FROM PROPRIETARY CODE TO PUBLIC ACCOUNTABILITY: RETHINKING VENDOR POWER IN INDIA'S ALGORITHMIC WELFARE STATE

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ABSTRACT

Private technology vendors using Aadhaar-linked digital welfare systems to automate India's rapid transition, are shifting the decision-making power from the public bureaucracies. These proprietary systems are implemented to boost efficiency, but have created opaque "black box" which leads to systematic exclusions through biometric & algorithmic errors, violating fundamental rights under Articles 14 & 21. Consequently, private vendors hide behind "trade secrecy" while the state evades constitutional scrutiny by outsourcing its core welfare functions, resulting in lack of procedural recourse to the common citizens. To eliminate this accountability void, this paper advocates applying the "public function" test to classify algorithmic vendors as "State" under Article 12 of the Indian Constitution. In order to ensure digital governance that prioritizes civil rights over private proprietary rights, constitutional obligations need to be extended to private vendors that would ultimately dismantle trade secret shields, rebalance evidentiary burden and restore judicial review.

Keywords: Algorithmic Governance, Digital Public Infrastructure (DPI), Welfare Delivery, Public Function Test, Vendor Accountability, Trade Secrecy, Black Box Systems.

I. INTRODUCTION

Artificial Intelligence is rapidly reshaping the institutions that structure everyday life.[1] Across the globe, public benefit programs increasingly depend on automated decision making to determine eligibility and allocation of resources.[2] Policing, credit, immigration, welfare, education, administration, distribution, management, governance, etc. are examples of such automated decision making. Even though these systems promise efficiency, flexibility and adaptability they also raise very serious concerns when it comes to neutrality, procedural fairness and most importantly accountability. This global paradigm shifts from human discretion to machine-based decision making has surpassed legal accountability frameworks.[3]

This dilemma of efficiency versus accountability is highly evident in India where hundreds of millions of people are dependent on welfare systems. Subsidies to such vulnerable citizens, which deliver lifesaving rations, pensions, healthcare, housing and other such basic needs have completely been automated by the government. The system is Aadhar-linked, which uses biometric authentication and therefore makes the eligibility filtering automated.[4] The stakes in such scenarios are very high i.e., a minor glitch in this infrastructure would deprive a person of their basic survival needs. This would in turn mean that a failed authentication is no longer a glitch, but a denial of the fundamental right to life with dignity, as well as equality.[5]

The state relies extensively on private technology vendors to build and manage these massive systems, which is a shift that radically reallocates power between sovereign state and private actors. This essentially means that there is a diffusion of accountability. As long as a private entity is providing the technology, they have the defense of non-disclosure under Trade Secrets due to which the code/algorithm which makes the decision can neither be examined nor be called out for its bias (if any). By outsourcing this process, the state is doing away with its accountability towards its people, which it is bound by the Constitution. This creates a loophole where the State isn't accountable due to its non-participation directly, and the private players are protected by Trade Secrets. To address this issue, we argue that similar to other

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[1] *See generally VIRGINIA EUBANKS, AUTOMATING INEQUALITY: HOW HIGH-TECH TOOLS PROFILE, POLICE, AND PUNISH THE POOR (2018) (discussing the "digital poorhouse" created by automated governance).*
[2] *See, e.g., U.S. DEP'T OF EDUC. OFF. OF EDUC. TECH., ARTIFICIAL INTELLIGENCE AND THE FUTURE OF TEACHING AND LEARNING: INSIGHTS AND RECOMMENDATIONS 5 (2023).*
[3] *See Danielle Keats Citron, Technological Due Process, 85 WASH. U. L. REV. 1249, 1252 (2008) (arguing that automated systems often lack the transparency required by constitutional due process).*
[4] *Justice K.S. Puttaswamy (Retd.) v. Union of India, (2019) 1 SCC 1 [hereinafter Aadhaar Judgment].*
[5] *Id. at ¶ 308 (majority opinion) (discussing the potential for "digital exclusion" in welfare delivery).*

organizations, firms, parties etc. which perform State functions, AI models should also be deemed as State under Article 12 of the Indian Constitution, in order to establish vendor accountability.[6]

