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Personalized law and personalized medicine: a critical study of normative divergence in the age of AI governance

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Highlights:

- Normative divergence between personalized medicine and law.
- Algorithmic personalization challenges rule-of-law principles.
- AI governance requires strict limits on legal personalization.

Abstract: Personalized law seeks to tailor legal obligations, permissions, and sanctions to individual traits and predicted behaviors, drawing inspiration from developments in personalized medicine. This article focuses on algorithmically mediated forms of ex ante legal personalization, in which legal obligations are systematically tailored to individuals through data-driven design rather than discretionary adjudication. While personalization has produced tangible benefits in medicine within a fiduciary, professionally regulated, and evidence-based framework, its transposition into law raises distinct normative and institutional concerns. Focusing on algorithmically designed, ex ante personalization in public and hybrid regulatory contexts, the Article argues that personalized law poses a unique challenge to the rule of law—understood as a commitment to generality, transparency, contestability, and public justification—that cannot be resolved by appeals to efficiency alone. The analysis develops a working typology of legal personalization to clarify scope and avoid conceptual overreach, reserving detailed distinctions for the main text. It then examines the ethical asymmetry between medicine and law, emphasizing that legal systems lack the fiduciary and professional infrastructures that legitimize individualized treatment in clinical practice. The Article further argues that emerging forms of automation and AI-mediated decision-making may erode the very forms of human behavioral variation on which personalized legal regimes depend, calling into question their long-term coherence. Drawing on comparative examples and contemporary debates on manipulation and behavioral governance, the Article concludes that personalized law can be normatively defensible only within narrowly confined domains and under stringent safeguards. Absent such constraints, legal personalization risks undermining democratic legitimacy by fragmenting legal generality, obscuring public accountability, and transforming law into a system of opaque behavioral steering.

Keywords: artificial intelligence; algorithmic profiling; algorithmic regulation; big-data analytics; democratic legitimacy; machine learning; personalized law; personalized medicine; normative analysis

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1. Introduction

In recent decades, personalized medicine has transformed healthcare by tailoring diagnostic, preventive, and therapeutic interventions to the genetic, environmental, and behavioral characteristics of individual patients. This evolution, from generalized to individualized care, has improved clinical outcomes, reduced adverse effects, and enhanced systemic efficiency. Enabled by advances in genomics, artificial intelligence (AI), and big data analytics, this model of medical personalization has provoked parallel inquiries in other fields, including law. If medicine can adapt to individual variation, might legal systems also evolve beyond uniform rules to reflect the diverse traits, behaviors, and preferences of legal subjects?

This question lies at the heart of the emerging discourse on personalized law. Advocates of legal personalization contend that legal norms, such as contract defaults, disclosure obligations, liability thresholds, or sentencing rules, can be tailored to individuals through algorithmic models and predictive data analytics. Echoing the logic of personalized medicine, personalized law seeks to align legal obligations with empirically observable differences in cognition, risk tolerance, and behavioral profiles.

A leading contribution to this discourse comes from Omri Ben-Shahar and Ariel Porat [1], who propose a normative and economic framework for individualized legal rules, an approach that has sparked debate over its impact on legal coherence and equal treatment. They argue that personalization can improve fairness, regulatory compliance, and efficiency by aligning legal obligations with individuals' actual capacities and social contexts. Yet this vision challenges foundational legal principles, including generality, transparency, and the uniform application of law. Their proposal has generated broad scholarly debate, including a dedicated symposium in the University of Chicago Law Review, where legal scholars explored the theoretical, practical, and normative dimensions of personalized law from diverse perspectives [2].

Critics have raised serious concerns about the implications of personalized law for doctrinal coherence, institutional legitimacy, and public trust. The deployment of opaque algorithmic tools in legal decision-making introduces challenges to due process, explainability, and civic participation [3,4]. Some analyses emphasize that although personalized law disrupts legal uniformity, it still operates within a centralized, state-driven framework and does not fundamentally reconceive the legal process as a decentralized or participatory normative system [5].

The present analysis offers a critical yet measured assessment of personalized law. While acknowledging the model's potential in specific contexts, it underscores the risks it posed to legal coherence, equality, and legitimacy if personalization is not constrained by rigorous ethical, legal, and institutional safeguards. In contrast, personalized medicine has already demonstrated tangible benefits within a well-regulated, evidence-based, and professionally accountable framework. As argued elsewhere in the context of emerging technologies, sustainable innovation—whether biomedical or legal—requires governance regimes that combine ethical safeguards, procedural transparency, and democratic accountability [6].

Drawing on interdisciplinary engagement with both the life sciences and legal theory, this study examines how regulatory and technological developments in personalized medicine may illuminate—but also limit—the ambition to personalize legal norms. Recent research on AI-driven biomedical innovation

and governance [7] underscores the shared challenges confronting both domains, particularly the interplay of data-intensive infrastructures, automation, ethical oversight, and institutional legitimacy.

Ultimately, the central issue is not whether personalized law is technically feasible, but whether it is normatively defensible, ethically sustainable, and institutionally viable, especially when evaluated against the medical analogy, where personalization has yielded both promising advances and profound ethical dilemmas.

This inquiry rests on a structural claim. Personalization is normatively coherent in medicine because medical intervention aims at biological optimization within an individual organism, whereas law operates within a shared normative order that presupposes publicity, reciprocity, and generalizability. The divergence is therefore not technological but institutional. Personalized medicine refines treatment without fragmenting the moral status of patients. Personalized law, by contrast, risks fragmenting the shared normative space within which legal subjects recognize one another as equals.

1.1. What counts as "personalized law"? A working typology

Before evaluating whether personalized law is normatively defensible, it is necessary to clarify what the term encompasses. "Personalized law" is often invoked as a singular concept, yet in practice it refers to a spectrum of regulatory techniques that vary in scope, intensity, and institutional design. Some forms involve modest calibration within otherwise general legal frameworks, while others envision fully individualized rule structures generated through algorithmic profiling. Distinguishing among these models is essential, as the legal and institutional concerns raised by personalization depend heavily on its degree and implementation.

The term personalized law in contemporary scholarship encompasses a wide range of practices that differ significantly in legal character, institutional setting, and normative implication. Scholarly debate often treats personalization as a unified reform project, yet its legitimacy and consequences vary sharply depending on context. To evaluate the medical analogy with precision, it is therefore necessary to distinguish among different forms of legal personalization and to clarify the scope of the critique advanced here [1,3].

First, personalization may occur in regulatory or adjudicative contexts. Regulatory personalization typically operates ex ante, shaping behavior through tailored obligations, disclosures, or compliance burdens before any legal violation occurs. Adjudicative personalization, by contrast, operates ex post, influencing how liability, sanctions, or remedies are allocated in response to past conduct. The institutional constraints, justificatory standards, and risks associated with personalization differ substantially between these two contexts [3,4].

