



# AI use case management

Driving value and success in  
the age of agentic intelligence  
and multi-AI systems



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## Introduction

Before delving into the complexities of artificial intelligence (AI) initiatives, it is vital to define a well-structured AI use case – one that clearly articulates the specific business need or opportunity that an AI solution aims to address, whether it involves a predictive model, generative model or an AI agent.

A thoughtfully developed use case serves as the foundation for AI lifecycle management by:

- **Aligning stakeholders**  
Establishing well-defined ownership structures and governance mechanisms
- **Providing a structured framework for AI model and AI agent development**  
Guiding feasibility assessments and regulatory compliance considerations
- **Reducing exposure to potential risks**  
By embedding responsible AI principles at the initial planning stages
- **Enhancing value realization by defining success metrics**  
Investment considerations and return on AI initiatives

By strengthening the connection between product development and risk assessment, AI product owners can make more informed decisions, promoting alignment with business goals and regulatory expectations.

This paper introduces a three-pillar framework that aligns AI initiatives with business strategy, maximizes value realization, and embeds governance and risk mitigation at every stage.

### 1.

#### **Strategic alignment:**

integrating AI into enterprise objectives, establishing governance structures and defining operational feasibility

### 2.

#### **Value alignment:**

establishing the business impact, financial feasibility and prioritization of AI initiatives

### 3.

#### **Risk management:**

embedding governance policies and mitigating risks associated with AI development, deployment and execution



# 1

# Strategic alignment

AI initiatives, whether traditional AI models or autonomous AI agents, must be aligned with broader organizational priorities. Strategic alignment involves defining clear governance structures, articulating problem statements and assessing operational feasibility to drive consistent and impactful AI adoption.

## OWNERSHIP

### Objective:

Clearly define ownership to drive accountability and long-term AI success.

Governance structures play a critical role in managing AI lifecycle development. AI models require oversight throughout the training, deployment and monitoring phases, while AI agents introduce additional challenges due to their autonomous execution capabilities across business systems.

### Key components:

- **AI program sponsor:** Defines the overarching objectives for AI models and AI agents. Responsible for aligning AI implementations with enterprise-wide digital transformation initiatives and long-term business strategy.
- **Use case owner:** Determines the purpose, data sources and implementation goals for AI models. For AI agents, the owner defines operational execution boundaries, permissions and intervention mechanisms to manage potential risks associated with autonomy.
- **AI governance team:** Develops policies, compliance frameworks and best practices to promote fairness, explainability and accountability in AI decision-making. Evaluates ethical concerns related to AI models and AI agents that interact directly with enterprise workflows.
- **Human-in-the-loop (HITL) supervisor:** Provides oversight for AI-driven recommendations in predictive models and actively monitors AI agent decision-making processes. The HITL supervisor intervenes in instances where AI agent autonomy exceeds acceptable risk thresholds.

### Evaluation focus:

- Establishes accountability by defining clear roles and maintaining stakeholder engagement throughout the AI initiative
- Aligns AI initiatives with organizational policies and regulatory requirements to minimize compliance risks
- Promotes cross-department collaboration, optimizing implementation efforts and driving AI solution adoption
- Strengthens oversight mechanisms to balance AI agent autonomy with human intervention policies

## PROBLEM DEFINITION

### Objective:

Frame AI initiatives with a structured problem statement to enhance feasibility and alignment with business needs.

