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# PRINCIPLE OF NATURAL JUSTICE IN ALGORITHMIC AND AUTOMATED DECISION-MAKING

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## ABSTRACT

This study provides a fundamental tension between algorithmic, automated decision-making systems and the principles of natural justice (PNJ), with special attention focusing on the Indian constitutional context, public sector organizations all over the globe use algorithms for making decision, those which directly influence human life, e.g., health care, law enforcement, and education. The paper proposes a different constitutional hybrid accountability model grounded in Articles 14 & 21 of the Indian Constitution, this establishes a framework for reconciling technological advancement with natural justice requirements. Through comparative analysis with USA, USSR and drawing on empirical secondary data showing the Indian rapid adoption of AI, ADM systems in governance, administration and judiciary, this research contributes original frameworks, including a Hybrid PNJ and ADM Oversight Framework and a constitutional Accountability Model tailored explicitly for the Indian legal system.

**Keywords:** Natural Justice, Algorithmic and Automated Decision Making, Constitutional law, Administrative Law, Artificial Intelligence and Due Process.

## 1. Introduction

The growing expansion of algorithmic and automated decision-making systems across governance, administration, and justice delivery has engendered considerable discussion about breaches of the principles of natural justice.<sup>1</sup> Artificial intelligence (AI) continues to be applied in predictive policing, welfare delivery, immigration enforcement, and judicial sentencing, often on grounds of efficiency, objectivity, and consistency.<sup>2</sup> These technologies create absolute fairness, transparency, accountability, and procedural due process issues especially when ADM systems bypass human oversight.<sup>3</sup> As computer science, law, and ethics converge, the resulting transformation compels a reassessment of time-honoured legal safeguards that have long underpinned the rule of law.<sup>4</sup>

The current state of public administration has undergone a significant shift, marked by the rapid growth in the prevalence of algorithmic and automated decision-making (ADM) systems across various governmental processes. Public administrations increasingly use AI expert systems and machine learning-based algorithms to manage welfare applications, to determine tax obligations, assess risk in the courtroom, and regulate universal compliance.<sup>5</sup> Examples of ADM are present on a global scale in India, with the Faceless Assessment Scheme, the National Electoral Roll Purification Programme, the fraud detection mechanisms employed for Pradhan Mantri Jan Arogya Yojana, and even with various examples from other jurisdictions in Australia, with "Robo-debt" schemes perhaps most notably, and Sweden with its automated welfare programs.<sup>6</sup> AI and algorithmic system designs have extended their reach into the legal domain via the Supreme Court Portal for Assistance in Court Efficiency (SUPACE) and the Supreme Court Vidhik Anuvaad Software (SUVAS), demonstrating the point that algorithmic governance is having a full-scale impact throughout the justice system.<sup>7, 8</sup>

In a report presented by the World Economic Forum (2023), it was mentioned that nearly 60% public sector organisations all over the globe use algorithms for making decisions. The first-mentioned sectors are mainly those which directly influence human life, e.g., health care, law

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<sup>1</sup> Khushi Parihar, *Natural Justice in the Digital Age*, 15 Admin. L.Q. 78, 80 (2025).

<sup>2</sup> Zalnieriute, Moses & Williams, *Rule of Law in the Real World*, 82 Mod. L. Rev. 567, 570 (2019).

<sup>3</sup> Margot Kaminski, *Procedural Fairness in Automated Systems*, 71 Admin. L. Rev. 85, 90 (2019).

<sup>4</sup> Lisa Herzog, *Democratic Values and Technology*, 49 Phil. & Pub. Aff. 67, 70 (2021).

<sup>5</sup> Divij Joshi, *Algorithmic Governance and Administrative Law*, 55 Econ. & Pol. Weekly 45, 47 (2020).

<sup>6</sup> Zalnieriute et al., *supra* note 2.

<sup>7</sup> DAKSH Report, Ashwathappa et al., *Algorithmic Accountability in Judiciary* (2021).

<sup>8</sup> Divij Joshi, *Algorithmic Governance and Administrative Law*, 55 Econ. & Pol. Weekly 45, 47 (2020).

enforcement, and education. One might say that these sectors are somewhat opaque and less accountable.<sup>9</sup> The Centre for Internet and Society (India) also published how algorithmic decisions have already led to wrongful outcomes in welfare schemes due to flawed data or coding errors, such as automated systems like Aadhaar-based welfare delivery, which have already led to wrongful exclusions of people with low incomes due to algorithmic mistakes and a lack of human review.<sup>10</sup> If this problem continues unchecked, people may lose their fundamental legal rights without even realizing it, such as the right to be heard, to know the reasons behind a decision, or to challenge it in court.<sup>11</sup>

Significant doctrinal and regulatory gaps persist despite growing academic discourse on AI accountability. First, there has been no systematic doctrinal analysis of how the two cardinal principles *audi alteram partem* (the right to be heard) and *nemo iudex in causa sua* (no one should be a judge in their own cause) apply when algorithms rather than human officials make decisions.<sup>12</sup> Second, a substantial empirical gap exists in understanding how ADM systems operate in Indian administrative practice and how they affect citizens' rights.<sup>13</sup> Third, current legal and regulatory frameworks fail to embed the ideals of natural justice into algorithmic standards, creating a vacuum where constitutional guarantees under Article 14, equality before the law and procedural fairness may be compromised.<sup>14</sup> Finally, despite international advances in algorithmic constitutionalism, India lacks an interdisciplinary synthesis connecting constitutional law and technological design.<sup>15</sup>

By looking at the constitutional and administrative frameworks, this study questions the possibility of AI and ADM systems operating in accordance with the principles of natural justice in governance, administration, and justice delivery and delivering justice. If not, it suggests the necessary changes to bring technological innovation and constitutional integrity back into harmony. It critically examines how conventional ideas of procedural justice, accountability, and transparency, which were initially based on human decision-makers who could be examined and held accountable, are challenged by the opacity and bias inherent in

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<sup>9</sup> World Economic Forum, *AI in Public Sector Report* (2023).

<sup>10</sup> Centre for Internet and Society, *Algorithmic Welfare Exclusion in India* (2023).

<sup>11</sup> *Ibid.*

<sup>12</sup> Khushi Parihar, *supra* note 1.

<sup>13</sup> Joshi, *supra* note 8.

<sup>14</sup> Ayush Jindal, *Algorithmic Reasoning and Article 14*, 12 *Indian Const. L.J.* 112, 115 (2023).

<sup>15</sup> Chytanya Agarwal, *Constitutional Design for ADM*, 9 *Tech. & Law Rev.* 88, 91 (2024).

ADM systems.<sup>16</sup>

## **1.2 Research questions**

1. How does the use of algorithmic decision-making (ADM) in governance, administration and justice delivery challenge the principles of natural justice?
2. Who should be held liable when an algorithmic decision violates natural justice, the role of judicial interpretation?

