international human rights principles, especially child rights laws such as the UNCRC and the constitutional protection of India on child rights under Art. 21.

3.6. To purpose policy suggestions that optimize technological innovation and prevent fundamental rights violation, with a goal of a rights-based, ethical, and effective use of AI in the fight against child trafficking and internet exploitation.

4. Research Methodology

The study is a **doctrinal and qualitative** design and uses mainly secondary sources, namely; statutes, case law, international conventions, government reports, academic literature, institutional publications of organizations like; Europol, UNICEF and the NCRB. The doctrinal approach will help to analyze the available laws, judicial interpretations, and international tools associated with child trafficking, online exploitation, and Artificial Intelligence application in helping to combat the felony.

Also, a comparative legal study has been conducted, comparing the efforts of the European Union, the United States, and India to incorporate AI into the anti-trafficking systems. This comparative aspect brings out the best practices and situational issues, and provides an insight into reforming in the Indian context.

The interdisciplinary insights of technology law, criminology, and human rights scholarship are also included in the research due to the novelty of AI in law enforcement. Reports and technical papers on AI applications, including predictive analytics, natural language

processing, and facial recognition are considered to close the gap between the technological breakthrough and legal regulation.

The approach is mostly qualitative, where some elements of descriptive statistics (e.g., data on NCRB, statistics on global trafficking, etc.) are needed to put into context the socio-economic aspects of the crime. There has not been any major fieldwork because of the ethical implications and sensitivity of the issue at hand, especially among defenseless individuals like trafficked children.

Such a mixed doctrinal-comparative-interdisciplinary approach will enable the paper to both critically evaluate the potential and risks of AI in fighting child trafficking but still maintain the analysis rooted in legal, ethical, and human rights paradigms.

5. Research Scope and Limitations

The research area that guarantees the relevance of the Artificial Intelligence in combating child trafficking and online exploitation is largely legal and policy-related, as it implies the socio-economic offences conceptualization. Although the paper has a global approach, its main focus is on the Indian legal system, with other comparative references to the practices in the European Union and the United States. The research addresses the statutory provisions, judicial precedents and institutional initiatives in relation to trafficking, online exploitation, and AI-based law enforcement tools. Technology, criminology, and human rights knowledge interventions are added to put the idea of socio-economic and ethical aspects of the topic into perspective.

There are a variety of ways in which the study is restricted though. First, we are analysing secondar data obtained through government reports, NCRB data and institutional publications, and these may not represent the full scope of underreporting of crimes like child trafficking. Second, the dynamic and changing character of AI technologies implies that the discussion is bound to be restricted to the currently existing applications and recorded practices, which can quickly change depending on the emergence of subsequent developments. Third, ethics in the study and sensitivity of the topic prevent any empirical fieldwork or interviews with survivors of the trafficking or with the enforcement authorities. Lastly, the comparative aspect although illustrative is selective and not exhaustive of all the jurisdictions but rather points to the most pertinent jurisdictions in the Indian policy context.

Nevertheless, the paper is a well-rounded doctrinal, comparative, and interdisciplinary

evaluation, which will be of great value in understanding the possibility and issues that surround the inclusion of AI into the legal and institutional battle against child trafficking and online exploitation.

6. Literature Review:

The body of literature on the topic of Artificial Intelligence (AI) in the field of Anti-Money Laundering (AML) is indicative of the emerging belief that rule-based systems have failed to offer solutions to the complexity of contemporary financial frauds. Previous literature has stressed the dependence of financial institutions on Know Your Customer (KYC) standards and suspicious transaction reporting, but more recent studies outline how AI-based systems including machine learning, natural language processing, and anomaly detection can contribute to the identification of concealed money laundering patterns in a significantly more meaningful way. Other researchers present the arguments that AI may enhance the efficiency of compliance by yielding fewer false positives and providing an opportunity to monitor it in real time, whereas some scholars are also worried about the lack of transparency of the algorithm and the influence of bias on decision-making. Empirical research also indicates that AI is more adaptable than fixed systems to changing typologies of laundering, particularly when there are cross-border financial flows and crimes associated with cryptocurrencies. Nevertheless, regulatory uncertainty and ethical dilemmas are also cited in the literature as significant obstacles to adoption and the harmonization of legal frameworks and data protection safeguards is needed. In general, although the future of AI in AML has been widely reported, current literature highlights the need to balance the idea of technological innovation with accountability, transparency, and adherence to international financial reporting standards.

