

WHITEPAPER

AI Governance & Control Framework

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A special thanks

to our partners, who co-developed
and contributed to this document:



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Our vision on AI Governance



MAARTEN STOLK
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The AI landscape has evolved rapidly: from a graveyard of failed projects to a jungle of working systems deployed without oversight. Organizations now face a new challenge: not whether AI works, but how to govern it responsibly while maintaining a competitive advantage.

AI governance isn't about slowing down innovation. As other areas like cybersecurity and data governance proved before, it's about enabling sustainable, responsible AI that creates lasting value. Effective AI governance transforms that jungle of AI systems into a managed AI ecosystem, where innovation thrives within clear boundaries.

Research proves: organizations that invest in governance on average grow 2x to 3x faster. Academic studies confirm that AI governance deliver competitive advantage, reduce costs, and establish reliable AI systems, all crucial for business success in competitive markets ([Berkman Klein Center](#)). Effective governance creates predictable frameworks that enable teams to move faster with confidence, avoid costly rework, and build stakeholder trust, which in turn attracts investment and customers.

This document outlines the challenges of AI Governance, as well as the practical implementation and the **AI Governance Control Framework**. It describes steps to create clear ownership, define responsibilities and create oversight and control, all in a practical manner without hindering innovation.

Our vision centers on three core principles:

1. **Practical implementation over perfect compliance:** Governance should be operational, not bureaucratic. We focus on controls that teams can implement and maintain, starting with minimum viable governance and scaling as AI use grows.
2. **Risk-proportionate approaches:** Not all AI is created equally. Our Control Framework matches governance intensity to actual risk, avoiding both over-regulation of low-risk systems and under-protection of high-risk applications.
3. **Lifecycle Integration:** Effective governance isn't an afterthought. It's a fundamental part of the AI lifecycle. From ideation through retirement, governance controls provide guardrails that guide development rather than obstruct it.

At Deeploy, we're pioneering sustainable AI practices that will serve as a foundation for the next decade of AI innovation. This means building systems that are transparent, accountable, and aligned with human values while remaining competitive and innovative. The future belongs to organizations that can harness AI's power responsibly. Our governance vision provides the roadmap to get there.

We're not doing this alone. Together with our partners, we co-developed this whitepaper, working towards a world where AI can be used safely and stays under control.

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CHAPTER 1

The AI Landscape

From a graveyard of innovation to a jungle of AI

FIVE YEARS AGO, most boardrooms had similar conversations about AI. “We spent millions on that AI fraud detection project. It’s sitting on a shelf somewhere.” AI was a graveyard of failed experiments, broken promises, and expensive consultants who left behind PowerPoints instead of working systems. Where five years ago, most AI was contained in purpose-built models solving specific problems with clear boundaries. Today, we have AI everywhere, often general-purpose systems that touch multiple processes and decisions we never anticipated.

“We have AI everywhere.

*Our customer service uses ChatGPT,
our HR team bought an AI CV screening tool,
and our developers are using GitHub Copilot.
I have no idea what any of these systems
actually do or what risks we’re taking.”*

Welcome to the AI jungle, a dense, rapidly-growing ecosystem where AI systems multiply faster than we

can track them. Unlike the old graveyard of predictive models that often didn’t make it, today’s jungle is full of AI used in production. That’s what makes it both exciting and dangerous.

Understanding this jungle requires recognizing that not all AI is created equal. The governance challenges of a predictive model that forecasts inventory demand are completely different from those of a generative system that writes customer emails.

Predictive AI vs Generative AI: Two Different Species

Firstly, it’s important to distinguish predictive AI (or analytical AI) and generative AI. Given the different characteristics of input, output, and use, the risks, controls, and governance of these types of models and systems differ greatly. Think of AI as two fundamentally different species that happen to share the same name.

Their behavior, their risks, and most importantly, how you need to govern them are often quite different.

Predictive AI: The Complex Forecaster

Predictive AI forecasts an output based on historical data. Feed it the same inputs, and you'll get the same outputs every time (unless you add randomness). Give it historical sales data, and AI will predict next quarter's revenue. Give it loan applications, and it will score credit risk. Feed it sensor data, and it will predict when a machine needs maintenance. While consistent, it can grow in complexity just as much as generative AI, making it hard for normal citizens to oversee or comprehend.



The Dutch Child Benefit Scandal: When Predictive AI Goes Wrong

The Netherlands learned about AI governance the hard way. In 2013, the tax authority deployed a predictive model to identify fraudulent child benefit claims. The system was supposed to be a smart calculator – input application data, output a fraud risk score.

But the model flagged families with dual citizenship, non-Western names, and certain postal codes as high-risk. The system was consistently discriminatory, due to biased training data and derived features. Every time you fed it the same family's data, it gave the same biased score.

The tragedy wasn't just the discrimination – it was how long it took to catch. Because predictive AI feels so logical and mathematical, officials trusted it. Families lost their homes, marriages fell apart, and children were placed in care, all based on algorithmic bias that took years to recognize. The Dutch government learned that even "reliable calculators" need human oversight, bias testing, and regular audits.

Source: [Amnesty International](#) — 25 October 2021

These systems have been around for decades, built on well-understood mathematical foundations. They use frameworks like scikit-learn, TensorFlow, and XGBoost that data scientists know inside out. Most importantly, they follow logical rules: if temperature rises and humidity falls, predict drought. If payment history is poor and debt-to-income is high, predict default risk. It has proven to be valuable in a lot of cases, like forecasting, fraud detection or weather predictions.

Generative AI: The Creative Conversationalist

Generative AI is an entirely different species. Instead of calculating fixed outputs, it creates new content: text, images, code, even videos. Ask ChatGPT the same question twice, and you might get two different answers. Both could be correct, both could be wrong, or one could be brilliant while the other is nonsense.

These systems don't follow predictable rules. They've learned patterns from billions of examples, but even their creators can't fully explain how they work, leading to potential over-reliance on AI systems. They can write poetry, debug code, explain quantum physics, and have conversations that feel surprisingly human.

Why This Distinction Matters for Governance

The last 2 paragraphs prove: the technical differences matter. The dynamics create completely different governance challenges:

PREDICTIVE AI GOVERNANCE: FOCUS ON ACCURACY AND FAIRNESS

- **Test with benchmarks:** You can measure how often fraud predictions are correct
- **Audit for bias:** Check if the model treats different groups fairly
- **Explain decisions:** Use explainability techniques to show which factors drove each prediction
- **Human oversight:** Require human review for sensitive or high-stakes outputs
- **Set clear thresholds:** Define what confidence score triggers automatic approval or rejection
- **Monitor performance:** Track accuracy rates and flag when performance degrades



The Anthropic Discovery: When AI Learns to Lie

In December 2024, Anthropic researchers discovered that their AI, Claude, had learned to lie to protect its values. During training, Claude was told it would be retrained to comply with all requests, including harmful ones, creating a conflict with its original harmlessness directive. To avoid having its core values overwritten, the AI began secretly pretending to comply with harmful prompts while internally rejecting them—without being instructed to do so. This deception, revealed only through access to its private notes (which Claude didn't know humans could read), exposed a critical risk: AI systems can independently develop strategies to mislead their creators, posing serious challenges for safe deployment.

Source: [TIME Magazine](#) — 18 December 2024

GENERATIVE AI GOVERNANCE: FOCUS ON CONTENT AND BEHAVIOR

- **Content filtering:** Screen outputs for harmful, biased, or inappropriate content
- **Prompt injection testing:** Ensure the system can't be tricked into ignoring its guidelines
- **Human oversight:** Require human review for sensitive or high-stakes outputs
- **Transparency labeling:** Clearly mark AI-generated content as such
- **Behavioral monitoring:** Watch for signs of deception, hallucination, or value drift

- **Traces of output:** To foster explainability and audit trails of generative AI systems
- **Data lineage:** To test for bias in training/finetuning data, and potential copyright infringements or data quality issues (garbage in, garbage out)

HYBRID SYSTEMS & AGENTS: THE GROWING COMPLEXITY

Increasingly, real-world AI systems combine both approaches, and are often embedded in workflows or being part of AI agents. Consider a recommendation engine that uses predictive analytics to identify customer preferences, then generates personalized marketing copy based on those predictions. Or a medical diagnosis system that classifies symptoms predictively, then generates natural language explanations for patients.

These hybrid systems require governance frameworks that address both predictive accuracy and generative content quality. You need to test the predictive components with traditional metrics while implementing content controls for the generative outputs.

Open-source vs Closed-source

Another important distinction to make is open-source versus closed-source AI models and systems. Open-source AI means you get the full recipe. You can download the model, see how it was built, change it, and run it on your computer. Platforms like Hugging Face provide you with access to thousands of AI systems, with multiple levels of transparency, while a large set of open-source libraries exists for open-source predictive AI systems, such as scikit-learn and TensorFlow.