II. CONTEXTUALIZING THE CRISIS

1. THE SCALE OF DIGITAL GOVERNANCE

India has established itself as one of the most wide-ranging experiments in the field of digital governance.[7] Here the state has fundamentally restructured the delivery of welfare through-data driven systems. Aadhar lies at the soul of this shift, which is basically a biometric identification framework that bears access to a wide range of public welfare. Multiple welfare schemes including Public Distribution System and social security pensions are increasingly linked to and relying on Aadhar-based authentication which requires the beneficiaries to verify their identity through iris scans or finger print at the time of availing such services.[8]

This change is significantly seen in the past decade, which marks a clear shift from a human, bureaucratic discretion-based decision-making to a technology mediated one. The eligibility and access determination are no longer solely an administrative process but are based on successful authentication within the integrated Digital Public Infrastructure (DPI).[9] Consequently, governance is increasingly done through real-time data validation, where inclusion or exclusion within the welfare system does not depend merely on entitlement but on the ability to be identified by the DPI.

2. THE OUTSOURCING REALITY

While the understanding of the common man is that DPI is a function of the state, it is designed, deployed as well as maintained by private technology vendors and software developers. Such private entities develop the software, manage databases, and administer biometric authentication systems that uphold welfare delivery. In this process, they possess significant control on the determination of eligibility and granting

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[6] *See INDIA CONST. art. 12.*
[7] *See Aadhaar Judgment, supra note 4, at ¶ 11.*
[8] *UIDAI, https://uidai.gov.in*
[9] *See generally Pramod Varma et al., Digital Public Infrastructure: The India Story, 14 J. DIGIT. GOV'T 45 (2023).*

or denying of access in reality.

This disposition clearly shows the shift from direct state administration to technologically mediated governance, where essential public functions are rooted within these exclusive systems. Though the state has the formal authority on welfare schemes in the public eye, it is the private vendors who control the system due to their technical expertise. This results in diffusion of accountability and a scenario where people realize their rights through systems which are no longer completely transparent.[10]

3. SYSTEMIC EXCLUSION IN PRACTICE

The dependence on biometrics and database powered verification systems has increased vulnerabilities that have detrimentally affected the population that solely depends on the welfare system. Failure by the system in the process of authentication might be a result of multiple causes such as mismatch or errors in data entry by local bureaucracy, outdated biometrics of adolescents, worn out fingerprints due to manual labor/age or connectivity issues in remote areas. These issues may sound negligible or solvable but are the ones that cause hurdles at the foundation level.

Such failures have already shown their consequences which are irreparable. Two such incidents occurred in 2017 in one of which an eleven-year-old Jharkhand girl's family was denied access to subsidized food grain for months together due to Aadhar related authentication failures, ultimately causing her death.[11] Pension to millions of elderly and especially abled was denied due to fingerprint mismatch in another case.[12]

4. REDISTRIBUTION OF POWER

The sovereign duty to provide welfare has been operationally delegated to private commercial entities whose primary objectives are scale, efficiency and proprietary innovation rather than procedural fairness. This deep reliance on the private sector represents a profound bypass of power to private actors from the state. The Indian state

[10] *Cf. Frank Pasquale, THE BLACK BOX SOCIETY: THE SECRET ALGORITHMS THAT CONTROL MONEY AND INFORMATION 8-10 (2015).*

[11] *Jharkhand Girl Dies of Starvation After Family's Ration Card Was Cancelled, THE HINDU (Oct. 17, 2017), https://perma.cc/5CR6-6GHC.*

[12] *See Reetika Khera, Impact of Aadhaar on Welfare Programmes, 54 ECON. & POL. WEEKLY 13 (2019).*

has a constitutional obligation to ensure welfare to its citizens and by such redistribution of power the concept of welfare is defeated.[13]

