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EXPLORING THE ROLE OF ARTIFICIAL INTELLIGENCE IN IMPROVING GOVERNMENT SERVICE DELIVERY: A STUDY OF INDIA

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ABSTRACT

Many industries have been transformed by the development of Artificial Intelligence (AI) technology, and governments all over the globe are using AI more and more to improve service delivery and citizen engagement. To better understand the complex role AI plays in enhancing government service delivery, this article aims to explore its possible advantages, difficulties, and ethical implications. The article starts by looking at the current state of government services and the ongoing difficulties governments encounter in effectively addressing the wide range of public requirements. Effective service delivery has been hampered by insufficient resources, inefficient bureaucracy, and protracted processing times, necessitating the urgent need for innovative solutions. Although AI offers unheard-of possibilities for transformation, it also poses ethical questions and issues about responsibility, prejudice, privacy, and the possible replacement of human professions. The paper also analyses the difficulties in implementing AI-driven government services, such as data accessibility and quality, technological infrastructure, and public acceptance. Understanding these difficulties can help legislators and experts remove obstacles to effective AI integration. In conclusion, this paper highlights how AI has the potential to revolutionise the way that government services are delivered by making them more effective, citizen-centric, and data-driven. But for integration to be effective, there has to be a well-balanced strategy that takes sociological, ethical, and technological issues into account.

1. INTRODUCTION

1.1 Background

AI can do tasks far better than humans in a variety of areas. When it comes to repetitive, detail-oriented activities, such as analysing huge quantities of legal papers to verify important fields are correctly filled in, AI systems frequently accomplish assignments swiftly and with few errors (Burns & Laskowski, n.d.). Deepmind, Google's AI engine, defeated the world champion in the game Go, an extremely complex game, using breakthroughs in data collection and aggregation, analytics, and computer processing power, in one of several instances demonstrating that AI can be comparable to or even superior to human intelligence (BBC News, 2016).

India is one of the leading fastest-growing economies and with the highest population in the world has significant stakes in the field of Artificial Intelligence. Recognising AI's potential to transform economies and the need for India to strategize its approach, the Hon'ble Finance Minister mandated NITI Aayog to establish the National Programme on AI in his budget speech for 2018-2019, to guide research and development in new and emerging technologies (NITI Aayog, 2018).

In June 2018, Niti Aayog, published a Discussion Paper on National Strategy for Artificial Intelligence, in which it identified the focus as "AI for All" to leverage transformative technologies to ensure social and inclusive growth in line with the government's development philosophy. According to the article, the primary areas of AI attention in India are education, healthcare, agriculture, smart cities and infrastructure, and smart mobility and transportation (NITI Aayog, 2018).

1.2 Research Objective and Research Problem

The goal of this study is to examine the potential of artificial intelligence (AI) in improving the delivery of government services, with a particular emphasis on how it may be used to streamline administrative procedures, maximise resource allocation, and improve public involvement. The study aims to address the difficulties and opportunities associated with integrating AI technologies in governmental services to comprehend how these advancements can result in greater effectiveness, cost-effectiveness, and enhanced service quality while also examining potential issues related to privacy, data security, and equitable access for all citizens.

1.3 Research Methodology

This paper is based upon the assessment of data collected from secondary data sources. The data for the study is obtained from reputed academic journals, newspaper articles, government reports, policy documents and research articles. The qualitative approach is applied to synthesize and present the findings, drawing meaningful conclusions and providing valuable insights for policymakers, researchers, and stakeholders involved in the domain of AI and public administration.

2 Application of AI in the field of Government Service Delivery

The use of artificial intelligence (AI) in the delivery of government services has the potential to completely transform the way in which public services are provided while also enhancing efficacy, efficiency, and citizen satisfaction. Now a days, AI is used in a number of government service delivery contexts, such as:

2.1 Education

According to a UNESCO report, the AI market in India is predicted to reach US$7.8 billion by 2025 at a compound annual growth rate of 20.2 per cent. To integrate India's curriculum with the twenty-first century and prepare students for the AI economy, India's National School Policy (NEP) 2020 places a strong focus on the importance of imparting technical knowledge at all levels of school. It emphasises the integration of artificial intelligence (AI) in education to increase quality and skill-based education (UNESCO New Delhi, 2022).

2.2 Finance

In August 2018, the RBI announced the formation of a new section to track emerging technologies such as cryptocurrencies, blockchain, and artificial intelligence. The unit will use data analytics and emerging technology to forecast several RBI activities like as inflation targeting, banking regulations, and policy enforcement (IndiaAI , n.d.).

2.3 Health

Detection in Health Insurance

The National Health Authority (NHA) is the apex body in charge of carrying out India's public health insurance scheme, the Pradhan Jan Arogya Yojana (PM-JAY). It is established at the national levy implementation is done out by the State Health Agencies, Benet)) can receive cashless care at any of the empanelled hospitals across India, and PM-JAY pays the hospital directly. The NHA contains a fraud detection cell called the National Anti-Fraud Unit (NAFU) at the national

level and the State Anti-Fraud Unit (SAFU) at the state level. Daily, a vast number of transactions for insurance claims are processed. Al systems are used to detect and highlight fraudulent transactions (NITI Aayog, 2021).