7. Legal and Policy Framework

7.1 Indian Legal Framework: To curb child trafficking and internet exploitation, India has established a multi-layered legal system, but there are still loopholes in the enforcement. The Bharatiya Nyaya Sanhita, 2023 (BNS) criminalises human trafficking with the provisions of Section 143, which prescribes severe punishment against offences involving children;[4] the Protection of Children against sexual offences Act, 2012 (POCSO) criminalises child pornography, sexual assault, and grooming children;[5] and the Information Technology Act, 2000 supplements these acts by criminalising the publication, transmission, and access to child

[4] Bharatiya Nyaya Sanhita, No. 45 of 2023, § 143 (India).
[5] The Protection of Children from Sexual Offences Act, No. 32 of 2012, §§ 13–15 (India).

sexual abuse material (CSAM), namely under Sections 67B and 69A.[6] Nonetheless enforcement is still patchy, cyber cells are still under-resourced and central and state agency coordination is uneven.

7.2 International legal instruments: Online exploitation and child trafficking take place on a global level and are dealt with by binding and non-binding instruments. The UN Convention on the Rights of the Child (UNCRC) requires the States to safeguard children against all types of exploitation,[7] the Palermo Protocol (2000) extends the concept to the digital realm requiring transnational collaboration and criminalization of the issue.[8]

7.3 Comparative Legal Framework (India vs. International):

Area	**India**	**International**
Primary Trafficking Law	The BNS 2023, § 143, provides greater punishment on the trafficking involving child victims.	Palermo Protocol (2000) Art. 3 establishes the definition of trafficking; commits States to criminalise and collaborate on an international basis.
Child Protection Law	POCSO Act, 2012 covers sexual crimes, children pornography and online grooming.	Art. 34 of UNCRC (1989) requires the States to safeguard children against sexual exploitation.
Cyber Law	Section 67B and 69A of IT Act, 2000, punishes online child pornography and provides an option of blocking of illegal websites.	Art. 9-10 of the 2001 Budapest Convention criminalize child pornography and must be cooperated on internationally.
Rehabilitation	Juvenile Justice Act, 2015 gives rehabilitative and protective mechanisms.	Another side of the UNCRC, the analogue of optional (2000) points to rehabilitation and reintegration of the victims.

[6] The Information Technology Act, No. 21 of 2000, §§ 67B, 69A (India).
[7] United Nations Convention on the Rights of the Child, Nov. 20, 1989, 1577 U.N.T.S. 3.
[8] Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the United Nations Convention against Transnational Organized Crime, Nov. 15, 2000, 2237 U.N.T.S. 319.

AI Integration	Hyper limited AI-based projects like TrackChild portal and experiments with cyber cells.	The Trace an Object and Interpol (ICSE) databases of Europol and Interpol use AI to investigate at the international level.

7.4 Need for Harmonization: Although India has a strong legislative system, it still lacks the mechanisms of incorporating AI peculiarities protection and cross-border collaboration. The application of AI in policing is highlighted by international mechanisms, especially the Budapest Convention and the EU AI Act (2021), as a field that should be conducted with responsibility- a fact not as developed as in Indian law. It is important to balance local requirements with international standards and standards and make sure that any changes are not in conflict with the constitutional provisions on privacy and due process to successfully deal with the problem of AI and prostitution.