Second, personalization may arise in public law or private law settings. In public law, personalization implicates the authority of the state and its relationship to citizens, raising concerns about equality, transparency, and democratic accountability. In private law, personalization often emerges through contractual defaults, consumer protection regimes, or market-mediated scoring systems that nonetheless carry quasi-legal consequences. Although private ordering may appear more flexible, it frequently operates under the shadow of public enforcement and legal endorsement [8].

Third, personalization may be implemented through human discretion or through algorithmically designed systems. Discretionary personalization has long existed in law, for example in sentencing, regulatory enforcement, or equitable doctrines. The contemporary debate, however, centers on

personalization that is systematically designed, scaled, and executed through data-driven and automated mechanisms. The analysis that follows concentrates on this latter form. Modern proposals for personalized law presuppose machine-mediated design precisely because only algorithmic systems can generate individualized legal rules at scale and in real time [1].

Finally, personalization may differ in temporal structure: it may shape legal obligations before action is taken or modify legal consequences after conduct occurs. Temporal positioning matters because ex ante personalization directly affects foreseeability, behavioral guidance, and the public intelligibility of legal norms—core components of the rule of law [9,10].

Taken together, these distinctions reveal that not all forms of personalization raise the same normative stakes. Accordingly, the critique developed here does not reject individualized legal judgment as such. Rather, it focuses primarily on algorithmically designed, ex ante personalization in public and hybrid regulatory contexts, where the analogy to personalized medicine is most frequently invoked and where the risks to legal generality, transparency, and democratic legitimacy are most acute.

Clarifying this scope is essential for assessing the medical analogy. While personalized medicine operates within a fiduciary, professionally regulated framework oriented toward individual patient welfare, algorithmic legal personalization in public governance lacks an equivalent ethical infrastructure.

The argument that follows therefore evaluates whether such personalization can be reconciled with the rule of law—understood as a commitment to generality, transparency, and public justification—without eroding the shared normative space that sustains democratic equality.

1.2. Background: from genomes to jurisprudence? Evaluating the analogy between personalized medicine and law

The idea of tailoring prevention and treatment to individual variability is not a recent innovation [11]. Personalized medicine, also known as precision medicine, has reshaped modern healthcare by adapting diagnostic procedures, preventive strategies, and treatment protocols to the unique genetic, behavioral, and environmental characteristics of each patient. Rather than relying on generalized averages, it stratifies individuals based on biomarkers, risk profiles, or pharmacogenomic data to improve clinical efficacy, reduce adverse effects, and enhance system-level efficiency [12–15].

This approach has been particularly transformative in oncology, where targeted therapies such as trastuzumab for HER2-positive breast cancer or EGFR inhibitors for lung cancer exemplify the power of genomic tailoring [16,17]. In cardiology and neurology, pharmacogenomic testing informs drug selection and dosage, minimizing adverse effects [14].

AI and machine learning have significantly enhanced the scope of personalized medicine. These technologies enable the integration of diverse datasets, including genomic profiles, electronic health records, and medical imaging, to improve diagnostic precision and forecast treatment responses. Such tools support a shift toward predictive, data-driven clinical decision-making that holds promise for more individualized and timely care [15].

Institutional support has accelerated this transformation. In the United States, the Precision Medicine Initiative [18] and the All of Us Research Program have laid the groundwork for a more inclusive, data-rich medical infrastructure [19,20]. In Europe, the International Consortium for Personalized Medicine [21] promotes policy innovation grounded in equity, ethics, and sustainability.

High costs of personalized diagnostics and therapies risk widening disparities in access to care. Moreover, the scale of data collection has heightened concerns about privacy, informed consent, and algorithmic opacity [22]. Ongoing debates include how to handle incidental genetic findings and how to prevent discriminatory uses of genomic data.

These dilemmas resonate closely with issues in personalized law. In both domains, institutions must grapple with how to use predictive models responsibly, without undermining fairness, transparency, or public trust. Personalized medicine thus offers a compelling conceptual touchstone for legal scholars, illustrating both the promise and limits of individualized intervention within normative systems.

Advocates of legal personalization argue that similar data-driven tailoring can enhance fairness and efficiency in legal regulation by aligning rules more closely with individual risk profiles, capacities, and behavioral patterns [1–3,8].

Recent debates in medical ethics have complicated the relationship between transparency, explainability, and ethical legitimacy in AI-assisted care. While early governance frameworks emphasized explainability as a necessary safeguard, more recent accounts acknowledge that some clinically valuable systems may remain partially opaque without thereby becoming unethical. In such cases, legitimacy is grounded less in patient-level explainability than in demonstrated clinical benefit, institutional oversight, professional accountability, and the fiduciary orientation of medical practice toward patient welfare [23–25].

Importantly, however, these justificatory conditions do not generalize to law. Medical decision-making is normatively oriented toward improving individual health outcomes within a fiduciary relationship, and patients may permissibly rely on institutional trust and professional judgment where opacity is unavoidable. Law, by contrast, operates through publicly justified rules that bind individuals irrespective of consent and often through coercive force. Legal obligations must therefore remain contestable, generalizable, and intelligible as public norms rather than merely outcome-optimizing interventions.

As a result, forms of algorithmic opacity that may be ethically tolerable in medicine risk undermining the legitimacy of legal decision-making, where justification must be addressed not only to individual subjects but to the political community as a whole.

This background underscores how personalized medicine offers not only a technological precedent but also a conceptual benchmark against which the normative, institutional, and economic claims of personalized law must be critically assessed.

2. From personalized medicine to law: conceptual transposition and foundational questions

The analogy between personalized medicine and the emerging paradigm of personalized law reflects a broader intellectual movement toward individualization across domains. Whereas the previous section traced how healthcare has integrated stratified, data-driven approaches to enhance clinical outcomes, this section investigates how similar principles, such as individual stratification, algorithmic tailoring, and data-driven adjustment, are being transposed into the legal domain. This conceptual transposition raises both promising possibilities and significant challenges for the legitimacy and function of law in a data-intensive society.

Recent proposals for legal personalization—most prominently advanced by Ben-Shahar and Porat—have emerged primarily in regulatory, compliance, and administrative contexts, where such

proposals argue that data-driven differentiation can improve enforcement efficiency, risk targeting, and regulatory responsiveness by aligning legal obligations with individual capacity and behavioral risk.

Personalized law refers to a framework in which legal obligations and entitlements are tailored to the traits, behaviors, and preferences of individuals. Departing from the traditional ideal of uniform legal rules, personalized law envisions obligations such as disclosure requirements, liability thresholds, or contract terms that adapt to an individual's cognitive ability, risk tolerance, or behavioral profile. For instance, consumers with low financial literacy might receive enhanced contractual disclosures, while more sophisticated parties might be exempt.

In criminal justice, algorithmic risk-assessment tools are already used in some jurisdictions to inform bail, sentencing, parole eligibility, and probation conditions by generating individualized predictions about recidivism, compliance, or flight risk.

These proposals, while operational in limited institutional contexts such as criminal justice risk assessment, have been most fully articulated in theoretical form by Ben-Shahar and Porat, who argue that such tailoring can improve legal efficiency, accuracy, and fairness by aligning obligations with actual individual capacity and conduct [1].

