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An Analytic view on Accessibility, Accountability, Affordability and Adaptability of Emerging Technology's Role in Effective Governance, Policy Making Process and Justice Systems

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ABSTRACT

In this globalized tech-oriented world, the role of technology in governance plays a significant role in governance and policy making. The author of this research article analyzes the role and significance of technology in governance and policy-making processes in recent times. Some of the facets touched by technology in the governance and policy making process include communication, recording, storage, and outreach. Thus far, technology and policymaking have always served and survived as two separate world entities, which will always hinder solving world problems if they fail to meet and co-exist. The author explore the process undertaken to re-engineer the governance regime in accordance with recent technological advancements. The significant increase in productivity, affordability, accessibility, transparency, and accountability has all been attributed to integrating technology into governance. The motive behind the integration of technology and governance is the use of technology to both help in governing and to be governed. The aspect of governance that enables the subjects of the state to actively participate in the process of governing through technological outreach features gives rise to more significant participatory democracy. Of this, the need to create higher levels of involvement of technologists in the public policy domain relating to the supply and demand of public problems arises. The amalgamation of science and technology with policy making creates an entirely new regime. With the capacity and capabilities of the AI to detect anomalies with a reduced processing time, this can minimize the financial astray in policy budgeting with its intelligent predictions. This article also provides insights into the implementation of information and communication technology infrastructures into the Indian judiciary and how this progressive implementation has shaped the productivity and efficiency of the legal system in India. The Indian judiciary made serious efforts through national policies and action plans to computerize the overwhelming data produced by the Indian judicial system. The state of the judicial system was crippled by the massive overload of backlog cases and a high number of judicial vacancies. These efforts led to a more productive and enhanced judicial system, both qualitatively and quantitatively. These efforts

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have been put into overdrive by releasing multi-functionary Artificial intelligence innovations post-pandemic era. This particular development of artificial intelligence can potentially augment human processes like decision-making and comparative analysis far superior with faster and more consistent results. This system-enabled e-filing and artificial-enabled reference/storage methods have eased the difficulties faced by the judiciary through paperwork and other less conventional methods of storage of legal data.

***Keywords**: Emerging Technologies, Public Policy, Justice System, Artificial Intelligence, Innovation.*

I. INTRODUCTION

Technological development has been put on overdrive in the last couple of decades which has necessitated the importance of leadership, economy, trade, policy making, and security objectives. The use of technology has undoubtedly grasped almost all fields and areas of human interactions, striking a balance between emerging innovation and competitiveness that puts a burden on the policy makers serving as a double-edged sword. Technology-aided economic activities that have taken over every market also pose the threat of security disclosure in terms of both the market and national security systems.

Hence the need to keep up with these tech advancements has grown more and more important and necessary, and the intended security and economic competitiveness are at stake for global economies. In countries such as the United States, China, Russia, and the European Union, technological developments have skyrocketed, resulting in implementing regulations and policies that fit each power structure. The World Economic Forum has dubbed the integration of digital rethinking of technology, such as Artificial Intelligence and Quantum Computing, with application towards economic development and digitization of policymaking as the Fourth Industrial Revolution. The policymakers of the present day are faced with a goliath task than their predecessors of managing the complex impact of the rapidly evolving technology that is birthed and guarded by the tech entrepreneurs of today. The existence of a plethora of laws, jurisdictions, and approaches has created fragments of regulations that put a burden on today's policymakers to collect these data into a single regulatory framework which, in turn, paralyzes the process of policymaking.

The idea is to choose the right combination of policies and instruments that establishes a proper analytical framework for policy assessments, as it becomes crucial for policy makers to know the working mechanism to combine innovations and policy making roles. The need for evidence-based research on implementing such a policy that integrates with the nature of

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technology is emphasized. Strategic planning structures should also contain technological considerations that encourage collaboration between decision-makers and technological experts.[2]

II. A LOOK INTO THE NEWEST FORMS OF TECHNOLOGY THAT NEEDS TO BE CONSIDERED IN THE PROCESS OF POLICY MAKING

Technology will have touched most human aspects by 2023, and there is an urgent need to catch up, adopt and develop policies to accommodate technology policies in order to harness frontier technologies into smart cities across the world.

Not surprisingly, the usage of Automated Records Management systems has created a great impact on the justice department and reduced the burden on numerous aspects due to its highly flexible nature. Both social media and data mining have been recognized to impact the ability of the system to track key activities in the community.

