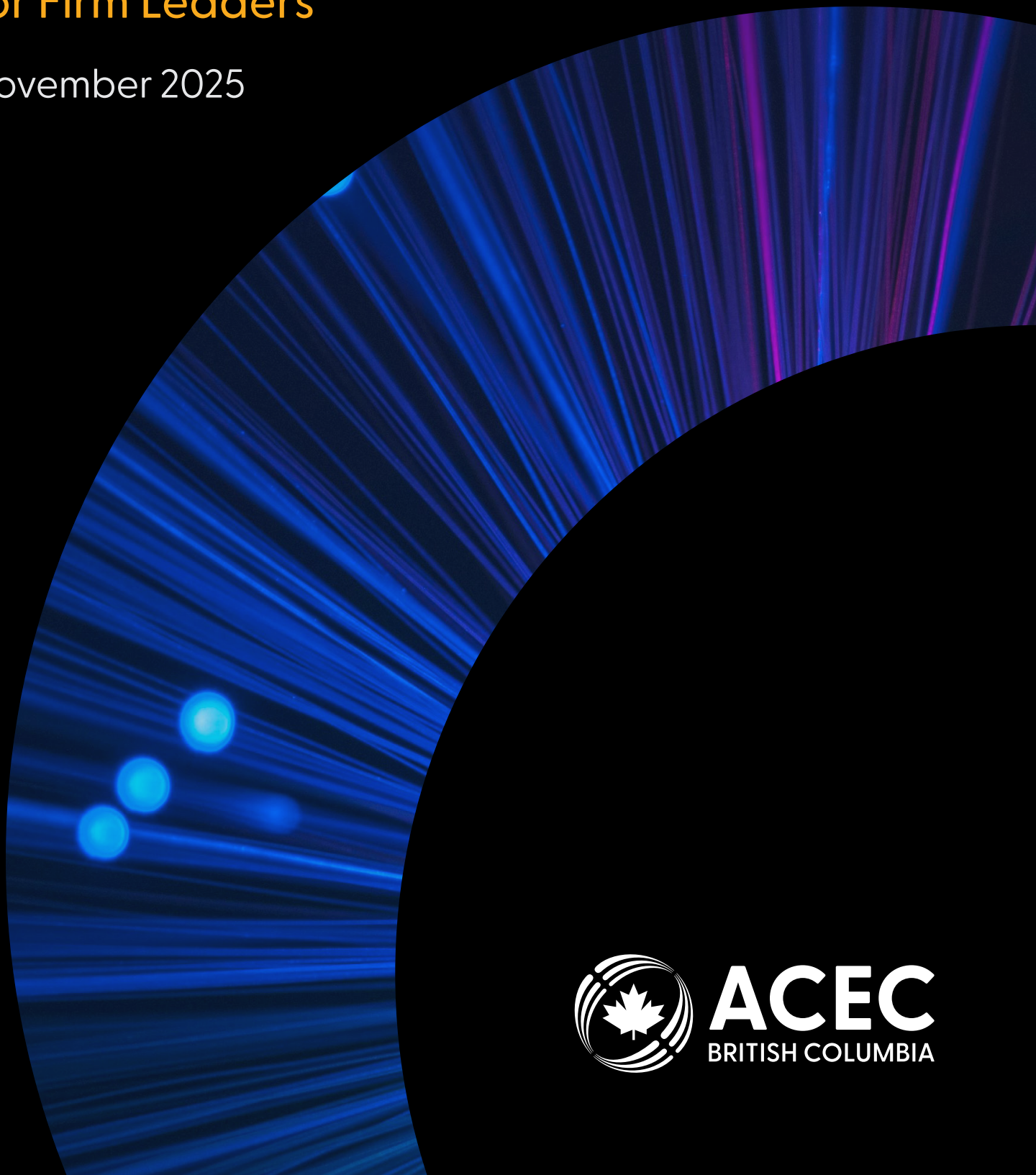
Get Started Guide:

Exploring AI in Consulting Engineering - A Member Guide for Firm Leaders

November 2025



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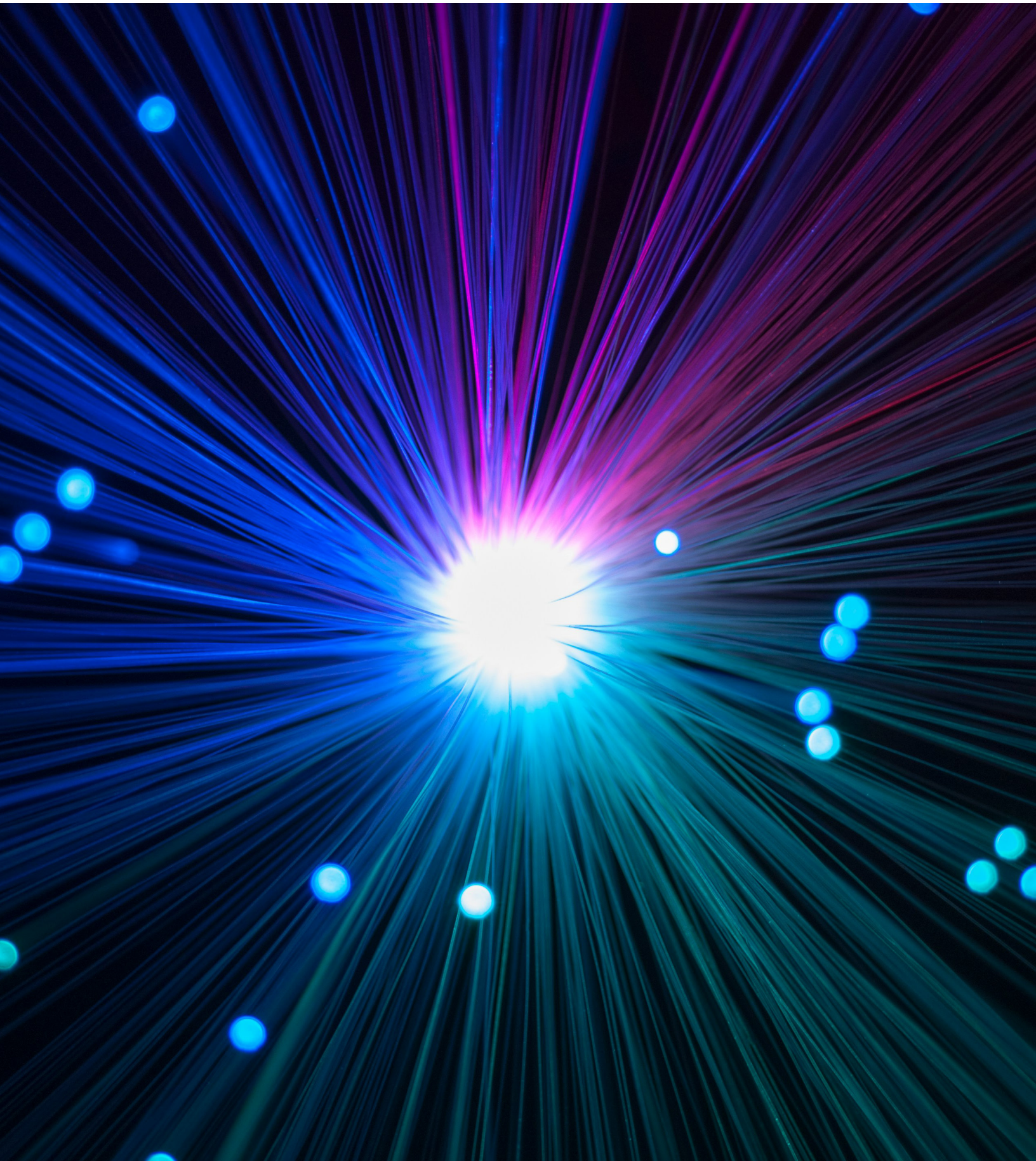
This guideline has been developed with the assistance of generative AI tools, including ChatGPT and Copilot, to support content creation. All materials have undergone thorough review and refinement by members of the ACEC-BC AI in Engineering Working Group to ensure accuracy, relevance, and alignment with industry standards prior to publication.



Introduction

The ACEC-BC AI Working Group is pleased to share Get Started Guide: Exploring AI in Consulting Engineering - A Member Guide for Firm Leaders. This document is intended for executives, managers, and decision-makers who are beginning to consider how artificial intelligence (AI) may influence their operations, services, and strategic direction.

This guide offers a starting point. It is designed to build awareness of how AI intersects with consulting engineering and to provide practical guidance on the initial steps firm leaders can take. Whether you are exploring potential applications or responding to client interest, this guide outlines foundational concepts to support informed decision-making. It also includes information that firm leaders and teams can use to begin shaping a thoughtful, tailored approach to AI use - whether developing a new policy, initiating internal discussions, or addressing project-specific requirements. As the technology and its use cases evolve, these conversations, and the policies that follow, will need to adapt accordingly.

This guide is also intended to support firms that may not have dedicated resources or internal teams to lead their efforts. For these organizations, it offers a practical framework to begin internal conversations, identify appropriate uses of AI, and manage or reduce risks associated with integrating AI into workflows.

