

USE OF ARTIFICIAL INTELLIGENCE FOR BETTER AND RAPID CRIMINAL JUSTICE SYSTEM

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Abstract

Modern technology is changing the public sector as well as the “criminal justice system”. Intelligent solicitations are considered to foresee crimes, computerize legal procedures, and calculate relapse. Utilization of intelligent technology for enhancement of criminal justice, police work and law enforcement eventually helps to develop an advanced and intelligent criminal justice system. However, not all technological applications are necessarily clever or smart. We examine smartness from an empirical and prescriptive viewpoint based on a literature review in order to create a list of deciding factors. For every smart project in public sector, we define the application of technology as a fundamental need as well as efficiency, effectiveness, and involvement as normative requirements. In light of the particulars of criminal justice system, the terms legality, equality, and transparency might be added to the list of requirements. In summary, this study offers and investigates criteria for evaluating the applicability and effectiveness of technological improvements in the “criminal justice system”. It would be simpler for practitioners and policymakers to determine whether employing “artificial intelligence” in criminal justice is appropriate and, more significantly, without the help of the catalogue created here.

Key words: Criminal Justice System, Artificial Intelligence, Pakistan, Technology and Law and Enforcement.

1. Introduction

Globally, use of cutting-edge technology in criminal judicial system has risen. This is shown by discussions of recidivism risk assessment applications, predictive policing also algorithm-based systems that assist criminal examination proceedings. The research in the criminological texts addressing statistical and factual concerns pertaining to uses of cutting-edge technology is regularly and quickly increasing. This breakthrough is a result of a larger trend that uses intelligent technology to promote transformation in the public bodies. Smart government refers to public sector projects based on technological advancements like artificial intelligence, and big data cogents, also sensor systems. According to smartness has evolved into a desired trait for all forms of governance and is now starting to influence criminal justice, creating an advanced paradigm for smart criminal justice (J.Shead, 2020). However, just because intelligent technology has the potential to be utilized in public sector generally and “criminal justice” systems particularly, does not mean that it will be. A recent research from Switzerland that shown that in real sense, policy-makers also consumers think little on origins and impacts of the algorithms which are used to support this thesis. The research found that they often don't feel responsible for comprehending the precise operation of the used programmers. Furthermore, a request for an unbiased, scientific examination is rare, which demonstrates an unquestioning faith in the creators of these instruments. According to the literature, which supports this factual study, the utilize algorithms in criminal justice entails significant risks, especially when it comes to the handling of sensitive personal information, a absence of algorithm transparency, discriminatory effects, and diminished accountability (Seldadyo, 2022). It is essential to talk about the normative issues given the possibly catastrophic judgments made using smart technologies in criminal justice. The proper use of algorithms must thus be ensured by a principle-based normative approach. However, there is a lack of a list of standards that may be applied when applications are gathered and employed by criminal justice system from the viewpoints of both public management and law (Simmler, 2020).

After that, the goal of this article is to take the results of research on smart government also to develop them in a concept of smart criminal justice which shall be is based on principles and takes into consideration the statutory and regulatory requirements that go along with this use of technology. The fundamental issue is what standards the algorithmic system's implementation must meet in the complex area of criminological justice before we can use the term "smart criminal

justice." We conduct a literature assessment of the most recent studies on e-government to ascertain what standardized requirements are imposed on it. After examining how "criminal justice system" varies from the rest of the public sector, we develop a list of normative prerequisites for effective efforts in this area based on the findings of the literature research. By doing this, we add to the crucial conversation calling for a principle-based, accountable, and responsible approach to technology. Technology-based solutions should be routinely assessed both throughout the procurement process and during implementation based on systematic collections of normative criteria. Then and only then can we genuinely discuss smartness (Johansson, 2022).

2. Smart Government

Governments throughout the world are increasingly tasked with projects aimed at maximizing the potential of new technology, particularly in the context of providing services to residents. As a virtual assistant to aid residents in finding answers to their inquiries, several governments have implemented so-called catboats. In order to assess the threats to the public's health, several cities have put sensors in the street lighting to gather meteorological plus air quality data. Initiatives of this kind are referred to as smart governance as a general phrase in administrative sciences. The phrase has been included into global study on public management. There is no agreement on how to define smart governance, according to an assessment of the relevant literature. There are a number of techniques that, although they somewhat overlap, have distinct focuses. A creative mixture of emerging technology and transformation in public sector has been used to characterize smart governance. As a result, technology is necessary for wise governance. Data (both large and open data), new technologies (such as sensors, block chain, and innovation), and these three key factors are underlined. According to those that focus on the significance of data, e-government is a novel concept for utilizing the information technology in public sector to acquire, link, and evaluate vast amount and diversity of data." The literature also discusses a variety of other aspects of smart government, such as entrepreneurship, openness, public involvement, assimilation, rebuilding, data based decision making, and sustainability, in addition to technology (Lember, 2018).