The 21st century has seen the development of the use of technology in the justice system for various purposes, some of which help the justice department in research and analysis. Innovations such as crime mapping, social media, surveillance systems, car dash cams, and license plate readers have helped the crime and justice departments on various occasions. Developing countries have to prepare their companies and citizens for a period of time that is going through rapid uncontrolled change, and the key to success requires a balance of both promoting technology and establishing a robust industrial base that is people-centered and aimed at sustainability.

III. THE CURRENT SCENARIO IN INDIAN POLICY MAKING

Indian policy makers have recognized the nature of future policy making and attempt to keep up with evolving technologies like Artificial Intelligence, machine learning, quantum computing, and cryptocurrency blockchain chain tech. The Indian policymaking system is per se not holistically designed but has been modeled to endeavour to solve uprising issues that make it lack defined outcomes and outputs. With the onset of the fourth Industrial Revolution, Indian policy making strategies must quickly adapt to the needs and curate a robust policy mechanism. Effective monitoring and feedback systems have to be inbuilt into the system to

[2] Tom Wheeler, B.L., Rabe, B.G. and West, D.M. (2022) *Rethinking technology policy and governance for the 21st Century, Brookings*. Available at: https://www.brookings.edu/techstream/rethinking-technology-policy-and-governance-for-the-21st-century/ (Accessed: 30 July 2023).

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make it adapt to the understanding of the socio-economic, cultural, and behavioral patterns of the innovations.

The interdependence of technology, infrastructure, and institutions in order to support the operating principles of the system has created a phenomenon called "technological inter-relatedness.[3]

Italy has a policy plan set into initiatives for the upcoming Industrial Revolution 4.0 to effectively contribute to the productivity, flexibility, and sustainability of the product market.[4] The strategic review of investment policies for industrial development that facilitates investment and screening helps in aligning science, technology, and innovations with industrial policies. A number of facets like FDI, trade, intellectual property rights, and education benefit from this integration of policy making with technology. Policy makers should ensure a framework that enables research and development incentives, thereby creating an innovation-oriented market.[5]

IV. IMPACT ON THE JUSTICE AND LEGAL SYSTEM

Science, technology, and innovation have been used and integrated into many factors of the Justice and legal system that properly propelled the practice of law and Justice with competence. Data exchange, storage, and research have enhanced the pacing of these operations and functioning capabilities. Policing strategies, identification of crime patterns, maintaining records in digital format, and accessibility have all worked wonders for the law and justice department. The implementation of a favorable policy regime is very much a necessity with the possible technologies, including predictive analytics software, in-car electronic ticketing, and drone technology, up and coming at a rapid pace.

While the maintenance of digital police records helps in greater awareness to the public and, in turn, helps in community policing, it also creates a negative relationship of offender targeting. Agencies should be open to innovations and, more importantly, open to failure of process in the new approach in order to arrive at a key working process. Technology implementation has so

[3] *Policymaking must catch up with technology - before it's too late*. World Economic Forum. (n.d.). https://www.weforum.org/agenda/2019/11/we-must-bridge-the-gap-between-technology-and-policy-our-future-depends-on-it/

[4] *Technology and innovation report 2021*. UNCTAD. (n.d.). https://unctad.org/page/technology-and-innovation-report-2021

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far been seen as an attempt at desperate acquisition and not as a functionary for greater purpose and productivity. This can be evidently seen through the strategies in crime response being largely unaltered for a long time.

The post-pandemic era has seen a sharp rise in the number of technologies being used by the Justice and legal systems. The legal department is slowly catching up with the integration process, which remains a tedious task due to the large structure that exists in India. The pandemic has made them desperate to acquire technology into the largely unaltered system to keep up with the rest of the world. Virtual court proceedings, E-filings have been implemented to enhance the judicial system, which has been under the burden of more than 30 million pending cases. This period paved the way for the establishment of a user interface, case management systems, and record management/maintenance infrastructure to be modeled and integrated with the legal system. This overall improvement in the day-to-day functions of the judiciary by implementing a technology-oriented case management system, inputs, and listing mechanisms has provided optimal improvements in the judicial system. The use of artificial intelligence has been highly suggested in this aspect to further improve the functioning of the system.

The judicial system's efficiency has been the target sector of technological improvement; potentials like an online filing system, e- summoning, and case tracking enable a seamless network for the flow of information through the system. The implementation of Artificial intelligence and advanced algorithms will largely help in retrieving relevant information for the purpose of research and case filings, and it also helps in the reduction of potential costs of pronouncing judgments. The integration of technology with law has always seen a symbiotic relationship where the new age legal subject matters like cyber security, forensics, and intellectual property law are yet to be explored with regards to their true potential.