III. THE CORE PROBLEM: THE "BLACK BOX" AND CONSTITUTIONAL EVASION

1. THE PROPRIETARY "BLACK BOX"

A welfare state is fundamentally designed for the inclusion and protection of the common man, serving as the safety net for those who historically lacked access to basic resources. Up until now this system was run by human bureaucrats who despite their flaws operate with a degree of visible discretion. However, a sweeping reform has shifted this entire architecture to an automated machinery, which is efficient, cost effective and to a great extent accessible. Welfare decisions like governing the distribution of life saving rations & pensions are now strictly mediated through algorithms, opaque biometric matching systems and complex database logic. While these systems were created to facilitate the then bureaucratic systems, it has evolved into mechanical bureaucracy which remains entirely inaccessible to the vulnerable people it serves.[14]

This exclusion is not an unintentional glitch, it is an educated choice by the private vendors to protect their algorithms through Trade secrets & Intellectual property. For a common man the input is known, an Aadhar card or biometric data is needed and the output is also known which is the approval or denial of benefits from the scheme. These are evidently transparent ends of the spectrum, of which the process i.e., the core of the spectrum remains invisible. This creates a literal black box, where the commercial interests of private vendors are overriding the transparency required by law.[15]

2. DUE PROCESS IN AUTOMATED GOVERNANCE

This legally enforced opacity directly translates into Constitutional harm. Articles 14 & 21 of the Indian Constitution ensure Equality and protect Right to Life.[16] Article 14

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[13] *See Robert Bartlett et al., Consumer-Lending Discrimination in the FinTech Era, 143 J. FIN. ECON 30, 40-41 (2022) (analyzing power shifts in algorithmic gatekeeping).*
[14] *EUBANKS, supra note 1, at 184.*
[15] *See Citron, supra note 3, at 1254 (discussing how proprietary code creates "automated secrecy").*
[16] *INDIA CONST. art. 14, 21.*

gives protection against arbitrary State action and 21 includes right to food, livelihood and dignity as interpreted by the apex court in multiple landmark judgements.[17]

In its current form, this mechanical governance violates constitutional guarantees on three fronts:

- A human bureaucrat is mandated to provide reasons for any decision made in their official capacity, but algorithms rejecting or approving any claim can get away with arbitrary reasoning such as match or mismatch of biometrics which violates basic fairness principles.[18]

- Without knowing exactly why a system rejected their fingerprint, a citizen cannot meaningfully approach a grievance redressal mechanism, this leads to an inability to contest the resulting decision.

- Human error which is localized is far narrower than algorithmic bias which is scaled and normalized across the population.[19] Automation of arbitrariness is a result of this flawed database or code.

3. THE EVIDENTERY TRAP

A prudent person would think, if they're wrongfully excluded, they can just approach the court, but this creates an evidentiary trap. To legally challenge a wrongful exclusion, traditional frameworks require the citizen to prove exactly how the system failed them or discriminated. However, because this system's logic is clogged by vendor trade secrets and data is controlled by the state, the citizen is left disabled from finding evidence to establish their case. The individual must prove the malfunction of the system they cannot access or understand. Courts inherently require a chain of causation and clear evidence to strike down arbitrary actions. But in the context of black-box welfare tech, such evidence is unavailable. The aggrieved citizen is left fighting a phantom.[20] This dynamic creates a procedural dead-end, shifting the burden of proof

[17] See, e.g., Maneka Gandhi v. Union of India, (1978) 1 SCC 248 (establishing that procedure established by law must be "just, fair and reasonable").
[18] See State of West Bengal v. Anwar Ali Sarkar, AIR 1952 SC 75 (interpreting Article 14's protection against arbitrary state classification).
[19] See CATHY O'NEIL, WEAPONS OF MATH DESTRUCTION: HOW BIG DATA INCREASES INEQUALITY AND THREATENS DEMOCRACY 3 (2016).
[20] See PASQUALE, supra note 10, at 142.

unfairly onto the most vulnerable party and judicial review practically impossible. This scenario increases the burden on the courts, which is already very high.