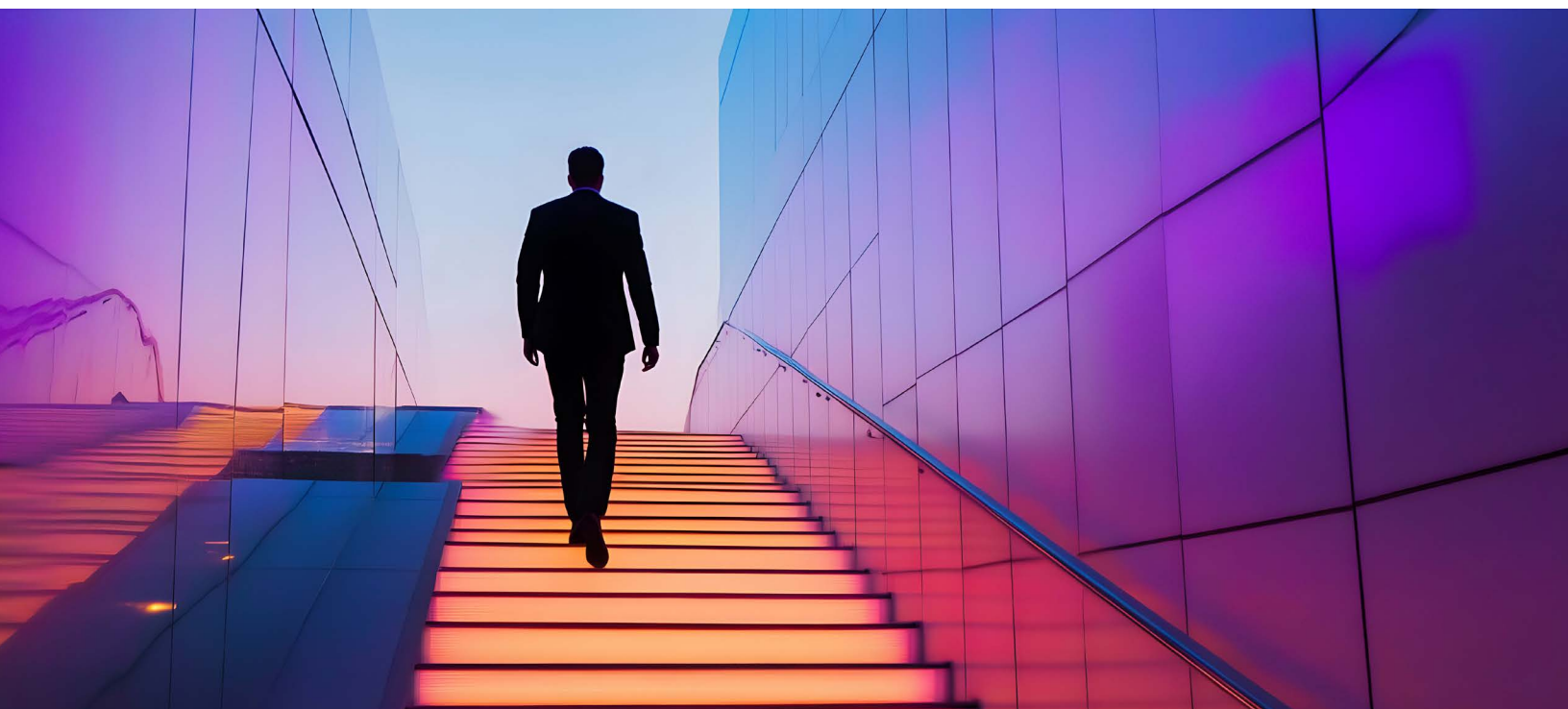
The success of AI solutions depends on a structured and well-defined problem statement. Problem definition guarantees that AI models and AI agents operate within clear business parameters while driving measurable outcomes.

### Key components:

- **Scenario definition:** Describes the business problem in detail, outlining pain points, inefficiencies or challenges that the AI solution aims to address.
- **Business goals and success metrics:** Establishes the expected outcomes for AI implementation, defining quantifiable success metrics such as cost reductions, efficiency improvements, customer satisfaction scores or revenue enhancements.
- **Scope and boundaries:** Identifies the specific tasks that AI models and AI agents will perform, delineating responsibilities between AI-driven automation and human intervention. AI agents require additional governance in defining the extent of their autonomy in decision-making processes.
- **Implementation timelines:** Provides realistic project milestones, aligning resources and expertise for effective execution.

### Evaluation focus:

- Reduces ambiguity by clearly defining the scope and objectives, enabling teams to focus on realistic and achievable outcomes
- Aligns AI objectives with business priorities and the organization's operational capacity, facilitating a structured approach
- Assesses feasibility to prevent misaligned investments and avoid potential resource wastage





## OPERATIONAL IMPACT

### Objective:

Frame AI initiatives with a structured problem statement to enhance feasibility and alignment with business needs.

