



LEADING THROUGH AI RISK

A Practical Guide for Executive Leaders

About This Guide

Artificial intelligence is rapidly changing engineering practice. While much of the discussion surrounding AI focuses on technology, the ACEC Research Institute's *Leading Through AI Risk: The Enterprise Framework for Engineering Firm Leaders* found that the risks associated with AI extend across virtually every aspect of an engineering organization, including technical quality, professional responsibility, data governance, workforce development, ethics, cybersecurity, financial performance, and organizational leadership.

The research combined an extensive literature review with in-depth interviews involving 21 leaders representing engineering firms, public infrastructure owners, technology providers, AI consultants, insurance and legal professionals, and the engineering licensing community. One of the study's central findings was that managing AI risk is fundamentally an organizational challenge rather than simply a technology challenge.

The Eight Domains of AI Risk

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| 1 Technical Reliability and Model Risk | 2 Professional Liability and Standard of Care Risk |
| 3 Data Governance, Privacy and Intellectual Property Risk | 4 Organizational and Workforce Risk |
| 5 Ethical, Regulatory and Reputational Risk | 6 Operational and Cybersecurity Risk |
| 7 Financial and Business Model Risk | 8 Strategic Leadership and Enterprise Governance Risk |

Although each domain represents a distinct category of risk, AI risks do not remain within individual departments. Workforce training affects technical reliability, data governance influences cybersecurity and intellectual property protection, and weak organizational oversight can create legal liability. Effective AI risk management therefore requires coordinated governance across the enterprise.

What This Means for Executive Leaders

Executive leaders have a central role in responsible AI adoption because decisions about governance, organizational strategy, investment, accountability, culture, and risk ultimately require enterprise-level direction.

Executive leadership does not manage every AI risk directly. Its role is to establish the vision, governance, accountability, investment priorities, and organizational expectations that allow engineering, technology, project delivery, human resources, and risk management leaders to manage AI responsibly.

How to use this guide: Each question below is a direct translation of an Executive Leaders action identified in the published report.

1. Technical Reliability and Model Risk

AI-generated outputs can be inaccurate or unreliable. Executive leaders help reduce this risk by establishing clear policies, ensuring executive oversight, and investing in trusted organizational knowledge and data.

Questions Executive Leaders Should Ask

- Have we established clear organizational policies defining appropriate AI use?
- Does AI governance receive executive oversight rather than remaining solely an IT responsibility?
- Are we investing in enterprise knowledge management and trusted organizational data?

2. Professional Liability and Standard of Care Risk

AI does not change the firm's professional responsibilities. Executive leaders must ensure that AI governance is integrated into existing enterprise risk management and quality programs and evolves with technology, regulation, and industry practice.

Questions Executive Leaders Should Ask

- Are we clearly communicating that AI does not change the firm's professional responsibilities?
- Have we integrated AI governance into existing enterprise risk management and quality programs?
- Are we periodically reviewing AI policies as technology, regulations, and industry practices evolve?

3. Data Governance, Privacy and Intellectual Property Risk

AI depends on trusted organizational information. Executive leaders determine whether knowledge management and data governance are treated as long-term enterprise capabilities rather than isolated technology initiatives.

Questions Executive Leaders Should Ask

- Are we investing in long-term knowledge management rather than isolated AI tools?
- Do we recognize organizational knowledge as a strategic business asset?
- Have we developed enterprise data governance policies aligned with AI strategy?
- Have we assigned organizational accountability for data governance?

4. Organizational and Workforce Risk

AI is changing engineering work and the workforce. Executive leaders shape how the firm communicates the role of AI, sets expectations for responsible use, and balances technology investment with workforce development.

Questions Executive Leaders Should Ask

- Are we clearly communicating how AI supports the firm's long-term strategy?
- Are we positioning AI as an investment in employees rather than a replacement for employees?
- Have we established organizational expectations regarding responsible AI use?
- Are we investing in workforce development alongside technology investments?

5. Ethical, Regulatory and Reputational Risk

AI adoption can affect client confidence, public trust, and organizational reputation. Executive leaders establish the principles and expectations that align AI use with the firm's values and professional responsibilities.

Questions Executive Leaders Should Ask

- Have we established organizational principles for the responsible use of AI?
- Are we communicating that AI adoption must align with the firm's values and professional responsibilities?
- Are we periodically reviewing AI governance as regulations and client expectations evolve?
- Are we reinforcing that protecting public trust is a strategic priority?

6. Operational and Cybersecurity Risk

AI is increasingly embedded in business operations. Executive leaders help ensure that AI governance is incorporated into operational risk management, accountability is clear, and innovation proceeds with appropriate discipline.

Questions Executive Leaders Should Ask

- Have we integrated AI governance into existing operational risk management processes?
- Have we established organizational accountability for AI operations?
- Are we requiring periodic reviews of AI implementation across the enterprise?
- Are we encouraging responsible innovation while maintaining operational discipline?

7. Financial and Business Model Risk

AI creates questions about investment, competition, productivity, and long-term business models. Executive leaders determine whether AI is treated as a strategic investment and how success is measured.

Questions Executive Leaders Should Ask

- Are we viewing AI as a strategic investment rather than simply a productivity initiative?
- Have we developed long-term business strategies that anticipate AI-enabled competition?
- Are we measuring AI success using both operational and strategic outcomes?
- Are we encouraging innovation while maintaining disciplined investment decisions?

8. Strategic Leadership and Enterprise Governance Risk

AI governance is ultimately an enterprise leadership responsibility. Executive leaders establish the firm-wide vision, cross-functional governance, accountability, and maturity monitoring needed for responsible adoption.

Questions Executive Leaders Should Ask

- Have we developed a firm-wide AI vision aligned with organizational strategy?
- Have we established cross-functional governance involving engineering, technology, operations, legal, risk management, and human resources?
- Have we assigned executive accountability for AI governance?
- Are we monitoring organizational AI maturity as part of enterprise planning?
- Are we encouraging responsible experimentation while maintaining clear expectations?

The Role of Executive Leadership in Managing AI Risk

Taken together, these questions illustrate that executive leadership's role in AI risk management extends well beyond approving technology investments. Leaders establish the policies, governance structures, strategic priorities, accountability, culture, and investment discipline that shape how AI is used across the firm.

The full study concludes that AI risk cannot be effectively managed through isolated policies or individual technology investments. Effective mitigation requires coordinated action across the organization, with executive leadership providing the integrating vision and accountability.

For executive leaders, the objective is not to manage every technical detail of AI. It is to ensure that AI adoption remains aligned with the firm's professional responsibilities, organizational strategy, risk tolerance, workforce needs, and long-term business objectives.

For the complete AI Risk Framework, research findings, and recommendations for engineering firms, read

[Leading Through AI Risk: The Enterprise Framework for Engineering Firm Leaders.](#)