This is the first in a series of resources designed to help member firms understand and engage with AI in a thoughtful, responsible way. It is not a policy or technical manual, but a foundational guide to support leaders in bringing AI awareness into day-to-day operations and long-term planning.

AI is changing how engineering work is delivered. This guide may assist you take informed, practical steps toward understanding its implications for your firm and your clients.

Strategy & Governance Considerations

Establishing a clear governance framework is essential as firms begin or continue to explore and adopt AI tools. This includes setting internal policies, defining acceptable use, and ensuring oversight mechanisms are in place to align with professional standards and evolving regulatory expectations. This section introduces key strategic considerations for firm leaders to support the responsible and informed use of AI within their organizations.

- **Initiate AI Governance and Internal Policy** – Establishing internal AI policies is essential for defining acceptable use, setting boundaries, and aligning practices with organizational values and professional obligations. These policies should include oversight mechanisms and a clear process for evaluating new AI tools before adoption to ensure they meet safety, security, and ethical standards.
- **Identify legal and Regulatory Landscape** – Consulting firms must stay informed about EGBC's evolving guidance on AI use, including its impact on professional responsibility and liability. As expectations shift, engineers will need to demonstrate due diligence and informed judgment when incorporating AI into their work.
- **Consider Human Oversight** - AI should augment, not replace, professional expertise. Engineers must remain accountable for all deliverables, with human oversight built into every stage of AI-assisted workflows to ensure sound engineering judgment is maintained.
- **Understand Intellectual Property (IP), Authorship, and Data Ownership** – Using AI raises important questions around copyright, authorship, and attribution. Firms should clarify IP and data ownership in contracts, ensure proper documentation of AI-generated content, and avoid misuse of third-party data or models without permission.

Business Value & Risk

AI technologies offer consulting engineering firms new opportunities to streamline workflows, enhance design capabilities, and support decision-making. However, these benefits must be weighed against the risks of misuse, overreliance, or unintended consequences. A thoughtful approach to AI adoption should focus on value creation while identifying and mitigating risks that could impact professional obligations, client relationships, or operational stability.

AI presents both opportunities and risks for consulting engineering firms. Understanding how to leverage AI for competitive advantage while managing liability, cost, and authenticity is key to responsible adoption. The following recommendations should be considered when reviewing business values and risks:

- **Maintaining Corporate Competitiveness in the AI Era** – Firms that strategically adopt AI can improve responsiveness, reduce costs, and offer enhanced services - key factors in staying competitive in a changing market. However, adoption should be guided by internal expertise and professional standards to avoid undermining trust or quality.
- **Cost and Liability Considerations** - While AI tools may offer productivity gains, they also come with costs related to licensing, integration, and staff training. Inaccurate outputs or unvetted use can result in errors, rework, or legal exposure, so firms should assess both direct and downstream impacts of AI deployment.
- **Professional Liability insurance**: Current professional liability policies may not fully account for risks associated with AI-assisted work, especially if outputs are treated as final without human oversight. Firms should proactively engage their insurers and legal advisors to clarify coverage and update risk management practices.
- **AI in Proposal Writing and Marketing** - AI tools can accelerate the development of proposals, resumes, and marketing content by drafting contents and tailoring key messaging. However, outputs must be carefully reviewed for accuracy, tone, and unintended bias to ensure alignment with professional standards, client requirements and brand identity.
- **Measuring business value of the use of AI** - Establish clear KPIs - such as efficiency gains, win rates, or cost savings - and track outcomes over time. These insights will help guide future investments, prioritize initiatives, and scale AI use in ways that align with your firm's strategic goals.

Operational & Workflow Impacts

AI is already reshaping how engineering tasks are performed. To adopt AI responsibly, firms must evaluate where AI tools can enhance productivity and where human oversight is critical. This includes assessing the professional implications of new workflows and selecting tools that align with both technical needs and ethical obligations.

An important consideration in this process is data readiness. Effective AI implementation depends on having sufficient, well-structured data. In some cases, firms may be eager to adopt AI but either lack the necessary data or have it in formats that are not compatible with AI tools. Recognizing and addressing these data limitations is a critical step in realizing the full potential of AI in engineering practice.