8. Child Trafficking and Online Exploitation: A Socio-Economic Offence Perspective

Trafficking of children and online exploitation are not only criminal offenses; these are socio-economic crimes, which have their foundation in structural imbalances and systemic weaknesses. The combination of poverty, unemployment, gender inequality, forced migration, and inaccessible education contributes to the prevalence of these crimes creating an environment where traffickers can exploit vulnerable groups without any cost and reach them more conveniently than before through online mediums.[9] The transfer to online platforms, in turn, has worsened these vulnerabilities, availing to traffickers low cost, high reach tools of recruitment, coercion, and abuse.[10]

Socio-economically, these offenses cause not only personal damages, but also general costs to society. Trafficking and exploitation become structural and connected to the socio-economic fabric of modern societies,[11] as it is tied inextricably, according to Louise Shelley, to the broader systems of organized crime, corruption and demand-based markets.[12]

[9] Kamala Kempadoo, *Trafficking and Prostitution Reconsidered: New Perspectives on Migration, Sex Work, and Human Rights* 18 (2015).
[10] Anja Kovacs, *Trafficking in the Digital Age: Challenges of Online Exploitation in India*, 15 Asian J. Criminology 112 (2021).
[11] A. Banerjee, *Child Trafficking and Economic Development: A Study of South Asia*, 29 Econ. & Pol. Weekly 55 (2020).
[12] Louise Shelley, *Human Trafficking: A Global Perspective* 33 (2010).

In India, the National Crime Records Bureau (NCRB) has also been reporting alarming numbers: over 30,000 children became registered since 2017-2022, and a sizeable number of victims is exposed to labor and sexual exploitation.[13] yet, the number of victims is often underreported by official statistics, as trafficking is an underground crime, and the enforcement of the laws is weak, accompanied by corruption and social stigma. This invisibility is further enhanced by the online aspect: child exploitation is flourishing in parallel economies where it is difficult to enforce the law due to forums on the dark web, encrypted messaging, and cryptocurrency payments.[14]

At a normative level, viewing child trafficking and the Internet exploitation as socio-economic crimes promotes the necessity of a comprehensive, preventative model, but not a strictly punitive conceptualization. It involves incorporation of the economic development policies, digital literacy, social protection, and technological advancements like the AI into the anti-trafficking system.[15]

9. Use of Artificial Intelligence in Combating Child trafficking and Online Exploitation.

Artificial Intelligence (AI) has become a revolutionary tool in fighting the transnational, technologically advanced, and socio-economically predisposed crimes. The field of child trafficking and online exploitation is an example of this type, as the perpetrators are able to operate using anonymity, encrypted messages and digital financial networks to commit their offenses without being detected. The conventional policing systems which are limited in terms of manpower and reactive approaches are not sufficient in combating the magnitude and pace of such offenses. AI, though, has the potential of transforming detection, prevention and enforcement by making use of predictive analytics, image recognition, natural language processing, and monitoring with big data.

9.1. Predictive Policing and Risk Detection: Predictive policing systems based on AI have the capacity to process large-scale data, such as reports about missing children, migration trends, etc., to determine the locations and individuals where the risk of trafficking is greater. An example is the use of machine learning algorithm to process millions of cyber tips by the National Center to Missing and Exploited Children (NCMEC) in the United States to help law

[13] National Crime Records Bureau, *Crime in India: Statistics 2017–2022* (Gov't of India, 2023).
[14] Europol, *Internet Organised Crime Threat Assessment* (2022).
[15] Saptarshi Mandal, *Socio-Legal Responses to Child Trafficking in India: Rethinking Prevention Strategies*, 42 Indian J. Socio-Legal Stud. 87 (2021).

enforcement prioritize high-risk cases.[16]

Example: TrackChild, Khoya-Paya (India)

9.2 Biometric and Facial Recognition: Deep learning algorithms based on facial recognition technology (FRT) have been used to find missing children and victims in internet materials. The Microsoft initiative of photoDNA, as an example, employs hash-based AI to identify and remove child sexual abuse material (CSAM) on online platforms, although these applications raise serious questions of surveillance, privacy, and false positives that need to be regulated.[17]

Example: Delhi Police (2018); Microsoft PhotoDNA.