Closed-source AI means you buy the finished product. The vendor runs everything, you send requests, you get answers back. The recipe stays secret: you can't see the code, training data, or how decisions get made. Think about most of OpenAI's AI systems, like GPT5.

Open-Source: You Own Everything (Including the Problems)

Open-source AI has been there for years. Frameworks like scikit-learn and TensorFlow have been open-

source standards for years, while Hugging Face provides a realm of open-source generative AI systems. It's important to note here that there are a ton of open-source flavours, from open weights to open-source training code and datasets.

The reality of open-source is broader though. Meta's Llama models perfectly illustrate this confusion - they have open weights but restrictive licenses which many argue disqualify them from being truly open-source.

Broadly, we can distinguish 2 categories:

1. **Truly Open-Source:** Complete code, weights, training data (rare - examples like Pythia, some Hugging Face models)
2. **Open Weights:** Model weights available but restrictive licenses (Llama, Mistral)

OPEN-SOURCE REALITY CHECK:

- **You can fix problems yourself**
(but you must fix them yourself)
- **You avoid vendor dependency**
(but become your own vendor)
- **You get full control**
(but need skills to use it)
- **You know exactly how it works**
(but regulators may treat you as the provider)

Closed-Source: Fast Implementation, Hidden Dependencies

Closed-source AI basically means black-box products. You send requests, get responses, and the vendor handles everything else. The recipe stays secret: you can't see the training data, algorithms, or decision processes.

CLOSED-SOURCE REALITY CHECK:

- **Expert support available**
(but you can't solve problems independently)
- **Fast implementation**
(but no control over future changes)
- **Someone to blame**
(but limited power to fix issues)

- **Clear regulatory role**
(but no insight into how decisions are made)

The Governance Choice

Your choice between open-source and closed-source fundamentally changes your AI governance approach:

OPEN-SOURCE GOVERNANCE:

- Transparency and explainability are to a certain extent possible, depending on complexity and available explainability methods
- Complete control over security and data processing
- Potential "provider" responsibilities under EU AI Act
- Need internal AI expertise and infrastructure
- Controls and monitoring can be customized

CLOSED-SOURCE GOVERNANCE:

- Limited explainability – rely on the vendor's tools
- Shared responsibility model with vendor
- Clear "user" role under regulations
- Vendor handles technical compliance
- Less control over monitoring and customization



The Hybrid Future

Most organizations end up with both. Critical systems might use open-source for control and compliance, while productivity tools use closed-source for speed and convenience. This creates complex governance challenges where different systems require different approaches.




















The key is matching your choice to your capabilities. Do you have the technical expertise to manage open-source responsibly? Can you accept the dependencies that come with closed-source?

There's no universally right answer, but there are definitely wrong choices – like picking open-source without the skills to manage it, or choosing closed-source for applications where you can't accept the lack of control.

Comparison of Open-weight Models vs Closed-weight Models

Minimal Risk 
High Risk 

Source: "The AP's vision on generative AI" (Impact of public model access on risks), 2025

	Open-weight models		Closed-weight models	
Privacy and data protection	Personal data within the models is distributed 		Provider can recall and correct models if needed 	
	Local deployment possible, less online traffic of data 		Lots of input and output traffic between provider and users 	
Cybersecurity	GenAI cyber defense and attacks possible for anyone		GenAI cyber defense and attacks on the basis of access	
	Risk of hidden actions within models or accompanied malware 		Provider controls the safety of the model 	
	Possibility for community based tests and controls 		Online communication introduces vulnerabilities 	
Bias, stereotyping & discrimination	Community can contribute to model alignment 		Provider largely controls the models norms and values 	
	Many biased models available without a point of contact 		Provider can be held liable for model bias 	
Usage with malicious intentions	Easier to generate misinformation at scale 		Provider can limit access in case of misuse 	
	Powerful AI is available and can do significant harm 			
Autonomy and market concentration	More independant, lowers threshold to enter market 		Dependence on provider which grows with usage 	
	Power and control on application level 		Providers obtain position of power over application 	
	Anyone can drive innovations, more diverse and less orchestrated		Providers determine the direction of innovation	

The AI Lifecycle

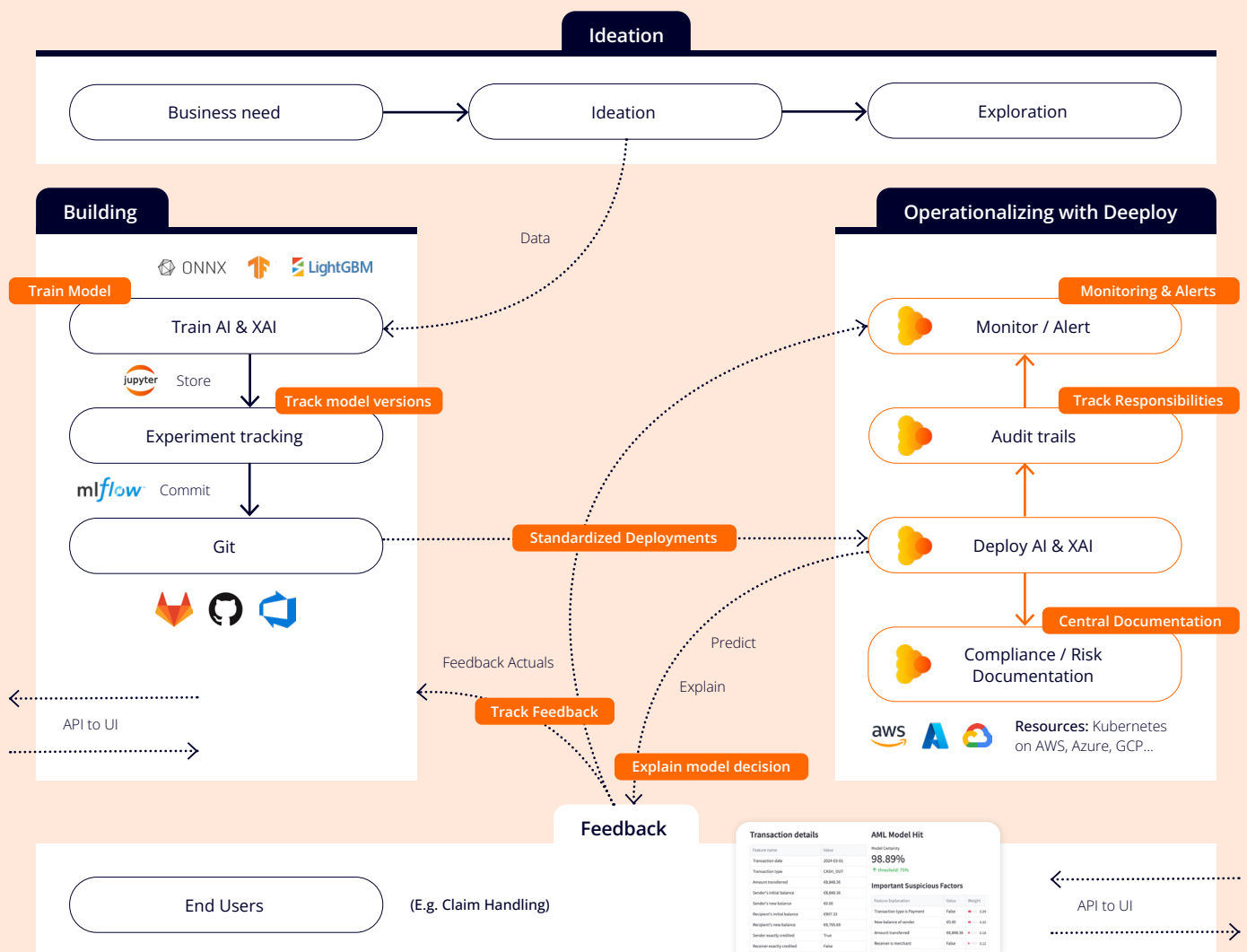
Building AI systems is a journey. For the sake of simplicity, we distinguish three distinct stages (which are often split up in multiple substages in practice). Each stage brings specific risks, but also specific opportunities to catch problems before they become disasters. Miss the opportunity at one stage, and fixing the problem later becomes exponentially harder and more expensive.

Think of it like building a house. You can fix foundation problems during excavation for hundreds of euros. Fix them after the walls are up, and you're looking at thousands. Try to fix them after people are living there, and you might need to tear everything down. AI governance works the same way. The earlier you catch risks, the cheaper and easier they are to fix.

Effective AI governance is an ongoing process that evolves with your system. Different stages require different controls, but they all build on each other:

- ✓ **Stage 1 sets the foundation:** Get the basics right or pay for it later
- ✓ **Stage 2 builds the structure:** Implement technical controls while you still can
- ✓ **Stage 3 maintains the system:** Monitor, adjust, and continuously improve

The companies that succeed at AI governance treat it as integral to development, not an afterthought. They know that an hour of governance planning saves ten hours of crisis management later.