4. CONSTITUTIONAL EVASION THROUGH PRIVATIZATION

This procedural dead end revealed the most insidious consequence of India's outsourced digital infrastructure, privatization has become a highly effective tactical tool for constitutional bypass. The sequence of evasion is remarkably consistent and strategic. The state adopts algorithmic systems, delegating the actual design and management to these high-stakes databases to private technology vendors.

When the mountain of algorithmic errors crumbles, resulting in mass exclusion or alienation of welfare, then accountability vanishes into a jurisdictional void. The state deflects constitutional responsibility blaming a technical glitch in the software rather than admitting to arbitrary state actions. Simultaneously, a vendor evokes its status as a private commercial actor, they argue that they simply provide a software service and a contract and are therefore exempt from upholding fundamental rights.[21]

This exploits a massive gap because fundamental rights are enforceable only against the state as defined under Article 12. Private vendors currently fall outside its traditional interpretation and there is no direct constitutional liability for the entity that is responsible for this decision. By inserting private technological companies between them and the citizen, the state effectively severs rights' violation as a mere technical failure which evades constitutional scrutiny altogether. The state expects to have its cake and eat it too, enjoying the scale of automated welfare while bypassing the constitutional accountability that comes with it.

The challenge therefore is not merely one of technological opacity, but of constitutional classification. As long as private vendors remain outside the definition of state, the most consequential decisions affecting human survival will continue to evade fundamental rights scrutiny. Addressing this requires a shift in how Article 12 is understood, compelling courts to infiltrate the black-box.

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[21] *See Aadhaar Judgment, supra note 4, at ¶ 425 (dissenting opinion of Chandrachud, J.) (warning against "outsourcing of sovereign functions to private entities).*

IV. THE PROPOSED SOLUTION: BRINGING VENDORS UNDER ARTICLE 12

1. UNDERSTANDING ARTICLE 12

In order to address the gap created by outsourcing of welfare systems, we need to understand the true essence of Article 12. It defines the term 'state' for the purpose of enforcing fundamental rights, by going beyond government organizations to include 'other authorities' in Indian territory.[22] This provision might look simply yet is foundational when it comes to determination of constitutional accountability.

Indian courts have widely interpreted Article 12 in multiple instances which establishes that governance is not necessarily always performed by the government. This basically means that the nature of the function performed matters more than the mere identity of the performer. In a comparative perspective, the United States equivalent of Article 12 is the 'State Action Doctrine' which was introduced through the Fourteenth Amendment.[23] While this doctrine is selectively applied, as the courts don't wish to extend the obligations of state to private players; Article 12 is more inclusive to suit the current dynamics where outsourcing is the norm.[24]

2. THE 'PUBLIC FUNCTION' AND FUNCTIONAL APPROACH

This very interpretation of Article 12 has been further narrowed down to clearly establish what counts as "other authorities" which was established in Ajay Hasia v. Khalid Mujib Sehravardi.[25] The Supreme Court laid down six factors to determine what falls under 'other authorities', they were:

i. The chief funding source of the organization is the state.

ii. Existence of a deep and pervasive control.

iii. Functions of the organization are of public importance.

iv. The entire share capital is held by the government.

[22] *INDIA CONST. art. 12.*
[23] *U.S. CONST. amend. XIV, § 1.*
[24] *See Shelley v. Kraemer, 334 U.S. 1, 13 (1948) (discussing the boundaries of the State Action Doctrine).*
[25] *Ajay Hasia v. Khalid Mujib Sehravardi, (1981) 1 SCC 722.*

v. A department of the government is transferred to a corporation.

vi. The corporation enjoys monopoly status conferred by the state.[26]

Not all of them have to be satisfied as long as even one of the six criterion is strong enough to establish duplication of state. The apex court re-examined these factors and came up with a new test in Pradeep Kumar Biswas v. India Institute of Chemical Biology.[27] A test was established to determine if something falls under the purview of 'state' which were:

i. To satisfy at least one of the six tests laid out in the case of Ajay Hasia, and

ii. If it is financially, functionally or administratively dominated by the government.[28]

Welfare distribution especially providing food, livelihood support and pensions are core state functions. These are not secondary/minor functions, but foundational services through which constitutional promises are delivered. From the above it is crystal clear that these private vendors qualify as other authorities under Article 12.