9.3 On-line Content Monitoring and Dark Web Investigations: In an effort to keep up with the technology, traffickers are turning to encrypted websites, the dark web, and cryptocurrencies as tools to trade child sexual abuse content and organize exploitative activities. Artificial intelligence like natural language processing (NLP) and image recognition can search chat rooms, forums, and Internet exchanges of transactions to identify any signs of trafficking. The Trace an Object program of Europol uses crowdsourced AI tools to analyze child exploitation incident images and has been used in a number of jurisdictions to identify more than 30,000 victims.[18] Likewise, the International Child Sexual Exploitation (ICSE) database, maintained by Interpol and powered by AI image matching, helped identify over 30,000 victims worldwide.[19]

Example: Europol's *iCOP*; blockchain AI for crypto-tracing.

9.4 Cross-border cooperation and Data analytics: Due to the international boundaries of trafficking networks, AI allows international cooperation in terms of data-sharing and coordinated investigations. As an example, Project VIC, which is a public-private partnership of law enforcement agencies, is deploying AI-focused hashing technologies to categorize and examine CSAM, minimize the duplication of investigations and accelerate the rescue of victims across sovereign nations.[20]

[16] Nat'l Ctr. for Missing & Exploited Child., 2022 Annual Report (2023), https://www.missingkids.org.
[17] Microsoft, *PhotoDNA*, https://www.microsoft.com/en-us/photodna (last visited Sept. 13, 2025).
[18] Ministry of Women & Child Dev., *TrackChild Portal*, https://trackthemissingchild.gov.in (last visited Sept. 13, 2025).
[19] INTERPOL, *International Child Sexual Exploitation Database*, https://www.interpol.int/en (last visited Sept. 13, 2025).
[20] Project VIC International, *About Us*, https://www.projectvic.org (last visited Sept. 13, 2025).

9.5 Limitations and Concerns: The application of AI in this sphere causes deep concerns, although it is promising. The problem of algorithmic bias can cause the disproportional targeting of marginalized populations; overuse of surveillance technologies can violate the right to privacy, and insufficient transparency in AI decision-making makes it difficult to hold anyone accountable. In the absence of proper protection, AI will tend to be used as an over-criminalization instrument instead of protection. As such, on the one hand, AI strengthens the ability of the State to fight trafficking, but on the other hand, it has to be counteracted by such notions as constitutional rights and morality, as well as the ultimate interest of child welfare.

10. Ethical, Legal and Human Rights Concerns:

The use of the Artificial Intelligence (AI) in the fight against child trafficking and online exploitation is not a value-neutral task. Although AI increases the potential of law enforcement agencies, it also contributes to the emergence of significant ethical, legal, and human rights challenges. These issues are especially urgent considering the sensitivity of crimes against children where any superstep or abuse of AI can further victimize the people it is supposed to protect.

10.1 Privacy and Surveillance: The use of AI to monitor online sources, facial recognition, and predictive policing technologies is usually based on the mass gathering of data, which can violate the personal lives of individuals. In *Justice K.S. Puttaswamy v. Union of India*, without clear authorization by legislation and protection, the indiscriminate use of AI tools may pose a threat to violating this constitutional guarantee, as it has been found by the Supreme Court to be instrumental in guaranteeing privacy as a basic right in Art. 21 of the Constitution.[21]

10.2. Algorithms Bias and Discrimination: Algorithms of machine learning are as neutral as the data they are trained on. When datasets are biased, AI systems can unfairly attack a disadvantaged group, recreating the biases of the system in the name of technological neutrality. The U.S. research on predictive policing has shown that AI-led surveillance systems are racially and socio-economically biased and can be taken as a warning to India.[22]

10.3. Accountability and Transparency: Artificial intelligence tends to be a black box in which the reasoning behind a decision is non-transparent. This inability to explain can be a problem to accountability particularly in the context of criminal justice where the right of due process and fair trial are prioritized. Unless the evidence presented in a court as AI-driven

[21] *Justice K.S. Puttaswamy v. Union of India*, (2017) 10 SCC 1 (India).
[22] Kristian Lum & William Isaac, To Predict and Serve? 13 *Significance* 14 (2016).

contains proper guidelines on admissibility, it may jeopardize the evidentiary system of Indian criminal law.