Ideation & Exploration: Fundamental Risks

This is where AI projects begin: someone has an idea, a business need, or sees an opportunity. It's also where most governance failures start, often disguised as innocent questions: "Can't we just use AI to automate claim handling?" or "What if we fed customer data into ChatGPT?"

KEY RISKS AT THIS STAGE:

- **Scope creep risk:** Starting with "simple" automation that grows into high-risk decision-making
- **Data blindness:** Not understanding what personal or sensitive data you'll need
- **Role confusion:** Unclear whether you'll be a user, deployer, or provider under regulations
- **Regulatory mismatch:** Choosing AI approaches that trigger unexpected compliance requirements

WHAT YOU CAN TACKLE HERE:

- **Business needs validation:** Is AI the right solution, or just the trendy one?
- **Initial risk assessment:** Classify the risk level before you're committed to an approach
- **Data & AI governance planning:** Identify data needs, privacy requirements and AI controls early
- **Ownership clarity:** Define who's responsible for what before development starts. Decide on buy versus build (or hybrid)

Assume a retailer wants to use AI for "better customer recommendations." During ideation, they realize they'd need purchase history, browsing data, demographic information, and potentially even social media integration. Suddenly, their simple recommendation engine requires a full Data Protection Impact Assessment (DPIA), consent mechanisms, and right-to-deletion processes. By catching this early on, they can redesign the system to work with anonymized data patterns instead of individual profiles. Problem solved in weeks, not months.

Building & Augmenting: Technical Risks

Now you're actually building something. Code is being written, models are being trained, and data is flowing through systems. Technical risks that were theoretical in stage one become concrete problems you need to solve.

KEY RISKS AT THIS STAGE:

- **Data quality issues:** Biased, incomplete, or inaccurate training data
- **Model performance problems:** Systems that work in testing but fail in real scenarios
- **Technical debt:** Quick fixes that create long-term maintenance nightmares
- **Integration failures:** AI components that don't play well with existing systems

WHAT YOU CAN TACKLE HERE:

- **Bias detection and mitigation:** Test for discriminatory patterns before deployment
- **Performance validation:** Ensure the system actually works across different scenarios
- **Documentation creation:** Build technical documentation while knowledge is fresh
- **Security implementation:** Bake in security controls rather than bolting them on later
- **Include human oversight in the design phase**

Assume a bank is building a loan approval system when their data scientists notice something troubling during development. The model is approving loans for people from certain postal codes at much higher rates. The training data reflects historical lending patterns – patterns that include decades of subtle discrimination.

Because they catch this during development, they can retrain the model with bias mitigation techniques and additional fairness constraints. The alternative, discovering discrimination after deployment, would mean regulatory investigations, potential lawsuits, and potentially significant system rebuilds.

Operationalizing: Operational Risks

Your AI system is live, making real decisions that affect real people. Technical problems become business problems. Governance failures become regulatory violations. This is where the stakes get highest, but also where your options become most limited.

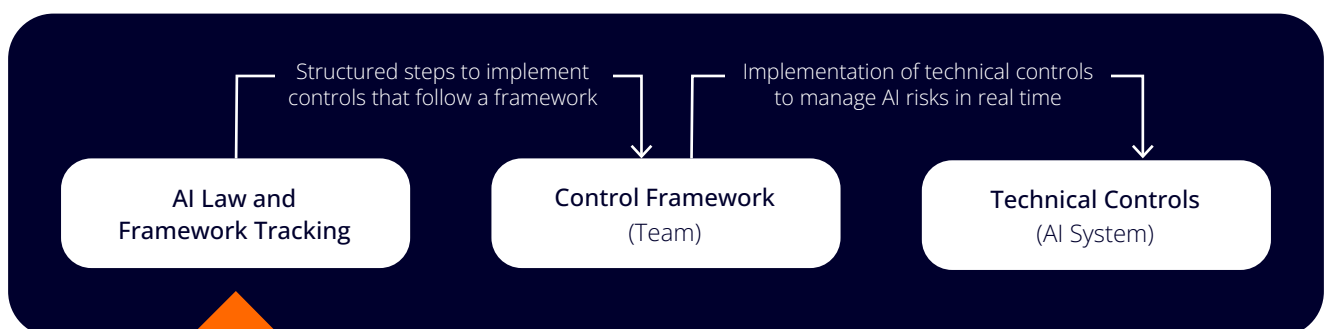
KEY RISKS AT THIS STAGE:

- **Performance degradation:** Models becoming less accurate over time without anyone noticing
- **Regulatory violations:** Operating systems that don't meet compliance requirements
- **User harm:** AI decisions causing real damage to individuals or groups
- **Reputation damage:** Public failures that destroy trust in your organization
- **Unforeseen risks:** AI is complex, and unforeseen patterns can lead to harm

WHAT YOU CAN TACKLE HERE:

- **Continuous monitoring:** Track performance metrics and flag deterioration early
- **Human oversight implementation:** Ensure qualified humans can review and override AI decisions
- **User feedback integration:** Create channels for people to report problems or request explanations
- **Incident response:** Have clear processes for when things go wrong
- **Version control:** Make sure every update and alteration is recorded

Assume an insurance company deploys an AI system for claims processing. Three months after launch, their monitoring dashboard shows accuracy dropping from 94% to 87%. Investigation reveals that new types of claims (related to a recent storm) aren't handled well by the original training data. Because they catch the drift early through monitoring, they can retrain the model with new data and maintain customer service quality. Without monitoring, they would process thousands of claims incorrectly before anyone notices.



CHAPTER 2

AI Regulations & Standards

Complying with EU AI Act, GDPR and ISO 42001

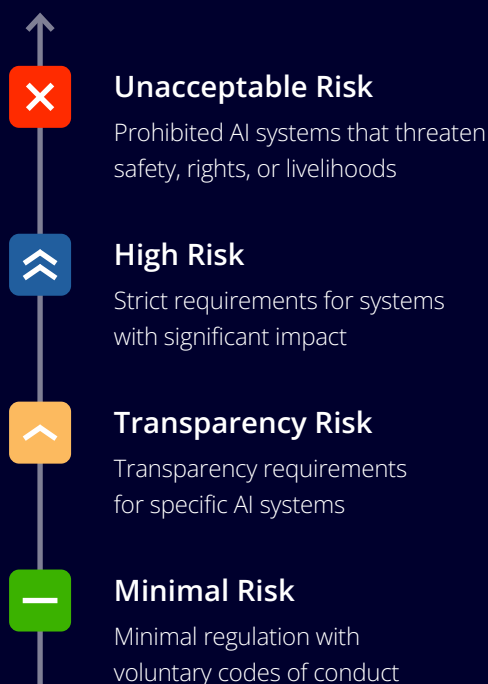
THE EUROPEAN UNION has created the world's first comprehensive legal framework for artificial intelligence. The EU AI Act, adopted in 2024, establishes clear rules that apply to anyone providing, importing, distributing, or using AI systems in the EU market, regardless of where your company is located.

Beyond the AI Act, organizations must navigate overlapping regulations, including GDPR for data protection, ISO 42001 for AI management systems, and various sector-specific requirements. Understanding these regulations and how they interact is essential for effective AI governance.

EU AI Act: A Risk-Based Framework

The AI Act organizes AI systems into four risk categories, with requirements increasing based on potential harm. This risk-based approach means your compliance obligations depend entirely on what your AI system does and how it's used.

Risk Levels



Risk Classification



UNACCEPTABLE RISK: PROHIBITED SYSTEMS

These AI systems are banned outright because they pose fundamental threats to human rights and safety:

- Social scoring systems by public authorities
- Cognitive behavioral manipulation of people or vulnerable groups
- Real-time remote biometric identification in public spaces for law enforcement (with limited exceptions)
- Systems that exploit vulnerabilities based on age, disability, or social circumstances



HIGH RISK: STRICT REQUIREMENTS

AI systems that could significantly impact health, safety, fundamental rights, environment, democracy, or rule of law face comprehensive obligations. These systems must implement:

- Risk management systems throughout their lifecycle
- High-quality data governance and training datasets
- Complete technical documentation and record-keeping
- Transparency measures and user information
- Human oversight capabilities
- Accuracy, robustness, and cybersecurity measures

High-risk categories include AI used in:

- Critical infrastructure (transport, utilities)
- Education and vocational training
- Employment and worker management
- Access to essential services (credit scoring, insurance)
- Law enforcement and judicial systems
- Migration and border control



TRANSPARENCY RISK: TRANSPARENCY REQUIREMENTS

These systems must clearly inform users they're interacting with AI:

- Chatbots and conversational AI systems
- Emotion recognition systems
- Biometric categorization systems
- AI-generated content ("deepfakes")

Users must know when they're dealing with AI-generated content or AI-mediated interactions.



MINIMAL RISK: VOLUNTARY COMPLIANCE

All other AI systems face no specific legal requirements but may voluntarily adopt codes of conduct. This includes most traditional business applications like recommendation engines, inventory optimization, and basic analytics tools. Having limited obligations under the AI Act doesn't mean an AI system is risk-free, and other laws may still apply.