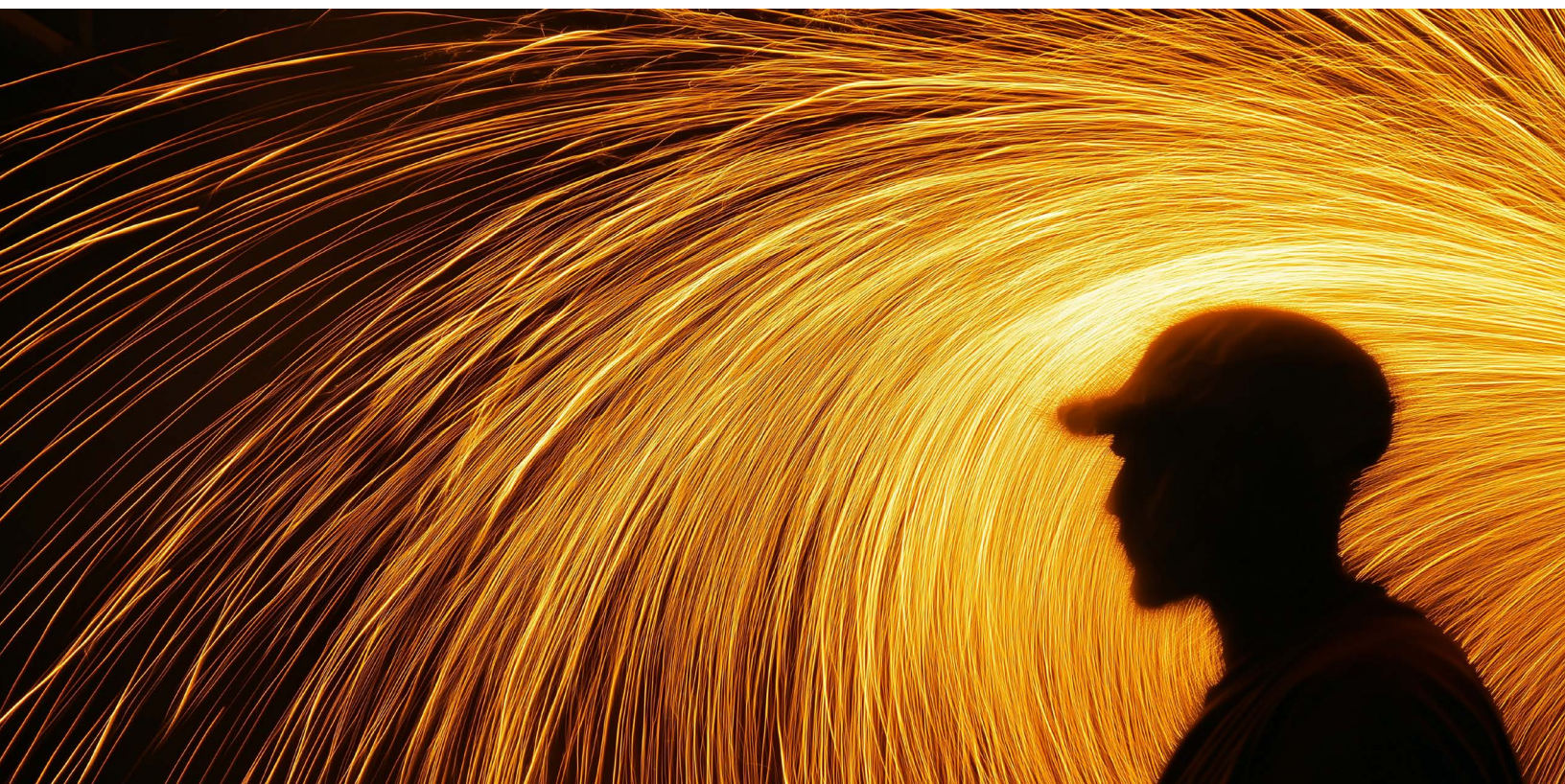
The success of AI solutions depends on a structured and well-defined problem statement. Problem definition guarantees that AI models and AI agents operate within clear business parameters while driving measurable outcomes.

