Designing with Intelligence:
AEC Best Practices for Using AI

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Artificial intelligence (AI) is making its way into virtually every industry, and the architecture, engineering and construction (AEC) sector is no exception.

Technological advancements have always been integral to the industry, from the introduction of spreadsheets, computer-aided design, optimization algorithms, building information modeling, to parametric programming. Now, as AI takes center stage, new improvements in project design, safety, site inspection, quality assurance, compliance, cost controls, efficiency, and schedule optimization are all within reach in the near term.[1]

While the potential for AI is vast, there are inherent risks tied to AI deployment.

For one, according to 55% of directors at AEC firms, the greatest barrier to creating business value with AI is identifying the right use cases.[1] Additionally, there are standard digital concerns around cyber risk, data security, data privacy, IP infringement, and trust with machines making decisions based on algorithms. There is also a potential for unintentional biases to be embedded in the process, posing a threat to project outcomes.

The bottom line? While the potential for enhanced precision and efficiency is promising, AI introduces a layer of complexity regarding accountability. Allowing AI to operate without proper oversight and ethical considerations could lead to legal, financial, and reputational consequences for AEC businesses.

Legalities Of AI in Professional Design

Design professionals have operated within a regulatory framework that mandates that licensed professional whether engineers, architects or planners make design decisions and are held to account that those decisions are in compliance with building codes and other legal requirements. As professionals they are entrusted with the protection of public safety.

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[1] Deloitte "2024 engineering and construction industry outlook," 2024.

As AI assumes a more prominent role, defining the boundaries of professional responsibility becomes a nuanced and challenging task. AI systems may promise faster and more effective decision making, but questions of accountability arise:

- If an AI-driven system fails to deliver the intended outcomes, who shoulders the blame?
- Is it the AEC professional who implemented and oversaw the AI, the AI developer, or perhaps a combination of both?

Consider the following scenario: An AI algorithm can process images collected by a drone of an existing structure, say an offshore platform, evaluate the structure for signs of fatigue, and design repairs. For the structure to be repaired, a professional engineer by law needs to be in responsible charge of the design of the repairs. How does the professional engineer execute his/her responsibility to be in responsible charge of the work in this scenario?

Best Practices for Engaging AI in Your Work

Approaching AI use mindfully is the key to reducing risk. Be sure to apply the following best practices if you're considering using AI to create business value:

- **Avoid overpromising** the client on what can be delivered with AI. Care needs to be taken not to redefine the standard of care. Never promise perfection, reduced errors, or faster delivery, but instead be realistic about the capabilities and limitations of this technology, as well as the cost.

- **Secure enough fees and time** to execute the engineer's statutory responsibilities as the "engineer of record." AI tools may be deployed on the project, but a licensed professional still needs to take responsibility for the final work product.

- **Be clear** when services are no longer professional design services. Use the appropriate contracting terms and conditions and risk transfer methods. Do you have resources in place to deliver to the service level agreement for digital services?

- Make sure you **have the right staff** and/or consultants in place, in addition to appropriately curated, good quality data to deliver your service when using AI. Without good data, most AI algorithms deliver poor results.

- Address licensing, ownership, and maintenance issues around data and computer models explicitly in your contracts. Be sure to **develop an Acceptable Use Policy** for all users of your business's software and technology products.

- **Perform due diligence on your vendors and subcontractors**. If external parties are using AI to deliver services to your organization, make sure to include indemnity in your risk transfer agreements.

Gaps and Overlaps in Insurance Coverage

The rapid advancement of technology is presenting opportunities for traditional designers to expand their services from pure professional services into the realm of what should be considered technology services. Architects and engineers are increasingly developing technology tools for their clients that sometimes are natural extensions of their design services, but sometimes extend into offering pure tech services or software products. Many firms are seeing this evolution of services to be a desirable expansion of their portfolio. These firms need to carefully consider their risk management protocols and insurance coverage.

- *Technology Errors and Omissions (E&O) policies* are designed to provide coverage for companies involved in selling technology products or offering IT consulting services. These policies typically cover acts, errors, or omissions in the performance of technology services, defects or deficiencies in technology products, and failures in the performance of the products or services in accordance with a contract. It's important to note that Tech E&O policies complement, rather than substitute, a Professional Liability (PL) policy for AEC firms.

- This can be a strange place for the AEC professional, full of new risks and exposures — IP infringement, media exposures, corporate and employment impacts by AI-driven decision making — that require a mindful examination of your firm's coverage portfolio. Every business's needs will be different. It is your broker's job is to assess and address any emerging risk associated with new and added tech.

As the AEC industry embraces the transformative power of AI in 2024, mindful engagement, working closely with your broker, and adhering to best practices becomes paramount.

Greyling's consulting and insurance professionals can advise owners/developers, design-builders, contractors, and design professionals on project risks and risk mitigation strategies for this future state of work.

Let's Talk

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