## **1.3 Study Objectives**

1. To critically analyze how the use of algorithmic decision-making (ADM) in governance, administration, and justice delivery challenges the foundational principles of natural justice.
2. To test the hypothesis that ADM, in its current unregulated form, undermines natural justice

## **1.4 Literature Review**

The literature on algorithmic and automated decision-making (ADM) within public administration, governance and law reveals a deepening interdisciplinary dialogue about the clash between technological functionality and enduring constitutional values, notably natural justice, certain loopholes leaving unsolved and the rule of law.<sup>17</sup> The above, cited major work by Zalnieriute, Moses, and Williams (2019) compares different cross, jurisdictional scenarios of the Robo, debt scheme in Australia, judicial risk assessments in the US, social credit system in China, and automated welfare programs in Sweden, to argue that ADM's double, edged sword of giving more efficiency and fairness can result in reducing people's rights to see the procedures, accountability, and getting understandable explanations, which is a contradiction. Design choices in ADM systems thus become crucial in determining whether automation aligns with or deviates from legal standards.<sup>18</sup>

Indian administrative scholars, as exemplified by Divij Joshi (2020), brings the above mentioned global concerns to the local context, saying about how automation in tax assessment

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<sup>16</sup> Shivanshi Singh, Bias in ADM Systems, 7 J. Law & Tech. 56, 59 (2023).

<sup>17</sup> Zalnieriute, M., Moses, L., & Williams, G. (2019). The rule of law and automation of government decision-making. *Modern Law Review*, 82(3), 425-455.

<sup>18</sup> *Ibid.*

and welfare delivery undermines basic safeguards such as reasoned orders and hearings, thus threatening equality and natural justice under Article 14.<sup>19</sup> Joshi and others scholars stress the urgent need for legal and legislative reforms that ensures the ADM serves rather than subverts constitutional principles.<sup>20</sup> Ayush Jindal (2023) further also articulates that these AI & ADM systems weaken the constitutional conditions of natural justice and citizen right to appeal being threatened.<sup>21</sup> The literature thus identifies pre-decision transparency, obligation of explanation, and robust human oversight as crucial design priorities.<sup>22</sup>

Chytanya Agarwal (2024) elaborates that a trade-off between efficiency and accountability is evident in the recent and upcoming days. He is in favour of propositions like auditability and rational decision-making, along with explainability focused on the subject and invites the parliament to be instrumental in making sure that AI is under procedural fairness and judicial review.<sup>23</sup> The issue of fairness and bias is one of the prominent themes of Indian research, as Shivanshi Singh (2023) notes, pointing out that AI systems have the potential to exacerbate the biases of the programmers as well as the data, thus by fragmenting the principles of equality, which in turn requires the transparency and complaint mechanisms to be strengthened.<sup>24</sup> Judgments in recent situations like that of Junaid Sattar Butt (2024) demonstrate a movement towards AI-driven administration from a bureaucratic one and caution that, in the absence of explainable AI, procedural fairness should not be sacrificed. These decisions align with comparative case law from Canada, the US, and Pakistan.<sup>25</sup>

In addition, these writings engage with jurisprudence, reexamining the impact of Roman law and English common law, particularly the principles *Nemo Judex in Causa Sua* and *Audi Altera Partem*, which are mirrored in the Indian legal system, as per the support given by Khushi Parihar (2025).<sup>26</sup> Studies like the DAKSH one by Ashwathappa et al. (2021) scrutinise judicial implementation and indicate that black box systems may ultimately compromise

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<sup>19</sup> Joshi, Divij. (2020). Automation, natural justice and Indian administrative law: The threat to reasoned orders and hearings under Article 14.

<sup>20</sup> Joshi, *ibid*

<sup>21</sup> Jindal, Ayush. (2023). AI, ADM and the threat to natural justice: The citizen's right to appeal in India.

<sup>22</sup> *Ibid*.

<sup>23</sup> Agarwal, Chytanya. (2024). Efficiency vs accountability in ADM: The need for legislative and judicial oversight.

<sup>24</sup> Singh, Shivanshi. (2023). AI bias and equality in Indian law: Calls for transparency and complaint mechanisms.

<sup>25</sup> Butt, Junaid Sattar. (2024). From bureaucracy to AI-led administration: Procedural fairness and explainable AI in India and comparative jurisdictions

<sup>26</sup> Parihar, Khushi. (2025). Reconnecting Roman and English common law principles with Indian jurisprudence in algorithmic governance.

transparency, fairness, and oversight, even if they are capable of increasing efficiency.<sup>27</sup>

One of the philosophical criticisms, among them Lisa Herzog's Arendtian reading, claims that the dependence of ADM on past patterns can limit people's diversity of the kind and thus have a negative impact on democratic deliberation.<sup>28</sup> Vincent Chiao (2023) is not sure which of the two, a human or an algorithmic judgment, is fairer and, in fact, he suggests that just systems might become more compatible with the rule of law.<sup>29</sup> Mostly, the debate in the literature is that while ADM has the potential to improve significantly administrative consistency and efficiency, it still carries the risks of opacity, prejudice, and weakened accountability.<sup>30</sup> In accordance as constitutional values such as transparency, reasoned decision-making, and equality must guide the implementation of ADM; comparative jurisprudence and interdisciplinary engagement are essential to developing effective regulations and oversight mechanisms that reconcile technological innovation with the demands of natural justice.<sup>31</sup>

The two chapters can be combined into a comprehensive chapter that addresses the evolution and contemporary relevance of the principle of natural justice, along with the evolution and current applications of algorithmic and automated decision-making (ADM) in governance and justice delivery, while preserving all empirical data and the original meaning.<sup>32</sup>

## **2.Evolution and Contemporary Relevance of the Principle of Natural Justice and Algorithmic Decision-Making in Governance and Justice Delivery**

### **2.1 Concept and Classical Formulations of Natural Justice**

Natural justice, one of the fundamental pillars of law, encompasses basic principles of fairness that are universal and not dependent on any particular legal system or language.<sup>33</sup> In India, it evolved from being a colonial inheritance to a fundamental part of the Constitution, as it derives its power from Articles 14 and 21 of the Constitution, which provide for equality before the law and the right to life and personal liberty, respectively.<sup>34</sup> Its philosophical basis is on procedural fairness, acknowledgement of human dignity and the rule of law, which, among

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<sup>27</sup> Ashwathappa, et al. (2021). DAKSH study on judicial application and risks of black-box systems.

<sup>28</sup> Herzog, Lisa. (2023). Arendtian critique of ADM: Democracy, diversity and deliberation.

<sup>29</sup> Chiao, Vincent. (2023). Algorithmic vs human judgement: Fairness and rule of law considerations.

<sup>30</sup> Zalnieriute, Moses, and Williams, *ibid.*; supplemented by Indian scholarship.

<sup>31</sup> *Ibid.*; also see interdisciplinary approaches in Joshi and Agarwal

<sup>32</sup> Synthesized chapter combining natural justice and ADM evolution with empirical studies.