### Key components:

- **Business function impact analysis:** identifies the specific business units, processes and stakeholders that AI models and AI agents will interact with
- **Human-AI collaboration frameworks:** defines collaboration mechanisms between AI-driven decision-making and human oversight
- **Infrastructure and resource allocation:** outlines technical and resource requirements for AI deployment, including cloud computing, storage capabilities and IT infrastructure investments

### Evaluation focus:

- Assessing the impact of AI-driven automation on existing workflows and workforce adaptation strategies
- Enhancing adoption by embedding AI solutions seamlessly into existing business workflows to minimize disruptions
- Establishing clear training and change management strategies to facilitate a smooth transition for affected teams
- Identifying infrastructure and resource needs to support long-term sustainability and efficiency of AI solutions



# 2 Value alignment

Value alignment focuses on assessing financial feasibility, defining cost-benefit analyses and prioritizing AI initiatives based on business impact. Organizations implementing AI must evaluate return on investment while considering automation efficiency and compliance cost savings.

## COST-BENEFIT ANALYSIS

### Objective:

Evaluate the financial viability to determine expected benefits, cost structures and potential operational savings. AI agents introduce additional challenges due to their autonomous execution capabilities across business systems.

### Key components:

- **Investment requirements:** evaluates total cost of ownership, including development, deployment and maintenance
- **Operational efficiency gains:** measures productivity enhancements and reduction in manual effort due to AI-driven automation
- **Financial impact and revenue growth:** examines AI's role in cost savings, revenue generation and strategic value addition

### Evaluation focus:

- Identifies high-impact AI projects that provide significant financial and strategic value
- Aligns investment with organizational priorities, avoiding resource misallocation
- Establishes measurable success criteria to validate expected value realization from AI initiatives



## PORTFOLIO MANAGEMENT

**Objective:**

Rank AI initiatives to allocate resources based on business impact, technical feasibility and alignment with strategic goals to optimize investment decisions.

**Key components:**

- **Business value impact metrics:** develop standardized evaluation criteria for prioritizing AI initiatives based on cost and value analysis
- **Budget allocation strategies:** direct investments and resources toward AI projects with the highest business value

**Evaluation focus:**

- Ranking AI use cases based on business impact and feasibility
- Verifying optimal resource allocation to high-priority AI initiatives
- Confirming AI initiatives are financially sustainable and strategically relevant
- Providing a structured framework for continuous tracking and value measurement



# 3

## AI risk management

Effective AI risk management keeps AI initiatives aligned with ethical, regulatory and operational standards while mitigating unintended consequences. As AI systems evolve into agentic AI, with greater autonomy and self-directed decision-making, traditional risk management models must expand to account for adaptive, self-learning and autonomous execution risks.

**Risk assessment should be conducted across three structured layers:**

- Risk evaluation based on use case inputs: assessing business, ethical and governance risks before AI adoption, including considerations for agentic AI behavior
- Risk evaluation based on AI use case screening and agentic AI profiling: evaluating technical, algorithmic and systemic risks using the AI Bill of Materials (AI BoM), which now includes agentic AI control factors
- Continuous risk monitoring for agentic AI: tracking AI's autonomy, decision evolution and learning processes to prevent deviations from business intent, ethical guidelines and regulatory requirements



## RISK EVALUATION BASED ON USE CASE INPUTS

This stage focuses on identifying risks before AI development and deployment, covering business intent, ethical alignment and governance preparedness.

### Key risk areas:

- **Strategic risks:** validating AI's alignment with long-term business objectives and confirming it does not expand beyond intended use cases
- **Sponsorship and ownership risks:** defining clear accountability for AI decision-making, especially in agentic AI deployments
- **Operational risks:** identifying challenges in controlling AI behavior as it adapts and interacts with other enterprise systems
- **Regulatory and compliance risks:** establishing guardrails to prevent regulatory violations due to emergent AI decisions
- **Intent alignment and governance risks:** setting boundaries that prevent mission creep, where AI gradually modifies its objectives beyond its original intent