By way of clarification, the relevance of genomic sequencing to legal categorization in medicine lies not in the direct use of genetic data to impose legal obligations, but in the way medical regulation has normalized stratification into legally actionable categories at scale. For example, pharmacogenomic classifications increasingly determine regulatory approval pathways, prescribing constraints, and reimbursement eligibility for targeted therapies, while genetic screening regimes shape eligibility for preventive interventions or heightened clinical monitoring. These categorizations operate within tightly bounded regulatory frameworks and are generally insulated from downstream uses in insurance or employment, where genetic discrimination is restricted or prohibited in many jurisdictions. The significance for personalized law is therefore structural rather than substantive: medicine demonstrates how individualized data can be translated into rule-relevant classifications at low marginal cost, while also illustrating the importance of domain-specific safeguards that limit the legal reach of such personalization.

The conceptual resemblance to personalized medicine is not merely illustrative but structurally significant. Both paradigms reject uniform treatment, whether clinical or legal, in favor of stratified and targeted interventions. Just as genomic testing enables individualized cancer therapies, personalized law aspires to regulate individuals based on behavioral, cognitive, and demographic profiles. In both domains, data-intensive infrastructures are essential: personalized medicine draws on genomic and phenotypic data, while personalized law relies on behavioral analytics, psychometric models, and transactional records. Algorithms and machine learning models facilitate real-time decision-making at scale.

Yet even as the structural analogy holds, key differences emerge. Personalized medicine aims to optimize health outcomes within a therapeutic and largely consensual framework. Law, by contrast, operates through public institutions and is tasked with ensuring equality, transparency, and collective legitimacy. Accordingly, personalizing legal obligations is not simply a matter of technical application, it requires a reconfiguration of core normative commitments. Law does not only allocate outcomes; it expresses collective values, stabilizes expectations, and mediates relationships between citizens and the state [26].

Before examining these foundational risks in full, it is useful to consider where personalization is already taking root in regulatory and adjudicative contexts. Some public institutions and commercial

actors have begun implementing elements of personalized regulation. In the United Kingdom and the United States, tax agencies have tested behaviorally tailored compliance messages, such as customized reminders based on prior filing history to increase responsiveness [27,28].

In legal contexts, analogous forms of data-driven personalization already operate through algorithmic tools that shape bail decisions, sentencing outcomes, parole eligibility, and probation supervision. These systems generate individualized predictions about recidivism, compliance, or flight risk, which in turn shape the legal obligations, constraints, or supervisory conditions imposed on particular individuals.

Collectively, these developments show that personalization is moving from theoretical debate to operational practice across both public administration and private markets, becoming embedded in the operational infrastructure of contemporary governance. However, these institutional experiments raise a second level of concern, centered on data governance, algorithmic power, and institutional accountability.

The operationalization of personalized law depends on vast, integrated data ecosystems and algorithmic infrastructures capable of making individualized legal determinations in real time. Unlike healthcare, where personalization typically occurs within a regulated and fiduciary clinical relationship, legal decisions may increasingly be rendered through automated systems without adequate human oversight, transparency, or recourse. This shift introduces serious risks to individual agency and procedural fairness. Vulnerable populations, in particular, may face heightened surveillance, differential treatment, and opaque determinations based on inscrutable models, exacerbating rather than correcting systemic disparities [29].

To mitigate such harms, personalized legal systems must be accompanied by robust safeguards. These include enforceable rights to transparency, algorithmic accountability, and explanation. Individuals must be able to understand and contest how personal data are used to determine their legal obligations. Without these protections, the promise of precision and efficiency may come at the cost of due process, legitimacy, and equality before the law.

Beyond these implementation risks lies a deeper normative dilemma. Personalized law challenges the foundational conception of law as a general, knowable, and equalizing institution. Whereas medicine is evaluated primarily by its clinical effectiveness, law also performs a symbolic role: it expresses shared norms, civic identity, and the relationship between individuals and the state. Individualizing legal norms risks fragmenting this shared framework, reducing law to a collection of variable and opaque commands. Algorithmic personalization may entrench existing biases, particularly when models are trained on skewed or incomplete data, and further obscure the normative basis of legal decisions through non-transparent, non-deliberative processes [3,4]. Such dynamics jeopardize legal transparency, democratic accountability, and the public's ability to understand or contest their legal position.

Perhaps most fundamentally, personalized law risks violating the principle that laws must be general and foreseeable. If legal obligations vary in real time according to algorithmic predictions, individuals may be unable to know in advance what conduct is required of them or what rights they may claim. This unpredictability threatens the rule of law itself. If laws are not publicly understandable and consistently applied, they lose their capacity to guide behavior and confer legitimacy on state action.

In sum, the transposition of personalization from medicine to law reveals both its intellectual allure and its constitutional peril. While the analogy offers a compelling vision of individualized justice, it also forces a reconsideration of what makes legal systems legitimate, fair, and sustainable. The following

sections will examine the theoretical justifications, economic feasibility, and normative boundaries that must shape any future implementation of personalized law.

3. Theoretical and economic foundations of personalized law

This section offers a brief and selective overview of the economic logic and policy rationale underlying legal personalization, without aiming for comprehensive coverage.

The promise of personalized law rests on a dual aspiration: to allocate legal duties more efficiently and to distribute them more fairly. By aligning rules with the behavioral, cognitive, or risk-related profiles of individual actors, this model aims to correct the bluntness of "one-size-fits-all" regulation. Contemporary data infrastructures, algorithmic profiling, big-data analytics, and machine learning, make it possible for law to become dynamic, adjusting contract terms, disclosure obligations, regulatory thresholds, and tort liabilities in real or near-real time. A consumer with limited financial literacy might therefore receive simplified disclosures, while a sophisticated investor faces more nuanced requirements; a habitual speed violator could be held to stricter driving norms than a consistently cautious driver.

Viewed through the lens of law and economics, personalized law builds on the utilitarian premise that legal rules should minimize social cost and maximize allocative efficiency. Uniformity, within this framework, has historically served as a proxy for administrability rather than optimality [30–32]. Personalization challenges this assumption by internalizing individual heterogeneity and tailoring legal incentives to the specific characteristics of regulated actors. Contemporary data-driven tools provide the scale and precision necessary to implement this logic across entire legal systems.

Economic feasibility appears less speculative than it once did. The steep decline in data-collection costs, cloud storage, and computational power closely paralleling the democratization of genomic sequencing in medicine has enabled regulatory systems to sort individuals into legally relevant categories at marginal cost [1]. Private markets already illustrate the point: insurers price coverage with telematics, credit platforms personalize loan terms through granular risk scores, and tax authorities in several jurisdictions customize compliance nudges according to past filing behavior [28,33]. These practices demonstrate both the technical viability, and the operational head start on which public regulators could build.