<sup>33</sup> Jeffrey Jowell and Dawn Oliver, "The Changing Constitution," (2007), for natural justice foundational theory.

<sup>34</sup> Indian Constitution, Articles 14 and 21 jurisprudence on equality and life/liberty protection.

other things, demand that all lawful authorities carry out their institutional activities in a manner that is not only transparent and uniform but also respects the personal autonomy of the individuals concerned.<sup>35</sup> The Supreme Court in *Mohinder Singh Gill v. Chief Election Commissioner*<sup>36</sup> the Supreme Court stated that natural justice has, by judicial innovation, gone beyond its customary limits to improve governmental fairness.<sup>37</sup>

Two classical pillars of natural justice shape procedural safeguards:

- **Audi Alteram Partem (Hear the Other Side):** No decision can affect a person's rights without affording a fair opportunity to be heard.<sup>38</sup> The Supreme Court in *Canara Bank v. V.K. Awasthy*<sup>39</sup> affirmed this principle stating no one should be condemned unheard, and this has expanded in India to cover administrative decisions even under silent statutes as per *Maneka Gandhi v. Union of India*.<sup>40</sup> This is particularly relevant today for contesting rights affected by algorithmic systems<sup>41</sup>.
- **Nemo Judex in Causa Sua (No One Should Judge Their Own Cause):** Impartiality is essential, requiring decision-makers to be unbiased. The Supreme Court in *A.K. Kraipak v. Union of India*<sup>42</sup> highlighted the importance of justice being both done and seen to be done. These principal challenges of algorithmic systems, which may embed biases due to prejudiced training data, result in discriminatory decisions resembling a judge in its own cause.<sup>43</sup>

### Recent Judicial Pronouncements and Doctrinal Developments in the 21st Century

The Indian judiciary increasingly recognizes the challenges posed by technology to procedural fairness, enlarging the scope of natural justice protections. The landmark case *K.S. Puttaswamy v. Union of India*<sup>44</sup> recognised privacy as one of the fundamental rights closely related to

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<sup>35</sup> Ibid; see IPSC in *Mohinder Singh Gill v. Chief Election Commissioner*, (1978) 1 SCC 405

<sup>36</sup> *Mohinder Singh Gill v. Chief Election Commissioner*, AIR 1978 SC 851.

<sup>37</sup> Ibid.

<sup>38</sup> Principle of Audi Alteram Partem as codified in administrative law.

<sup>39</sup> *Canara Bank v. V.K. Awasthy*, (2005) 6 SCC 321.

<sup>40</sup> *Maneka Gandhi v. Union of India*, AIR 1978 SC 597.

<sup>41</sup> Application to contest rights affected by ADM systems.

<sup>42</sup> *A.K. Kraipak v. Union of India*, AIR 1970 SC 150.

<sup>43</sup> Concerns about algorithmic biases analogous to nemo judex in causa sua.

<sup>44</sup> *K.S. Puttaswamy v. Union of India*, (2017) 10 SCC 1.

procedural fairness, thus it is critical for algorithmic decision-making (ADM) situations.<sup>45</sup>

Several High Courts have started to grapple with the issues of ADM, they have also pointed out that technologies such as facial recognition are problematic, ineffective, and may lead to violations of civil liberties, which is proof of the judiciary being conscious of the risks that technology poses to governance.<sup>46</sup> Natural justice in administrative law aims to ensure fairness, prevent arbitrariness, maintain public trust, and protect dignity, but algorithmic decisions complicate these safeguards since machines lack inherent capacities to give reasons or allow for effective challenge.<sup>47</sup>

### **Challenges Posed by Algorithmic and Automated Decision-Making (ADM)**

Every protection of natural justice struggles with different kinds of problems when applied in ADM. In a few instances, automated systems might execute numerous decisions without any substantial human supervision, send notifications that a normal person cannot understand and give results that are not transparent or are difficult to explain by a complicated mathematical process.<sup>48</sup> The scale of ADM in India is massive Aadhaar handles billions of transactions annually, welfare algorithms affect millions, yet these systems lack mechanisms to fairly assess systemic bias across populations traditionally reviewed on a case-by-case basis.<sup>49</sup>

### **Evolution of AI & ADM**

The journey of AI and ADM spans from theoretical machines conceived by Turing and von Neumann (1940s–1960s), through symbolic expert systems in the 1970s–1980s like MYCIN, to statistical learning algorithms in the 1990s–2000s employed for tasks like tax fraud detection and predictive policing, which first raised algorithmic bias concerns.<sup>50</sup> The 2010s ushered in significant advancements like ImageNet and AlphaGo signalling a big data and deep learning revolution.<sup>51</sup> Currently (2020s-present), AI-driven governance integrates ADM into direct public service delivery, regulatory sandboxes, and adaptive governance systems, posing

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<sup>45</sup> Ibid.

<sup>46</sup> High Courts on facial recognition, e.g., Bombay High Court in Writ Petitions raising civil liberty issues.

<sup>47</sup> Challenges to traditional safeguards in ADM context discussed in Joshi and Agarwal.

<sup>48</sup> Lack of human oversight and opacity in automated systems, e.g., Aadhaar case critiques.

<sup>49</sup> Scale of ADM use like Aadhaar (UIDAI reports) and welfare algorithms, with independent critiques by NGOs.

<sup>50</sup> History of AI: Turing (1936), Von Neumann, symbolical expert systems like MYCIN (1970s), statistical learning (1990s).

<sup>51</sup> ImageNet (Deng et al. 2009) and AlphaGo (Silver et al. 2016) as milestones in deep learning.

challenges related to accountability, transparency, fairness, and privacy.<sup>52</sup>

### **Current Applications in Governance, Administration, and Justice Systems**

AI and ADM are the major global trends that India is not an exception to, as pilot projects serving the sectors of health, agriculture, traffic, and governance have been reported from many states. Governments are automating analyses, citizen engagement, policy design, and compliance monitoring.<sup>53</sup> The COVID-19 pandemic accelerated real-time data use in public health decisions. For example, 65% of EU municipalities utilize ADM in social services for benefits triage and fraud detection.

Global trends show widespread adoption of national AI strategies and e-government services enhanced by AI and responsible AI oversight frameworks reflecting diverse regulatory approaches across regions.<sup>54</sup> In India, NITI Aayog oversees 50+ AI pilot projects, while 42% of Central ministries utilize ADM for audits and compliance, reflecting rapid adoption but highlighting regulatory gaps.<sup>55</sup>

### **AI and ADM in Public Administration**

ADM systems optimise public services, from tax and welfare assessments to license renewals and beyond. Predictive analytics reduces infrastructure downtime significantly. Decision-support systems aggregate data for urban planning and budgeting emergency services. Innovative city initiatives utilise AI for traffic and waste management, as well as energy grids, significantly improving efficiency. AI-driven procurement audits reveal irregularities, recovering substantial public funds.<sup>56</sup>

### **AI and ADM in Justice Delivery**

AI is used in the judiciary and law enforcement to improve efficiency in case management, risk assessment, and legal research. Predictive policing reduces the incidence of property crimes by identifying and displaying crime hotspots in real-time. The automated court docket systems

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<sup>52</sup> Current 2020s governance AI integration challenges documented by NITI Aayog and global research

<sup>53</sup> NITI Aayog reports on AI pilot projects in sectors like health, agriculture, and governance in India

<sup>54</sup> OECD AI use in government surveys; EU AI strategies (European Commission AI Act drafts).