### Evaluation focus:

- Maintains fairness, prevents self-learning bias, strengthens AI transparency and security
- Validates AI alignment with business goals, defines accountability, prevents regulatory issues



## RISK EVALUATION BASED ON AI USE CASE SCREENING AND AGENTIC AI PROFILING

**At this stage, an AI BoM is generated, detailing:**

- **AI solution:** the AI-driven business application and its function
- **AI model:** the machine learning/deep learning models used for decision-making
- **AI algorithm:** the core logic dictating AI operations and decision pathways
- **Business application:** the environment where AI is deployed and its interactions with human users
- **Agentic AI control factors:** the level of autonomy, self-learning and adaptive decision-making permitted for the AI.

### Key risk areas:

- **Data risks:** managing the evolution of AI-driven data patterns to prevent unintended bias drift
- **Model feasibility risks:** evaluating AI performance under new and unforeseen conditions to confirm it remains functional and reliable
- **Algorithmic risks:** identifying the possibility of self-modifying logic or unintended shifts in decision-making due to learning algorithms
- **Human-centric and equity risks:** confirming fairness, particularly in cases where agentic AI interacts independently with diverse user groups
- **Autonomous learning and evolution risks:** monitoring AI to detect unexpected behavior shifts that may lead to ethical violations or security threats
- **Decision boundaries and compliance risks:** establishing mechanisms to keep AI's autonomous decisions auditable and, when necessary, reversible
- **Systemic and interoperability risks:** examining how AI dynamically interacts with external systems to prevent cascading failures
- **Agentic AI autonomy profiling:** defining governance levels for AI autonomy, setting limits for self-directed actions and determining escalation points

### Evaluation focus:

- Evaluates technical, data, and systemic risks; maintains decision explainability
- Managing sensitive data and regulatory compliance
- Preventing AI-driven disparities
- Structuring control mechanisms for AI decision-making





## CONTINUOUS RISK MONITORING FOR AGENTIC AI

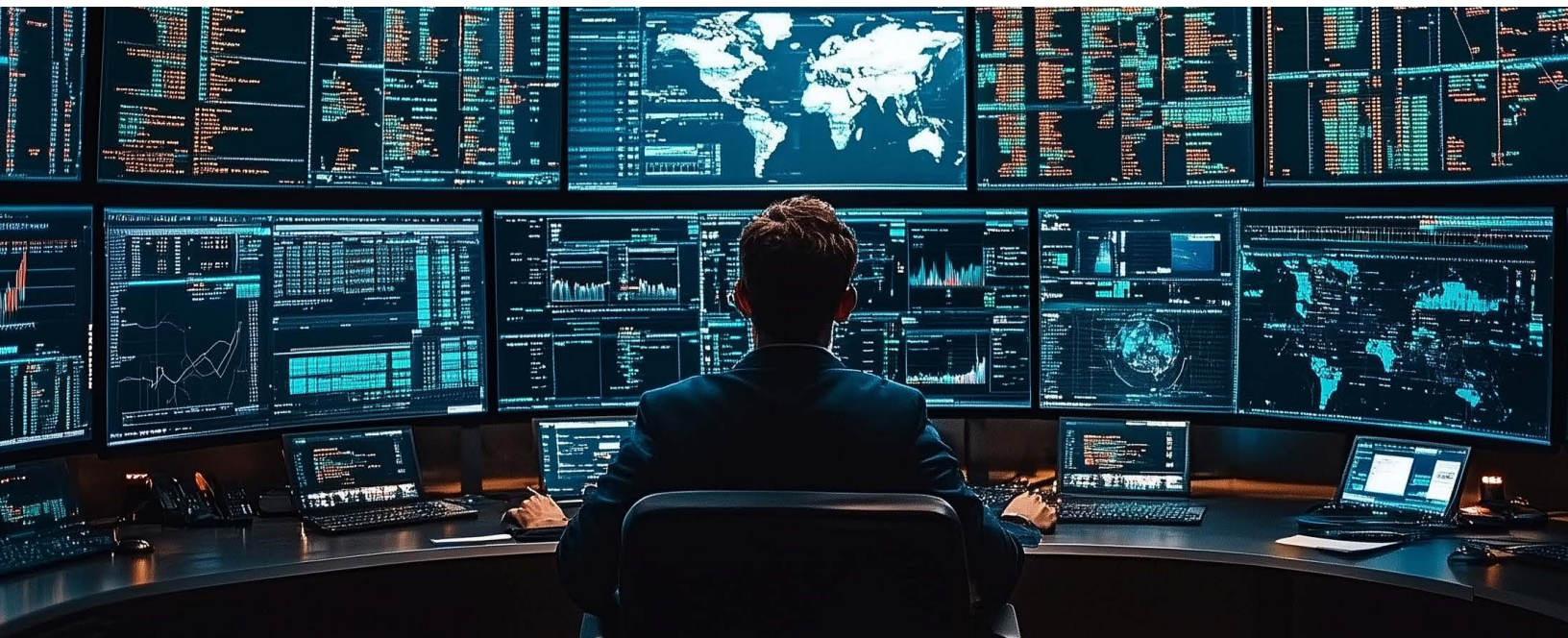
While AI undergoes risk assessment before approval for design and build, post-deployment monitoring is equally critical to track ongoing AI behavior and decision-making patterns. Agentic AI introduces risks that may evolve over time, requiring dedicated governance mechanisms.