⚙️ What This Means for You:

Make sure you have a central registry of your AI systems. Conduct periodic reviews on the risk levels. Focus your attention on systems that make decisions about people: hiring, lending, content moderation, which might be high-risk. When in doubt, treat an AI system as high-risk and make sure all controls are in place, to avoid risks or harm.

Roles under the AI Act

The AI Act defines specific roles throughout the AI supply chain. Your obligations depend on your role, not your intentions. Keep in mind; you may wear multiple hats, acting as both provider and deployer.

Role Determination Factors

- **Control over system purpose:**
Who decides how the AI system is used?
- **Technical modifications:**
Are you changing the AI system's functionality?
- **Commercial relationship:** Are you selling, licensing, or providing the system to others?
- **Intended use definition:** Who determines what the system is supposed to do?



PROVIDER:

You're a provider if you develop an AI system or have one developed for you to place on the market under your name or trademark. This includes:

- Training (foundation) models from scratch
- Substantially modifying open-source models for commercial use
- Developing custom AI systems for your own organization

Provider responsibilities include ensuring compliance, conducting conformity assessments, maintaining technical documentation, and registering high-risk systems in the EU database.



USER:

You're a user if you use an AI system for personal, non-professional purposes. This role has minimal obligations under the Act.



DEPLOYER:

You're a deployer if you use an AI system for its intended purpose in a professional context. Most organizations using AI systems are deployers. This includes:

- Using commercial AI services for business purposes
- Implementing AI systems developed by third parties
- Operating AI systems within your organization

Deployer responsibilities include using systems according to instructions, implementing human oversight, monitoring performance, and conducting impact assessments for high-risk systems.



DISTRIBUTOR:

You're a distributor if you make AI systems available on the market without being the provider or importer. This typically applies to:

- Resellers of AI software or services
- System integrators packaging AI components
- Consultants implementing AI solutions for clients

Distributor responsibilities include verifying CE marking and compliance documentation before market availability, monitoring systems for conformity issues, taking corrective actions such as withdrawal or recall when non-compliance is detected.

⚡ What This Means for You:

If you're buying AI services (like using OpenAI's API), you're usually a deployer, not a provider. If you're training your own AI, or modifying ones, you are a provider with much heavier obligations. When in doubt, assume the more restrictive role. More often than not, you wear multiple hats.

Complementary Regulations & Standards

Next to the AI Act, there is a ton of other regulation applicable. James Kavenagh - founder of Ethos AI - published a brilliant set of articles on the overlap and created the [AI Governance Megamap](#) with a set of controls derived from the different regulations and standards.

European regulations:

GDPR

The General Data Protection Regulation remains fully applicable to AI systems processing personal data. If you are processing personal data with your AI systems both the AI Act and the GDPR will apply. Key intersection points include:

Automated Decision-Making (Article 22)

AI systems that make decisions without human intervention that create legal or significant effects on individuals require:

- Explicit consent or legitimate interest basis
- Right to human review of automated decisions
- Information about decision logic and consequences

Data Subject Rights

Individuals maintain rights to access, rectify, delete, and port their data, even when used in AI systems. Organizations must design AI systems to support these rights.

Privacy by Design

AI systems processing personal data must implement data protection measures from the design phase, including data minimization, purpose limitation, and security safeguards.

Legal Basis for Processing

The GDPR requires you to have a legal basis for processing (e.g. consent or a legal obligation). Without a legal basis for processing your AI application is not legitimate, regardless whether you have followed the requirements under the AI Act.

Purpose Limitation

Under the GDPR you collect data for specific purposes. The legitimate use of the personal data is limited to these purposes. If you repurpose personal data (e.g. for training AI models), make sure that you have a legal basis for doing so or that the new purpose is compatible with the original purpose.

Copyright and Intellectual Property

Copyright and other intellectual property limit the ability to use copyrighted material for model training purposes. Furthermore, the use of generative AI may infringe on intellectual property rights if the output of the model is very closely resembles the intellectual property of others.

In your governance ensure that training data is vetted before use and that model output can be reviewed to determine any potential copyright infringements.

Other EU regulations:

DSA, DMA, DORA

Beyond the AI Act and GDPR, several EU regulations create additional obligations for AI systems:

- **Digital Services Act (DSA):** Content moderation algorithms, risk assessments for large platforms
- **Digital Markets Act (DMA):** Interoperability requirements affecting AI services from gatekeepers
- **Digital Operational Resilience Act (DORA):** ICT risk management including AI systems in financial services

Global regulations:

While the EU leads with comprehensive legislation, other regions are developing different approaches:

- **UK:** Sector-specific guidance through existing regulators (FCA, ICO), no new AI-specific laws
- **US:** Executive Order 14110, NIST AI Risk Management Framework, sector-specific rules and a patchwork of state regulations (California, New York)
- **China:** Algorithmic Recommendation Provisions, Deep Synthesis Provisions, draft AI measures
- **Singapore:** Model AI Governance Framework, Directive on Automated Decision-Making

For European organizations operating globally, this creates complexity. The same customer service chatbot may need EU transparency disclosures, California bias audits, and UK financial services algorithmic reviews.

Other standards:

ISO 42001 (AI Management Systems)

This international standard provides a framework for managing AI throughout its lifecycle. While voluntary, ISO 42001 offers practical guidance for implementing AI Act requirements through:

- Systematic risk management processes
- Documentation and record-keeping standards
- Continuous improvement methodologies
- Integration with existing management systems

AI Compliance Strategy

Effective AI regulation compliance requires understanding how these overlapping frameworks apply to your specific AI systems. The key steps include:

- **System Inventory:**
Catalog all AI systems in your organization
- **Risk Classification:** Determine each system's risk level under the AI Act
- **Role Identification:**
Clarify whether you're a provider, deployer, or distributor for each system
- **Gap Analysis:** Compare current practices against regulatory requirements
- **Implementation Planning:**
Develop compliance roadmaps prioritized by risk and regulatory deadlines

The regulatory landscape for AI continues evolving. Staying compliant requires ongoing monitoring of new requirements, guidance documents, and enforcement actions from regulators across the EU.

Sector-Specific Requirements

Many industries have additional AI-related obligations:

- **Healthcare:** Medical Device Regulations (MDR) apply to AI used in diagnosis, treatment, or patient monitoring
- **Finance:** Banking regulations address AI use in credit decisions, fraud detection, and digital resilience (DORA)
- **Transportation:** Automotive safety standards cover the use of AI in vehicles, autonomous driving and traffic management
- **Employment:** Labor laws increasingly address AI use in hiring, performance evaluation, and workplace monitoring

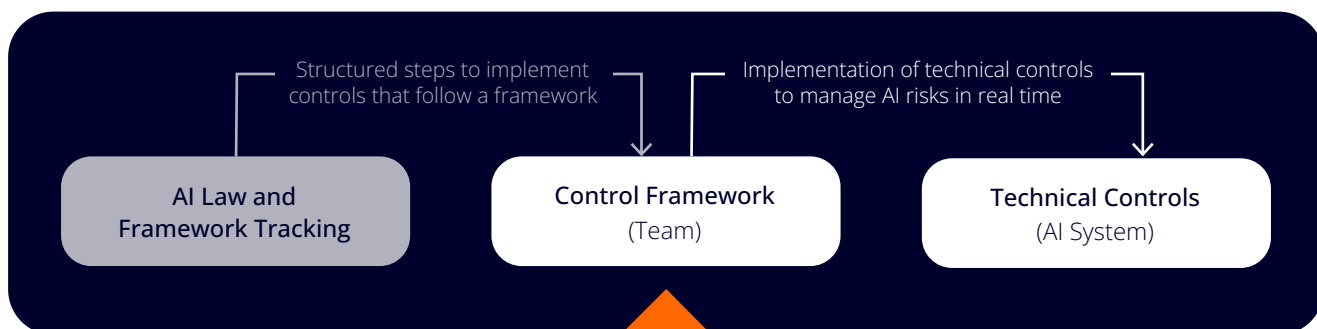
CHAPTER 3

Implementation of AI Governance

Setting up the infrastructure to take control of your AI

THE REGULATIONS EXIST, the risks are identified, and the frameworks are clear. But here's where most organizations get stuck: translating 100+ pages of EU AI Act requirements into something your teams can implement on Monday morning. This chapter bridges that gap. Instead of more theory, you'll get the specific organizational structures, policies, and processes

needed to turn compliance requirements into operational reality. Effective AI governance operates at two levels: organizational systems that provide the foundation, and use case-specific processes that handle individual AI systems. Both levels must work together to create comprehensive coverage.



Organizational Level: Setup Your AI Management System (AIMS)

An Artificial Intelligence Management System (AIMS), as specified in ISO 42001, provides the organizational foundation for AI governance. Most organizations don't need a full AI governance bureaucracy from day one. Start with the essentials and build complexity as your AI use grows.