3. Technology as a basic necessity

There are various definitions of smart governance, according to the literature review. But it appears like most people agree that up-to-date information and technology grounded on algorithms is necessary. Because they use algorithms to make judgements while evaluating enormous amounts of data from several sources, these latest information technologies may be referred as to intelligent technology. On the basis of the assumption that smart governance can be described by the practicing sophisticated intelligent technology that leverages the most recent technological developments and by more or less conclusively specified normative quality of intelligence. The following sentence may be used to express the first descriptive element in terms of a necessary condition: Intelligent administration requires that Every smart government is built on this initial element, which just specifies that intelligent technology must be used in some capacity. This descriptive notion must, however, be developed in the subsequent step by specifying the circumstances in which using technology is truly intelligent. The second component is normative since it by definition includes a value-loaded judgment (Gunduz, 2017).

4. Traditional vs. Smart Criminal Justice Systems

In order to execute transitional justice, traditional judicial institutions are increasingly seen as essential tools. Other names for traditional systems include customary, informal, community-based, grassroots, indigenous, and local. Their attraction stems from their ability to have a greater impact on the local populace and, hence, to be more successful in fostering a sense of justice and mending ties between neighbors. They enable the incorporation of local settings into transitional justice procedures and are more known to the local populace. They could also be easier and quicker to put into practice. The criminal justice system is increasingly using intelligent technologies. Predictive policing based on technology is already being used in many places to try to stop crimes. Predictive policing tools like PredPol and Hunchlab are heavily used by US police forces to determine when and where crimes are most probable to happen. Other algorithm-based techniques have made a splash in criminal procedures, such as “Correctional Open Management Profiling for Alternative Sanctions” (COMPAS) program. US courts employ COMPAS to determine the likelihood of recidivism, and it has a significant impact on punishment determination and execution. With only a few instances, it is already possible to assume that the criminal justice system is becoming more digital and there is solid reason to think this tendency will continue to grow (Masterson, 2014).

There are several options to develop technology. Penalty orders might be (partially) automated, particularly in the case of minor offences. Based on the police records, this type of system would automatically provide offender's private information and a description of the circumstances. The algorithm would then create the order on its own and, if required, suggest the specific punishment. When imposing limitations on automation in this area, a definite amount of discretion is constantly required because “criminal law” needs the individual's culpability be completely taken into consideration throughout the penalizing process. Criminal proceedings will likely continue to be digitalized, though. Other situations could also benefit from rational criminal justice. The distribution of detention facilities may be programmed to the extent where no humanoid involvement is necessary depending on judgement and other unique circumstances. It appears that a humanoid robot which patrols the lanes examining parking slots and imposing fines is viable, except when the parking spots are equipped with sufficient sensors which automatically record parking offences. Incentives for technology-supported engagement and advanced data management. Modern data mining techniques and automatic facial recognition software are often employed in police operations (Poliyanoy, 2020).

Smart criminal justice has two characteristics with smart government: a fundamental descriptor need and normative requirements. According to the concept of e-government, smart criminal justice refers to the technological applications to the criminal justice system that depends on algorithmic judgement and the compilation, evaluation, and handling of vast data. This definition states that criminal justice comprehends police activity regarding areas of security, prevention, and criminal prosecution, as well as the functions of criminal adjudicating authorities, and law enforcement in the concluding phase (when enforcing imposed sanctions).

5. Smart Criminal Justice Systems Functionalities

Artificial intelligence (AI)-based technology may be useful in a range of situations and for a variety of goals. There is a lot of sales hype about AI in courts. It has been said that doing so would make it fairer, and furthermore, AI does not grow weary and does not rely on its glucose levels to operate (unlike human judges). Most of it is just conjecture. However, the material here mostly focuses on what is already known from empirical data. Its emphasis is on proven technology, or AI that has previously shown promise in real-world applications. But can robots already make decisions? On this one, the verdict is still out.

