

POLICY BRIEF

LEVERAGING THE POWER OF ARTIFICIAL INTELLIGENCE: TRANSFORMING POLICING IN PAKISTAN



CGR



CENTRE for GOVERNANCE RESEARCH
PAKISTAN

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Meanwhile, the National Initiative against Organized Crime (NIOC) continues as a flagship project from the platform of the Centre for Governance Research (CGR).

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CONTENTS

Policy Brief: _____	4
Leveraging the Power of Artificial Intelligence: Transforming Policing in Pakistan _____	4
Introduction _____	4
Policing and AI _____	4
Evaluation of artificial intelligence _____	4
The Evolution of AI in Law Enforcement _____	5
Positive Aspects of AI in Policing _____	5
Prevalent International Practices in AI _____	6
AI's Noteworthy Rise in Pakistan _____	6
A brief update on the development of AI in Pakistan _____	7
Challenges and Concerns of AI use in Policing _____	8
Recommendations _____	9
The Way Forward _____	10
Conclusion _____	11
Bottomline _____	11
Bibliography _____	12

POLICY BRIEF:

Leveraging the Power of Artificial Intelligence: Transforming Policing in Pakistan

"A blessing or a curse-depends on how humans use AI."

Introduction

In a world where machines think, learn, and make decisions, a new era of Artificial Intelligence (AI) has dawned. As AI technologies aid in crime prevention, investigation, and analysis paradoxically it has catalyzed cybercrime, privacy breaches, bias-driven delinquencies, financial infringements, for fraudulent crime as well terrorism and organized wrongdoing. It's time law enforcement agencies, policymakers, and technology developers ensure vigorous cybersecurity measures are put in place to combat AI-related unlawful activities.

Policing and AI

Today, it is essential to include AI into policing and law enforcement because it can revolutionize community well-being, resource allocation, and operational effectiveness. It is anticipated to present fresh ideas for tackling the shifting nature of criminal activity and security issues. Law enforcement organizations can proactively uncover patterns, forecast crimes, and optimize resource allocation using AI technologies like surveillance systems and predictive algorithms (Hung and Yen, 2021).

There is no question that it will lessen the need for human resources, minimize the likelihood of corruption, and improve the efficiency of enforcement activities. However, the keys to success and acceptability would include responsibility, respect for human autonomy, transparency, human centricity, risk management, and ethical concerns (Hung and Yen, 2021).

But it is crucial that to prevent crime, training programmes must be implemented, stakeholder relationships need to be nurtured, and strict supervision procedures must be set up.

Evaluation of artificial intelligence

Primarily AI is software that automates processes using algorithms. By seeing patterns in the data, it consumes, it generates results based on the data entered (Alikhademi et al., 2021). Like how people think

and make judgements, devices too can function in similar way.

AI works in three major steps:

- i. Devices gather information from their surroundings, such as cameras, microphones, and sensors, including pictures, sounds, and other data.
- ii. Special software and processes are employed to analyze and interpret the collected data, enabling the device to understand and make sense of it.
- iii. AI devices learn from processed data, identifying patterns and connections to make predictions or decisions.

Basically, they acquire knowledge from experiences and use it to make informed decisions for the future. AI devices continually improve their responses with more data, becoming more advanced as they learn and adapt from their experiences.

The Evolution of AI in Law Enforcement

The idea of AI was first explored by scientists in the middle of the 20th century as they investigated the possibility of creating robots that might mimic human intellect. At the Dartmouth Conference in 1956, where the phrase “artificial intelligence” was first used, the field of AI was formally formed (Coppin, 2004).

The goal of artificial intelligence (AI) was to create computer systems that can think, learn, and make decisions like humans. This spurred a profound transformation in the field of law enforcement, particularly in predictive policing, where data analytics can anticipate, forecast, and actively disrupt criminal activities before they take place.

Positive Aspects of AI in Policing

Predictive analytics and data mining are two examples of AI technologies that can analyze huge volumes of data to find patterns and trends, enabling proactive crime prevention. The system can also aid investigations and ensure that crimes are discovered in a timely manner (2019 Raaijmakers).

AI-enabled solutions, such video surveillance systems and predictive policing algorithms, can optimize resource allocation by detecting high-risk locations and deploying police officers appropriately, improving response times and overall efficiency (Berk, 2021).