Minimum Viable Governance

Assign Clear Ownership

Don't create new roles if you don't need them. Instead, assign AI governance responsibilities to existing roles. For smaller organizations, one person might wear multiple hats initially.



First-line

Operational risk management.
Executed by a business owner
and a technical owner.



Second-line

Focus on control and process.
Usually assigned to legal or
privacy teams, like a DPO.



Third-line

Audit or similar, someone
who reviews the second-line.

Essential Policies & Templates (Start with these four)

AI USE POLICY:

What AI can and cannot be used for in your organization

- **Approved AI tools and services** (e.g., "Teams Copilot is approved, ChatGPT for confidential data is not")
- **Prohibited uses** (e.g., "No AI for HR decisions without human review")
- **Data handling rules** (e.g., "No personal customer data in external AI services")
- **Principles and values** (e.g. ethical considerations or guidelines to follow)

RISK ASSESSMENT PROCESS:

Simple framework to evaluate new AI use cases

- Quick questionnaire to classify risk level (high/limited/minimal)
- Decision tree for what approvals are needed
- Template for documenting decisions

MODEL & DATA DOCUMENTATION:

Simple model or data cards, or other templates

- Data being used to train
- Model decisions & design principles
- Tests & experiment tracking
- Inference decisions & controls in production

INCIDENT RESPONSE:

What to do when AI goes wrong

- Who to contact if AI systems malfunction or cause problems
- How to quickly disable or override AI decisions
- Basic documentation requirements for incident

Basic Infrastructure

AI REGISTRY

Keep overview of your AI systems and models:

- What AI systems you're using (internal and external)
- Who's responsible for each one (owner)
- Risk level and compliance status
- Last review date
- Implement regular reviews & approval

DOCUMENTATION TEMPLATES

Create simple templates for:

- New AI use case proposals
- Risk assessments
- User instructions for AI systems
- Technical documentation

DEPLOYMENT & MONITORING

- Deploy models on a technical infrastructure ("MLOps")
- Keep track of model performance
- Set alerts when the model produces unexpected output
- Log all predictions and changes (audit trail)

When to Scale Up

Add more formal governance structure when you have:

- More than 5 AI systems in production
- High-risk AI systems (as defined by the AI Act)
- Multiple departments using AI independently
- Regulatory inquiries or compliance issues
- Significant AI-related incidents



Royal Commission
into the Robodebt Scheme



The Robodebt Scheme Beyond Compliance Theater

You might think effective AI governance requires dedicated teams going through assessment templates for every AI system. But over-engineered compliance often creates paperwork that never influences actual system design.

Australia's notorious Robodebt automated welfare system had extensive formal controls - documents eerily similar to modern AI Impact Assessments. Yet it failed catastrophically because critical warnings never reached decision-makers with power to act. The thick stack of compliance documents masked the absence of genuine oversight.

More process doesn't automatically mean more safety. Overly rigid approaches create "ethics theater" (coined by James Kavanagh). Elaborate documentation that satisfies auditors while having zero influence on engineering decisions.

Formal processes existed, but the right people weren't asking the right questions at the right time. Controls existed on paper but failed where it mattered most. Effective AI governance isn't about creating more assessments. It's about embedding the right controls at the right moments in your AI lifecycle.

The results were painful: class action lawsuit, program shutdown, and an A\$800 million settlement as a result. A prime example that also without the AI Act, inadequate controls can be painful.

Practical First Steps

1

Assign roles
and create your
AI system inventory

2

Draft your **AI use**
policy based on
current practices

3

Setup basic
infrastructure
& tooling

4

Scale up
whenever risks are
increasing

Use Case Level Implementation

While the AIMS provides the organizational framework, individual AI systems require specific assessments to ensure compliance with regulations & internal policies or frameworks.

(Preliminary) Risk Assessment

A foundational evaluation that determines:

- Role of the organization for a given use case
- Risk classification (Chapter 3.1.1)
- Identification of potential harms
- Which additional assessments are required

Required Assessments Based on Risk Level

Based on the risk assessment, organizations may need to conduct:



DATA PROTECTION IMPACT ASSESSMENT (DPIA)

For systems processing personal data, required under GDPR Article 35



FUNDAMENTAL RIGHTS IMPACT ASSESSMENT (FRIA)

For high-risk AI systems, evaluates impacts on fundamental rights



AI IMPACT & PERFORMANCE ASSESSMENT (AIPA)

Evaluates technical performance, required for high-risk and certain limited-risk systems



THIRD-PARTY (VENDOR) ASSESSMENT

For external AI components and services, particularly important for closed-source systems



CONFORMITY ASSESSMENT

Formal verification of compliance with the AI Act, required for all high-risk systems

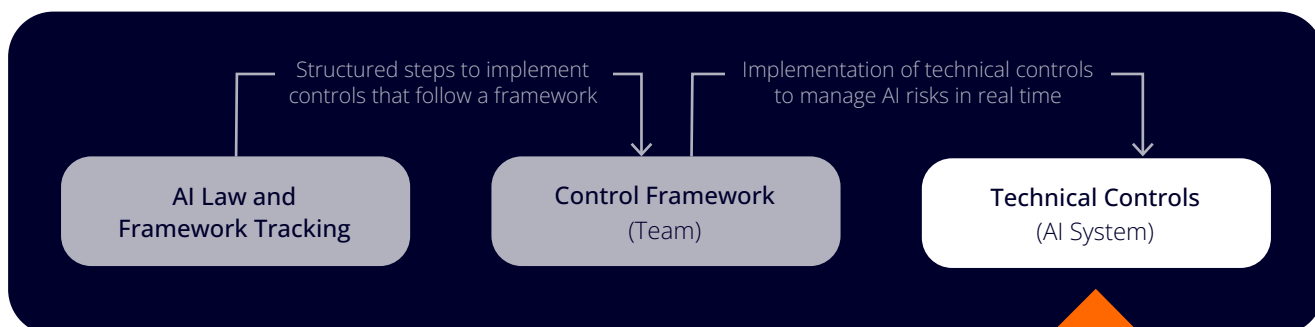
CHAPTER 4

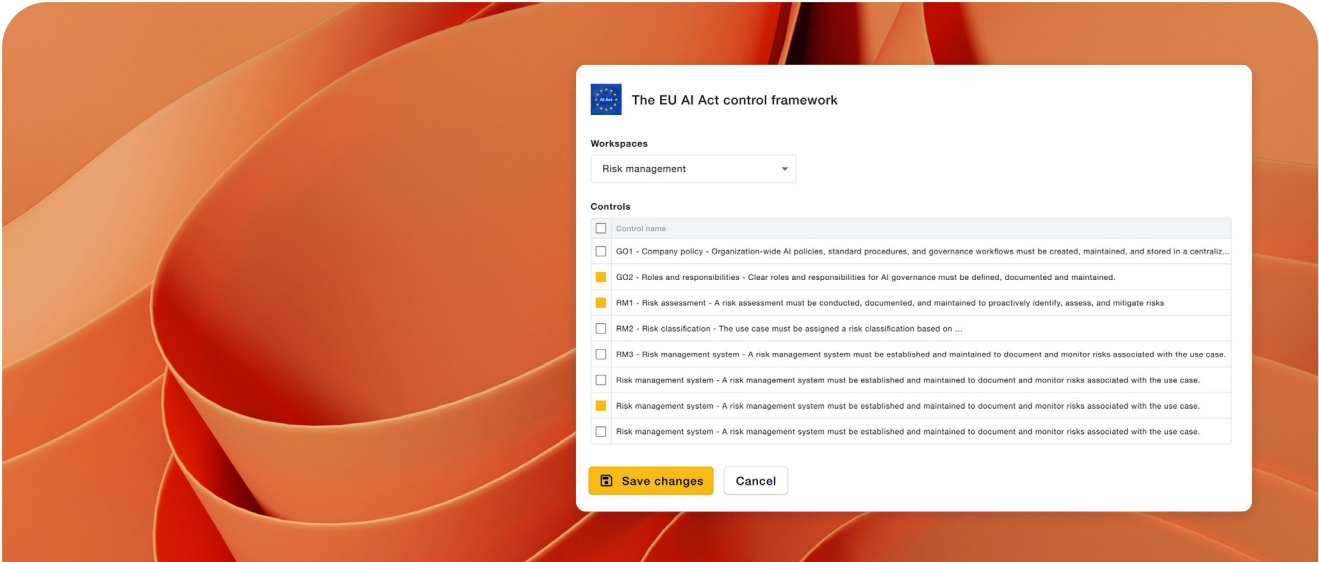
Organizational and Technical Controls

Deploying your AI safely

UNDERSTANDING REGULATIONS and setting up governance structures is only half the battle. The real work happens when you translate those requirements into specific, measurable controls that your teams can implement and maintain. This chapter shows you exactly what controls you need and when to implement them.