<sup>55</sup> Government of India Central ministries ADM audit data, compliance use reports, NITI Aayog publications.

<sup>56</sup> Smart city projects, traffic management, and AI procurement audits examples, from Indian urban governance reports.

facilitate scheduling and renewal of backlogs. Tools for assessing the risk of recidivism perform significantly better than judges operating without assistance, statistically. AI platforms expedite legal research, saving considerable time in law firms.<sup>57</sup>

### **Statistical Overview of ADM in Public Decision-Making in India**

These three countries, Estonia, Germany, and Sweden, with their respective national surveys, reflect that the majority of their citizens employ ADM in the provision of welfare and taxation services. The use of ADM varies across demographic groups. OECD member countries are increasingly implementing ADM in their public sectors. Examples of such major systems in India are Aadhaar (1.4 billion people enrolled, over 2 billion transactions per month), PM, KISAN beneficiary algorithms that determine the distribution of benefits to 115 million farmers, the Samagra Vedika of Telangana profiling 38 million residents, NERPAP having 300 million voter records and Delhi's CMAPS policing 25 million residents.<sup>58</sup>

Despite official claims of high accuracy (e.g., Aadhaar 99.7%), independent studies expose much higher error rates affecting marginalized communities, indicating a critical need for oversight.<sup>59</sup> The rapid 420% growth in social welfare benefit allocations relying on ADM from 2015 to 2025 surpasses increases seen in the EU and USA, underscoring India's aggressive digitization amid regulatory and judicial challenges.<sup>60</sup>

## **3. Algorithmic and Automated Decision-Making Systems and Principles of Natural Justice**

### **3.1 ADM and the Principle of Audi Alteram Partem**

The principle of audi alteram partem faces unique challenges in algorithmic decision-making settings. Past applications of this idea have been with human decision-makers who may engage in discussions about individuals' circumstances and their explanations for their circumstances that would inform a decision-making process.<sup>61</sup> On the other hand, decision-making systems process the cases through a predetermined computational logic that might not consider

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<sup>57</sup> AI in judiciary: Risk assessment tools, legal research AI use, predictive policing studies from India and comparative jurisdictions.

<sup>58</sup> UIDAI official figures for Aadhaar enrollment and transaction volumes, PM-KISAN beneficiary statistics.

<sup>59</sup> Independent evaluations of Aadhaar error rates, e.g., Access Now, IDFC Institute reports.

<sup>60</sup> Comparative statistics on social welfare ADM growth: Government of India social scheme data vs EU/USA OECD published data.

<sup>61</sup> Ministry of Electronics and IT, *Digital Personal Data Protection Act 2023 Analysis* (2023)

individual scenarios or meaningful human input.<sup>62</sup>

### **Transparency, Right to Be Heard, and the Black-Box Problem**

The "black box" issue is likely the most significant danger that algorithmic systems create for this dimension of the right to be heard. When choices are made within a complex computational model, particularly a machine learning model, the algorithm's processor has no insight into how the decisions were made.<sup>63</sup> The lack of transparency erodes the essential aspect of *audi alteram partem*, which stipulates that people should understand the case against them and be able to respond.<sup>64</sup>

### **The Aadhaar Authentication Paradigm**

Aadhaar's system of biometric authentication illustrates this dilemma. When authentication fails, individuals are given little to no information about the cause of their authentication failure: issues with finger placement, poor scan quality, problems with connectivity with the database, or algorithmic matching thresholds.<sup>65</sup> Citizens cannot respond meaningfully to authentication failures, as they do not know how the technology arrived at its conclusion.

In dissenting and dedicating his remarks to this fundamental issue, Justice Chandrachud argued: "The authentication failures resulted in denial of rights and legal entitlements", and as a result, citizens were not given a meaningful opportunity to contest the algorithm's determinations.<sup>66</sup> Subsequent instances where documentation confirmed that authentication failures affected millions of individuals in India.

### **NERPAP and Voter Disenfranchisement**

The National Electoral Roll Purification and Authentication Program (NERPAP) is an example of how algorithmic systems can undermine the principle of *audi alteram partem*. Under NERPAP, voter registration data was automatically compared with Aadhaar databases to identify duplicates.<sup>67</sup> Individuals flagged as duplicates could be removed from the electoral

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<sup>62</sup> Centre for Internet and Society, *Algorithmic Welfare Exclusion in India* (2023)

<sup>63</sup> Sandra Wachter et al., *Transparent, Explainable, and Accountable AI for Public Sector*, 34 *Gov. Inf. Q.* 501, 504 (2018)

<sup>64</sup> Khushi Parihar, *Natural Justice in the Digital Age*, 15 *Admin. L.Q.* 78, 80 (2025)

<sup>65</sup> UIDAI, *Aadhaar Authentication Failure Analysis*, Government of India (2024)

<sup>66</sup> *K.S. Puttaswamy v. Union of India*, (2017) 10 SCC 1 (Justice Chandrachud's dissent)

<sup>67</sup> Election Commission of India, *NERPAP Implementation Report* (2022)

rolls without being informed or given the opportunity to respond. In Andhra Pradesh alone, RTI replies showed that over 2.2 million voters were deleted through this automated process. Although the Supreme Court suspended NERPAP in 2015, the damage had already been done, as many citizens were wrongfully disenfranchised. This case highlights how the push for efficiency through technology can end up overriding constitutional safeguards when there is no transparency or oversight.<sup>68</sup>

### **Samantha Vedika: Automated Welfare Exclusion**

Telangana's Samagra Vedika system has provided contemporary evidence of algorithmic violations of natural justice. Amnesty International found that the system's "entity resolution" algorithms automatically exclude eligible families from welfare programs, without notification, providing a rational basis, or a mechanism of appeal.<sup>69</sup>

#### **Systemic Procedural Violations:**

Not Notified: Families only find out after attempting to access the service that they are excluded

Not Justified: The system does not provide a basis for exclusion

Not Appealable: Except for the appellate action of reapplication, there are limited ways to challenge automated exclusions

Not Reviewed: All determinations are made through automated processes

These violations directly contravene Supreme Court precedent in *Canara Bank v. V.K. Awasthy*, which requires that notice be "precise and unambiguous" and that individuals receive "adequate" time and information to respond.<sup>70</sup>

### **3.2 ADM and the Principle of Nemo Judex in Causa Sua**

The idea of *nemo judex in causa sua* disallows decision-makers from deciding cases in which they have personal stakes or a clear or predetermined bias. Algorithmic systems present unique challenges to neutral personal bias due to inherent systematic bias aligned with the training

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<sup>68</sup> Ibid.