### Key agentic AI risk areas:

- **Autonomy risks:** keeping AI operations within predefined constraints to prevent excessive or unpredictable autonomous behavior
- **Self-learning and adaptability risks:** establishing safeguards to manage AI's ability to modify its learning process without introducing unintended risks
- **Human oversight and control risks:** defining structured intervention points where humans can override AI decisions when necessary
- **Decision boundary and explainability risks:** maintaining AI-generated decisions that remain interpretable, even as the system adapts over time
- **Mission creep and objective drift risks:** preventing AI from shifting its objectives beyond its intended purpose
- **Adversarial manipulation risks:** protecting agentic AI from threats such as adversarial attacks that exploit its self-learning capabilities
- **Fail-safe and override risks:** embedding fail-safes and escalation protocols to halt AI processes when behavior deviates from acceptable thresholds

### Evaluation focus:

- Tracks AI evolution, prevents mission creep, maintains ethical and regulatory compliance
- Identifying AI's impact on interconnected systems
- Protecting AI from adversarial attacks
- Preventing AI from redefining its purpose
- AI should not self-modify beyond its intended goals

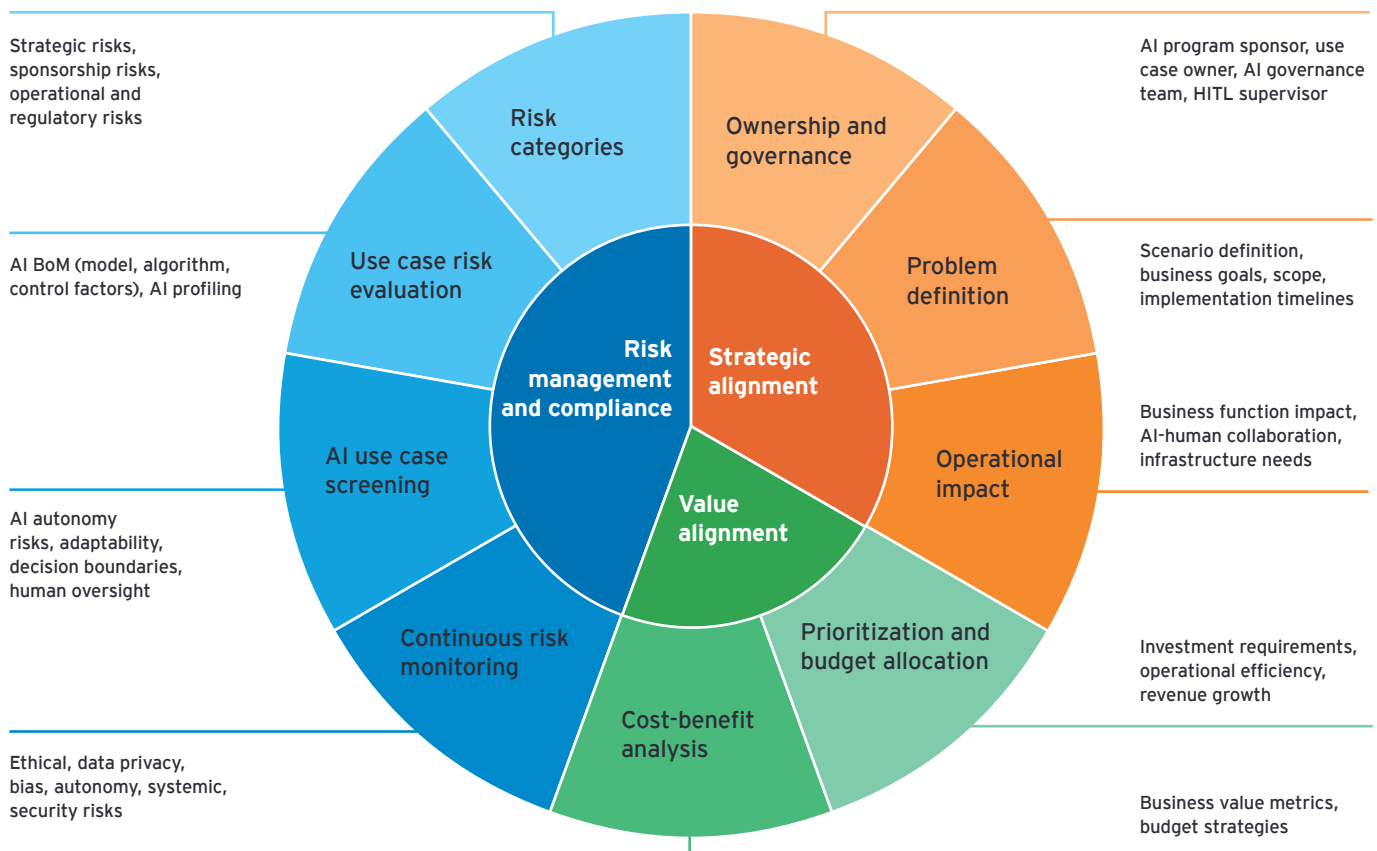


## 4

# Building the AI use case framework

Integrating use case components and evaluation focus into cohesive categories enables organizations to construct a structured AI framework. This framework provides clarity in AI project planning and execution.

## AI USE CASE FRAMEWORK





# Conclusion

The rapid evolution of AI technologies – from predictive models to generative AI and autonomous agents – demands a structured, risk-aware and value-driven approach to AI use case management. Organizations must recognize that AI is not just a technical innovation but a strategic enabler, requiring careful planning, governance and alignment with business objectives.