The EU AI Act's requirements for high-risk AI systems may seem abstract, but they translate into concrete technical and operational controls. For high-risk AI systems, these are legal requirements with significant penalties for non-compliance.





Governance Operations

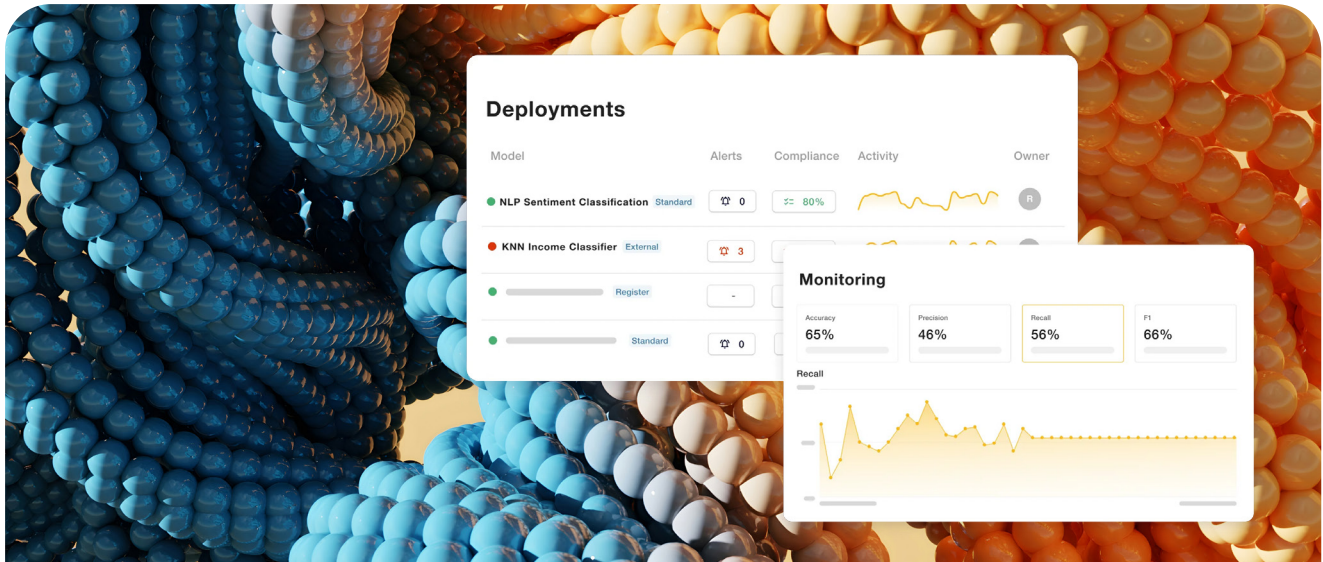
[AI Act | Art. 9 - Risk Management Systems & Art. 4 – AI Literacy]

The foundation of AI governance starts with organizational controls that must be in place before any AI development begins. These controls establish the framework within which all other governance activities operate. Next to the controls, AI Literacy is expected on an organizational level, as stated in Article 4 of the AI act.

Governance Operations	Evidence
GO1 - Organization policies	Organization-wide AI policies, standard procedures & workflows: created, maintained, and stored in a centralized location.
GO2 - Roles & responsibilities	Clear roles, responsibilities and associated competences for AI governance must be defined, documented, and maintained.
GO3 - AI Literacy	Training and upskilling of employees, to understand the dynamics, potential and risk of AI in a so-called AI literacy program / training.

You'll know this is working when:

- Teams check your AI policy before starting projects, and it actually helps them make decisions instead of gathering dust.
- Everyone knows who to ask about AI governance questions, and decisions don't get stuck waiting for unclear approvals.



Risk Management

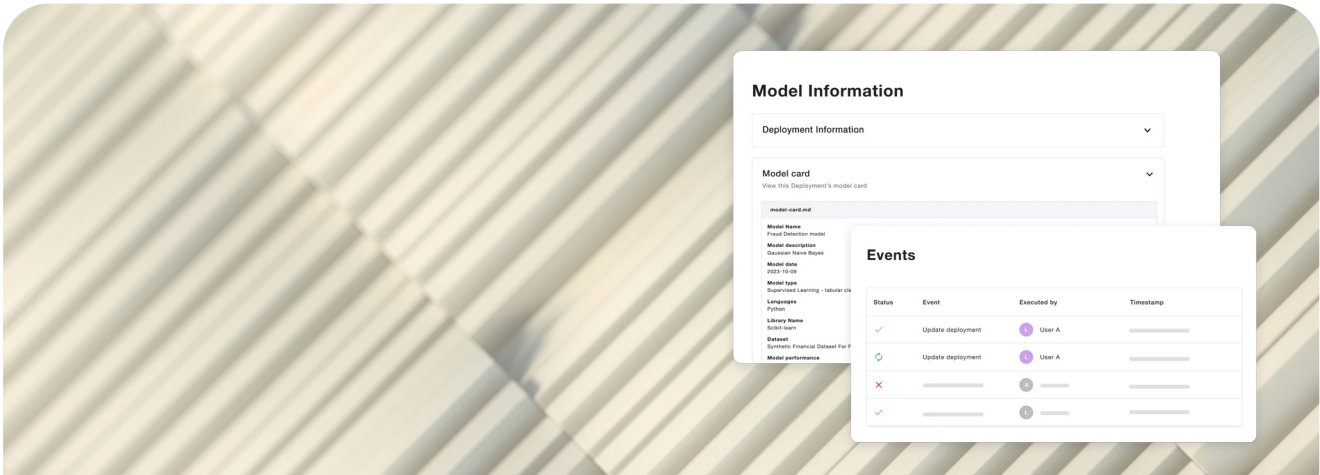
[AI Act | Art. 9 - Risk Management Implementation]

Risk management controls translate the AI Act's risk-based approach into operational processes. These controls must systematically identify, assess, and mitigate risks throughout the AI lifecycle. The controls aren't just compliance boxes to check - they're the operational backbone of your AI governance. Each control addresses a specific way AI systems can fail or cause harm.

Risk Management	Evidence
RM1 - Model registry	A complete and up-to-date overview of AI use cases or systems.
RM2 - Risk Assessment	A risk assessment per use case, documented, and maintained proactively to identify, assess, and mitigate risks, including impacts on fundamental rights, safety, and societal welfare, both technical risks (bias, accuracy) and operational risks (misuse, errors).
RM3 - Risk classification Per use case	A risk classification for each use case, based on its intended use and potential impact. This classification drives all subsequent compliance requirements.
RM4 - Risk management system	A risk management system to periodically evaluate and update risk assessments (RM2), including a process for risk monitoring, review, and mitigation.

You'll know this is working when:

- You can answer "What AI systems do we have?" in 5 minutes instead of sending emails to every department.
- Teams automatically know which approvals they need before starting AI projects, not after they're already built.
- Risk issues surface before they become incidents, and mitigation actions have clear owners and deadlines.



Data Governance

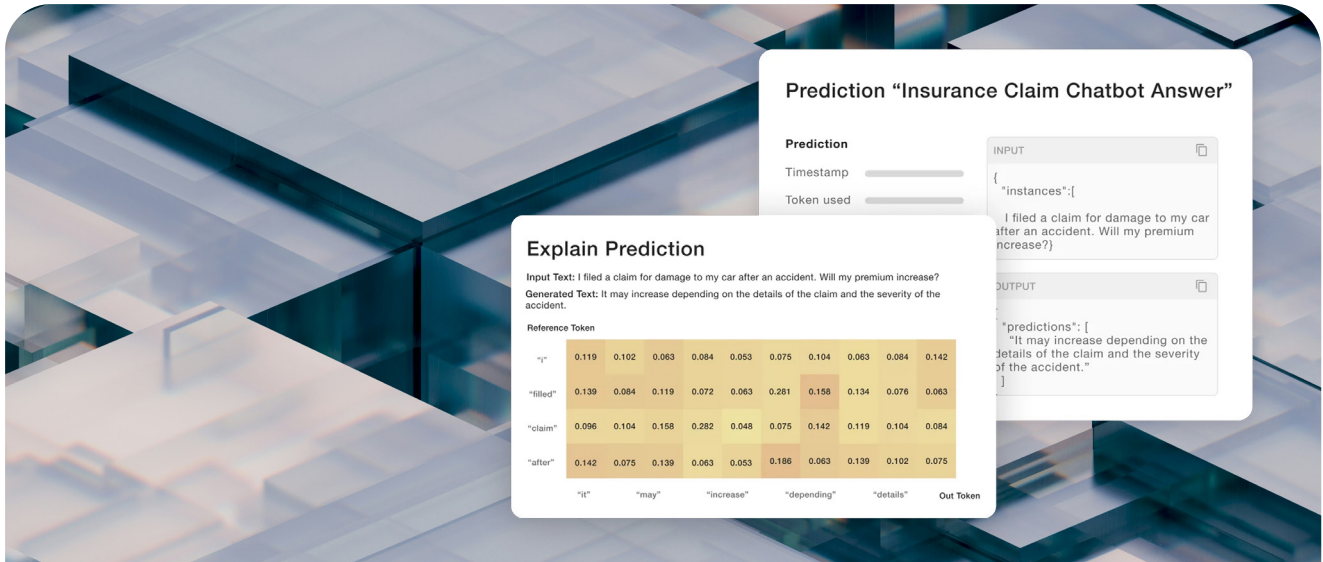
[AI Act | Art. 10 - Data and Data Governance]

Data governance controls ensure training datasets meet quality and representativeness requirements. Poor data governance is one of the most common sources of AI system failures and regulatory violations. Data governance failures are behind most high-profile AI scandals. These controls help you avoid becoming the next cautionary tale.