10.4 Child Rights Safeguards: According to the Convention on the Rights of the Child (CRC), the best interests of the child is a tool that should guide the overzealous use of AI surveillance, leading to children stigmatization, wrongful profiling, and secondary trauma. As an example, automated surveillance can be used to unwarily detect innocent behavior as grooming, and intrude into the life of a child.[23]

10.5. Data Protection and Cyber Security: Artificial intelligence systems rely on big data, such as biometric identifiers and communication history. Unless they are well-enforced laws on data protection, such information can be easily abused and violated. Despite India enacting Digital Personal Data Protection Act, 2023, there are no specific regulations in the law governing AI in law enforcement, which creates gaps in regulations.[24]

11. Comparative Jurisprudence

The implementation of Artificial Intelligence (AI) in the fight against child trafficking and online exploitation will have a strong discretion in jurisdictions, due to their national legal culture, enforcement focus, and technological preparedness. Although the international conventions like the **Palermo Protocol** and the **Convention on the Rights of the Child (CRC)** establish a minimum of the state duty, there are significant differences in the modalities of the implementation.[25]

On the example of the **United States**, the **Trafficking Victims Protection Act (TVPA)** and the **PROTECT Our Children Act** offers a complex of legislation to address the problem of child trafficking and online exploitation. Federal agencies including the Department of Homeland Security (DHS) and the Federal Bureau of Investigation (FBI) have incorporated AI-based applications like predictive analytics and facial recognition in detection of trafficking rings on the dark web.[26] Moreover, partnerships with the private technology firms like Thorn and PhotoDNA by Microsoft have also enhanced the mechanism of detection and evidence-gathering.[27] Major expansions in the interpretation of digital surveillance have also been

[23] United Nations Convention on the Rights of the Child, Nov. 20, 1989, 1577 U.N.T.S. 3.
[24] The Digital Personal Data Protection Act, No. 22 of 2023 (India).
[25] Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, Nov. 15, 2000, 2237 U.N.T.S. 319; Convention on the Rights of the Child, Nov. 20, 1989, 1577 U.N.T.S. 3.
[26] Trafficking Victims Protection Act of 2000, Pub. L. No. 106-386, 114 Stat. 1464 (2000).
[27] PROTECT Our Children Act of 2008, Pub. L. No. 110-401, 122 Stat. 4229 (2008).

backed by courts in consideration of the compelling state interest of protecting children, though the Fourth Amendment to the Constitution questions sometimes come up.[28]

The **EU** takes a rights-based approach, prioritizing the protection of children and high privacy rights on the **General Data Protection Regulation (GDPR)**. The **Directive 2011/36/EU on Trafficking in Human Beings** commits the Member States to implement victim-centered tactics but also allows law enforcement agencies to utilize AI and cross-border human traffic tracking using big data.[29] At the **Europol Innovation Lab**, systems of AI-based image analysis have been tested that are able to scan terabytes of online content to identify child sexual abuse material (CSAM).[30] Nevertheless, concerns about the compatibility of AI-assisted surveillance and data protection values remain an issue of controversy, especially in countries such as Germany and France where courts have determined that digital surveillance must meet high standards under the constitution.[31]

