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INNOVATION ARTICLE

ARTIFICIAL INTELLIGENCE-DRIVEN DIGITISATION OF LEGAL SYSTEM IN SRI LANKA - A CHALLENGING APPROACH

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ABSTRACT

The judiciary in Sri Lanka faces serious problems of case backlogs, resulting in inevitable delays in the delivery of justice. This paper considers the possibility of utilising computer technology and artificial intelligence (AI) as a method of overcoming this urgent problem. The introduction of AI-powered tools to study the digitised legal records helps to automate the administrative workload, manage the case flow through predictive analytics, and identify inefficiencies in the system. It aims to streamline the judicial process by ultimately improving the efficiency of Sri Lanka's legal system. Evidence for this proposal is derived from publicly available data, including Ministry of Justice reports and global best practices in digital legal systems. The paper highlights the feasibility of digitalising certain areas of the legal system and implementing AI-based solutions based on successful examples from countries like Australia, China, India, and Singapore. The expected outcomes include faster resolving of cases, reduced administrative burdens, and improved public trust in the legal system, ensuring all citizens have timely access to a more transparent criminal and civil justice system.

Keywords: ***Artificial intelligence; case backlog; digitisation; legal system; Sri Lanka***

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INTRODUCTION

The contribution of the judiciary to the advancement of the economy, socio-cultural development, and maintaining the peace, justice, and harmony of the country is enormous. Remedial measures to mitigate delays in resolving legal cases are a need of the day across the globe. Managing the judicial process efficiently with the limited resources of the existing system while incorporating digital assistance will be a proactive but challenging measure. Case statistics, according to the Ministry of Justice, show a rising number of pending cases from 1,096,118 in 2021 to 1,127,265 in 2022. In 2023, the number of pending cases was as high as 1,122,113, with an average number of 4,432 cases per judge in the district and magistrate courts[1].

Currently, almost all court cases are heavily paper-based, resulting in significant delays in resolving cases[2]. Digitising case records presents an opportunity to improve case management and reduce delays. This paper explores how digitalisation could positively transform the way legal cases are managed by the judiciary and other relevant authorities involved in the criminal

and civil justice system in the country. It also discusses the possible barriers to the wide-scale implementation of this concept at present.

Around the world, it has already been evident that digitisation and incorporation of artificial intelligence (AI) could certainly help in better case management, minimising human errors, and expediting the legal processes. The Victorian Law Reform Commission, as indicated in its consultation paper in October 2024 titled 'Artificial Intelligence in Victoria's Courts and Tribunals,' identifies six principles for the responsible and fair use of AI in courts and tribunals. These include fairness and equity, accountability, human oversight, transparency, contestability, privacy, and data security[3]. In Sri Lanka, applying AI could modernise the traditional methods, making the legal system more responsive, effective, and efficient[4].

Delay in resolving cases, both criminal and civil, leads to considerable social, emotional, and financial strain on the aggrieved parties and their associates. This also leads to reduced public trust and heightened frustration towards the entire legal system of the country. The dictum "justice delayed is justice denied" (*lex dilationes abhorret*) highlights the need for expedited legal procedures warranting urgent change[5]. Digitising records and automating processes such as submissions and authorisation during the legal process will, among many other advantages, make case management faster, reduce communication delays, and improve how resources are allocated.

Sri Lanka's judicial system already faces a significant backlog of cases. The COVID-19 pandemic made this problem worse, as the present court system heavily relies upon a process mandating the physical presence of parties (prosecution, defense, counsel, and witnesses) and paper documents. While new projects like the Ministry of Justice's digitisation plan have been introduced and are moving forward, there is still a need for specific reforms aimed at expediting the process of resolving cases[6,7]. The number of judges for hearing a disproportionately heavy number of cases is 15 per 1 million of the population in Sri Lanka. In addition to the number of judges, there is also a severe shortage in the rest of the manpower in courthouses, the physical (infrastructural) facilities in the courts, as well as the number of courts (especially magistrates and district courts) throughout the country[1].