5.1 Information Organization: When organizing a big number of instances or in complicated cases with plenty of information, for example, it might be helpful to recognize patterns in text documents and files. The automated analysis of electronic data for discovery known as eDiscovery that occurs before the commencement of a court proceeding is a case study from the USA (United States of America). Machine learning AI is used in eDiscovery, which develops the best algorithm for removing the pertinent information from a vast quantity of data via training. The search keywords and code are agreed upon by the parties. The agreement is evaluated and approved by the court. The courts in the US and the UK have approved of this technique for document inquiry. Compared to manual file investigation, process is quicker and more precise.

5.2 Advise: People and future litigants who are seeking for a solution to their issue but are unsure of their options may find AI helpful. Advisory AI may also be useful to attorneys. AI provides an answer to a query in addition to looking for relevant facts. The user now has the option of accepting or rejecting the recommendation. This advisory position may prevent disputes or legal action by supporting people in resolving more of their problems on their own. Support in finding a solution is also an option if the advice is insufficient. The judge's evaluation may become more of a normal process with assistance in creating a remedy that needs court review, such as summons or a request. A concrete illustration of this position in action is the Civil Resolution Tribunal (CRT) in the Canadian province of British Columbia. To settle disputes relating strata, subsidized housing, the CRT was established. When it was successful, the authority's purview was gradually broadened, and in April 2019, it was extended to cover injuries brought on by collisions. CRT provides the Solution Explorer, which offers free legal resources for public and calculators accessible around-the-clock. Paved pathways, interactive questions and answers, dispute resolution, and trial practices are all available at CRT. Below is a specially created expert system that is updated every

three months. Human experts keep the system up to date using user input and data from system analyses.

As a result, this is not the actual AI. The District Court of East Brabant in the Netherlands is currently conducting research on the use of artificial intelligence (AI) to cases involving traffic violations, where a citizen register petitions to the court as part of the administrative handling of traffic violations, in collaboration with the Jheronimus Academy of Data Science, Eindhoven University of Technology, and Tilburg University (JADS). The aim of this project is to create a tool that will assist judges in gathering information and making decisions in such circumstances. The research makes use of information from the Zeeland-West Brabant and East Brabant District Courts as well as the Arnhem Leeuwarden Court of Appeal, which listen to appeals. This was the only way to have enough data to work with remember the 100,000 cats? Undoubtedly, this is still a test. Results are anticipated during 2020.

5.3 Predictions: There is a lot of interest in AI that makes court judgement predictions. The common name for this in English and American is predictive justice. This phrase has sparked debate because the outcomes of the prediction algorithms are not fair or predictive. The term "prediction" is preferable because it incorporates recent discussions. The outcome resembles a prediction more than it does established fact. Both the weather and court proceedings have the potential to be unexpected. That danger rises when the case is made more complicated by more facts and problems. One of the main factors driving interest in AI is that it makes risk reduction promises. Various prediction techniques are commercially available in the US. We are unaware of how they operate since their inner workings are considered trade secrets. There are certain noncommercial uses, however, and we do have some knowledge of how these work.

For instance, a bunch of American researchers established a machine learning tool that asserts to be 70.2 percent accurate at predicting Supreme Court of the United States (SCOTUS) case outcomes and 71.9 percent accurate at predicting the voting preferences of specific judges. This tool makes advantage of facts concerning the case as well as the political inclinations and previous voting records of each judge. The application that claims to be able to predict decisions by the European Court of Human Rights has received the most attention (ECHR). This tool makes predictions on whether the Court will decide that a specific article of the European Convention on Human Rights (ECHR) has been violated in a particular situation using machine learning and

natural language processing. The method makes use of data from previous judgements. This AI asserts that its accuracy rate is 79%. The information that this AI analyses has already undergone several "complexity reduction" processes. The bulk of the cases handled by ECHR are managed via registry, the Commission, or chambers with one or more judges. The investigators (Aletras et al.) solely utilised rulings from HUDOC, the ECHR's online database, that excludes instances brought about by improper petitions.