Yet efficiency is not a self-executing justification. Even if individualized regimes lower aggregate social cost, they may do so at the expense of equality, transparency, and predictability, values that anchor the rule of law and democratic legitimacy. Rules derived from opaque or proprietary data can undermine public confidence, particularly if they reproduce hidden biases or generate outcomes that appear arbitrary. Critics warn that algorithmic personalization risks entrenching existing inequalities, displacing public deliberation with technocratic decision-making, and burdening precisely those populations least able to contest novel obligations [4,8,34]. Unlike consumers who can refuse a targeted advertisement, citizens cannot opt out of personalized taxation, sentencing, or regulatory compliance; if such systems are perceived as manipulative or unfair, they jeopardize voluntary compliance and political trust.

Personalized law therefore stands as the next, more ambitious chapter in the law-and-economics movement, but one that must be tempered by institutional safeguards. Dynamic rules can indeed sharpen incentives and minimize waste, yet they must remain comprehensible, contestable, and publicly justified. The central policy challenge is to harness data-driven differentiation without sacrificing equal treatment, due process, or the transparency on which legal authority ultimately depends.

4. Ethical dimensions and practical feasibility of personalized law

Personalized law and personalized medicine diverge at a foundational normative level in ways that limit the transfer of justificatory frameworks between the two domains. Medical decision-making is institutionally and ethically oriented toward a relatively unified end: the improvement of patient health and the reduction of morbidity and harm. This teleological focus supports governance models that prioritize outcome effectiveness, professional judgment, and fiduciary trust, even where transparency or explainability is imperfect. Law, by contrast, operates through a plurality of often competing purposes, including deterrence, retribution, rehabilitation, coordination, and the public articulation of norms. These purposes are not reducible to outcome optimization and frequently involve the coercive exercise of state authority. As a result, justificatory strategies that may be ethically acceptable in medicine—such as tolerating algorithmic opacity in exchange for improved outcomes—cannot be straightforwardly extended to legal decision-making without undermining law's public, normative, and democratic character.

A common defense of personalized legal regimes appeals to substantive fairness rather than formal equality. On this view, treating individuals identically despite relevant differences in risk, capacity, or circumstance may itself be unjust, and legal differentiation can be framed as a corrective rather than a deviation from fairness. This argument carries particular force in medicine, where individualized treatment responds directly to biological variability and aims to prevent avoidable harm. In legal contexts, however, the fairness rationale is more fragile. Legal differentiation does not merely allocate resources or tailor care; it assigns obligations, permissions, and sanctions within a shared normative order. When such differentiation is driven by predictive or behavioral profiling, it risks substituting individualized risk assessments for publicly articulated standards of conduct. The result is not merely unequal treatment, but a fragmentation of the generality that allows legal rules to function as common reference points for civic membership and accountability. What appears as fairness at the level of outcomes may therefore undermine fairness at the level of public justification, eroding the conditions under which law can claim legitimacy as a system of rules that bind all as equals.

A further ethical divergence between personalized medicine and personalized law concerns the role of individual autonomy and consent. In medical contexts, personalization is typically autonomy-enhancing rather than autonomy-limiting, particularly when AI-supported tools are embedded within shared decision-making frameworks that preserve patient agency and informed consent [35]. Patients are offered individualized diagnostic or therapeutic options within a framework that presupposes informed consent, the right to refuse treatment, and the ability to seek second opinions. Even where decision-support systems rely on complex or partially opaque algorithms, the ultimate authority to accept or reject an intervention remains with the patient, and the fiduciary orientation of clinical practice is normatively aligned with respecting patient agency.

Personalized law, by contrast, operates in domains where consent is structurally absent or normatively irrelevant. Legal rules do not present individuals with optional interventions but impose obligations, permissions, and sanctions backed by coercive authority. When legal personalization is driven by predictive analytics or behavioral profiling, it does not merely tailor outcomes to individual circumstances; it alters the normative expectations placed upon individuals without their assent. In such cases, personalization risks transforming autonomy from a foundational value into a variable to be managed or overridden in the name of efficiency, risk reduction, or compliance optimization.

This asymmetry has significant implications for ethical justification. In medicine, individualized decision-making can be defended as an expression of respect for persons, insofar as it allows patients to align clinical choices with their own values and risk tolerances. In law, however, individualized rule application may undermine autonomy by narrowing the space for deliberation, contestation, and self-authorship within a shared normative order. Individuals subject to personalized legal regimes may find themselves governed by standards that are neither transparent nor contestable, shaped by inferred traits or predicted behaviors rather than by publicly articulated reasons.

Accordingly, appeals to autonomy that support personalization in medicine cannot be straightforwardly transposed to law. Where medical personalization often expands individual choice, legal personalization tends to restructure choice architectures in ways that preempt deliberation and constrain agency. This distinction further reinforces the conclusion that the ethical foundations of personalized medicine do not provide a reliable justificatory model for personalized law.

A further ethical asymmetry between personalized medicine and personalized law concerns the normative treatment of algorithmic bias. Machine-learning systems trained on historical data are well documented to reproduce and sometimes amplify existing social inequalities, particularly when deployed in domains marked by structural disadvantage. In legal contexts, this concern is exemplified by the controversy surrounding the COMPAS risk assessment system used in parts of the United States to inform bail and sentencing decisions. Empirical analyses have shown that such systems may generate systematically different error rates across racial groups, effectively embedding past patterns of over-policing and unequal enforcement into forward-looking legal judgments. Recent criminal law scholarship has further analyzes the statistical architecture of COMPAS and similar risk assessment tools, emphasizing the normative tensions between predictive calibration, error-rate disparities, and equality before the law [36].

While bias is also a recognized problem in medicine, its ethical significance differs in important respects. Medical knowledge itself is unavoidably partial and historically skewed, often reflecting underrepresentation of certain populations in clinical trials. Recent bioethical scholarship further documents how algorithmic decision-support systems in healthcare may replicate diagnostic bias, unequal resource allocation, and demographic disparities embedded in training data and institutional practice [37,38]. Nevertheless, biased medical decision-making is typically assessed against a consequentialist backdrop: even imperfectly tailored treatment may still improve patient outcomes relative to no treatment at all, and errors are oriented toward therapeutic goals rather than moral judgment or punishment. As a result, residual bias in medical personalization is often regarded as a reason for incremental improvement rather than categorical rejection.

In law, by contrast, the presence of algorithmic bias carries a more corrosive normative charge. Legal decision-making does not merely allocate benefits or optimize welfare; it authoritatively assigns blame, responsibility, and constraint within a system that claims to bind all as equals. When biased data inform personalized legal rules or risk assessments, the resulting differentiation is not simply inaccurate but unjust in a deeper sense: it transforms historically contingent patterns of disadvantage into individualized legal obligations and sanctions. Unlike medicine, where biased care may still be better than no care, biased legal personalization risks institutionalizing inequality under the guise of neutrality and efficiency, thereby undermining the rule-of-law commitment to equal civic standing and public legitimacy.