Compared with the international standards, the above situation in Sri Lanka could be considered quite unsatisfactory and may even contribute to lowering the international rankings of Sri Lanka, as the proper and timely execution of justice is one parameter/determinant of measuring how civilised a society is. Prompt and proper execution of justice without undue delay is invariably one aspect considered by foreign investors before launching large-scale investment projects in Sri Lanka. Therefore, while using the existing facilities, digitalisation of legal records and court proceedings using AI will contribute immensely to the clearance of backlog cases and expedite existing cases, improving the legal system and its outcomes[6,7].

This paper proposes the digitisation of legal records and procedures and the use of AI as a method of expediting the legal processes and improving the quality of the existing system. It also discusses the possible challenges and solutions to overcome them.

DISCUSSION

The delay in the legal procedure of the execution of justice frequently stems from the use of manual methods for handling data and personnel. Bureaucratic barriers, too, will greatly add to this. The outcome is a negative impact on the effectiveness of the court system. Nonetheless, several countries in Asia, including China, India, Singapore, Malaysia, and Japan, have implemented sophisticated digital technologies to speed up the process of investigation, demonstrating the potential of digital transformation in the justice system[6,7]. Research indicates that artificial intelligence can greatly boost the legal sector by reducing mistakes, speeding up the resolution of cases, and enhancing overall productivity[7,8,9]. Therefore, the adaptation of digitisation at an institutional level, implementing centralised systems to improve efficiency, is necessary to prevent the delays that we experience today.

An electronic case management system can be initiated, allowing electronic recording of statements in police reports with e-signatures to ensure authenticity[8]. The capacity to send electronic files to the Attorney General's Department, other legal authorities, and courts, with scanned documents attached, would further accelerate the legal process[10]. To enhance the accessibility of justice, recording verbal proceedings in all courthouses and transcribing them electronically becomes essential. Additionally, video conferencing for evidence presentation and submitting expert written evidence through online portals can address the logistical challenges faced by expert witnesses, including the judicial medical officer (JMO), officials from the Government Analyst's department, and so on[7].

The digitisation of legal records and processes is becoming increasingly essential to modern judicial systems. Several innovative practices are already in use globally. They could significantly benefit Sri Lanka's legal system too. For instance, many countries have introduced electronic summons (e-summons) systems, which also include a confirmation of receipts generating system-created digital delivery receipt. This ensures transparency in legal notifications and accelerates communication, minimising the delay in tendering the summons, which is a significant contributory factor to the undue delay in the initiation of legal action in present-day Sri Lanka[10]. Centralised registers of expert witnesses, complete with present working place, reliable contact number, and other contact information such as official and personal e-mails, can further enhance operational efficiency[11]. It is common knowledge how much the police struggle to find out the current whereabouts of a JMO when he is either transferred to another station, is temporarily on foreign soil for further studies, has left the country for good, has retired, or is even not alive anymore. Centralised e-registers will automatically provide such information and the details of the officer currently covering the duty of the officer concerned. At present, there is no streamlined system to trace medical expert witnesses, and registrars of courts generally tend to quote the next higher official (the director of the hospital or even the director general of health services) as a rather ineffective means of summoning a particular doctor whose whereabouts are not clear. As such, e-portals and e-registers will streamline the summons process[8]. Furthermore, tracking information of the suspects across pending cases in different courts provides a more unified judicial approach, minimising unwanted delays[11]. The digitisation of hearings and their transcription improves accessibility and allows for better record-keeping, curtailing challenges from the defense due to discrepancies in records. This will drastically reduce the space used as a 'record room' in present-day courts, where heaps of paper documents are kept for many decades even after the case is long over. Electronic case records, especially of cases heard in superior courts, will enable easy reference by lawyers seeking precedents and by law students. This will revive the presently almost dormant NLR (New Law Reports) and SLR (Sri Lanka Law Reports).

Furthermore, videoconferencing/ teleconferencing facilities for presenting evidence alleviate logistical challenges for witnesses (including expert witnesses, vulnerable witnesses such as the mentally ill and minors, and high-risk witnesses such as political prisoners), provide a protective environment for the parties as well as those in the courtroom, reduce valuable time and resources required to travel long distances, enhance the ability to obtain second opinions from those across the globe in highly contested cases, and allow permanent recording in a retrievable form, all of which will contribute to a more efficient, accurate, and 'client-friendly' legal procedure[7].

