Ultimate Guide to Powering Construction With AI

AUTODESK Forma

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Introduction

Artificial Intelligence (AI) has moved from experimentation to everyday business reality.

Across industries, organizations are using AI to automate work, analyze information faster, and improve decision-making. Construction is no exception, but the unique complexities of the industry create a very different challenge for AI implementation.

Unlike industries built around standardized processes and centralized data, construction is dynamic, fragmented, and deeply collaborative. Every project involves thousands of decisions across teams, systems, and timelines that rarely operate in perfect alignment.

That complexity creates an enormous opportunity for AI.

For an industry under constant pressure to deliver projects faster, safer, and more efficiently, AI has the potential to help teams reduce manual work, surface risks earlier, improve coordination, and make better decisions with confidence.

But successful AI adoption in construction is not about replacing people or layering disconnected tools onto existing workflows.

The organizations receiving the greatest value from AI are treating it as part of how work gets done—by integrating intelligence directly into the systems, processes, and decisions that drive projects forward.

The following chapters will explore top AI challenges the industry faces, where AI can create the most significant impact in construction, and how Autodesk is approaching AI in Autodesk Forma, formerly Autodesk Construction Cloud.

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Construction industry challenges AI must solve

Construction teams are under more pressure than ever. Projects are getting bigger and more complex. Schedules are tighter. Margins are thinner. And experienced workers are leaving the industry faster than new talent is coming in.

At the same time, construction teams are drowning in information.

Every project generates huge amounts of data—drawings, RFIs, submittals, schedules, field reports, budgets, meeting notes, and more. But most of that information lives across disconnected systems, spreadsheets, emails, and conversations.

The problem isn't a lack of data. It's finding the right information at the right time.

Teams spend hours tracking down updates, managing manual workflows, resolving coordination issues, and reacting to problems after they've already grown into bigger issues.

That slows projects down and increases risk.

But this common industry pain point is where AI is starting to make a real impact, not by replacing construction professionals, but by helping them work smarter. The most useful AI tools are helping teams reduce repetitive work, access insights faster, improve coordination, and make better decisions.

The goal isn't fully autonomous construction. It's about giving people better tools to handle the growing complexity of modern projects.

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Why most AI strategies fall short

As AI adoption grows, many construction companies are realizing that implementing AI is harder than expected.

The problem usually isn't the technology itself, but it's how the technology is being used.

Many AI solutions in construction today are what you could call "bolted-on AI." They operate outside the systems where construction teams actually work. Information gets exported into separate platforms, analyzed in isolation, then pushed back into workflows manually.

That creates friction instead of efficiency.

Context matters on construction projects. Decisions are connected to drawings, schedules, RFIs, budgets, field conditions, and conversations happening across multiple teams. When AI tools can't access that full picture, the outputs become less reliable and harder to trust.

