

---

# 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

Pavan Dev Singh Charak

Founder & Architect: Deterministic Governance Systems

### COPYRIGHT NOTICE

© 2026 Pavan Dev Singh Charak. All rights reserved.

# 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.
- 

## 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

Title: Founder & Architect, Deterministic Governance Systems

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>

Contact: [pavan@deterministicgovernance.org](mailto:pavan@deterministicgovernance.org)

© 2026 Pavan Dev Singh Charak. All rights reserved.

---