Further, digital assistance will speed up the process of concluding the case. In China, AI tools examine extensive collections of data from previous cases, propose appropriate punishments, and recognise discrepancies in statements, resulting in quicker and more precise judgments[10]. This will assist in minimising human error in interpretation and corroboration of facts and evidence in lengthy case records, assisting the honourable judges in arriving at more accurate decisions. Furthermore, AI technologies have played a key role in refining criminal investigations and the delivery of legal outcomes by managing cases and administrative duties more efficiently[11,12].

Proposed AI-based System for Sri Lanka

Considering the situation in the country, this paper proposes an AI-driven system for digitising legal records in Sri Lanka as a pilot project with the possibility of expanding it in several directions. The system automates the conversion of handwritten notes, voice recordings of hearings, and images into digital formats, which are then stored in a centralised database/server with restricted access. This facilitates easy case referrals and progress tracking, leading to resolving the cases in an expedited manner. By digitising police records at an institutional level and expanding them into a central system, the legal process can be significantly streamlined, reducing delays and prioritising urgent cases[13]. Initiation of improvements in infrastructure facilities has already commenced since 2021, and this bold venture needs to be expedited[1]. The pilot project can select one high court from each province and several police stations in the jurisdiction of the relevant high court. Progress can be compared with other stations where the digitisation has not yet been introduced.

The first step involves digitising existing police records into a centralised database. These records will include crime details, accompanying legal proceedings, and their durations. Optical character recognition (OCR) tools will be employed to convert paper-based documents into searchable digital formats, allowing for efficient organisation and analysis of records[4,9]. This will be more efficient than using human data entry operators to convert paper documents into digital form and will minimise the possibility of human error.

Once digitised, the data will be classified into key variables such as crime type, historical data, evidence, charges, legal procedures, investigation duration, tentative resolving time, etc. These structured data are used in predictive analytics and process optimisation. Effective data preprocessing is crucial for predictive accuracy, as demonstrated by Gutierrez-Osorio and Pedraza[9]. The steps involved will include:

1. **Digitising Police Records**: Converting handwritten documents, voice recordings, and images related to legal cases into digital files using tools such as optical character recognition (OCR), a technology that can read and convert text into a digital format.

2. **Centralising Data**: This step involves the creation of a single and easy-to-use database for all related data, including incident details, evidence, and current case status, just to mention a few. This data could be stored on a large server (with backup facilities) with restricted access.

3. **Automating Processes**: This includes utilising AI to carry out tasks that are repetitive in nature, such as case referral for different departments, report generation, case prioritisation based on the level of urgency, and the communication of such developments to the relevant authorities.

4. **Forecasting the Time Needed for Resolving the Case:** An AI machine is used for examining the previous cases, and thus, it can postulate how long similar ones would take, and the tool can assist the authorities in getting the right time frame and setting the deadline accordingly.

The proposed AI system is made up of the following four essential components:

1. **Data Collection and Integration**: The entire set of crime records in the Police Department will be incorporated into a single system accessible to relevant individuals and organisations with restricted access for updating and modifying the information.

2. **AI Engine**: AI will carry out data analysis to estimate the duration for resolving cases and perform tasks like case prioritisation and automated report generation.

3. **Automated Module**: The part of the system that performs the automation of routine tasks, such as case status updates and report generation, is aimed at alleviating the burden upon administrative and clerical staff.

4. **User Interface (UI)**: A user-friendly dashboard will allow law enforcement and

legal professionals to track the progress of cases and communicate effectively.

Algorithmic Fairness

AI can sometimes, though unintentionally, be biased. As such, we need to make sure that the system treats all cases equally. Regular oversight by a professional will ensure fairness and transparency.

This proposed AI-based system can be implemented in selected police divisions to begin with, and the gathered experience will help in further refining a centralised program across the country.

Addressing Legal Bottlenecks

Following necessary legal reforms, digitising police records, and integrating AI, the system addresses many manual bottlenecks currently delaying the legal process. Predictive analytics will enable better resource allocation, while automation will alleviate most of the administrative burdens. Similar AI-driven systems across the globe have shown promising results in their own legal environments, enabling the rapid resolution of cases[6,10,11].