Besides AI can speed up the management and analysis of massive amounts of data, including case files, CCTV video, and criminal records (Berk, 2021). Investigations can be made more efficient and labor-saving by reducing manual labor, eliminating mistakes, and reducing mistakes.

Prevalent International Practices in AI

AI practices differ across countries, and international approaches to AI are influenced by technological advancements, policy frameworks, ethical considerations, and societal priorities.

While it is difficult to encompass the complete range of international practices, an overview of notable AI approaches and initiatives from around the world are as follows:

The United States uses AI in predictive policing algorithms to identify high-crime areas (Zhuang et al, 2017) and optimize resource allocation (Coglianese and Lehr, 2016). It matches face features on surveillance camera footage with criminal databases through facial recognition technology. However, concerns about the reliability, equity, and potential biases of these systems have sparked queries regarding surveillance and oversight (Ferguson, 2017).

Using sophisticated surveillance systems in particular, China actively applies AI for checking. Facial recognition technology is being frequently used to monitor the public, identify people in crowded places, and even contribute to the creation of biometric profiles of people (Feldstein, 2017). Systems with artificial intelligence (AI) analyze data from a variety of sources, such as CCTV cameras, social media, and mobile devices, to identify possible risks and ensure public safety.

The United Kingdom is exploring the use of AI in police through projects such as the Law Enforcement Data Service (LEDS). This platform combines information from several sources to offer real-time insight and assist in operational decision-making (Thomas and Bennett, 2019). The Police National Database also uses AI algorithms to analyze data and find any correlations between cases. Additionally, the National Intelligence Model (NIM), which is made up of nine components, performs a variety of duties, such as recognizing crime trends to assessing the effectiveness of law enforcement efforts (Alzou'bi et al., 2014).

India had been investigating the use of artificial intelligence (AI) in law enforcement to improve current practices. Predictive policing, facial recognition technology, traffic management, digital forensics, criminal analysis and investigation, virtual police assistants, public safety, and surveillance are some common uses of AI in Indian law enforcement. In addition, in 2017, the Artificial Intelligence Task Force was formed to incorporate AI into economic, political, and legal thought processes in order to enhance the country with AI (Marda, 2018).

AI's Noteworthy Rise in Pakistan

Over the past several years, Pakistan has witnessed a substantial surge in the popularity and progress of Artificial Intelligence (AI). This cutting-edge technology has been revolutionizing various industries, ranging from Information Technology (IT) and healthcare to agriculture, finance, education, and security domain.

The emergence of extensive data banks and repositories, along with the implementation of innovative

AI-driven technologies like safe city and drone usage with geo-fencing, has significantly impacted the world of AI.

While Pakistan's AI development may still be in its nascent stages compared to some developed nations, the country has shown strides and initiatives in this dynamic field.

A brief update on the development of AI in Pakistan

Pakistan recognizes the importance of AI and has been attempting to develop it. The Department of Robotics and Intelligent Machine Engineering (RIME) NUST, which was founded in 2011, is one of the leading organizations involved in this field. It is the nation of Pakistan's first academic robotics and artificial intelligence endeavor.

The RIME provides graduate-level coursework and research in this area and adjacent fields (NUST, 2013). Additionally, the National Centre for Artificial Intelligence (NCAI) at NUST is the most recent technical project launched by the Pakistani government as of March 2018.

It seeks to make research in artificial intelligence easier and to advance the sector in line with global trends. For the development of AI in Pakistan a think tank, Center for Aerospace and Security Studies (CASS), has also been set up which intends to conduct research on emerging technologies such as AI and its implications for national security and to carry out systematic research in this domain as aerospace and AI are linked.

A ground-breaking artificial intelligence (AI) security control system, the first of its type in the nation, was launched by the Khyber-Pakhtunkhwa Police in Peshawar. Notably, the system now contains information about female militants, terrorists, and criminals in its database for the first time.

Other digital systems launched by the KP Police IT School include a criminal record verification system (CRVS), an identity verification system (IVS), a vehicle verification system (VVS), a one-click SOS alert service for educational and other vulnerable institutions, the geo-tagging of crime scenes, and hot-spot policing (Nawab et al., 2019).