2.4 Agriculture

Global spending on smart, connected agricultural technologies and systems, including AI and machine learning, is expected to triple to $ 15.3 billion by 2025. The Indian government has provided cash to states in the amounts of INR 1756.3 crores and INR 2422.7 crores for the introduction of innovative agricultural technology such as drones, artificial intelligence, blockchain, remote sensing, and GIS. Furthermore, the government allocated INR 7302.50 crores and INR 7908.18 crores to ICAR (Indian Agricultural Research Institute) for Research and Development in Agriculture for developing new technologies, demonstrating them in farmer fields, and building farmer capacity for adopting new technology in 2020-21 and 2021-22, respectively (Strategic Investment Research Unit (SIRU), 2022).

2.5 Transport

The Bengaluru traffic police have implemented an Intelligent Traffic Management System (ITMS), in which artificial intelligence-enabled cameras detect traffic offences and send challans to mobile phones through SMS (The Indian Express, 2022). The Government of India has launched Project iRASTE in collaboration with businesses and academics to reinvent road safety in India utilising the predictive power of AI. This brings the government one step closer to its goal of halving road fatalities in India by 2030 (IndiaAI, 2021). The National Highways Authority of India (NHAI) has implemented an Artificial Intelligence (AI)-based face recognition system to track field worker attendance at various project locations. The NHAI has taken this action to promote transparency and accountability (Ministry of Electronics and Information technology, 2023).

2.6 Smart cities

The NITI Aayog published a discussion paper outlining the uses of AI technology in many sectors of the Smart Cities Mission. The study proposes equipping parks and other public facilities with monitoring systems, automated pavement lighting, park maintenance, and other operating conditions to improve accessibility, safety, and cost-saving measures (NITI Aayog, 2018).

2.7 Customer service

Aadhaar Mitra," a new AI/ML-based chatbot, is now available on UIDAI's official website (www.uidai.gov.in). This chatbot has been trained to reply to resident inquiries and is intended to improve the resident's experience. Additional capabilities include the ability to identify an Aadhaar Centre, check Aadhaar Enrolment/Update status, check PVC Card Order status, file a complaint, check complaint status, locate an Enrolment Centre, book an appointment and integrate a video frame. The app "Aadhaar Mitra" is available in both English and Hindi (UIDAI, n.d.). IN.gov responds in real-time to queries submitted by users. LiveChat is used to promote self-service on citizens' smartphone devices.

2.8 Judiciary

In April 2021, the Supreme Court unveiled its AI site SUPACE (Supreme Court Site for Assistance in Courts Efficiency) to use machine learning (ML) to aid case inspection and address existing bottlenecks (NITI Aayog, 2021).

2.9 National Portal of AI in India

The Ministry of Electronics and Information Technology (MeitY) envisions this as an umbrella project for utilising transformative technologies to enhance inclusiveness, creativity, and adoption for social impact. As a result, INDIAai (India's National AI Portal) is positioned to play a critical role as a content repository for The National Programme on AI (IndiaAI, n.d.).

2.10 AI in Research

India has 386 of the world's 22,000 PhD-educated researchers and is ranked 10th in research. India was placed 13th in the world, with 44 top-tier presenters at leading AI conferences. AI research is mostly concentrated at institutes such as IITs, IIITs, and IISc (DST India).

To increase both core and applied AI research, a two-tiered integrated paradigm is proposed: 1. COREs (Centres of Research Excellence in Artificial Intelligence): According to the IM-ICPS framework, COREs will focus on core AI research 2. ICTAI (International Centre for Transformational Artificial Intelligence): ICTAIs will provide the ecosystem for application-based technology development and deployment.

2.11 Indo-U.S. Science and Technology Forum U.S. - India Artificial Intelligence (USIAI) Initiative

The IUSSTF U.S.-India Artificial Intelligence (USIAI) Initiative offers a once-in-a-lifetime opportunity for the world's two greatest democracies to improve their strategic partnership by focusing on AI cooperation in important areas of mutual interest. USIAI will be a forum for discussing the potential for bilateral AI R&D collaboration, sharing ideas for establishing an AI workforce and recommending modes and processes for catalysing partnerships (Indo-U.S. Science and Technology Forum).

2.12 Miscellaneous

In 2020, for its 60th convocation, IIT Bombay deployed animated avatars of students walking to the dais in convocation attire and they received their degrees from virtual avatars of dignitaries and the director (Press Information Bureau (PIB), 2022).

In March, the India Today group debuted Sana, the country's first AI news presenter, for their Hindi channel, Aaj Tak. Regional news channels have introduced their ai anchors like Soundarya (Kannada's first AI news presenter), and Lisa (Odia). They are currently being used by news networks to present short news bulletins, sometimes with voiceovers recorded by human journalists and lip-synced by the AI presenter (The Hindu, 2023).