Societal Benefits

The proposed AI-based digitisation system offers a wide array of societal benefits[14,15]. Reducing delays in legal proceedings helps restore public trust in the judiciary. Additionally, the system ensures timely justice for the aggrieved parties, increases transparency and accountability within law enforcement, and helps Sri Lanka align its legal processes with global standards[2].

Ethical and Legal Aspects and Future Challenges

It is extremely important to consider the confidentiality of information and ethical and legal issues related to transitioning to digital records, despite the many advantages. Implementing rigorous data security measures is essential to safeguard police records and judicial data from unauthorised access.[6]. AI systems must be implemented with a clear framework for accountability, preventing AI hallucinations, and ensuring that AI decisions adhere to legal standards and human oversight[16]. In addition, AI algorithms raise ethical concerns about bias, as mishandling of data could impact the fairness and integrity of judicial proceedings[11]. The transition from paper-based systems to AI-driven digital processes will require significant development and infrastructure training[8]. It is essential to digitise manual reports, witness statements, and court documents in a structured manner. In addition, it is essential to provide training for police officers, administrative and clerical staff, and legal professionals (including judges, state counsellors, and lawyers of the private bar) to guarantee the smooth integration of AI technology into the current judicial system. Extensive changes (reforms and repeals as well as the introduction of new laws) to existing statutes such as the Civil and Criminal Procedure Codes, Admission of Electronic Evidence, etc., have to be introduced and implemented[17]. These legal reforms take time, and they should be implemented under the guidance of a multidisciplinary advisory panel including legal, scientific, and computer-related experts. The new laws should be wide enough to cover foreseeable future challenges in the AI field as well as flexible enough to acknowledge and adapt to unforeseeable challenges[18,19]. This step-by-step method not only makes the transition easier but also fosters confidence in the use of artificial intelligence in the legal system[9]. Already recognised courtrooms and police stations, as suggested before for the pilot project of digitalisation, will make the implementation easier. Finally, even the conventional teaching of law in the state sector (the Law College under the Incorporated Council of Legal Education and the faculties of law under the University Grants Commission) as well as the training of judges by the Judges Training Institute, etc., too have to be adequately modified to address these new changes and future challenges, which are already being addressed in many developed countries in the world[20].

Cost and Feasibility

While setting up this system will require an initial investment, the long-term benefits, such as faster resolving of cases, reduced administrative burdens, and improved public trust, etc., will

justify the initial cost and, in the long run, will far outweigh the initial expenditure[7,8]. The system will be implemented in phases, starting with already recognized courtrooms and gradually expanding, which will help spread out the costs and ensure smooth integration while allowing a chance for revisiting the entire process and rectifying certain areas accordingly[6,10].

CONCLUSION AND THE FUTURE

Considering the delay in concluding the legal cases as shown in the statistics, the AI-driven digitisation system proposed in this document provides a scalable solution to reduce delays in legal proceedings. By automating data entry, case tracking, and document processing, the system significantly improves efficiency[4], reduces administrative bottlenecks[6], and accelerates case completion[7]. The reduction of the number of backlog cases per year will indicate the rate of efficiency of the system. Although the initial cost of digitising case records is considerable, the long-term benefits, such as decreased administrative workload and improved legal productivity, make the investment meaningful.

This system can be started in phases, starting with high-priority case records, which will be digitised and integrated into the central database. Subsequent phases will involve deploying AI engines, automating tasks, and integrating user interfaces. Proper training of staff to operate and maintain the system in a foolproof manner, addressing the inevitable legal and technical challenges, will be crucial for successful implementation [21,22].

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The authors declared no conflicts of interest.

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AUTHOR CONTRIBUTIONS

WNSP: Conception and designing of the work, the acquisition of work, interpretation of concepts for the work; drafting the work and revising it critically for important intellectual content; final approval of the version to be published; agreeing to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. **AMP:** Conception and designing of the work, the acquisition of work, interpretation of concepts for the work; drafting the work and revising it critically for important intellectual content; final approval of the version to be published; agreeing to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. **SH:** Conception and designing of the work, interpretation of concepts for the work; revising the work critically for important intellectual content; final approval of the version to be published; agreeing to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. **PP:** Conception and designing of the work, the acquisition of work, interpretation of concepts for the work; drafting the work and revising it critically for important intellectual content; final approval of the version to be published; agreeing to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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