Additionally, if a suspected person enters the red zone, an alarm is raised, instantly informing the closest police checkpoint. AI system in times can transform the investigative process, which now depends on obtaining CCTV video, which frequently causes delays and obstacles. The new AI system in KP allows for real-time access to critical data, allowing for quick action and the arrest of culprits. 350 or more CCTV cameras with AI security systems have been placed all around key structures in Peshawar.

To improve security, the Islamabad police have placed 200 artificial intelligence cameras at the city's most important entrance and departure points. The cameras, which are a component of the Safe City Islamabad initiative, aid in the eradication of criminal activities and assist in identifying the perpetrators of crimes (Minhas and Shah, 2019).

The Presidential Initiative for Artificial Intelligence & Computing (PIAIC) was established by Pakistan

government through several phases with the goal of reforming the country's technological education (Jamil, 2021). It is expected to provide courses and credentials in subjects like Cloud Computing and Artificial Intelligence (AI) at reasonable and subsidized costs.

In addition to serving Pakistanis abroad, PIAIC has served people residing in 28 Pakistani cities. Increasing the use of artificial intelligence in Pakistan is the objective of the program. In Pakistan, artificial intelligence (AI) is developing rapidly and is expected to increase dramatically in the next decade.

Increased internet usage enhances cyberattacks, particularly in a developing country like Pakistan. These cybercrimes are common against children, demanding the implementation of automated systems and models to detect and counteract these crimes.

For example, in 2020, a total of 2,960 cases were recorded, indicating a 4% increase compared to 2019 only in Punjab province. The officials in the cybercrime wing believe that the number of cybercrime incidents at the end of this year (2021) will cross almost 0.3s million (Hameed and Naqvi, 2021). These cases involved physical and sexual violence, leading to even life-threatening situations for the victims. 51% of victims were females, and 49% were male children in these cases.

There have already been several projects carried out by various universities in Pakistan to develop an AI-based vehicle recognition system. Among these projects of consideration is the Artificial Intelligence-based Video Analytics for Traffic Management (AiVAM), developed at the I-VISION lab, Institute of Space Technology (IST), Islamabad (Javed, 2021).

In cooperation with NADRA and the Islamabad Police, the AiVAM system was created especially for the Islamabad Safe City Project. However, the effort is impeded by excessive red tape in the workplace. The goal of projects like AiVAM is to record traffic density, traffic demographics, and vehicle identification based on make and model.

For instance, the user can query a particular make and model of a car and the AI model can detect all the vehicles of this make/model from the video archive of Safe City. This can help identify malicious vehicle, whose registration number is unknown.

Interestingly first AI talk show produced in Pakistan by the Discover Pakistan channel is another noteworthy accomplishment (Farooqi, 2023). The channel's mission is to advertise Pakistan and its travel industry. The CEO of Discover Pakistan, Dr. Kaiser, stated that he wants to tap into Pakistan's 25 billion US dollar annual tourist potential. The brand-new talk show, which will showcase Pakistan's natural beauty and encourage travel, will features all AI hosts and anchors.

Challenges and Concerns of AI use in Policing

One of the most common critiques levelled towards predictive policing is that it is biased. AI algorithms might unintentionally propagate biases if they are not built and trained on diverse and representative datasets. ML systems are usually vulnerable to various aberrations throughout the data collecting and processing stages (Hagendorff and Wezel, 2020). This could have discriminatory effects that dispropor-

tionately harm Pakistan's marginalized populations.

The usage of AI-powered surveillance systems prompts questions about individuals' right to privacy. As there are more cameras and sensors, there will be more watching and less privacy (Joh, 2019). To avoid the exploitation of personal data and guarantee adherence to moral and legal requirements, clear rules and safeguards should be put in place.

Understanding how decisions are made in AI systems can be difficult due to their complexity. When supporting or replacing human decision-making, AI's opacity is thought to cause problems with responsibility and accountability.

To guarantee public trust and confidence, policymakers and law enforcement organizations must prioritize openness and accountability when using AI solutions (Aung et al., 2021).

Lastly, the challenge of access to technology and expertise may limit the successful implementation of AI in smaller or less developed regions in Pakistan.