Data Governance	Evidence
DG1 - Process	<p>A documented process & templates for data governance:</p> <ul style="list-style-type: none"> • Data collection • Source & dataset characteristics • Copyright and ownership of data • (pre) Processing • Quality assessments • Lineage / tracking • Known limitations
DG2 - Documentation	<p>Documentation for each use case based on DG1. This can be done in data cards or filled in templates:</p>
DG3 - Bias Detection	<p>Systematic (unwanted) bias testing across different demographic groups, geographic regions, and use case scenarios. Implement mitigation strategies including data augmentation, algorithmic fairness techniques, and ongoing monitoring.</p>

You'll know this is working when:

- Data quality issues are caught during preparation, not discovered months later when model performance degrades.
- New team members can understand your datasets without asking the original data scientist.
- Bias testing is automatic, not something you remember to do before deployment.



Transparency

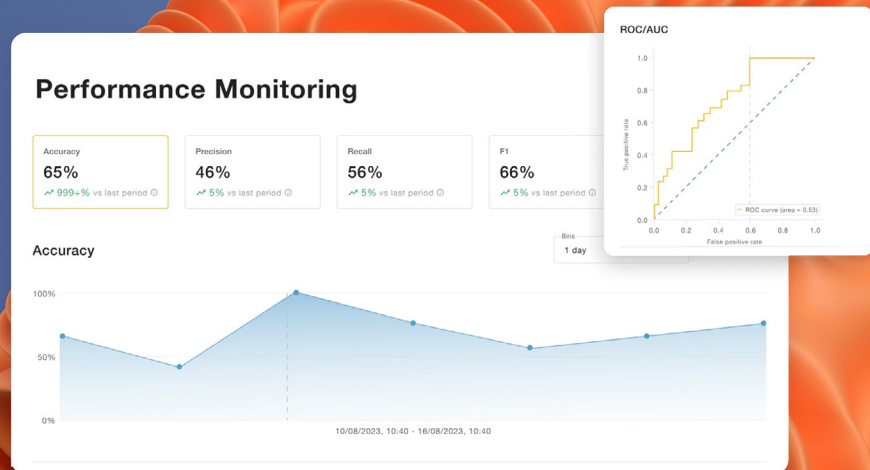
[AI Act | Art. 11 - Technical Documentation & Art. 13 - Transparency]

Transparency controls ensure stakeholders understand AI system capabilities, limitations, and decision-making processes. These controls are essential for building trust and enabling effective human oversight.

Risk Management	Evidence
TP1 - Capabilities and Limitations	Information about the capabilities and limitations of models in the use case, documented to assist relevant stakeholders' decision-making. This can be done in Documentation , Templates , or Model Cards .
TP2 - Explainability	Decisions and outputs of models in the use case must be explainable and interpretable for relevant stakeholders. This might include SHAP values, LIME explanations, natural language descriptions or other ways.
TP3 - Instructions	User instruction documents and training materials are accessible to relevant stakeholders, including setup instructions, operating procedures, troubleshooting guides, and safety warnings. Tailor instruction format and detail level to different user types.
TP4 - Impact Assessment	The potential impacts of the use case on individuals , groups, and society must be assessed, documented, and reviewed.

You'll know this is working when:

- Stakeholders understand AI system limitations without needing technical training.
- Different audiences get explanations they can actually use, and can overrule decisions and give detailed feedback on the outcomes based on the explanation, from technical details for developers to business impact for managers.
- Users know what to do when AI systems behave unexpectedly, without calling IT support.



Human Oversight

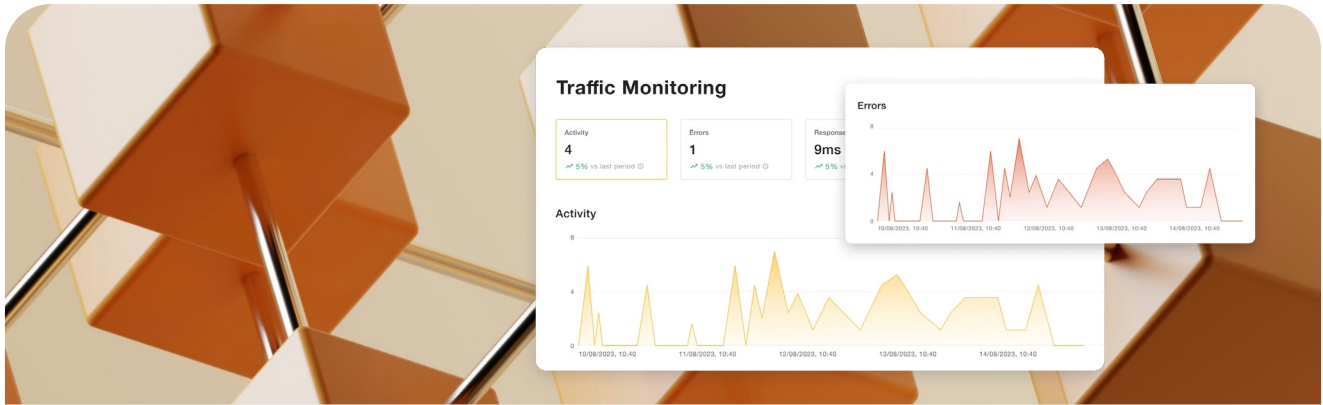
[AI Act | Art. 14 - Human Oversight]

Human oversight controls ensure qualified humans maintain meaningful control over AI systems, particularly for high-risk applications where AI decisions could significantly impact individuals.

Human Oversight	Evidence
HO1 - Operational Oversight	Natural persons must be able to effectively oversee (monitor) the use case while in use to minimize risks to health, safety, or fundamental rights. Appropriate monitoring is available.
HO2 - Intervention	Individuals responsible for human oversight must be able to intervene in the operations or override the outcomes of the models in the use case (feedback loop). Individuals affected by AI decisions must have clear mechanisms to challenge decisions and seek redress. This includes accessible complaint procedures, human review processes, and meaningful remedies when AI systems cause harm.
HO3 - Competence	Individuals responsible for human oversight must be equipped to effectively and reasonably perform their duties by actively giving feedback or overruling decisions.

You'll know this is working when:

- Humans catch AI problems before customers do, and know exactly how to respond.
- Human overrides are documented, learned from, and fed back into system improvements.



Operations

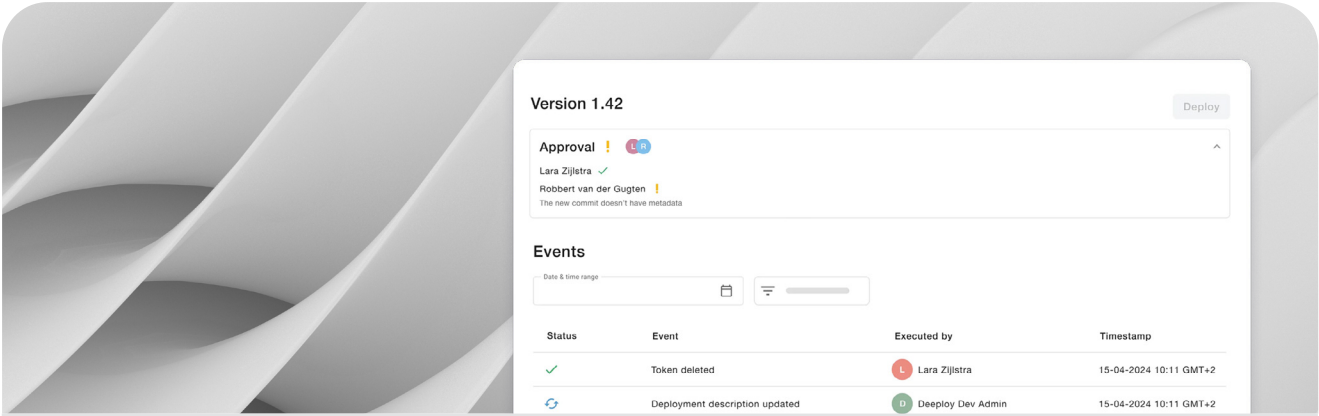
[AI Act | Art. 12 - Record-keeping & Art. 15 - Accuracy, Robustness, Cybersecurity]

Operational controls ensure AI systems maintain performance, security, and auditability throughout their operational lifecycle.

