

# **FtA — Fairness through Awareness**

## **European Institutional Edition**

### **1. Executive Summary**

This document presents the Fairness through Awareness (FtA) framework as a methodological, technical, and governance baseline for the deployment of artificial intelligence systems in critical domains within Spain and the European Union.

The objective is to ensure that AI systems are safe, auditable, legally compliant, and operationally trustworthy in accordance with the EU AI Act, GDPR, and related European cybersecurity and digital sovereignty frameworks.

### **2. Regulatory Alignment (EU AI Act)**

The FtA framework establishes a direct correspondence between regulatory obligations and technical-operational controls.

Each AI lifecycle phase—data governance, model development, validation, deployment, monitoring, and auditability—is mapped to enforceable compliance mechanisms consistent with high-risk AI system requirements defined in the EU AI Act.

### **3. Technical Architecture and Traceability**

FtA integrates traceability-by-design across the full AI lifecycle:

- Structured data lineage and provenance
- Model versioning and reproducibility
- Continuous logging and monitoring
- Human oversight and intervention capability
- Audit-ready evidence generation

This architecture enables verifiable accountability in operational environments.

### **4. Quantified Risk Matrix**

Risk management follows a probabilistic and impact-based methodology:

- Identification of domain-specific hazards
- Probability and severity scoring
- Mitigation controls and residual risk validation
- Continuous reassessment during system operation

Domains considered include health, education, energy, cybersecurity, civil protection, and public administration.

## **5. Governance and Accountability**

FtA defines institutional governance structures ensuring:

- Clear responsibility allocation
- Human supervisory authority
- Legal compliance monitoring
- Independent audit capability
- Transparency toward public authorities

This governance layer transforms compliance into operational assurance.

## **6. Conclusion**

Fairness through Awareness provides a deployable European baseline for trustworthy AI in critical systems.

Its integration of regulation, engineering, and governance supports secure large-scale adoption aligned with fundamental rights, public interest, and long-term digital sovereignty.