Simply put, they couldn't utilize these requests for their experiment since they weren't accessible. It's important to note that the words of the decisions were crafted to support the verdict. According to Aletras et al finding's the facts of a case, as they were given to the court, are the best predictor of how the case would turn out. Because it can spot patterns in text documents and swiftly determine potential judgement outcomes, they see it as a helpful tool for judges. Another real-world use of AI is the prediction of recidivism in criminal cases, which comes from the US. In certain areas, U.S. criminal courts utilize the "Correctional Offender Management Profiling for Alternative Sanctions" (COMPAS) to find out whether to sentence someone to prison or release them early based on their likelihood of recidivism. The argument put up by proponents of adopting techniques like COMPAS is that by increasing objectivity in the evaluation of the risk of recidivism, fewer persons are held. More individuals are detained in the US than in any other nation, which is undesirable for a number of reasons. COMPAS analyses information from the criminal history and a question survey, which includes inquiries such, "Is it okay for someone to steal while they're hungry? Disagree, strongly disagree, etc. However, the tool has certain drawbacks. By examining historical data, it regularly miscalculates recidivism amongst African American offenders in comparison with Caucasian Americans. The material is used to show that offenders don't constitute a threat and shouldn't be held in custody. Nevertheless, judges who use the program actually place more individuals in jail than previously.

6. Mechanism of Smart Justice System in Pakistan: A Case Study

In the post-COVID 19 world, people's tolerance for governmental institutions that cannot or will not care for them will decrease due to the misery brought on by the life losses as well as destruction assets, the recession, and joblessness. Thanks to this unforeseen driver of digital transformation, the court has a rare prospect to arm itself in such a short time span and establish itself as the leader in the provision of public services. Its involvement might also ascertain critical in creating a climate that is open to investment. In the recent "Access to Justice Program" trial, statistics showed that an inexpensive (0.1 percent of GDP) investment in technology infrastructure for better justice delivery led to a logarithmic increase in investor's reliance (0.5 percent of GDP). Courts are still dispensing justice in many nations throughout the globe using either their digital infrastructure (courts in United Kingdom, and UAE for instance) or accessible technologies (courts of US as well as India). The current explosion in our start-up ecosystem and software which provided with locally built, less priced digital technology available, together with the arrival of the 3G/4G technology for cell phones, which has offered, are two key reasons that make digital transformation in Pakistan more realistic.

6.1 E-filing: Smart technology to be operated effectively and transparently, data must be entered at this stage, which serves as the foundation of a smart court. A user-friendly interface will be needed, along with registering, a special username and login password, a cascading menu of the type of document to be filed, and a series of queries the applicant must answer that include all the information already on the printed copies of filing proformas, like the applicant's personal information and that of their attorney, the nature of the pleadings being filed, and other information. The required fees and levies will be calculated using smart computing, which will also produce a payment slip and a receipt for the PDF application form. Financial institutions, mobile networks, online platforms, as well as utility companies currently employ secure systems required for online payments, applicant biometric verification, and electronic signatures, supported in turn by NADRA and mobile network providers by checking for CNIC and doing biometric verification. In certain public service delivery models, Even the requirement for CNICs is beginning to be phased out in favor of the usage of Personal Identification Numbers (PINs) and One Time Passwords (OTPs). By taking benefit from "low hanging fruit" also making electronic-filing accessible to everyone at all times via any device, the timely acceptance of such system is therefore

quite achievable. The Case Alerts Management System, one of the courts' current automation tools, may be included into e-filing as well as the ability to examine printed copies of the application, if necessary. There should be a comparable one-window fast-track facility available for the submission of urgent applications. The use of e-filing may be encouraged by providing decreased waiting times for fee confirmation and case fixing, tax advantages, and other benefits. It also has numerous additional benefits, such as the ability to identify applicants intelligently to highlight prior court cases, reduce paper usage, group similar types of cases together, provide incentives to taxpayers, schedule hearings with the parties' cooperation, automatically allocate cases to the most suitable bench or court, end logistical delays brought on by the absence of physical copies in the courtroom, and even permit video conferences. The move to digital filing alone over time may eventually eliminate the need for physical filing. All of the evidence may be delivered digitally in two to three years, with equal access for all participants. E-filing has the potential to advance in sophistication and efficiency when Artificial Intelligence (AI) is introduced (Mellouli, 2019).