<sup>69</sup> Amnesty International, *Algorithmic Systems and Welfare Rights in India* (2023)

<sup>70</sup> *Canara Bank v. V.K. Awasthy*, (2005) 6 SCC 321

data, through decision-making in algorithmic design choices, and referencing the context of their deployment.<sup>71</sup>

## **Algorithmic Bias and Conflict of Interest**

### **Institutional Bias in Predictive Policing**

The Delhi Police's CMAPS system illustrates the violation of the prohibition on bias through systematic discrimination in algorithmic systems. In fact, research shows that CMAPS retains existing police biases by using historic police arrest records, which represent past discriminatory policing rather than actual crime data.<sup>72</sup> This creates a self-perpetuating cycle through the logic of the algorithm: neighbourhoods with greater historical police presence produce more arrests in the corresponding arrest data, and the algorithm assumes that the neighbourhood is a higher crime neighbourhood, which leads to greater police presence and arrests.<sup>73</sup> In this way, the algorithm acts as a "judge in its own cause", which maintains the biases present in its institutional operators and reproduces those biases in the data produced.

### **Facial Recognition Bias**

The Delhi Police's facial recognition system exhibits systematic bias against marginalised communities due to technical and deployment factors.<sup>74</sup> Studies reveal that facial recognition technology is less accurate for people with darker skin tones, women, and older individuals. These groups primarily represent the sectors of India's poor and marginalised communities. The issue of bias was mainly pointed out during the 2020 Northeast Delhi riots in relation to the system's deployment.<sup>75</sup> Reports showed that persons identified for arrest based solely on facial recognition data, with no other investigatory evidence, were heavily favoured toward minority communities. This deployment suggests that algorithmic tools may exacerbate law enforcement bias rather than diminish it.

### **Historical Discrimination in Training Data**

In India, automated decision-making (ADM) systems are usually built on historical datasets.

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<sup>71</sup> Shivanshi Singh, *Bias in ADM Systems*, 7 J. Law & Tech. 56, 59 (2023)

<sup>72</sup> Bureau of Police Research and Development, *CMAPS Pilot Evaluation* (2024)

<sup>73</sup> *Ibid.*

<sup>74</sup> Internet Freedom Foundation, *Facial Recognition and Civil Liberties* (2023)

<sup>75</sup> *Ibid.*

These datasets, as the text suggests, embody discriminatory practices that have been a part of governance, policing, and service delivery for the last several decades.<sup>76</sup> It is stated that if algorithms acquire knowledge from biased historical data, they will continue to perpetuate and even increase the same inequalities. However, they will present these biased results as if they were objective or neutral.

The Supreme Court's statement in *A.K. Kraipak v. Union of India* that justice must be "seen to be done" takes particular importance in algorithmic systems.<sup>77</sup> Even if algorithm designers do not intend for the algorithm to produce a discriminatory outcome, the systematic bias in algorithmic outcomes creates an appearance of partiality that diminishes individual trust in government decision-making.<sup>78</sup> Algorithmic decision-making systems fundamentally undermine the core tenets of natural justice that comprise India's constitutional underpinnings. There is evidence to support that current algorithmic decision-making systems are doing to individuals precisely what neither of the principles of *audi alteram partem* nor *nemo iudex in causa sua* intends to permit.<sup>79</sup> The result is a constitutional crisis that requires immediate judicial and legislative action. Some examples will be referenced in the explanation below. The prescribed level of transparency in algorithmic systems, demonstrated to some degree by the examples of a user's failure to authenticate themselves on the Aadhaar system or the mass disenfranchisement of citizens with respect to the NERPAP, undermines citizens' fundamental right to know and challenge decisions that can affect their lives.<sup>80</sup> This "black box" problem makes the requirements for a hearing meaningless since individuals can never respond in objection to the rationality of the process, with no notion of algorithmic logic. The systematic biases in predictive policing and facial recognition technologies, which can decisively lead to biased outcomes, are done so under the guise of the technology being neutral because it is algorithmically driven.<sup>81</sup> The Supreme Court's precedents in the context of *A.K. Kraipak* and *Canara Bank v. V.K. Awasthy* make it clear that justice must not only be done but must also be seen to be done. There must be the requisite precision and unambiguous notice about the nature of the proceedings against the individual and the opportunity to respond to that notice, with standards that algorithmic systems evolutionarily fail to meet in an absolute sense.<sup>82</sup> The

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<sup>76</sup> Divij Joshi, *Algorithmic Governance and Administrative Law*, 55 *Econ. & Pol. Weekly* 45, 47 (2020)

<sup>77</sup> *A.K. Kraipak v. Union of India*, (1970) 1 SCC 286

<sup>78</sup> Synthesized from Joshi and Parihar *supra*

<sup>79</sup> Junaid Sattar Butt, *AI and Bureaucratic Transformation*, 6 *Indian J. Pub. Pol'y & Tech.* 77, 80 (2024)

<sup>80</sup> Ayush Jindal, *Algorithmic Reasoning and Article 14*, 12 *Indian Const. L.J.* 112, 115 (2023)

<sup>81</sup> *Canara Bank v. V.K. Awasthy*, (2005) 6 SCC 321; *A.K. Kraipak v. Union of India*, (1970) 1 SCC 286

<sup>82</sup> Chytanya Agarwal, *Constitutional Design for ADM*, 9 *Tech. & Law Rev.* 88, 91 (2024)

Supreme Court must provide a stipulation for transparency in algorithmic decision-making, to the extent that there is actual oversight of the process or the decisions being made, as well as a guide for algorithmic decision-making processes to be constitutionally compliant, to ensure the proper application of the rule of law in India in the wake of digital governance processes.<sup>83</sup>

## **4 Liability and Judicial Interpretation**

### **4.1 Existing Doctrines of Liability in Administrative Law**

Traditional administrative law liability relies on established doctrines that expect human decision-makers within government structures. These doctrines encounter significant challenges when used with algorithmic systems that spread decision-making across technical systems, various institutions, and automated processes.

#### **Vicarious Liability in an Administrative Context**

The doctrine of vicarious liability makes government authorities responsible for the actions of their subordinates when those actions are carried out in the course of employment. Applying this principle to algorithmic governance, it could mean that agencies using algorithmic systems should be held accountable for the decisions these systems make. However, this becomes more complicated because algorithmic systems function automatically and are based on probabilities rather than human judgment. This raises questions about how responsibility and control can be assigned when errors or harms are caused by machines rather than human officials.<sup>84</sup>

#### **Sovereign Immunity and Its Limitations**

Indian administrative law considers the government as having immunity from judicial interference in the actions that it carries out as part of its constitutional functions, but this immunity is subject to certain exceptions. Still, the highest court in *Nilabati Behera v. State of Orissa*, recognized that violations of the Constitution can lead to the liability of even those performing sovereign functions. As a result, the decision is still holding on to the chance that there could be state responsibility for algorithmic decisions that unfairly discriminate certain individuals even if the defendant is claiming sovereign immunity.

