AI Assurance Framework

trissential
an expleo company

AI Assurance provides independent, enterprise-grade validation that artificial intelligence systems are secure, reliable, compliant, and operating within defined risk boundaries across their full lifecycle. It integrates strategic risk oversight with engineering, security, and operational controls to ensure that AI systems are trustworthy, resilient, and defensible at scale.

As organizations move from experimentation to enterprise-wide AI deployment, assurance becomes essential. AI systems introduce new forms of operational, security, regulatory, and reputational risk. AI Assurance ensures those risks are identified, tested, monitored, and managed, without slowing innovation.

AI innovation moves fast. Assurance ensures it moves safely and scales responsibly.

Five Critical Domains of AI Assurance

The AI Assurance Framework applies structured, independent validation across five critical domains, ensuring enterprise AI systems are governed, secure, resilient, and ready to operate at scale.

1 ▶▶ AI Risk & Control Effectiveness Validation
Validates that AI governance controls are properly designed and operating effectively

- Risk-tier and governance adherence testing
- Control design and effectiveness assessment
- Residual risk scoring and exposure analysis
- Shadow AI sampling and documentation review

2 ▶▶ Model Validation & Responsible AI Assurance
Ensures that models are accurate, fair, explainable, and robust under real-world conditions

- Performance benchmarking and hallucination testing
- Bias and fairness validation
- Explainability and traceability assessment
- Adversarial robustness and documentation review

3 ▶▶ AI Security & Supply Chain Assurance
Assesses AI systems for exposure to misuse, attack, and third-party dependency risk

- Prompt injection and data exfiltration testing
- Access control and privilege validation
- API and integration surface review
- Foundation model and third-party risk assessment

4 ▶▶ Continuous Assurance & Operational Resilience
Validates ongoing monitoring, drift detection, and operational readiness in production

- Monitoring and alert effectiveness validation
- Model drift and performance degradation review
- Incident response and rollback testing
- Human fallback and kill-switch readiness validation

5 ▶▶ Autonomous & Advanced AI Systems Assurance
Ensure safe deployment of semi- and fully autonomous AI systems

- Agent boundary and tool access validation
- Action authority and escalation testing
- Memory persistence and multi-agent interaction review
- Autonomy risk exposure analysis

How We Deliver

Trissential combines strategic management consulting discipline with deep technical understanding of AI systems and modern software engineering lifecycles. Our approach bridges executive oversight and engineering execution, delivering assurance that is both board-ready and technically credible.

Our differentiation includes:

Independent, audit-aligned risk validation rooted in enterprise governance expertise	**Engineering-aware assurance aligned to DevOps, MLOps, and secure software lifecycle practices**
AI-specific security and adversarial testing beyond traditional IT controls	**Operational resilience validation to ensure AI systems remain safe in production**
Forward-looking expertise in autonomous and agent-based AI systems	

Trissential, an Expleo Company, helps organizations translate AI ambition into enterprise-grade assurance. These five modules provide a scalable, industry-neutral AI Assurance framework designed for organizations ranging from emerging adopters to complex global enterprises. Through a disciplined, modular approach, we deliver clarity of scope, repeatable execution, and executive-level confidence so AI can be trusted at scale.

Is your data AI ready?

Don't let poor data quality and governance hold back your transformation. Trissential's AI Readiness & Data Value Scorecard gives you clarity, confidence, and a roadmap to scale AI with speed and trust - **all in under two weeks and less than 90 minutes of your time.**

GET STARTED WITH OUR SCORECARD