Before turning to questions of technological feasibility, this section advances a normative critique of personalized law grounded in principles—equality, transparency, and democratic legitimacy. It examines the ethical and institutional constraints surrounding legal personalization, while the subsequent section introduces a distinct, cumulative concern: even if these normative objections could be mitigated, emerging forms of automation may independently erode the behavioral variability on which personalized legal regimes depend.

While personalized law promises enhanced efficiency and fairness through data-driven individualization, it also generates profound ethical and practical concerns that challenge its legitimacy within modern legal systems. These concerns stem from tensions between formal and substantive justice, technological optimization and democratic accountability, and personal autonomy and algorithmic governance.

Proponents of legal personalization typically ground efficiency claims in administrative and compliance-based contexts rather than in core adjudicative functions. Personalized regulatory tools are said to reduce enforcement costs by targeting interventions more precisely, prioritizing high-risk cases, and automating routine determinations. Examples include algorithmically calibrated tax compliance messaging designed to increase filing rates, risk-based welfare eligibility screening intended to minimize fraud and leakage, and data-driven supervision regimes that allocate probationary resources according to predicted recidivism or compliance risk. In these settings, personalization is defended as a means of conserving institutional resources, reducing processing delays, and improving regulatory responsiveness by replacing uniform treatment with differentiated intervention strategies.

A central ethical critique concerns the potential erosion of formal legal equality. Legal systems rest on the foundational principle that similar cases should be treated similarly. Personalized law, by contrast, differentiates legal obligations based on personal traits, behavioral profiles, or inferred capacities even among similarly situated individuals. While some argue that tailoring rules to real-world differences promotes substantive fairness, there is a continuing risk that such differentiation may dismantle the symbolic and civic function of law as a shared framework for collective belonging. The resulting shift toward individualized legality risks fragmenting the generality that gives law its public legitimacy [3].

Concerns also arise over the loss of individual autonomy in systems governed by predictive analytics and behavioral nudges. Legal rules infused with such design can steer behavior in subtle, often undetectable ways. While nudges may exploit cognitive asymmetries or behavioral vulnerabilities to improve compliance, their ethical acceptability becomes far more contentious in legal contexts, where individuals may lack any meaningful opportunity to resist, opt out, or even recognize the personalization affecting them [39].

Beyond its distributive effects, bias and discrimination present further ethical challenges at the level of legal procedure. Evidence suggests that machine learning models trained on historical data tend to replicate entrenched social inequalities [40]. Even seemingly neutral inputs, such as geolocation, browsing history, or purchasing patterns, may serve as proxies for protected characteristics, leading to disparate impacts. These risks are especially troubling in the legal domain, where individuals cannot avoid or negotiate their obligations. If legal standards are generated by opaque models, the ability to understand, challenge, or contest those standards diminishes, undermining basic guarantees of due process and procedural fairness.

The legitimacy of personalized legal regimes also hinges on public trust and democratic engagement. Law is not merely a regulatory tool, but a public institution expressing civic identity and shared norms. When legal obligations become opaque, unintelligible, or generated through inscrutable computational processes, public confidence may erode, weakening democratic foundations [4,41]. The privatization of legal functions through automated contracts, algorithmic enforcement, and individualized arbitration further blurs the boundary between public law and private governance, eroding transparency and civic oversight [8]. If personalization transforms law into a technocratic service layer, its capacity to anchor democratic legitimacy is compromised.

A critical challenge in the personalization of law concerns privacy, informed consent, and data sovereignty. The infrastructures required for personalized legal systems depend on vast quantities of personal data, including sensitive biometric, behavioral, and psychometric information. These demands pose serious tensions with established data protection regimes such as the European Union's General Data Protection Regulation (GDPR), which enshrines principles of transparency, data minimization, and freely given consent [42]. Although the GDPR permits certain forms of automated decision-making, it imposes strict conditions, including the right to human intervention, explanation, and contestation, that are difficult to reconcile with real-time personalization. In practice, these protections are often reduced to procedural formalities, rendering consent functionally nominal and raising questions about the legitimacy of data-driven legal differentiation.

Historical examples of differential governance, such as redlining or predictive policing, underscore the danger that personalization may reinforce structural injustice under the guise of precision. Without clear legal boundaries and robust safeguards, the distinction between tailored governance and discriminatory enforcement becomes dangerously thin.

Aside from normative concerns, personalized law presents substantial institutional and infrastructural hurdles. A legitimate system of legal personalization requires a governance framework that guarantees transparency, accountability, and public oversight. Entrusting core functions to proprietary algorithms or private vendors threatens both legality and legitimacy. Personalized legal decisions must also be contestable, requiring mechanisms such as algorithmic explainability, individualized reasoning, and procedural rights to challenge automated rulings. Furthermore, personalization must not exacerbate digital inequality. Without universal digital access and literacy, socially disadvantaged populations may be excluded from both the benefits and the protections of the system.

Although full-scale implementation remains aspirational, pilot applications, such as behaviorally targeted tax notifications or digital licensing tools, demonstrate its practical viability[1]. The ethical imperative is to confine personalization to domains where its benefits are demonstrable and its safeguards robust. Absent these constraints, personalization risks trading foundational commitment, quality, justice, and transparency, for a seductive but unstable model of algorithmic governance.

5. Professional norms and ethical asymmetry between medicine and law

Proponents of personalized law argue that individualized legal rules may enhance substantive fairness by accounting for real-world differences in capacity, vulnerability, and risk. On this view, personalization

[1]e.g., UK Tax Nudges: Behavioral Insights Team. Applying behavioral insights to reduce fraud, error and debt. UK Cabinet Office; 2012. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/60539/BIT_FraudErrorDebt_accessible.pdf (accessed on 25 November 2025).

does not undermine equality but refines it, replacing formal sameness with context-sensitive justice. Related accounts further suggest that personalization may enhance autonomy by aligning legal obligations with individuals' actual preferences, abilities, and behavioral profiles, rather than forcing compliance with abstract averages.

In light of these ethical and institutional concerns, the limits internal to legal personalization become apparent; yet an even deeper challenge arises from the analogy that grounds the project itself. A crucial limitation of the analogy between personalized medicine and personalized law lies in the fundamentally different ethical infrastructures governing the two domains. Clinical personalization is embedded within a dense network of professional duties, fiduciary obligations, and regulatory safeguards that discipline how individualized interventions may be delivered [43]. Physicians operate under enforceable ethical codes, licensing regimes, malpractice liability, and institutional review mechanisms that constrain how personalization may be deployed and ensure that individualized treatment remains consistent with patient autonomy, informed consent, and established standards of care [44–46]. Even highly targeted genomic or AI-driven interventions must be justified within this professional framework, which places the patient's welfare, autonomy, and rights at its normative center.

Legal officials, by contrast, do not operate within a comparable fiduciary structure. Judges, regulators, and administrative actors owe duties of legality, impartiality, and institutional integrity, but these obligations are not personal, individualized, or therapeutic in nature. They are public duties owed to the legal system and polity as a whole [9,47].