The operations and applications of the judicial system involve the roles of judge, Administrator, and courtroom staff, all being integrated into the functioning of the judicial system. So significant tasks in the judicial proceedings involve digitization of these case files, employment of paperless deposition, recording of court proceedings, and video conferencing. The benefits of converting court functions into E-court functions will see cases and evidence being accepted in electronic formats and avoid frequent physical movement of field and evidence. Different courts will be able to share this recorded information between them across India, and through e-courts, the police and hospitals can upload their required documents from their locations into the database, and Video conferencing will help accommodate participation in the courtroom proceedings. Integrated systems for legal proceedings have largely reduced the cost of each

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proceeding. The virtual Courts contribute to the concept of distributive Justice by ensuring that Court services reach everyone and are affordable to all. They may argue in any court in any region of the country and handle a high number of cases in a day. The digital form of Justice will be considered a faster and less expensive method of judicial proceedings.

When they are linked through Video-Conferencing, they may search for any file of the established E-Court in a digitized form based on data created in the established e-Court. Other case stakeholders can gain access to E-Files by utilizing a secure login and password. E-Court will result in faster case disposition, easier record management, more dependability of recorded evidence, and greater openness in the operation of District Courts[6].

V. CHALLENGES IN RELATION TO THE IMPLEMENTATION OF TECHNOLOGY IN JUDICIAL SYSTEM

The e-Court format brings in a sheer volume of data that must be controlled and protected in massive and present challenges to the judiciary. The system cannot afford to lose even a single document file since it renders the whole collection untrustworthy and void in legal terms. A mechanism for ever-changing media formats must be developed in order to accommodate the evidence collection.

The future scope of these technologies is exponentially very high as technology is developing at a very rapid pace and would involve larger consumption of data and storage mechanisms viable for large data storage. Some of the solutions to this can be the development of a large-scale cloud storage network for E-records enabling the judiciary to build a support system for the judiciary. The design could potentially help our legal system streamline and accelerate operations and case disposition rates in a secure and cost-effective manner. The system is linked to video conferencing systems in other locations through a broadband IP or ISDN network. The system allows the user to define partial search words incorporating the document identification and/or sections of the anticipated metadata for flexible retrieval of collected information.

The judiciary's role cannot be compared with that of the legislative and the executive. While broadcasting legislative sessions may be beneficial to the transparency factor, the same cannot be said for the courts. In reality, the public remains sovereign, and the public evaluates its representatives. However, the public cannot evaluate the judges since they are solely answerable to the rule of law and the Constitution. Making judges open to popular public opinion and

[6] E-Court Management System - Research gate. (n.d.). https://www.researchgate.net/publication/361159073_E-Court_Management_System

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answerable to the general public through live broadcasting poses an inherent risk in a democratic system.[7]

The judge in a virtual court cannot see a witness' and the human elements used in court proceedings become clearly absent in virtual courts. Small details affect the cases in terms of demeanor judgment that make determining a witness' credibility more and more difficult in a virtual proceeding. Teleconferences and remote hearings are being used by the legal profession as best practices for virtual hearings, negotiations, depositions, client meetings, and any other related court activities.

The judge in a virtual court cannot see a witness' and the human elements used in court proceedings become clearly absent in virtual courts. Small details make determining a witness' credibility more difficult. Teleconferences and remote hearings are being used by the legal profession as best practices for virtual hearings, negotiations, depositions, client meetings, and any other related court activities. Live-streaming may also provide practical issues, as attorneys seeking to publicize themselves through their addresses to the Bench may find themselves addressing not just the judges but also the people who are watching them. This undermines the goal of a fairer trial by turning a procedure into a discussion, and an irresponsible debate on an oral observation of a judge may make the judge aware, affecting the normality of the proceedings. A relatively tiny segment of society has access to traditional physical courts, and even if they do, it comes at a disproportionate cost and effort. Such concerns, however, can be settled through Virtual Courts. A proposal for enabling live telecast of court proceedings was submitted to the Supreme Court, with the argument that there is educational value in broadcasting court proceedings. However, the Bench hearing the case ruled that the presence of cameras would invite exaggeration on the part of lawyers and judges, as well as a tendency to play to the audience with their grandiosity. Lawyers and judges in the courts tend to rely heavily on 'oral' skills, with less emphasis put on written pleadings and documentation or comprehensive preparation before hearings. The potential downside of broadcasting the court hearings is that it will have a detrimental effect on the proceedings due to the public opinion not only with relation to the matters in the proceedings but also on the lawyers and judges involved in such proceedings.