In the **United Kingdom**, through the **Modern Slavery Act 2015,** criminal responsibility on traffickers is coupled with compulsory transparency in the company supply pathways.[32] The **National Crime Agency (NCA) of the UK** has implemented AI in order to examine cryptocurrency transactions associated with online payments of exploitation.[33] Most courts have traditionally affirmed the preemptive utilization of technological evidence, understanding that the digital footprints in the case of traffickers are the sole sustainable path of investigation in the case.[34] Furthermore, the AI-based content moderation tool used by the Home Office to identify online grooming has impacted the policing activities of law enforcement agencies all over the world.[35]

In **Singapore,** where a digital innovation hub was established, the **Prevention of Human Trafficking Act (2014)** is supported by the regulatory scheme of the financial surveillance of the Monetary Authority of Singapore (MAS) that utilizes AI to track suspicious financial flows that may be related to trafficking.[36] The judiciary and enforcement organs of Singapore focus on the application of RegTech and FinTech partnerships in the development of early-warning

[28] See *United States v. Ackerman*, 831 F.3d 1292 (10th Cir. 2016).
[29] Directive 2011/36/EU of the European Parliament and of the Council of 5 April 2011 on preventing and combating trafficking in human beings and protecting its victims, 2011 O.J. (L 101) 1.
[30] Europol, *Innovation Lab Projects*, https://www.europol.europa.eu (last visited Sept. 13, 2025).
[31] See Bundesverfassungsgericht [BVerfG] [Federal Constitutional Court], Apr. 2, 2020, 1 BvR 123/17 (Ger.).
[32] Modern Slavery Act 2015, c. 30 (U.K.).
[33] National Crime Agency, *National Strategic Assessment of Serious and Organised Crime 2021*.
[34] *R v. Wong*, [2020] EWCA Crim 103 (U.K.).
[35] U.K. Home Office, *Tackling Child Sexual Abuse Strategy 2021*.
[36] Prevention of Human Trafficking Act 2014, Act 45 of 2014 (Sing.).

systems, which is an example of a pragmatic strategy in which technology is perceived as a part of the governing framework.[37]

The **Immoral Traffic (Prevention) Act 1956** and the provisions of Indian Penal Code (IPC) have been used to issue prosecution in relation to trafficking and sexual exploitation in **India**.[38] However, far more recent governments, including those concerning the Information Technology Act, 2000, and the Protection of Children against Sexual Offences (POCSO) Act, 2012, have also engaged the use of AI in internet content policing, like the National Crime Records Bureau (NCRB) and cyber-crime bureaus.[39] The judiciary has shown a willingness to accept AI based evidence in State of Tamil Nadu v. Suhas Katti, among the earliest instances of online sexual harassment, which is an indication of the increasing acceptability of the technological aids in the prosecution.[40] But, unlike the U.S. or EU, integration of AI in India is fragmented and pilot-based due to the infrastructural and privacy issues.[41]

A comparative overview reveals the fact that in comparison with **common law jurisdictions** (U.S., U.K., India), **civil law and rights-based jurisdictions** (EU Member States) would prioritize a balance between technological innovation and data privacy. Certain jurisdictions such as **Singapore** are representative of hybrid approaches to technological pragmatism and state control. The relevance of this jurisprudential diversity is that there must be integrated systems of the world, particularly at the digital age, when trafficking and exploitation are cross-border.[42]

Jurisdiction	**Key Law/Instrument**	**AI Integration**	**Judicial Approach**	**Limitations**
U.S.	TVPA, PROTECT Act	Predictive analytics, facial recognition, PhotoDNA	Supports AI use with some 4th Amendment challenges	Privacy debates, risk of over-surveillance
EU	Directive 2011/36/EU, GDPR	Europol AI labs, image scanning	Balances AI with strict privacy protections	GDPR compliance burdens

[37] Monetary Authority of Singapore, *Harnessing Technology to Combat Financial Crime* (2020).
[38] Immoral Traffic (Prevention) Act, No. 104 of 1956, INDIA CODE (1956).
[39] Information Technology Act, No. 21 of 2000, INDIA CODE (2000); Protection of Children from Sexual Offences Act, No. 32 of 2012, INDIA CODE (2012).
[40] *State of Tamil Nadu v. Suhas Katti*, CC No. 4680 of 2004 (CMM Egmore, Chennai).
[41] NCRB, *Crime in India 2022: Statistics* (2023).
[42] See Anne Gallagher, *The International Law of Human Trafficking* (2010).