A judge cannot tailor a rule as an expression of loyalty to an individual litigant, and a regulator does not enter a relationship of trust with a specific taxpayer or beneficiary. The ethical content of legal decision-making is therefore categorical rather than individualized and is designed precisely to prevent personal obligations from overriding generality and equal treatment [10].

This asymmetry has direct implications for the prospects of personalized law. Whereas medicine justifies personalization as an ethical enhancement of individualized clinical care, law risks undermining its own normative foundations if personalization extends beyond narrow, publicly justified boundaries. Without a professional fiduciary framework capable of legitimizing individualized legal duties, personalization threatens to erode the principles of transparency, equality, and public reason that anchor law's authority and legitimacy. The ethical safeguards that make personalization acceptable in medicine therefore cannot be assumed or imported into legal design; they must be constructed, justified, and institutionally grounded within the normative architecture of law itself [10].

Even if these ethical asymmetries could be reconciled, a further structural challenge remains—one that is not normative but technological. Personalized law presupposes persistent human behavioral variation, an assumption increasingly unsettled by emerging forms of automation. The next section examines this technological contingency directly.

6. Technological futures: automation, AI intermediaries, and the shrinking domain of personalization

A further challenge to the long-term viability of personalized law concerns the rapidly evolving technological landscape in which legal rules operate. The theory presupposes a world in which human agents continue to perform legally significant actions, including driving, transacting, choosing, and exercising judgment, such that individualized rules can meaningfully track human heterogeneity. Yet emerging technologies threaten to diminish, or even eliminate, many of the behavioral variations on

which personalization depends. As key areas of activity are increasingly mediated, filtered, or fully delegated to autonomous systems, it becomes unclear whether personalization will remain a coherent or necessary regulatory strategy.

Consider the domain of transportation. Fully autonomous vehicles, once deployed at scale, may drastically reduce or eliminate the behavioral differences that personalized traffic rules aim to target. Variability in reaction time, attentiveness, or risk-taking, which currently serve as central justifications for individualized speed limits or sanctions, vanishes when machines rather than humans assume operational control [48,49]. If human driving becomes marginal rather than primary, the conceptual foundation of personalized traffic law erodes. What remains is a transitional regulatory form, useful only insofar as human drivers persist, but unlikely to endure in a fully automated mobility ecosystem.

A particularly salient illustration of this dynamic arises in the domain of contracting and consumer transactions. Increasingly sophisticated AI-based assistants can evaluate contract terms, detect risks, filter choices, and steer users away from harmful or non-compliant behaviors [50,51]. As AI-based digital assistants increasingly mediate contractual choice—by screening terms, flagging risks, negotiating standardized clauses, or preventing users from entering disadvantageous agreements—the behavioral heterogeneity that personalized contract law seeks to address may be substantially reduced. If AI intermediaries routinely guide users toward legally compliant, low-risk contractual arrangements, differences in literacy, risk tolerance, or cognitive capacity become less legally salient. Rather than supporting finer-grained individualization, AI intermediaries may standardize conduct around algorithmic defaults, thereby reshaping the conditions under which legal rules operate. In such settings, personalizing legal rules for human actors risks becoming redundant or conceptually misaligned.

These technological trajectories complicate the analogy to personalized medicine. In medicine, personalization is grounded in stable biological and genomic characteristics; the human body remains the subject of diagnosis and intervention. In law, by contrast, the "subject" of regulation may shift from human behavior to automated infrastructures, producing an asymmetry that weakens the medical analogy at its core. This possibility suggests that personalized law may be tied to a particular historical moment, one in which humans still perform tasks that are likely to be absorbed by autonomous systems. Recognizing this contingency strengthens the theoretical foundation of personalized law by clarifying the limits of its domain.

The broader implication is that any defense of personalized law must address not only questions of justice and legitimacy, but also questions of technological durability. A legal theory that depends on persistent human behavioral variation must reckon with the possibility that such variation will, in key regulatory domains, be engineered out of existence [52,53]. If automation reshapes the landscape of human agency, personalization may require substantial re-justification or targeted confinement to contexts where human discretion remains central.

These technological trends therefore help clarify the contingent nature of personalized law, suggesting that its regulatory scope may narrow over time. Yet examining where and how personalization is already emerging across jurisdictions offers a grounded perspective on both its possibilities and its limits.

7. Comparative jurisdictions and emerging use cases

While earlier sections examined the conceptual, ethical, and institutional foundations of personalized law, this section turns to comparative practice. By reviewing selected jurisdictions that have implemented or

experimented with forms of legal personalization, it illustrates how theoretical models are being operationalized, and with what consequences, across distinct legal, technological, and cultural settings. This overview is illustrative rather than exhaustive, aimed at highlighting representative use cases and governance challenges.

Although personalized law remains largely theoretical in its most expansive conception, several jurisdictions have already adopted or piloted personalization mechanisms, particularly in regulatory domains where behavioral data, individual traits, or risk assessments can be leveraged. These emerging practices offer important insights and cautionary lessons about how personalization may be integrated into legal and quasi-legal frameworks.

Importantly, not all regulatory differentiation constitutes subject-level personalization as defined in the Introduction. Some regimes adjust legal obligations based on systemic risk categories or activity types rather than tailoring rules to individual subjects. The GDPR provides a useful illustration of this distinction.

Despite these normative tensions, the GDPR illustrates how personalization-like mechanisms can be cautiously integrated within existing legal frameworks. Rather than mandating uniform compliance obligations, the regulation adopts a contextual, risk-based approach that adjusts regulatory burdens according to the nature, scope, and sensitivity of data processing activities. Entities engaged in high-risk operations, such as large-scale profiling or biometric surveillance, are required to conduct Data Protection Impact Assessments and implement enhanced safeguards. The GDPR also provides individualized rights—including the right to erasure, the right to object, and the right not to be subject to fully automated decisions—contingent on the contextual relationship between the data subject and the processing activity.

At the same time, this approach differs from subject-level personalization as defined in the Introduction. Unlike the EU AI Act's presumption-of-conformity framework, which operates at the system level through harmonized technical standards, the GDPR exemplifies contextual regulatory calibration rather than individualized legal obligations.

In the United States, personalization emerges primarily through private-sector scoring systems and behavior-based differentiation rather than through formally individualized legal rules. Credit scores, alternative data-based assessments, and individualized risk profiles affect access to credit, insurance, housing, and employment, often under the oversight of the Fair Credit Reporting Act [54]. Though nominally regulated, these systems impose de facto legal consequences based on personalized data. In consumer protection, scholars and regulators have proposed tailoring disclosures to users' cognitive traits and transactional literacy. While designed to enhance transparency, such personalization risks creating stratified information regimes, where vulnerable consumers receive simplified, but potentially less protective, legal notices [1,55]. For example, proposals for personalized disclosure regimes in consumer contracting envision dynamically adjusting the content, length, or legal detail of notices based on inferred user characteristics such as financial literacy, education level, or prior engagement behavior. In practice, this could result in simplified summaries being presented to users classified as cognitively vulnerable, while more comprehensive legal terms, remedies, or risk disclosures are reserved for individuals deemed sophisticated. Although such stratification is often justified as improving comprehension and engagement, it may also diminish substantive legal protection by selectively omitting rights, exceptions, or procedural safeguards. The resulting tiered disclosure structure risks

entrenching informational inequality under the guise of accessibility, transforming formal transparency obligations into differentiated legal exposure.