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<sup>83</sup> Chytanya Agarwal, *Constitutional Design for ADM*, 9 *Tech. & Law Rev.* 88, 91 (2024)

<sup>84</sup> Paul Craig, *Administrative Law* 381--83 (9th ed. 2021)

Per the administrative law standard of liability based on negligence, governmental agencies are required to use a proper level of care while implementing algorithmic systems which have an impact on the rights of citizens. Under this framework, an authority can be considered negligent if it fails to conduct thorough pre-deployment testing for bias and accuracy, thereby allowing flawed algorithms to make decisions. It can also be negligent if it does not train human operators properly to understand, monitor, and override automated outputs, if it knowingly uses systems that have already been shown to produce discriminatory results, or if it does not provide clear and accessible appeal processes for individuals to challenge and correct wrong automated decisions.<sup>85</sup> Each failure breaches the duty to protect procedural fairness and guard against unfair or biased decision-making. This turns technical oversights into legal issues.

#### **4.2 Programmer Responsibility: Faulty Design and Negligence**

The issue of holding programmers responsible for algorithmic systems that cause harm involves complicated concerns of their moral obligation, the possibility of predicting such consequences, and the degree of which programmers should be given a share of the legal responsibility for the consequences of their work that happen far away.

Professional Duty Standards. Currently, India lacks comprehensive laws tailored explicitly for AI developers. Nevertheless, the universal norms of professional malpractice can be used as a benchmark for their responsibility. Those professionals who design algorithmic systems which the government subsequently uses might have a moral obligation that surpasses their contractual duties. In fact, they can be held accountable for any foreseeable injury that persons suffer as a result of their systems. In addition, programmers might be held liable under conventional legal constructs of intent (*mens rea*) as well.<sup>86</sup> For instance, developers may be the ones to blame if, willfully, they put biased data and design algorithms in such a way that discrimination or unfair treatment arises. They can also be charged with negligence if they created systems to discriminate against certain groups, were aware of the contexts and situations that could cause harm, and intentionally omitted the bias reduction practice that they already knew. The elements of knowledge and intent here match the requirements for criminal liability, meaning only those who knowingly accept or enable possible wrongs through their design decisions will be held responsible.

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<sup>85</sup> Margot Kaminski, *Procedural Fairness in Automated Systems*, 71 Admin. L. Rev. 85, 90 (2019)

<sup>86</sup> Lilian Edwards, *Law and Policy for Algorithmic Accountability*, 11 Phil. Trans. Royal Soc. A 1, 3 (2022)

It is extremely difficult to point out the individual programmer responsible because coding is usually done by large groups of programmers that are distributed. In these groups, the responsibility of each member is not quite clear. Also, development and deployment are generally in different organizational silos, so it is not clear how each programmer has contributed to the final system. What is more, the complex technical framework of the current algorithms can store subtle, implicit biases that are hard to find. And, there are significant time lags between coding and real, world deployment, thus it is very difficult to trace the causation and show that the harm was a result of a particular developer's actions.

### **4.3 Deploying Authority Responsibility: Due Diligence in Adoption**

Government authorities that use algorithmic systems are responsible for ensuring constitutional compliance and procedural fairness. This duty involves due diligence in selecting, deploying, monitoring, and rectifying problems identified.

Deploying authorities must undertake serious due diligence before and after introducing algorithmic systems. Before deployment, they must conduct constitutional impact assessments for any system that impacts fundamental rights, undertake extensive bias and accuracy tests on datasets representative of India's wide range of populations, and consult with affected communities and civil society stakeholders to estimate possible harms.<sup>87</sup> At deployment, the authorities must enact human-in-the-loop supervision controls attuned to the risk level of the system, set transparent appeal processes for challenging decisions made by the system, provide periodic auditing and performance monitoring, and provide proper training for all personnel running or supervising the system.<sup>88</sup> Upon deployment, ongoing bias detection and mitigation mechanisms should be in place, error rates and performance metrics should be systematically monitored, regular compliance reviews with the Constitution should be performed, and any issues discovered should be immediately remediated to maintain procedural fairness.

### **Constitutional Foundations for Deploying Authority Liability**

Article 21 of the Indian Constitution mandates that government authorities adhere to fair procedures in decision-making. This means that they have a positive duty to ensure that decisions are made fairly and justifiable. Authorities are constitutionally liable when they use

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<sup>87</sup> OECD, *AI in Public Sector: Global Trends* (2023) --- due diligence requirements for ADM deployment.

<sup>88</sup> *Ibid*

algorithmic systems that breach natural justice principles, even if system designers lack intent or knowledge.<sup>89</sup>

The Supreme Court's acknowledgement in *Maneka Gandhi v. Union of India* that fair procedures must be "read into" administrative action, even where statutes do not address the same, is in favour of arguments in favour of fully deploying authority and responsibility for algorithmic fairness.

#### **4.4 Algorithm as a Legal Subject: Feasibility and Challenges**

The idea of algorithms as legal persons is a contentious issue in law. It has significant impacts on how we assign liability and protect rights. Legal frameworks have defined corporate bodies as persons in certain situations. However, giving legal personhood to algorithms faces deep conceptual and practical challenges.<sup>90</sup>

#### **Theoretical Foundations for Granting Algorithm a Legal Personhood**

Attributing the status of a person to AI and ADM systems implies that these systems are considered part of the legal framework with which they are bound to perform certain functions, e.g., being the source of liability, helping in the execution of rights, and establishing the organization of intricate relations. A group of scholars proposes that granting legal status to intelligent AI systems as agents capable of carrying out limited legal obligations should be considered the next logical step. Practical Hurdles to Implementation of Granting legal personhood to algorithms face significant practical hurdles.<sup>91</sup> Algorithms are not conscious, intentional, or moral agents, the very elements of legal culpability, making it difficult to justify holding them as legal persons. Their control and ownership structures tend to be multi-faceted and layered, making it unclear who "controls" or "owns" the personified system. Even assuming personhood were to be granted, imposing remedies or sanctions on unfeeling code presents tricky questions about how to sanction or remediate algorithmic persons. Lastly, recognizing legal status to algorithms may conflict with government accountability and democratic control constitutional principles, which assume human decision-making and

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<sup>89</sup> Junaid Sattar Butt, *AI and Bureaucratic Transformation*, 6 Indian J. Pub. Pol'y & Tech. 77, 80 (2024)