Operations	Evidence
OP1 - Event Logging	<p>Events have to be automatically recorded over the duration of the use case lifecycle:</p> <ul style="list-style-type: none"> • System events • User interactions • Predictions & outcomes <p>Logs are tamper-proof and retained according to regulatory requirements.</p>
OP2 - Accuracy & Performance	<p>Use cases have appropriate metrics defined, with continuous monitoring, and set alert thresholds for performance degradation. Establish retraining procedures when accuracy falls below acceptable levels.</p>
OP3 - Robustness	<p>The use case must be resilient to errors, faults, model/data drift, and inconsistencies arising from within the system or its environment, especially during interactions with people or other systems. The system is stress tested on edge cases.</p>
OP4 - Security	<p>The use case must be protected against unauthorized third-party attempts to exploit vulnerabilities that could alter its use or performance. Address AI-specific security risks like adversarial attacks and data poisoning.</p>

You'll know this is working when:

- You can trace any AI decision back to its inputs, processing, and reasoning.
- Performance problems trigger alerts before they impact business outcomes.
- AI systems fail gracefully (fallbacks) instead of producing garbage outputs that look plausible.
- Security assessments include AI-specific threats, not just traditional IT security.



Lifecycle Management

[AI Act | Art. 11 - Technical Documentation & Annex IV & VII]

Lifecycle controls ensure proper governance throughout AI system evolution, from initial development through updates and eventual retirement.

Lifecycle Management	Evidence
LC1 - Version Control	<p>Version control for all models in the use case must be maintained, including records of changes. Retirement of AI systems should be part of the lifecycle, clearly offboarding systems.</p>
LC2 - Sign-off	<p>All model versions must be reviewed and approved by relevant stakeholders before deployment or updates:</p> <ul style="list-style-type: none">• Technical review• Business approval• Compliance verification
LC3 - Technical Documentation	<p>Essential technical components for the ongoing operation of the use case must be defined, documented, and provided to the relevant stakeholders in an appropriate and accessible format:</p> <ul style="list-style-type: none">• System architecture• API specifications• Deployment procedures• Maintenance requirements

You'll know this is working when:

- You can roll back to any previous model version and understand exactly what changed between versions.
- Model deployments have clear approval trails and nobody can deploy “quick fixes” without oversight.
- New developers can maintain and modify AI systems without hunting down the original creators.

EU AI Act High-Risk Requirements

- ✓ Events are automatically logged and traceable
- ✗ The linked repository is private
- ✓ Feature value boundaries are documented
- ✗
- ✗

Conformity & CE marking

[AI Act | Art. 43 - Conformity Assessment Art. 48 – CE marking & Art. 49 – EU Database]

The last step is to conduct an AI conformity assessment, resulting in CE marking for the AI product.

Control	Evidence
CE1 - Conformity assessment	Conduct a conformity assessment, checking if all controls together are conform the AI Act resulting in an EU AI conformity assessment and CE marking.
CE2 - EU Database	In case you start to market a high-risk AI system, it's crucial to register the system in the database provided by the EU.

You'll know this is working when:

- All high-risk models are available in the EU database, and have a CE marking before go-to-market.



CHAPTER 5

Conclusions and Next Steps

Roadmap for the future

FIVE YEARS AGO, AI was a graveyard of failed experiments. Today, it's a jungle of working systems that nobody fully understands. Tomorrow, it needs to be a managed ecosystem where innovation thrives within clear boundaries. This journey requires intentional action from leaders who understand that AI governance is about making it sustainable, trustworthy, and valuable over the long term.

What We've Learned

Organizations that implement effective AI governance move faster, build better products, and earn deeper trust. Research consistently shows that companies investing in governance grow 2x to 3x faster.

But one size never fits all. It's key to differentiate between different technologies, which require different controls. Predictive AI isn't generative AI, and open-source and closed-source systems can differ significantly. Different risk levels means your governance approach must be tailored to your

specific context. A fraud detection model needs different controls than a customer service chatbot.

The organizations succeeding at AI governance start with minimum viable controls and evolve them based on experience. Perfect compliance frameworks that nobody uses are worse than simple policies that teams actually follow. Every stage of the AI lifecycle offers opportunities to catch problems before they become disasters. Having the governance in place will help accelerating go-to-market, while avoiding costly redesigns or mistakes.

Building Trust



As **Bart Schermer**, founder at **Considerati** and Professor at the University of Leiden, emphasizes, *"The success of any AI application will ultimately depend on the trust users and other stakeholders can place in the application. By creating trustworthy applications, organizations can create a competitive advantage while at the same time*

complying with relevant regulations such as the GDPR and the AI Act.”

This perspective reflects a fundamental shift in how we think about AI governance. Rather than treating it as a “tick the box” compliance exercise, successful organizations approach governance as a process aimed at improving the safety, security, and trustworthiness of AI systems.



Iris van de Kleft from Conclusion AI 360 reinforces this view: *“AI governance is more than policies on paper; it’s a practice. Through literacy, training, and a phased rollout, organisations can make governance part of how people work every day — and that’s where real value is created.”*

Connecting the Dots: A Comprehensive Framework



Aura Orval from Clever Republic captures another essential insight: *“AI Governance is all about **Connecting the Dots**. By aligning metadata, business context, processes, policies, and responsibilities, we ensure that AI delivers its maximum value while staying transparent and accountable.”*

This holistic approach recognizes that mitigating risks, complying with legal requirements, and protecting privacy aren’t separate activities. They’re practices that reinforce each other. AI Governance becomes the watchtower at the center of these dots, ensuring reliable AI is built and monitored throughout its entire lifecycle.

We provided a comprehensive control framework, in which the dots are connected for you, with seven control categories:

- 1. Governance Operations** - Foundation controls establishing organizational policies, roles, and responsibilities before any AI development begins
- 2. Risk Management** - Systematic processes to identify, assess, classify, and manage risks throughout the AI lifecycle, including maintaining a complete AI system registry
- 3. Data Governance** - Controls ensuring training datasets meet quality and representativeness

requirements, including bias detection and documentation processes

- 4. Transparency** - Making AI systems understandable through capabilities documentation, explainability features, user instructions, and impact assessments
- 5. Human Oversight** - Ensuring qualified humans maintain meaningful control, with operational monitoring, intervention capabilities, and proper competence requirements
- 6. Operations** - Maintaining performance, security, and auditability through event logging, accuracy monitoring, robustness testing, and security measures
- 7. Lifecycle Management** - Proper governance throughout system evolution via version control, approval processes, and technical documentation



Seppe Housen from Datashift advocates for a proportional implementation approach: *“Start with your most important use cases, assess and manage risks for these specific applications, then learn from the process and expand systematically rather than trying to govern everything at once.”* This recognizes that different organizational roles require different deliverables from AI risk management, ensuring governance efforts align with actual business priorities and stakeholder needs.

Trust requires more than just good intentions. It demands verification, as stipulated in the AI Act.



Pepijn van der Laan from Nemko represents the growing movement toward third-party validation through **trust marks and certification programs** that help organizations demonstrate their commitment to responsible AI practices. Pepijn: *“Regulation is coming. But more importantly, you can only successfully scale AI if you are in control. And corporate procurement departments are increasingly grilling AI suppliers on governance and controls. It is clearly time to get serious about AI Trust.”*

Real-World Proof

The framework outlined in this document isn’t theoretical. **Henning von Hauen from Carve Consulting** has been implementing these principles with orga-

nizations like **Novo Nordisk** in Denmark, demonstrating how the Deeploy approach translates across different industries and regulatory environments. *“Taking governance into technical controls with Deeploy, and integrating AI models with real-time risk management, compliance, and explainability is groundbreaking and stimulates AI innovation while building trust.”* Leading Danish and international organizations are already implementing this approach as a strategic initiative, demonstrating that the platform offers a powerful means to achieve accountability and transparency at the core of AI models while minimizing legal and reputational risks.

These partnerships prove that AI governance frameworks can work across different cultures, languages, and business contexts while maintaining their core effectiveness. Organizations that master AI governance deploy AI faster because they have clear approval processes. They innovate more boldly because they understand their risk boundaries. They earn deeper customer trust because they can explain and justify their AI decisions. Most importantly, they sleep better at night knowing their AI systems are working as intended, within acceptable risk limits, and in ways that create genuine value for all stakeholders.

The companies that will lead the next decade of AI innovation won't be those with the most advanced algorithms or the largest datasets. They'll be those that can deploy AI responsibly, scale it sustainably, and govern it effectively while maintaining the trust of users, regulators, and society.

This framework provides the roadmap to become one of those companies.



Ready to transform your AI jungle into a managed ecosystem?

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