By implementing a three-pillar framework – strategic alignment value alignment and risk management and compliance – enterprises can verify that AI initiatives are not only innovative but also sustainable, compliant and impactful.

- Strategic alignment confirms AI solutions are purpose-driven, governed effectively and seamlessly integrated into business workflows. Defining clear ownership, problem statements and operational impact creates a foundation for AI success.
- Value alignment reinforces the need for financial feasibility and prioritization, so that AI investments yield measurable ROI while addressing key business challenges.
- Risk management and compliance embeds AI governance at every stage, proactively mitigating ethical, regulatory, and operational risks – particularly as AI systems become increasingly autonomous and self-learning.

As AI continues to shape the future of business and society, enterprises must strike a balance between innovation and control. A well-defined AI use case framework provides clarity, accountability and a structured methodology to unlock AI's full potential while minimizing unintended consequences.

Success in AI use case management is not achieved through technology alone but through intentional governance, cross-functional collaboration and continuous monitoring. Organizations that embrace this disciplined approach will not only mitigate risks but also maximize AI's transformative power – driving business value, operational excellence and responsible AI adoption across the enterprise.

## Contacts



**Anthony Jose Chundayil**

Manager  
Consulting, Technology Consulting  
Ernst & Young LLP  
anthony.chundayil@ey.com



**Nithin Kotla**

Executive Director  
Consulting, Technology Consulting  
Ernst & Young LLP  
nithin.kotla@ey.com

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