3 Advantages of AI

Artificial Intelligence (AI) offers numerous advantages in improving government service delivery in India, enhancing efficiency, transparency, and accessibility. Here are some key benefits:

I. Automation and Efficiency: AI can automate monotonous jobs and procedures, resulting in higher productivity, lower human error rates, and enhanced efficiency.

II. Data Analysis and Insights: AI can quickly and effectively analyse enormous volumes of data to uncover insightful patterns that humans would overlook.

III. Decision Making and Predictions: Making decisions and predictions based on past data is a capability of AI systems, allowing for improved planning and strategic decisions.

IV. Personalization: AI has the ability to give people personalised experiences by customising suggestions, information, and services based on their preferences and behaviour.

V. E-Governance and Digital Transformation: By automating paperwork, digitising records, and allowing online service delivery, AI can speed up the move to e-governance. This streamlines procedures, saves time, and improves accessibility for all citizens.

VI. Language Processing and Translation: India is a

multicultural nation with many different official languages. Language obstacles may be overcome with the use of AI-powered language processing and translation systems, allowing for efficient service delivery and contact with customers from various geographical areas.

VII. Smart Infrastructure and management: AI may be used to monitor and control vital infrastructure, including utility services and transportation networks. Better maintenance, less downtime, and more service dependability result from this.

4. Upcoming opportunities

According to an official release on June 30, 2020, India's 'MyGov Corona Helpdesk platform received awards for 'Best Innovation for Covid-19 - Society' and 'People's Choice Covid-19 Overall Winner' at the CogX 2020 Global Leadership Summit and Festival of AI & Emerging Technology held annually in London (Ministry of External Affairs, Govt. of India, n.d.).

The Indian judiciary has also suggested AI in some cases to safeguard citizens' fundamental rights and increase efficiency The Supreme Court of India and several High Courts have advised using AI as a tool to accomplish the goals of several legislation and improve efficiency: Missing Persons' Location Shiva, Sri C. Chikka Chowdappa vs. Karnataka State (2006): The Karnataka High Court debated the use of artificial intelligence-based facial recognition technologies to assist Bangalore City Police in identifying and locating missing people. In re Prajwala (2018): Certain social media corporations raised, before the Supreme Court, the prospect of utilising AI for the proactive identification of content including Child Sexual Imagery (NITI Aayog, 2021). According to NASSCOM data, the overall AI employment in India is anticipated to be over 416,000 professionals. The sector is expected to increase at a rate of 20-25%. Furthermore, AI is predicted to contribute an additional USD 957 billion to India's economy by 2035 (PIB, 2023).

Predictive analysis using Artificial Intelligence (AI) for early detection or diagnosis can be a valuable asset in the healthcare industry, particularly in rural India, where basic facilities and even healthcare experts are scarce. AI-based technology can assist bridge the supply-demand gap in India's healthcare market. AI has the potential to drive a food revolution and fulfil growing food demand (the world needs to produce 50% more food and feed an additional 2 billion people by 2050, compared to now). It also can address issues like poor demand forecasting, a lack of reliable irrigation, and pesticide and fertiliser overuse and misuse. Crop yield improvement by real-time advice, enhanced detection of pest infestations, and crop price prediction to inform sowing practices are some application cases.

AI has the ability to overcome the quality and access challenges that have been found in the Indian education sector. Potential use cases include augmenting and enriching the learning experience through personalised learning, automating and expediting administrative activities, and forecasting the need for student intervention to prevent dropouts or promote vocational training.

Energy system modelling and forecasting are potential use cases in the energy sector to reduce unpredictability and boost efficiency in power balance and utilisation. AI in renewable energy systems can provide energy storage via intelligent grids facilitated by smart metres, as well as increase solar energy reliability and affordability.

5. Problems and Challenges

Inadequate availability of AI expertise, manpower, and skilling opportunities, Inadequate availability of AI expertise, manpower, and skilling opportunities, High resource cost and low awareness for adopting AI in business processes, and Unclear privacy, security, and ethical regulations are the key challenges in the adoption of AI in India (NITI Aayog, 2018)

With the evolution of Generative AI new problems have emerged. There are numerous examples of generative AI in use today, most typically used to generate text, graphics, and code in response to user requests, while they are capable of much more. Generative AI models can create content that closely mimics existing human-generated content (such as writing, music, or art). This may pose ethical and legal concerns about the ownership and rights of original and generated content (The Hindu, 2023).

The technologies associated with Generative Artificial Intelligence (AI) are continually growing; there is presently no special regulation for Generative AI (AI). However, the development and implementation of AI are governed by privacy, data protection, intellectual property, and cyber security laws and policies (PIB, 2022).

CONCLUSION

The extraordinary potential of artificial intelligence (AI) to improve India's government service delivery is explored in this study. It is clear from a thorough analysis of the secondary data that AI-driven solutions are the key to simplifying operations, optimising resource allocation, and ultimately improving the general efficacy and efficiency of public services. The ethical ramifications, data privacy, and equal access to technology must all be carefully considered for effective AI application, it is imperative to recognise. Policymakers and stakeholders may create a more technologically sophisticated and citizen-centric governance system by building on the ideas from this study, resulting in good societal changes in India and worldwide.

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