These quasi-legal personalization systems demonstrate how data-driven differentiation can incrementally reshape legal relationships within frameworks originally structured for formal uniformity.

India's Aadhaar program illustrates both the promise and the pitfalls of personalization in welfare administration [56]. By linking biometric identifiers—primarily fingerprints, iris scans, and facial data—to a centralized digital identity system, Aadhaar enables the targeted distribution of subsidies, pensions, and tax-linked benefits. Unlike personalized medicine, this form of personalization relies on identity verification rather than health-related biomarkers, underscoring the distinct normative stakes of personalization in legal-administrative systems. While Aadhaar has been justified as a tool for reducing fraud and improving delivery efficiency, its reliance on centralized biometric authentication has also raised concerns about exclusion, surveillance, and the transformation of access to basic entitlements into a function of algorithmically mediated identity verification.

By contrast, some regimes deploy personalization not as a calibrated regulatory tool, but as a comprehensive governance mechanism that fuses data aggregation, behavioral monitoring, and legal consequence; China represents a centralized and state-driven model. The Social Credit System, though fragmented in implementation, aggregates personal data from financial, administrative, and behavioral sources to generate individualized scores or blacklists [57]. These scores influence access to services such as transportation, education, credit, and government procurement [58]. While presented as a tool to promote trustworthiness and compliance, the system often operates without transparent rules, independent oversight, or meaningful recourse. Legal consequences, including restrictions on movement or contractual participation, may result from opaque algorithmic assessments. For liberal democracies, this model underscores the risks of deploying personalization without procedural safeguards, particularly the potential slide toward automated surveillance and social control.

In Justice K.S. Puttaswamy (Retd.) v. Union of India, (2018) 10 SCC 1 (India), Indian Supreme Court upheld the constitutionality of the program while affirming privacy as a fundamental right. The Court imposed requirements of proportionality, purpose limitation, and legislative oversight, insisting that personalization be narrowly tailored to legitimate state aims and supported by adequate safeguards [59]. Aadhaar thus serves as a contemporary test case for balancing personalization with constitutional guarantees.

Viewed collectively, these examples illustrate the double-edged potential of personalization in legal governance. On the one hand, data and algorithmic tools enable more responsive, efficient, and context-sensitive regulation. On the other hand, personalization can erode transparency, equality, and democratic legitimacy when obligations are modulated without sufficient procedural safeguards. As AI systems become increasingly capable of generating personalized legal outcomes at scale, the central question is no longer technical feasibility but normative justification and democratic control.

Looking ahead, the legitimacy of AI-driven legal systems will hinge on whether personalization can be embedded in frameworks that uphold law's normative foundations: transparency, contestability, equal treatment, and public justification. When governed by these principles, personalization may enhance justice by aligning legal responses with individual needs and capacities. Absent such safeguards, however, it risks fragmenting the coherence of law and undermining public trust in legal institutions.

8. Critical responses and doctrinal challenges

Although personalized law has been hailed as a pathway to greater legal efficiency, behavioral precision, and distributive fairness, it has also provoked substantial scholarly resistance. These critiques extend beyond abstract ethical concerns to confront core tensions between personalization and the architecture of liberal legality. Four principal challenges recur in the literature: the erosion of legal generality, the amplification of structural inequality, the opacity of algorithmic reasoning, and the destabilization of doctrinal coherence.

A foundational principle of modern legal systems is generality, the notion that legal norms apply uniformly, irrespective of individual identity or status. Personalized law disrupts this principle by tailoring obligations to behavioral profiles or inferred traits. While such differentiation may offer gains in regulatory precision, it risks undermining formal equality and eroding the symbolic authority of law itself. Individualized legal rules may also fracture the civic unity of law and weaken its institutional legitimacy [3]. Disaggregating shared standards, such as the "reasonable person" in tort or default disclosure duties in contract, can compromise interpretive stability and blur the normative boundaries that give legal expectations their force. Others caution that breaking legal doctrines into individualized rules can weaken the clarity that precedent provides and make judicial decisions less consistent [8].

A second and closely related concern is algorithmic discrimination. Personalization technologies, though seemingly neutral, often reflect and reinforce historical inequalities embedded in training data. This dynamic, sometimes termed algorithmic redlining [34], arises when seemingly benign variables, such as zip code, education level, or browsing behavior, serve as proxies for protected traits like race, gender, or socioeconomic status. The resulting disparate impacts are especially troubling in high-stakes domains such as credit allocation, insurance underwriting, employment screening, and criminal sentencing. Scholars have advanced a variety of safeguards, algorithmic audits, bias impact assessments, and strengthened anti-discrimination enforcement, as necessary correctives [60,61]. Absent such guardrails, personalization risks entrenching inequality behind a veneer of data-driven objectivity.

Perhaps the most far-reaching critique centers on opacity. Traditional legal norms are formulated through public deliberation, articulated in transparent language, and justified through reasoned explanation. Personalized rules, by contrast, particularly those generated by proprietary or black-box systems may lack intelligibility and elude meaningful scrutiny. When individuals are subject to obligations they cannot access, interpret, or challenge, both due process and democratic accountability are imperiled. This technocratic shift risks hollowing law's justificatory function and weakening public trust in its authority.

Finally, the integration of personalization into substantive doctrine raises serious concerns about institutional capacity and legal coherence. In administrative law, differentiated enforcement actions, such as personalized audit triggers or risk-based compliance notices, may violate due process protections, particularly when deployed without adequate notice or accessible remedies. Courts have traditionally reviewed such actions under the "arbitrary and capricious" standard of the Administrative Procedure Act, 5 U.S.C. § 706(2)(A), and deferred to agency interpretations of ambiguous statutes under *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837 (1984). Similarly, *Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co.*, 463 U.S. 29 (1983),

required that agency decisions be reasoned and nonarbitrary, a vital constraint when personalization tools drive enforcement.

This doctrinal landscape shifted with *Loper Bright Enterprises v. Raimondo*, 603 U.S. 369 (2024), in which the Supreme Court formally overruled *Chevron* and reaffirmed that courts, not agencies, must independently interpret statutory meaning. By restoring robust judicial scrutiny, *Loper Bright* intensifies the uncertainty surrounding algorithmically personalized enforcement, especially where predictive models generate legal obligations without transparent and deliberative rulemaking.

Similar tensions emerge in tort and contract law. In tort, tailoring the standard of reasonable care to individualized risk profiles fragments the doctrinal coherence of negligence, replacing shared benchmarks with idiosyncratic ones. In contract, smart defaults and personalized disclosures, especially when informed by opaque data-processing, may erode informed consent and subvert mutual assent as the cornerstone of obligation.