3. APPLYING ARTICLE 12 TO ALGORITHMIC VENDORS

By implementing the court's interpretation of Article 12 in our context, we see that disregarding the constitutional position of private vendors is not easy. They are not providing supplementary services alone but are directly involved in formulating the process of the welfare distribution system. Vendors have operational control to an extent which has immediate consequences for beneficiaries when they design biometric systems, have access to centralized databases and make decisions.

This level of control is not trivial. The way they set up identity checks, who many systems allow and how it reacts to errors basically determines if or not an individual is eligible for the benefits. If the rules are too strict or there is a technical glitch, an individual in need of aid is unfairly kept out of this support system. Therefore, their role is no longer limited to implementation but is now that of functional decision

[26] *Id. at ¶ 9.*
[27] *Pradeep Kumar Biswas v. Indian Inst. of Chemical Biology, (2002) 5 SCC 111.*
[28] *Id. at ¶ 40.*

making.[29]

Such involvement would affect fundamental rights directly, specifically Article 14 and 21. When someone's access to food, pensions, or their livelihood depends entirely on what a computer system says, the people running those systems are basically the ones deciding if constitutional rights are being met. In reality, they are the ones shaping how or if a person's basic rights are actually protected.

With this in mind, our continued perception that these vendors are purely private entities, creates doctrinal inconsistency. From the above it is crystal clear that these private vendors qualify as other authorities under Article 12, at least for the sake of enforcing fundamental rights.

4. PIERCING THE PROPRIETARY SHIELD

Designating private vendors as "State" under Article 12 changes the dynamics that are associated with the opacity that exists in the digital welfare systems. As of now vendors seek protection under intellectual property and trade secrecy to not be compelled to disclose their algorithm, thereby keeping the process hidden in a 'black box' which makes it impossible to see how decisions are made. Hence once we bring such entities within the scope of constitutional accountability, these defenses will no longer be valid without reasonable nexus.

Constitutional principles demand that any decision impacting fundamental rights must be transparent, fair and with reasonable justification. This does not have to mean that they must fully disclose their proprietary code to the public, yet they do have to be made answerable to people whose rights they are affecting; so, they have intelligible reasons and the opportunity to question them.

5. ACCESS TO REDENDIES: WRIT JURISDICTION

By bringing private vendors under the inclusive definition of Article 12, we are essentially enabling constitutional remedies under Article 226 and 32.[30] In case of

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[29] *Cf. Students for Fair Admissions, Inc. v. President & Fellows of Harvard Coll., 143 S. Ct. 2141 (2023) (discussing formal vs. substantive approaches to equality).*
[30] *INDIA CONST. art. 32, 226.*

violation of fundamental rights, the affected individuals can directly approach the High Court or Supreme Court under the respective articles. Although, where the private vendors have the power of decision making, their non-inclusion under Article 12 would give rise to a remedial gap.

Categorizing these vendors as State would give courts the power to subject them to the same level of scrutiny as State in case of said violation. This makes sure people can use their legal rights even when complicated tech systems are the ones making the big decisions.

Reinterpreting Article 12 to include private vendors who are involved in the welfare system on behalf of the government isn't ignoring the constitution, it is just keeping up with how the government works today. By making sure legal oversight follows where the actual power is, we bridge the gap between who acts and who is held liable. This sets the stage for protecting our rights as we move towards a future run by data and algorithms.