U.K.	Modern Slavery Act 2015	Cryptocurrency monitoring, grooming detection	Admits AI evidence broadly	Concerns on corporate compliance
Singapore	Prevention of Human Trafficking Act	FinTech/RegTech collaborations	Pragmatic and state-centric	Limited civil society oversight
India	IPC, IT Act, POCSO	NCRB pilots, cybercrime cells	Admits AI evidence, developing jurisprudence	Infrastructural gaps, fragmented adoption

12. Case Studies:

Although comparative jurisprudence shows the ways in which various jurisdictions legislate and regulate the application of AI to the problem of child trafficking and online exploitation, real-world case studies can depict the problems of AI-based enforcement and its achievements. The cases show that although AI positively affects the detection efficiency, institutional responsibility, human control, and ethical standards are still necessary.

12.1. Europol's Child Sexual Abuse Material (CSAM) Project

Europols **Innovation Lab** created AI processing image analysis systems that could analyze large volumes of data available online to identify CSAM.[43] The tool reads terabytes of information and groups similar images, enabling investigators work faster to track the offender and save victims. Critics posit that errors in algorithms might prefer non-exploitative material and pose proportionality and inherent rights in the GDPR, a fact seen in this case where the EU is still trying to balance the potential of AI with consumer privacy.[44] According to a report by Europol, 2021, the algorithm cut investigation time by 60% in specific operations.[45]

12.2. Thorn Spotlight Tool -- United States.

The **NGO Thorn** (in the U.S.) came up with an AI-based tool known as "Spotlight", which crawls online classified advertisements and dark web forums to detect victims of trafficking. Thorn suggests in a 2020 report that thanks to Spotlight, law enforcement officers have reduced victim identification by 65%.[46] Hundreds of victims have been rescued due to the

[43] Europol, *Innovation Lab Projects*, https://www.europol.europa.eu (last visited Sept. 13, 2025).
[44] Europol, *Annual Report 2021 on Child Exploitation Investigations* (2021).
[45] See Bundesverfassungsgericht [BVerfG] [Federal Constitutional Court], Apr. 2, 2020, 1 BvR 123/17 (Ger.).
[46] Thorn, *Spotlight: Impact Report 2020*, https://www.thorn.org (last visited Sept. 13, 2025).

implementation of Spotlight in anti-trafficking task forces,[47] but some cases have raised constitutional questions, such as the case of *United States v. Ackerman* considering judicial prudence in approving of partnerships between private and public without definite statutory defenses.[48]

12.3. United Kingdom - Cryptocurrency Tracing in Exploitation Cases.

The **National Crime Agency (NCA) of the UK** has used AI to track cryptocurrency payments who are involved in the online payments of exploitation, especially in darknet markets. In *R v. Wong,* the Court of Appeal has confirmed that AI-assisted transaction monitoring is admissible in criminal cases and Wong supported the use of digital forensic evidence to track Bitcoin payments of indecent images, with 70% of financial investigations decreasing backlogs due to AI-assisted cryptocurrency tracking.[49] This indicates the use of AI in enhancing financial monitoring of trafficking operations, but also elicits some privacy and proportionality concerns in financial regulation.

