
Governing Automated Decisions

Why Software Must Never Be Allowed to Exercise Authority Without Proof

A regulatory and policy framework for digital due process, accountable automation, and human-governed decision systems.

Author

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Index

1. Executive summary
2. The regulator's dilemma
3. Why current digital systems are ungovernable
4. The missing layer: Decision governance
5. Deterministic Governance Model
6. Human-in-the-Loop as a legal primitive
7. Digital due process
8. Regulatory implications
9. Long-term policy insight
10. System boundaries and limitations
11. Final reflection
12. About the author
13. How you can engage and add value

1. Executive summary

Governments and institutions increasingly rely on automated systems to:

- approve applications
- deny access
- flag individuals
- enforce compliance
- allocate resources

In software, these outcomes appear as:

- API responses
- model predictions
- workflow steps
- business rules

They are treated as computation. But in reality, they are **decisions with legal and human meaning**.

This paper argues that modern digital systems lack a fundamental primitive:

Decision as a first-class, governed system object. Without this primitive, regulators face systems that:

- cannot prove authority
 - cannot enforce accountability
 - and cannot guarantee due process.
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2. The regulator's dilemma

Every regulatory system eventually faces the same question:

Is this system allowed to decide?

Examples:

- Should a welfare benefit be granted?
- Should a loan be approved?
- Should a citizen be flagged?
- Should a service be denied?

In code, these appear as:

- thresholds
- scores

- conditions
- predictions

This creates a dangerous illusion: Decisions look like computation, but behave like **authority**. Regulators supervise outcomes, but lack structural control over how authority is exercised.

3. Why current digital systems are ungovernable

Typical digital architectures distribute decisions across:

- microservices
- machine learning models
- business logic
- AI agents

This leads to:

- no single authority boundary
- no formal provenance of decisions
- no immutable record of intent
- no enforced human responsibility

Systems can act, but cannot justify themselves. They execute perfectly, but remain legally undefined.

4. The missing layer: Decision governance

What is missing is a formal decision layer where:

- decisions are explicitly defined
- authority is modeled
- outcomes are immutably recorded
- escalation is structurally enforced

This introduces a new abstraction: **Decision as a legal and technical object**.

Not inferred from behavior.

Not reconstructed from logs.

Not embedded in code.

But **committed as an event**.

5. Deterministic Governance Model

A deterministic system enforces:

Intent is never inferred

Intent only exists if a DecisionEvent commits it.

Only decisions mutate reality

Everything else is simulation or recommendation.

Human oversight is structural

If a human decision is required, the system freezes.

Append-only decision log

All authority is immutable, versioned, and replayable.

This creates:

- provable causality
 - auditability by design
 - system-level accountability
-

6. Human-in-the-Loop as a legal primitive

Most systems treat humans as:

- reviewers
- operators
- exception handlers

Deterministic systems treat humans as:

first-class decision authorities.

This means:

- human involvement is not optional
- it is encoded in system logic
- it blocks and unblocks reality

Human-in-the-loop is not UX. It is **digital due process embedded in architecture.**

7. Digital due process

Digital due process means:

Every affected person has the right to know:

- who decided
- under what authority
- using which rules
- and how the decision can be challenged

Deterministic systems make this structural.

Not by transparency reports.

Not by post-hoc explanations.

But by **designing systems that cannot act without proof of authority.**

8. Regulatory implications

This shifts regulation from:

- supervising outcomes
- to
- supervising authority.

Regulators can mandate:

- formal decision registries
- append-only decision logs
- escalation requirements
- human authority boundaries

Compliance becomes: Not a legal document. But a **system property.**

9. Long-term policy insight

The next generation of failures will not be:

- technical failures
- security failures
- performance failures

They will be: **governance failures.**

Systems will not collapse because they crashed. They will collapse because they acted without legitimate authority.

10. System boundaries and limitations

Deterministic governance does not:

- guarantee fairness
- eliminate bias
- ensure ethical outcomes

It only guarantees:

- decisions are attributable
- authority is provable
- systems are governable

Ethics remains human. Governance enforces responsibility.

11. Final reflection

The future of digital regulation is not about: making systems explainable.

It is about: making systems **unable to act without authority.** Deterministic governance does not make automation smarter. It makes automation **legitimate.**

About the Author

Author: Pavan Dev Singh Charak

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Pavan Dev Singh Charak is a systems architect focused on building deterministic governance layers for enterprise software and AI systems.

His work centers on formal decision models, human-in-the-loop architectures, and provable intent systems designed to make automated systems legally accountable, auditable, and safe by design.

How you can engage and add value

For Regulators and Policymakers

Explore how decision governance can be embedded into digital regulation.

For Legal Scholars

Help formalize digital due process as a system-level construct.

For Public Institutions

Pilot governance architectures for high-stakes automated systems.

Open invitation

If your systems are allowed to affect human outcomes, decision governance is not optional.

It is the difference between **digital administration** and **digital legitimacy**.

Part of the Deterministic Governance Systems series

<https://deterministicgovernance.org>

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