V. COMPARATIVE IMPACT: REDEFINING CIVIL RIGHTS ENFORCEMENT

1. RESOLVING EVIDENTIARY CHALLENGES

Private vendors designated as "State" under Article 12 would enforce a reform where the evidentiary burden is distributed. Currently the system traps the citizen in an evidentiary void, where the burden of proof is on them. By this proprietary shield the courts can shift the burden of proof away from the victim onto the architect of the technology.[31]

If a vendor is designated as an authority under Article 12, the evidentiary presumption changes. The citizen just needs to prove the denial of their basic rights if a mass exclusion occurs as a straightforward factual claim. The shift to the state and the private vendor to prove that an algorithm is unbiased, non-arbitrary and fair. Till now procedural due process have hidden behind the guise of trade secrets which allowed them to not even address the algorithmic denial of basic rights. It creates an accountability trail which will facilitate the return of power to question the system back

[31] *See Citron, supra note 3, at 1301 (suggesting shifting burdens of proof in tech-mediated disputes).*

to the common man.

A direct parallel can be drawn to understand the impact of shifting the burden from policy reforms implemented in Chhattisgarh's agriculture welfare distribution. The traditional approach assumed that just digitizing beneficiary lists for agricultural subsidiaries would end the leakage and benefit the common man. But the data has revealed a different picture. The database had rejected thousands of legitimate farmers from the system based on minor, local differences in digital land records without any intelligible reason to the end user. The opacity was dismantled through a policy mandate introduced requiring a digital system to extract the reason for any rejection. More importantly the burden shifted away from the farmer to a localized nodal officer for physical verification. This resulted in a drastic drop of wrongful exclusions and restored legitimate beneficiaries excluded by the error.[32] The state transformed a mechanical bureaucracy into a more accessible tool by forcing the system to explain the logic behind rejections. If such transparency & accountability is achieved through a policy intervention constitutionally mandating vendors come under Article 12 would be a revolutionary step.

2. A MODEL FOR THE FUTURE OF CIVIL RIGHTS

Governments worldwide transitioned to automated governance; courts are now facing the challenge of accountability in an era of data driven systems. If the Indian Constitution would focus on what a company does, it offers a strong way to stop software from hurting people without slowing down innovation. The future of civil rights enforcement relying on outdated doctrines that treat private vendors as commercial contractors while they are performing sovereign duties is not the ideal way. By adopting this approach, courts globally would ensure that privatization of welfare should not become a weapon for constitutional evasion. The state, with its good intention to modernize the welfare distribution system, should not gamble with the well-being of its most vulnerable people. India's answer to the secrecy which would force the vendors of these hidden systems to respect basic human rights, will act as a global guiding example.

[32] *See generally Jean Drèze & Reetika Khera, Rural Poverty and Public Distribution System, 48 ECON. & POL. WEEKLY 55 (2013) (detailing policy reforms in Chhattisgarh).*

VI. CONCLUSION

The way the government delivers welfare has changed completely because of digital technology. This shift is a huge deal for how the state uses its power. On paper, using algorithms makes things faster and more organized. But in reality, these systems often push aside the legal promises that keep a welfare state fair and just. As we have seen, when we force people to use biometrics or let algorithms decide who gets aid, access to basic needs becomes confusing, tech-driven chaos. When the tech glitches, it isn't just a minor error rather a direct attack on a person's dignity and their ability to survive.

The real problem isn't the technology, it is the lack of legal oversight and accountability. By outsourcing the design and operation of the welfare systems to private vendors, the government has created a vacuum where responsibility has taken a backseat. It is very easy to brush off violation of fundamental rights as a technical glitch and shield it from constitutional scrutiny. This disconnection between power and accountability goes against everything fundamental rights stand for.

Including these private vendors under the umbrella of Article 12 is a necessary step. If an entity is performing the function of a government that decides a person's rights, they must be subject to corresponding obligation. The efficiency of the digital welfare system cannot come at the cost of constitutional integrity. Privatization of administration must not result in privatization of rights. By categorizing private vendors as state actors, India can uphold procedural fairness in the welfare system that is constitutionally guaranteed, while setting a crucial precedent for protecting civil rights in the digital age.