Technology must be integrated in such a way that essential legal values such as fairness, impartiality, and participatory Justice are not jeopardized. Because third-party software is

[7] *Should Supreme Court proceedings be live-streamed?*. The Hindu. (2018, February 15). https://www.thehindu.com/opinion/op-ed/should-supreme-court-proceedings-be-live-streamed/article22765577.ece

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hacked and manipulated, the security of Court proceedings data, suitable regulated mechanisms of authentication, and procedural protections must be underpinned in online systems. Legal technology firms engaged in innovation can exploit the limitless potential of technology for linking stakeholders in the justice delivery system. Courts, through incorporating virtual courts and records, significantly improve public access to Justice[8].

The way technology is treated and incorporated within the department will be influenced by culture and organizational environment. Although technology may have a reasonable public safety aim, the societal cost of the technology, which is typically a sacrifice of privacy, may be too large to tolerate. The tendency for organizations to buy and implement technology without a clear, strategic plan for why and how the technology will be used for specific purposes can lead to limited technology integration within the agency and failure to recognize the primary or secondary benefits of the technology. Following high-profile incidents, communities may demand greater responsibility through technology.

The COVID-19 pandemic has made us realize the need to reshape the court system and system of proceedings in India because the process of Arbitration has already made use of remote working, and thus it is easy for the Courts in India, even the advocates with the technology ensure that they have the required skills to deal with the digital platform because it is tried and tested. Implementing norms and regulations that allow the seamless operation of legal technology would be beneficial in fully utilizing the services supplied by indigenous communication satellites.

The potential for virtual courts in the approaching days, and if these issues are correctly addressed, the justice delivery system would become highly effective in conducting just the cases where less debate is necessary through online platforms.

This would be beneficial for future legal professionals bridging this barrier, as well as all court complexes around the nation establishing facilitation facilities since it would allow them to put their technical talents to use in real life. A problem-solving bureaucrat can play the role of a policy entrepreneur, bringing to light event-driven changes such as wars or stock market crashes, process-based changes such as urbanization, and representational changes such as Congressional responses to shifts in public opinion, and a conflictual change in which members of a policy community leak information to opposing groups, change venues, and expand issues. Policy approaches may facilitate the acceptance and widespread distribution of environmentally

[8] Litigation and virtual courts : Advantages and challenges. iPleaders. https://blog.ipleaders.in/litigation-and-virtual-courts-advantages-and-challenges/

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friendly technology, but policymakers must first assess the maturity of the technologies in issue before choosing how much effort should be expended to build and sustain markets. The goal is not to isolate or causally correlate the impacts of specific policy instruments on successive phases of the innovation process, in the sense that the outcome should be accounted for as a combination of numerous instruments as well as external influences. Patterns of technological growth are frequently driven by a complex interaction of supply and demand variables, such as distinct national or regional circumstances, technical potential, 'policy style,' market structures, and appropriability requirements in the public policy realm. There are several practical steps that can be taken to improve the flow of knowledge from research to policy, the most important of which is to understand the connection between research knowledge and policy, as it seems to have had the most influence on current approaches to incentivizing research impact. Current methods to research effects tend to be guided by basic supply-side models, but technology and science will create a unique way of watching and forecasting political decisions affecting science. These attempts might be defined as a collection of views about how and when choices are made, what motivates them, and the implications for research funding or regulation.

VI. Conclusion

New policies should be established on top of existing frameworks or through a gradual and methodical process in which choices are made through a series of bureaucratic stages and procedures, which essentially helps government agencies enhance their efficiency and effectiveness. Millions of records exist solely in analog form, in paper files, and while normally neatly arranged, often take longer to locate than policymakers have. Addressing these issues should be made easier by digital technologies. Tracking which files are most frequently visited or referenced in other papers and emails should allow you to determine which are the most durable and significant. Artificial intelligence (AI) may also help you navigate through search results by automatically summarising the contents of a document and suggesting relevant words, phrases, or sentences. It also does not lend itself to the discovery of numerical datasets that are machine-readable and ready for usage. Natural language processing may even be used to extract data from papers, such as details about persons, locations, and dates. Attempts to develop a new strategy have been criticized for failing to adequately draw on previous experience, but there is no easy way for policymakers to find and contact colleagues who previously collaborated on a problem, so the only way to relevant expertise is to combine it with efforts to improve the organization of documents.

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Using information technology as an administrative tool, whether to automate centralized rules or to convert paper forms to digital platforms that provide complete datasets to help policymakers in policy creation, formulation, and assessment. Digital technologies link parties and allow evidence-based policymaking in the complex processes of public policy making. It will help with objective policy implementation monitoring and the compilation of effect evaluations.

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