Recommendations

- i. The development and deployment of AI in police should be guided by ethical frameworks. These should consider Pakistan's cultural, social, and legal context while addressing concerns like justice, transparency, accountability, and privacy protection.
- ii. AI algorithms should be inspected and evaluated for biases on a regular basis, and varied datasets should be utilized throughout development and training to ensure fairness and avoid discriminating outcomes.
- iii. Strict rules should be put in place to control the gathering, storing, and use of personal data. To defend people's right to privacy, safeguards including data access limits and anonymization methods must be put in place.
- iv. In addition to providing adequate funding and training to law enforcement organizations, especially the Cyber Crime Wing, the local government also needs to amend the law to allow all law enforcement agencies to take responsibility.
- v. Deploying models such as PrevBOT, DAPHNE, and iCOP to recognize and counteract grooming phases in a cyber environment requires the use of experienced agents. Investigators can acquire information about host servers and URLs by efficiently installing network technologies currently utilized by UNICEF and other relevant agencies.
- vi. If the relevant authorities employ an AI-enabled system, better forensic tools can further help in identifying the email and URL information, resulting in an easier capture of the hackers. The Australian Police Department's use of AI to combat internet crimes against children is a good model that the Pakistani government might follow.
- vii. Policymakers should encourage public involvement and understanding on the use of AI in law

enforcement. By creating impartial monitoring organizations, we can make sure that AI systems are utilized responsibly and in accordance with moral and legal obligations.

- viii. Law enforcement employees should acquire specialized education on AI technologies to comprehend its potential and constraints. AI systems should be regularly evaluated and monitored to determine their efficacy and fix any issues.

The Way Forward

- i. To effectively leverage AI-based technologies in the legal sector and address concerns about job displacement, training and education for legal professionals are essential.
- ii. Creating moral norms and rules that prioritize the ethical and responsible use of AI in judicial procedures is a crucial first step.
- iii. Ensuring AI applications are open, equitable, and respect individuals' rights requires robust policies and laws.
- iv. Bridging the digital gap to expand access to technology in rural areas will ensure equal access to AI-powered legal services.
- v. Impartiality and fairness in AI algorithms used in court cases are paramount. Objective data for training AI algorithms and providing legal practitioners with proper training in AI systems are necessary measures to achieve this.
- vi. Collaboration among legal professionals, politicians, and technology specialists is vital to tailor AI applications to Pakistan's unique judicial needs, and tools like FADE can help ensure ethical usage.
- vii. Interdisciplinary teams can ensure AI-powered products benefit all parties involved. Ongoing investment in research and development will unlock new opportunities for innovation and address evolving challenges in AI technology, further enhancing Pakistan's judicial capabilities.
- viii. A centralized data platform is essential to fetch and analyze crime-related data, which can aid in the rehabilitation of offenders and identify relevant crime patterns. Utilizing AI software to analyze data can yield valuable insights for effective crime management.
- ix. Continuous monitoring and evaluation of AI applications are crucial to assess their impact on efficiency, accuracy, and fairness in the justice system. Regular evaluations will identify areas for improvement and ensure AI applications align with their intended objectives.
- x. Pakistan's judicial system can leverage the power of AI to enhance procedural efficiency, accuracy, and fairness by adopting a comprehensive and ethical approach to AI integration.

Conclusion

Artificial Intelligence holds immense potential for enhancing policing in Pakistan, offering opportunities to improve crime prevention, resource allocation, and data management. However, this integration must be approached with a strong emphasis on ethics, transparency, and accountability.

To fully channel the benefits of AI, it is crucial to address concerns regarding privacy, bias, and accountability. Implementing robust guidelines, promoting transparency, and ensuring human oversight will bolster public trust in law enforcement practices. Upgrading cybersecurity systems and leveraging AI alongside human force can aid in countering cybercrimes and safeguarding vulnerable individuals, such as vulnerable groups, from online abuse.

It is without doubt that AI-powered policing can play a significant role in advancing law enforcement capabilities while maintaining the rights and freedoms of individuals.

Bottomline

Artificial Intelligence is the key to unlocking the true potential of the Criminal Justice System, enabling efficient data management, enhanced crime identification, for a more just and secure society.

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