The procedure of serving summonses and notices may be automated by sending a confirmed email and SMS to the recipient's recognized email address or cell phone number. On each of these invitations/summons, it is possible to create a special Quick Response Code (QR Code), which is a black grid that resembles a labyrinth and could be scanned for data. The receiver may be notified that the notification has been received by sending a confirmation to the sender through their smartphone after scanning the code. Without having to go to a different website, a QR code may also connect to information about the hearing's date, time, and place. These can be made for each participant. Judges postpone matters for future hearings even if the current system permits receipts of service through courier, registered mail, and/or public notice to be placed into the court file. The courts themselves must tightly restrict this conduct.

6.2 E-hearing: The timely implementation of such system is therefore highly feasible by utilizing the technology and making electronic-filing accessible to everyone at all times via any application. In order to record witness testimony from abroad, the Supreme Court already uses video conferencing in various civil courts as well as registries. The aforementioned programmers may be downloaded instantly and used, unlike specialized technology that would take a long time to transfer for use by all other courts. It is possible to give rules on conduct, dress, appearances, permissions, timings, etc. The Seoul Protocol on Video Conference in International Arbitration, which was published in March 2020, and other existing rules may be reviewed, taken from, and

amended to suit our requirements. Video conferencing aids including vulnerable and marginalized victims and witnesses by offering a conducive space during producing evidence and facing cross-examination. Participants who are physically or mentally impaired may also be accommodated. Rural litigants may take part in proceedings without having to pay for travel expenses to hearings (Breier, 2017).

6.3 E-records: Audio/video recording, which enables the production of transcripts of proceedings for each hearing, is a less well-known technical advance. This prevents judges from taking notes so they can focus on the proceedings; judges can refer to specific statements in the transcript rather than depending on recollection, both of their own and others'; Every statement made during the proceedings becomes a part of the record, which has a chilling effect on inappropriate behavior; additionally, it saves time and increases efficiency by enabling judges to interpret the statutes as it goes by and mark it for subsequent review. Every participant will be able to track the events by referring to the text, which may be shown in a variety of languages, thanks to the combination of speech recognition and transliteration in real time, which may be conducted with e-recording and e-hearing.

6.4 E-certification: When a judgement or order is published, the appropriate section of the court handles requests for certified copies, and when the applicant has enough time, a copy is prepared for pickup. A certified copy may be sent by email and courier within a certain number of days after submitting an online application and making the necessary payment; the sending of the document will be taken as evidence of receipt (Schedler, 2019).

6.5 Laws that are amended: To implement the suggested measures, the Code of Civil Procedure, 1908, specifically sections 128, 142, and 143, as well as Order III, Rules 1, 3, 5, and 6, Order IV, Rules 1 and 2, Order IX, Order X, Order XVI, Rule 21, Order XXIV, Order XXVI, Order XXVII, Order XXIX, and Order XXIX, Order, will need to be amended.

6.6 Risks and difficulties: Systemic and technological difficulties will arise throughout system's transformation. Groups who are strongly embedded in conventional operating paradigms and change-averse for a variety of reasons, including fear of technology, concern over job loss, or both, will oppose systemic changes. By providing training, retraining, and reallocating persons and

resources, they may be partly addressed. The usefulness of text-based information is diminished by technical hazards such as cyberattacks, proliferation, hacking, costly training expenses, restricted access to fast internet connections, and illiteracy. The majority of digital systems, however, have built-in safeguards for assuring their secure operation. The vast field of jobs cybersecurity is provided by experts whose skills will inevitably need to be co-opted. The services must be user-friendly for everyone, available in English, Urdu, and other local languages, and supported by YouTube tutorials, tutorial videos, and prompts for problems with aptitude and literacy. Our court system's transition to digital technology is probably going to result in the establishment of a network of supplemental resources, such as resource centers and online legal aid help centers. This will benefit the system and create at the same time as it advances universal digital literacy, a goal that needs to be set for the future (Triponel, 2010).

7. Conclusions

We believe that this use AI to improve law enforcement, criminal justice, and police work eventually contributes to the establishment of a smart criminal justice. Though, not all technological applications are necessarily clever or smart. We examine smartness from an empirical and prescriptive viewpoint based on a literature review in order to create a list of deciding factors. In conclusion, this study provides and explores standards for evaluating the validity and use of technological advancements in the prevailing system of criminal justice. It will be simpler for practitioners and policymakers to determine whether employing technology in the field of criminal justice is appropriate and, more importantly, when it is without the help of the catalogue produced here.

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