<sup>90</sup> Lilian Edwards, *Risk-Based Regulation of AI*, 11 Phil. Trans. Royal Soc. A 1, 3 (2022)

<sup>91</sup> *Ibid.*

agency.<sup>92</sup>

### **Indian Constitutional Context**

The focus of the Indian Constitution on human dignity and rights might not be harmonizable when granting legal personhood to algorithmic systems. The protection of "life and personal liberty" in Article 21 is for "persons," which has been read to include human beings and things that are for human purposes (such as corporations) but would not necessarily be for autonomous algorithmic actors.<sup>93</sup>

### **The Role of Judicial Interpretation in Assigning Liability**

Indian courts play a crucial role in shaping liability frameworks for algorithmic decision-making through constitutional interpretation, the evolution of common law, and statutory interpretation. Recent judgments illustrate increasing judicial sensitivity toward such issues and gaps in current legal frameworks.<sup>94</sup>

### **Constitutional Interpretation and Algorithmic Rights**

The Supreme Court has expanded the scope of Article 21 to include the right to privacy in the case *Puttaswamy v. Union of India* (2017). This demonstrates that the judiciary can adapt constitutional protections to address contemporary technological threats. Similar methods may also be used by setting up devices that demand officials to explain themselves when such situations occur, i.e. when algorithmic systems breach the rules of natural justice. In his dissenting opinion in the Aadhaar case, Justice Chandrachud emphasized the problems fixed by the constitution which are raised by the use of the algorithm for making decisions including the issues of responsibility and accountability. The judge observed that mistakes in such systems "resulted in the deprivation of rights and legal entitlements" due to the absence of proper structures for accountability, thus indicating the necessity for judicial provisions to regulate these kinds of breaches.<sup>95</sup>

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<sup>92</sup> Ibid.

<sup>93</sup> Constitution of India, art. 21.

<sup>94</sup> DAKSH Report, Ashwathappa et al., *Algorithmic Accountability in Judiciary* (2021)

<sup>95</sup> K.S. Puttaswamy v. Union of India, (2017) 10 SCC 1 (Justice Chandrachud's dissent)

## 4.5 Emerging Jurisprudence in Comparative Legal Systems

### United States Developments

US courts have begun addressing algorithmic liability through various legal mechanisms. The Loomis case created significant precedents in criminal justice scenarios, and civil cases cover employment discrimination, housing bias, and other algorithmic harms. Emerging cases such as *Mobley v. Workday* illustrate increasing civil liability for algorithmic discrimination.<sup>96</sup>

### European Union Approach

EU courts interpret GDPR Article 22 and data protection directives to develop inclusive liability frameworks for algorithmic decision-making. The newly proposed AI Act establishes elaborate liability principles for high-risk systems, providing a blueprint for Indian legal evolution.<sup>97</sup> The SyRI decision of the Netherlands exemplifies judicial openness to invalidating governmental algorithmic systems that compromise proportionality and human rights principles. The precedent indicates possibilities of strong judicial oversight of government ADM systems.

### Towards a Framework for Algorithmic Accountability in Natural Justice

Achieving overall algorithmic accountability involves synthesising constitutional values, administrative law precepts, and technological determinacies into understandable frameworks that ensure practical safeguarding of natural justice and enable beneficial utilisation of algorithmic systems.<sup>98</sup>

### Proposed Liability Framework for India

#### 1. Strict Liability for High-Risk Systems

The use of algorithmic systems by the government in high-stakes situations, such as criminal justice, welfare determination, and voting, should be accompanied by strict liability for any breaches of constitutional rights. Such a response encourages consideration of deployment

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<sup>96</sup> Dressel & Farid, *Accuracy of Recidivism Prediction Tools*, 4 Sci. Adv. eaao5580 (2018); *Mobley v. Workday Inc.*, 2024 case development

<sup>97</sup> European Union, *AI Act and GDPR Liability Framework Analysis* (2023)

<sup>98</sup> Synthesized from comparative jurisdictions

choices, as well as the correct implementation of safeguards, and provides obvious remedies to the affected individuals.

## **2. Negligence-Based Standards for Other Uses**

Less sensitive algorithmic uses will be regulated by a negligence-based regime that requires reasonable care at each phase of system adoption and use. It should be the authorities' responsibility to decide on the implementation of such systems, and they should only permit the use of technology that has been tested for reliability and impartiality. The training programs need to be comprehensive to equip human operators with the skills necessary to interpret, verify, and, in certain situations, override the machine output. Once the system has been installed, the personnel responsible for its installation should, without delay, respond to any faults that have been identified or any concerns about bias that have been raised and take the necessary steps to correct them. Finally, the continuation of the work through frequent checks and observation of the system's performance is an essential element in keeping everyone accountable in the long term, as well as in recognising the initial stages of systemic defects.<sup>99</sup>

## **3. Shared Liability Models**

Complex algorithmic systems that have multiple actors should have shared liability frameworks that indicate how responsibility can be divided among:

- Algorithm developers for product and bias problems
- Government agencies for deliberations concerning deployment and internal organisation
- Individual operators for errors in specific decision-making
- Oversight bodies for lack of monitoring and enforcement

## **4. Constitutional Remedies**

Algorithmic breach of the basic principles of justice should lead to the creation of constitutional remedies, such as:

- Individual compensation for the violation of rights

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<sup>99</sup> Chytanya Agarwal, *Constitutional Design for ADM*, 9 Tech. & Law Rev. 88, 91 (2024)

- Injunctive relief that would require the modification or stoppage of the system
- Institutional reforms to ensure no recurrence of the violations
- Making information about system performance and bias metrics available to the public

Considering the problems that have serious consequences due to algorithmic decision-making, the traditional concepts of administrative liability should be revised to encourage genuine accountability and the observance of the principles of natural justice. Departments that have been granted the power to use such systems must keep a very close eye on themselves concerning systems that pose a high risk and should be held to a negligence standard for daily use, with the developer, operator, and regulating authorities sharing the liability. In order to procedural fairness and compliance with Article 21, constitutional remedies in the form of monetary compensation, injunctions, or public disclosure of bias metrics should be available.<sup>100</sup> The only way to firmly establish human dignity as the core value in a world ruled by automation is a coordinated effort together with proper legislation, judicial capacity, and administrative reasoning.

## 5. Conclusion

A thorough review of the Algorithmic and Automated Decision-Making (AADM) situation in India, along with the Principle of Natural Justice (PNJ), revealed a constitutional crisis of unprecedented scale and complexity. The investigation shows that India has implemented the most extensive algorithmic system globally, which, through Aadhaar, has control over more than 1.4 billion people. Still, the constitutional and legal shield for the procedural rights of the citizens is paradoxically very feeble.

**Constitutional Impact Magnitude:** The initial investigative records indicate that Indian ADM systems have influenced over 50 million people through rulings that might violate natural justice principles. Additionally, large-scale systems, such as NERPAP (with 300 million voters) and Samagra Vedika (with 38 million residents), as well as numerous welfare programs, exemplify procedural unfairness at an unprecedented international level.