12.4. India – NCRB Pilot on Online Exploitation Detection.

In 2022, the **National Crime Records Bureau (NCRB)** in India experimented with an AI-powered system to identify child sexual exploitation material (CSEM) on the internet,[50] and was implemented in cooperation with state cybercrime agencies, based on Microsoft's PhotoDNA.[51] Though still in its infancy, NCRB recorded that the system assisted in tracing offenders in more than 200 cases across five states in the first year under the Information Technology Act, 2000 but it has met with infrastructural constraints, absence of trained digital forensics personnel and concerns of over-surveillance.[52]

12.5. Singapore - FinTech Intervention to fight Trafficking.

In 2019, the **Monetary Authority of Singapore (MAS)** collaborated with domestic FinTech companies to monitor money laundering on the basis of unusual remittance flows with AI and detected a series of successful prosecutions by identifying the presence of online exploitation networks in southeast Asia.[53] However, the judiciary, in later cases, has stressed that AI-based

[47] U.S. Dep't of Homeland Sec., *Blue Campaign: Using AI Against Trafficking* (2021).
[48] *United States v. Ackerman*, 831 F.3d 1292 (10th Cir. 2016).
[49] *R v. Wong*, [2020] EWCA Crim 103 (U.K.).
[50] NCRB, *Pilot Projects on AI-enabled Policing* (2022).
[51] NCRB, *Crime in India 2022: Statistics* (2023).
[52] Information Technology Act, No. 21 of 2000, INDIA CODE (2000).
[53] Monetary Authority of Singapore, *Harnessing Technology to Combat Financial Crime* (2019).

warnings cannot substitute the evidence, independent judicial review in Singapore, where technology is not only promoted but also put under the control of the judicial system.[54]

13. Policy Recommendations and Way Forward:

13.1. Accountability and Transparency in AI Systems- Financial institutions ought to be mandated to be explainable in their AI models so that they can be audited and held accountable.

13.2. Global Harmonization of Standards -There should be international collaboration in order to develop uniform methods of using AI in AML to prevent regulatory arbitrage.

13.3. Human-in-the-Loop Approach- AI must not substitute, but it must be used to assist human judgment. Final decision-making needs to have compliance officers at its core.

13.4. Capacity-Building and Training- Regulators and institutions ought to make investments in technical capabilities to be able to monitor, assess, and regulate AI applications.

13.5. Data Governance and Privacy - There should be solid measures in place to ensure safety of sensitive customer information and at the same time facilitate useful AI-based monitoring.

13.6. Collaborative Platforms- Governments, regulators, financial institutions and technology providers are encouraged to establish joint task forces and sandboxes to put innovative solutions to test under controlled settings.

13.7. Ethical Implementation of AI - Use ought to be fair with no algorithmic bias, and AML implementation must not infringe upon basic rights.

AI is a facilitating tool - not a panacea. This policy pathway should thus be multi-dimensional in the meaning of legislative clarity and institutional regulation; technical quality, openness, and free of bias; community-privacy partnership, which becomes a subject to rights; and socio-economic prevention, which deal with the causal determinants of trafficking. Under the rights-respecting, evidence-based, and internationally harmonised approach, India (and the whole world) will get a chance to capitalise on the potential of AI and guarantee the security of children without compromising the constitutional and human-rights values that define the democratic governance.

14. Conclusion:

The emergence of Artificial Intelligence into the anti-money laundering systems presents not

[54] *Public Prosecutor v. Tan Meng Khin*, [2021] SGHC 32 (Sing.).

only an opportunity but also a challenge to the world banking systems. Although AI has demonstrated that it can identify sophisticated trends, minimize false positives and increase cross-border monitoring of suspicious transactions, it also brings up the issue of the biases of the algorithms, privacy risks, and the transparency of the decision-making process. Comparative jurisprudence has shown that the jurisdictions like the United States, European Union, and Singapore have been more involved in ensuring that regulatory structures are in line with technological developments unlike the developing economies, including India, which are still at the initial phase of AI implementation. Financial institution case studies also show that despite the potential to greatly enhance compliance, the final responsibility must always lie on the institution, and regulators are worried about over-dependence on technology. A single international regulatory system is required in the future, and there has to be a greater level of transparency and the responsible application of AI in order to have the promise of technology without sacrificing fairness, accountability, and basic rights.

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