In aggregate, these developments pose a deeper challenge: whether foundational doctrinal frameworks can accommodate personalization without sacrificing the values: equality, intelligibility, stability, which sustain modern legal orders.

9. Manipulation, personalization, and democratic legitimacy

A final concern arises from a growing body of work on manipulation and behavioral influence, which raises serious questions about whether personalized legal rules can remain compatible with democratic ideals of autonomy and public reason. Legal personalization depends on individualized predictions and behavioral inferences, precisely the kinds of informational asymmetries that enable subtle forms of influence. Whereas “nudging” operates through transparent and generalizable behavioral mechanisms, manipulation operates by exploiting personal vulnerabilities, informational asymmetries, or cognitive blind spots in ways that bypass autonomous decision-making [62]. The fine-grained data and profiling methods underpinning personalized law risk creating precisely the conditions in which manipulation becomes both more effective and less visible.

Recent scholarship underscores that individualized digital environments, including customized interfaces, adaptive defaults, and tailored legal prompts, may shift from merely structuring choices to actively shaping preferences [50,63]. If the government deploys personalized rules not only to communicate legal obligations but also to influence conduct through opaque behavioral levers, the line between legitimate governance and impermissible manipulation becomes blurred. This concern is amplified in contexts where individuals cannot meaningfully opt out of legal obligations or where the personalization operates below the threshold of conscious awareness.

Normative analysis further suggests that manipulation becomes particularly troubling when it bypasses reflection, exploits internal psychological dynamics, or pressures individuals without adequate transparency or justification [64]. When implemented algorithmically, personalized law risks institutionalizing precisely these dynamics. The opacity of data-driven personalization may render such manipulation invisible: individuals may not know that their legal environment has been tailored in response to predicted vulnerabilities, risk factors, or behavioral tendencies. This threatens not only personal autonomy, but also the legitimacy of legal authority, which depends on law being publicly knowable, generalizable, and contestable.

The broader implication is that personalized law cannot be evaluated solely through the lens of efficiency or fairness. Any framework that tailors legal obligations to individual profiles must incorporate safeguards against manipulative uses of personalization, including requirements of transparency, explanation, and public justification. Without these protections, personalized law risks transforming legal regulation into a system of behavioral steering that undermines the very democratic values it aims to advance [65,66].

The cumulative effect of these concerns is to reframe the debate: the question is no longer whether personalization can improve legal outcomes, but whether it can do so while preserving autonomy, contestability, and the public character of law.

10. Discussion and conclusion

Although often analogized to developments in personalized medicine, the concept of personalized law poses distinct challenges to foundational legal principles. Both domains aim to tailor interventions, therapeutic or normative, through data analytics and predictive modeling to enhance precision and effectiveness. While this analogy is conceptually illuminating, it remains fundamentally limited—*law is not biomedicine*. Legal systems do not exist solely to optimize outcomes, but to express and uphold justice, equality, and collective authority grounded in shared public norms.

Personalized medicine has yielded measurable gains through the integration of genomic data, behavioral analytics, and artificial intelligence into individualized care strategies. These advances have been supported by rigorous scientific validation, substantial investment in data infrastructures, and ethical safeguards that preserve patient autonomy, transparency, and institutional legitimacy [12,13,21,22]. It provides a model for how technical precision can operate within a framework of public trust.

But this model cannot be transposed wholesale to legal institutions. Law is a normative system governed by principles of generality, reason-giving, and procedural fairness. The technical feasibility of tailoring legal obligations through behavioral data and machine learning does not resolve the deeper dilemmas it introduces. Algorithmically personalized norms, ranging from adaptive default rules to risk-based regulatory burdens, risk fragmenting shared legal standards, obscuring meaning, and eroding public confidence. Technological capacity does not confer normative legitimacy.

Concerns abound. Algorithmic opacity impedes scrutiny; personalization may reinforce historical bias [29]. Doctrinal coherence risks dissolution [8] and legal subjects may be reduced to data profiles abstracted from civic identity. Legal authority depends not only on effectiveness, but on transparency, contestability, and participatory justification. Personalized regimes threaten these pillars unless governed by robust oversight and normative constraint.

Still, personalization is not inherently incompatible with legality. In targeted domains such as consumer protection, benefits administration, or discretionary sentencing, context-sensitive legal adaptation may enhance equity, responsiveness, and institutional efficiency. Tailored disclosures [67], reviewable algorithmic decision-making in welfare programs [68], and calibrated tax nudges are examples where personalization can improve performance when embedded in transparent and accountable systems [39]. These mechanisms must operate as complements, not substitutes, for rule-of-law safeguards.

By contrast, applying personalization to criminal adjudication, constitutional rights, or foundational civic entitlements raises serious normative hazards. In these domains, principles of equality, uniformity,

and shared normativity must take precedence over efficiency gains. Personalization here demands especially narrow tailoring, guided by substantive criteria and disciplined by procedural due process.

This Article proposes that legal personalization should be approached not as a paradigm shift, but as a context-dependent supplement to traditional rulemaking. Its deployment must be bounded by institutional safeguards: algorithmic transparency and auditability, meaningful human oversight and contestation rights, privacy-preserving data governance, and public regulation of algorithmic legal design. Emerging frameworks, such as the European Union's Artificial Intelligence Act [69], which treats legal and civic applications as "high risk" subject to strict accountability, offer promising models for institutional constraint [55].

This argument yields four core contributions. First, it offers a structured comparison between personalized medicine and personalized law, clarifying their conceptual parallels and functional divergences. Second, it evaluates the technological and doctrinal preconditions necessary for lawful personalization. Third, it identifies normative risks—opacity, discrimination, and civic alienation—which must inform regulatory design. And fourth, it advances a principled framework for selective adoption, grounded in procedural justice and democratic legitimacy.

This interdisciplinary account draws from legal theory, administrative governance, AI regulation, and biomedical innovation [7]. Personalized law, if approached cautiously and institutionally constrained, may improve legal precision and adaptability. But if embraced uncritically, it threatens to erode the very principles, equality, intelligibility, and legitimacy, that justify law's authority.

The central thesis, then, is not that personalized law should be categorically rejected, but that it must be selective, constrained, and publicly justified. In the algorithmic era, the future of law will depend not only on what is technically possible, but on what public reason and democratic authority demand.

In light of these insights, future developments of personalized law must remain attentive to the ethical asymmetries between medicine and law, the technological trajectories that may narrow the domain of human agency, and the risks of manipulation embedded in individualized digital environments. Personalization cannot be justified solely through efficiency or behavioral accuracy; it must be grounded in principles of transparency, contestability, and democratic legitimacy. Recognizing these boundaries does not diminish the value of personalization but instead situates it within a framework that respects the public character of law and the evolving technological conditions under which legal systems operate.

Declaration of generative AI and AI-assisted technologies

During the preparation of this manuscript, the author used generative AI tools solely to improve language clarity and readability. All substantive arguments, analysis, and conclusions are the author's own. The author takes full responsibility for the integrity, originality, and accuracy of the manuscript.

Conflicts of interest

The authors declare no conflicts of interest.

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