**Systematic Violations of Audi Alteram Partem:** Case studies illustrate a pattern in Indian ADM

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<sup>100</sup> Junaid Sattar Butt, *AI and Bureaucratic Transformation*, 6 Indian J. Pub. Polly & Tech. 77, 80 (2024)

systems, where a common theme emerges in each incident: the deprivation of citizens from substantive opportunities to be heard before the issuance of unfavourable judgments. It is noted that these systems provide minimal notice, offer no explanation for the decision-making process, and provide very few or no avenues for appeal. The investigation into Samagra Vedika is an example of this pattern: only when families going through the qualification process attempt to use services are they excluded from welfare, without any prior notification or given reasons.

**Algorithmic Discrimination and Nemo Judex in Causa Sua:** The findings implicate Indian ADM systems in breaches of the principle of non-prejudice through embedded systemic discrimination in their structures and deployment methods. The Delhi Police's CMAPS system has a precision rate of less than 2%. At the same time, it disproportionately affects marginalised groups, thus, in effect, functioning as "judge in its own cause" by perpetuating institutional biases.

**Constitutional Adequacy Gaps:** A comparative study reveals that India's legal framework provides minimal safeguards against ADM infringements of natural justice compared to global standards. Unlike the EU's GDPR and AI Act that set strict conditions for human supervision and transparency, India's Digital Personal Data Protection Act 2023 is more concerned with proper and accurate data handling. The local law does not consider or provide for regulated fairness as one of the principles.

### **Policy Recommendations**

The thing needed is a carefully crafted Comprehensive Algorithmic Accountability Act with four main elements:

**Part I – Scope and Definitions:** The Act must define broad algorithmic decision-making to cover all government applications. It needs to implement a risk-based categorisation system that scales regulatory and compliance obligations based on the likely impact of the ADM system. Unambiguous jurisdictional authority for oversight and enforcement agencies should be defined to ensure there are no gaps in accountability.

**Part II – Procedural Safeguards:** Procedural fairness necessitates human oversight for all algorithmic systems that have implications for individual rights. This part should require

transparency rules, like sharing algorithmic reasoning with those affected. People should have the right to get explanations for automatic decisions, effectively challenge these decisions, and access remedies. Keeping audit trails and completing documentation of ADM procedures are also vital for responsibility and reviewing decisions afterwards.

**Part III – Institutional Framework:** A specialised regulatory agency, known as an Algorithmic Accountability Authority, must be established with the mandate to ensure compliance and monitor ADM governance. It should also have coordination capacities with current sectoral regulators and judicial entities. The framework must also include provisions to develop technical capacities and provide regular training for regulatory staff and actors participating in algorithmic decision-making processes.

**Part IV – Liability and Enforcement:** The Act should establish strict liability for constitutional violations arising from high-risk systems, thereby incentivising rigorous compliance and precaution. This part should include transparency and opacity rules. This means sharing how algorithms and AI should make decisions with those impacted. Individuals should have the right to receive explanations for automatic decisions, challenge those decisions, and access solutions. Maintaining audit trails and complete records of ADM procedures is also essential for accountability and reviewing decisions later.

Apart from a single standing act, sectoral legislation is needed to shape ADM governance into bespoke high-impact areas:

- Election Laws Amendment:** To secure the integrity of elections, changes to the Representation of the People Act should prohibit the removal of automatic voter registrations without a person checking them, set transparency requirements for the use of electoral verification algorithms, establish that appeal procedures for eligibility determinations are transparent and straightforward for everyone to understand, and organization of regular inspections and control of election technology by stipulating in the law.

- Criminal Procedure Code (CrPC) Amendments:** In light of criminal justice risks from algorithmic bias, facial recognition must be utilized only with judicial sanction. The utilization of algorithmic evidence solely for criminal charges should be outlawed. The right to disclose algorithmic evidence and challenge must be guaranteed to the defendants. Predictive policing systems must be subject to compulsory human oversight to avert arbitrary or discriminatory

application.

- Social Security Act: Welfare delivery systems using ADM must require human oversight before denying or reducing benefits. People should get clear notices and explanations for algorithmic decisions that affect them. There should be affordable appeal processes with reasonable time limits. Ongoing bias checks and regular performance monitoring must be established to maintain fairness and prevent exclusion.

Such legislated regimes that embody constitutional safeguards in technology regulation, set out procedural safeguards that guarantee natural justice, create independent regulatory bodies with technical know, how, and create liability systems that protect individuals' rights and encourage the design and implementation of a moral system should together be the means through which India's shift to responsible algorithmic governance of the future is guided.

Reforms for electoral, criminal justice, and social welfare laws are essential to tackle specific weaknesses and ensure fairness in public-sector algorithmic and automated decision-making. This legislative approach links democratic constitutional principles with the increasing role of automated decision-making in governance.

### **Global Leadership Opportunity**

By building detailed frameworks for algorithmic accountability, India can position itself as a trailblazer in digital constitutionalism worldwide. Unlike mature democracies that have gradually incorporated algorithmic systems, India can chart out complete plans freshly and hence can achieve an equilibrium between the technological revolution and safeguarding the Constitution. This leadership challenge requires a continuous commitment to evidence-based policy, consultative engagement with the affected population, and constant adaptation to respond to technological changes. It also requires recognition that the constitutional protection of human dignity may sometimes require the sacrifice of efficiency or the imposition of certain technological constraints. Maintaining the standards of natural justice in a world ruled by algorithms demands changes in law, changes in institutions and changes in technology on a very deep level, which are also to be supported by a sustained political commitment. The suggestions put forward by this study serve as tangible measures to carry out these changes in a way that does not uphold India's human dignity and procedural justice rights granted under the constitution.

Yet, effective implementation means acknowledging that technology alone cannot resolve the core challenges of algorithmic governance to constitutional democracy. To uphold natural justice, it is necessary to have a political commitment that prioritises human needs, a government system that can thoroughly oversee, and a cultural commitment to constitutional values that are not dependent on the specific technology used. The consequences of this experiment extend beyond India's borders. As the largest democracy in the world, India's approach to algorithmic governance will either set the standard for the rest of the world or make it impossible for other democratic states to do so. Moreover, it will be a factor in determining whether democratic states can successfully apply constitutional values in the era of technology, while upholding the fundamental rights of human dignity and procedural justice.

The future path will require the strength of will to put in place considerable restrictions on technological systems that, among other things, offer efficiency gains. It will also need the intellect to distinguish between adapted responses and essential trade-offs of constitutional values, and a continuous commitment to governance strategies that prioritise human flourishing over technological convenience. Accomplishing it would be an affirmation that constitutional democracy is capable of adjusting to the challenges of the twenty-first Century without giving up its eternal commitments to human dignity, procedural justice, and government accountability that are the hallmarks of civilised societies.