- **Where AI Is Already Making an Impact** – AI is currently being used to streamline drafting, automate technical analysis, assist in report writing, and support quality control processes. Understanding these applications can help firms identify efficiency gains, while also determining where AI could be piloted to improve future workflows.
- **Evaluating AI Tools for Engineering Use** – Before adopting AI tools, firms should assess their reliability, accuracy, and relevance to professional tasks. A structured evaluation should include factors such as data handling practices, security compliance, cost-benefit analysis, and how well the tool aligns with ongoing monitoring and professional standards and QMS.
- I**T Infrastructure, Cybersecurity, and Privacy**– AI tools, especially cloud-based or third-party systems, can introduce risks related to data privacy, intellectual property, and system security. Firms must coordinate with IT teams to implement access controls, evaluate data storage practices, and ensure confidentiality when handling client or project information.

Sector Applications & Emerging Trends

AI is reshaping how firms engage across key practice areas, from sustainability and environmental modeling to design and client service and project delivery. Understanding how AI is applied in specific areas, and anticipating future developments, will help firms stay resilient, client-focused, and aligned with their professional obligations. The following recommendations highlight sector-specific opportunities and strategic considerations for long-term planning.

- **AI for Environmental and Sustainability Outcomes** – AI tools can support more accurate environmental modeling, risk forecasting, and resource optimization. These tools can help identify mitigation strategies and improve long-term planning—especially important for projects with climate, ecological, or social impacts.
- **Anticipating the Future of Engineering Practice** – From generative design and automated Quality Assurance and Quality Control (QA/QC) to evolving client expectations, AI is transforming the way firms plan, design, and deliver projects. Organizations must assess where to invest, what to monitor, and how to maintain ethical and professional standards as the landscape evolves.
- **Market Trends and Competitive Positioning** – Keeping pace with how AI is being used across the industry, by competitors, clients, and regulators, can inform strategic decisions. Market analysis can help firms identify new service areas, anticipate shifts in procurement and delivery models, and position themselves for future opportunities.

People, Practice & Culture

As AI becomes increasingly integrated into engineering workflows, firms must consider its impact on people, professional development, and workplace culture. This includes equipping staff with the skills to use AI effectively, ensuring junior employees still build foundational engineering competencies, and fostering a workplace culture of transparency, accountability, and inclusion. By addressing these areas early, firms can adopt AI in a way that reinforces mentorship, supports professional standards, and promotes trust across teams.

- **Upskilling the Workforce for the AI Era** – Firms must invest in ongoing training to help employees understand, evaluate, and use AI tools responsibly. This includes building technical fluency, understanding tool limitations, and ensuring staff can adapt to evolving workflows and client expectations.
- **Protecting Foundational Learning for Entry-Level Talent –** AI may automate tasks traditionally assigned to junior staff, such as drafting, basic calculations, and report writing. To avoid eroding critical learning opportunities, firms should intentionally structure early-career roles to balance AI support with skill-building and problem-solving experience.
- **Disclosure and Peer Review of AI-Assisted Work** – AI use should be integrated into mentorship and supervision frameworks, helping senior staff model ethical practices and guide junior professionals in navigating new technologies. Leadership must also ensure that supervision remains active and does not shift implicitly to AI systems.
- **Change Management and Cultural Buy-In** – Successful AI adoption depends on addressing employee concerns and dispelling both hype and fear. Leaders play a key role in setting the tone, managing expectations, and framing AI as a support tool, not a replacement for professional judgment.
- **Accountability and Incident Response** – Engineers retain full professional responsibility for all deliverables, regardless of whether AI tools are used during project development. Firms should establish protocols for documenting AI involvement and define clear procedures for responding to issues such as technical errors, misapplication of tools, or breaches of professional standards. Proactive planning in this area supports regulatory compliance, reduces liability, and reinforces a culture of accountability.
- **Equity, Bias, and Inclusion** – AI systems can unintentionally reinforce bias if trained on incomplete or unrepresentative data. Firms should critically evaluate AI tools for equity impacts, particularly in community-facing work, and promote inclusive practices in both technology choices and workplace culture. Embedding equity diversity and inclusion (EDI) principles into AI governance helps sustain trust and social responsibility.

Closing Remarks

AI is no longer a future consideration; it is already transforming how consulting engineering firms plan, design, and deliver their work. By taking early, thoughtful steps, firms can harness the potential of AI while upholding the values of technical excellence, public safety, and professional accountability.

This guide is intended as a starting point to support internal conversations, strategic planning, and risk awareness. As technology continues to evolve, so must the frameworks we use to evaluate and govern it. Consulting engineers are uniquely positioned to lead with integrity and technical insight, and by doing so, ensure that AI serves the public good.

Firms are encouraged to revisit these topics regularly, update their internal policies as industry standards emerge, and engage staff across all levels in shaping a responsible, future-ready approach to AI.