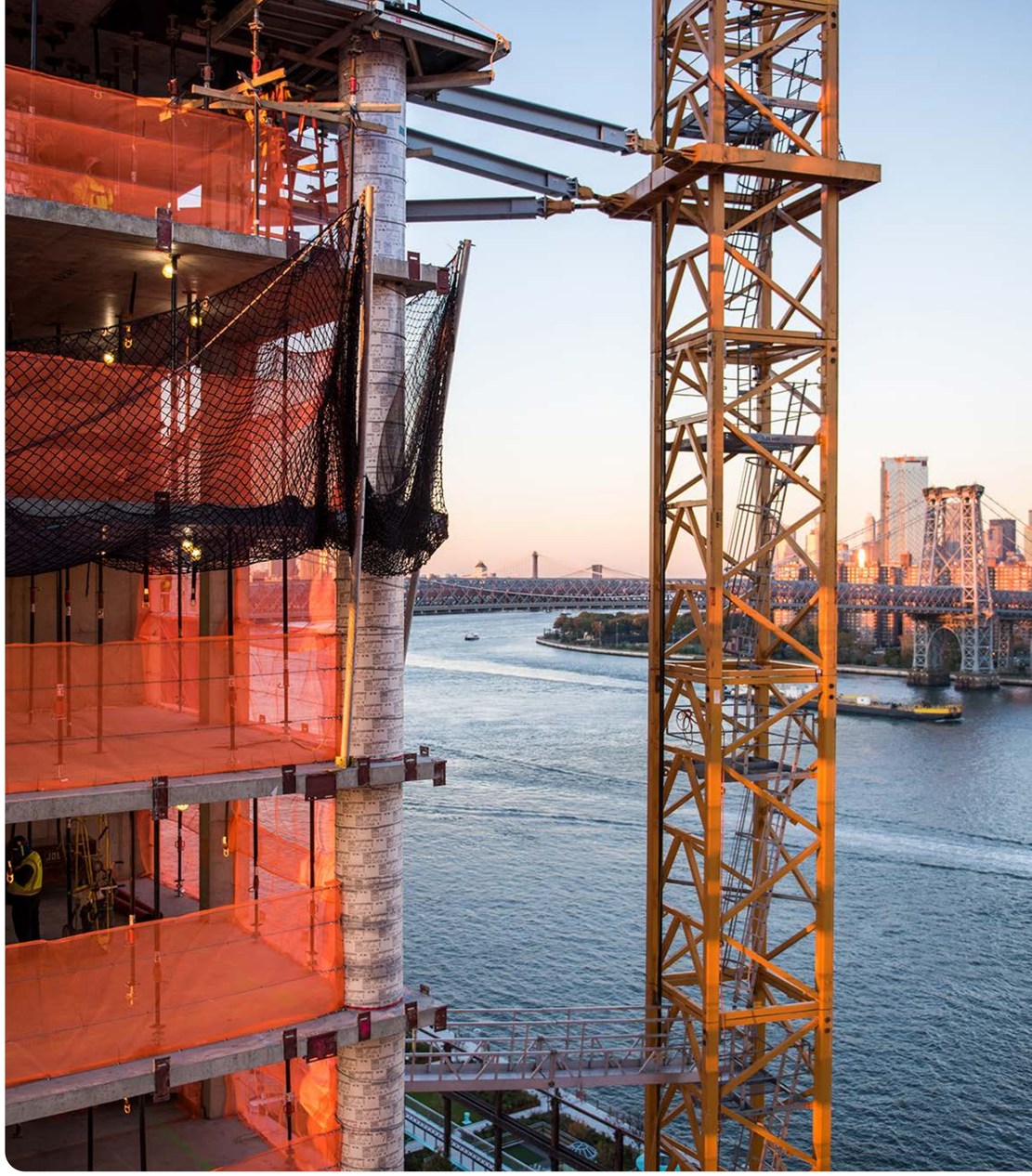
Bolted-on AI creates more work instead of less. Teams have to switch systems, re-enter information, validate outputs manually, and piece context together themselves.

There are also growing concerns around governance, security, and data ownership as more project information moves between systems.

That's why many organizations are rethinking their AI strategy.

The companies seeing the most success are not treating AI as a standalone tool. They're integrating it directly into the workflows, systems, and project data their teams already use every day.

Because in construction, AI is only as useful as the context it understands.



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Practical approach to AI

The construction industry doesn't need more technology for the sake of technology. Instead, it needs tools that solve real problems.

That's why the most successful AI strategies usually start small and focus on practical outcomes instead of flashy capabilities.

The companies seeing real value from AI are using it to eliminate friction in everyday work:

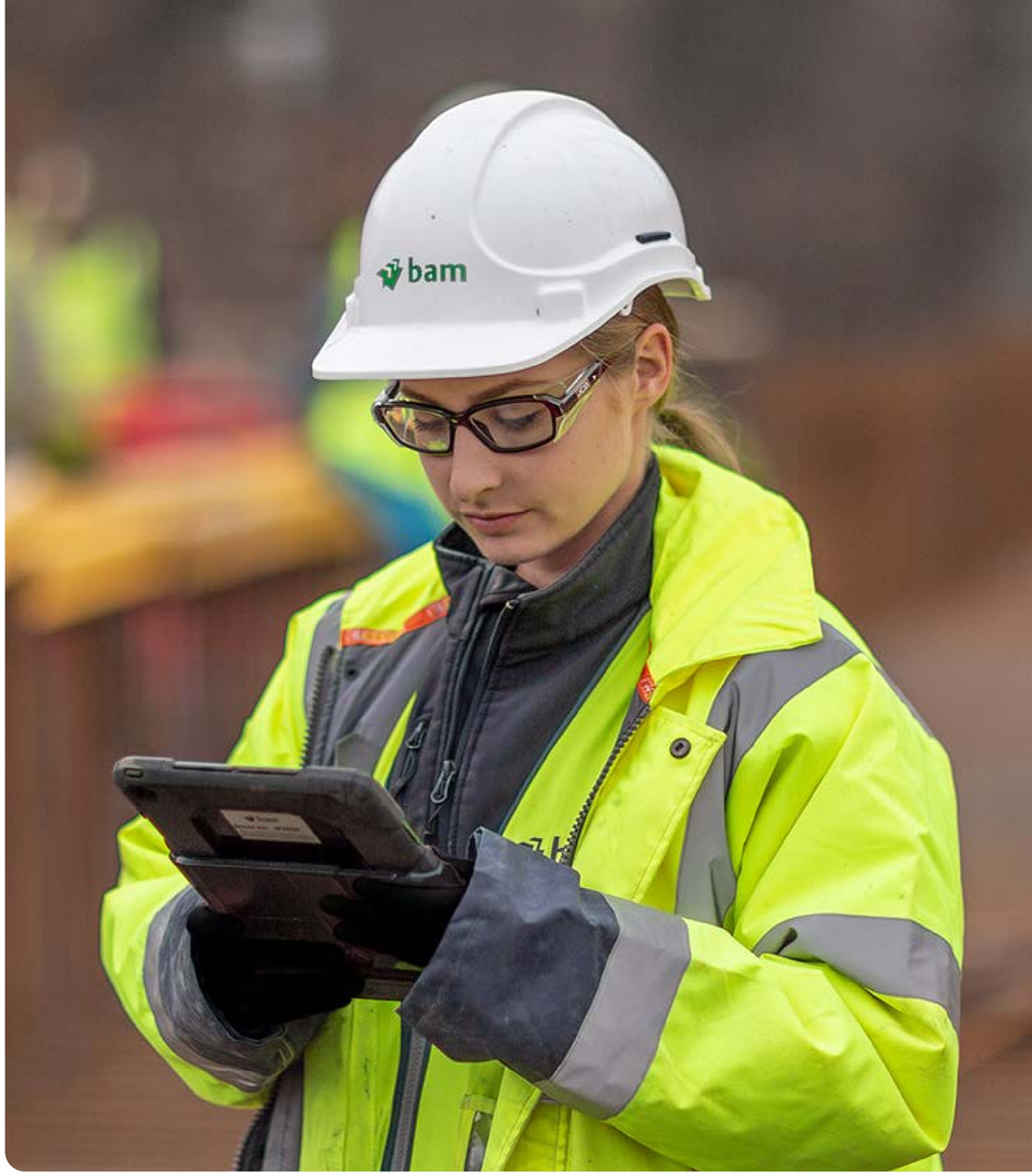
- Reducing repetitive tasks
- Finding information faster
- Improving coordination
- Identifying risks earlier
- Helping teams make decisions more quickly

In other words, the best AI tools are often the least disruptive.

Simplicity also matters. For many teams, one of the biggest barriers to AI adoption is not resistance to innovation; it's the fear that the technology will be complicated, disruptive, or difficult to trust.

The most effective AI experiences feel intuitive. They fit naturally into existing workflows, reduce friction instead of adding it, and help teams get value without needing to become AI experts.

As the technology continues to evolve, the companies that benefit most from AI will likely be the ones that stay focused on practical value, operational efficiency, and real project outcomes—not just experimentation.



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What makes AI effective in construction

AI in construction depends heavily on context. Once project data leaves the systems where work is happening, the AI loses that vital background information.

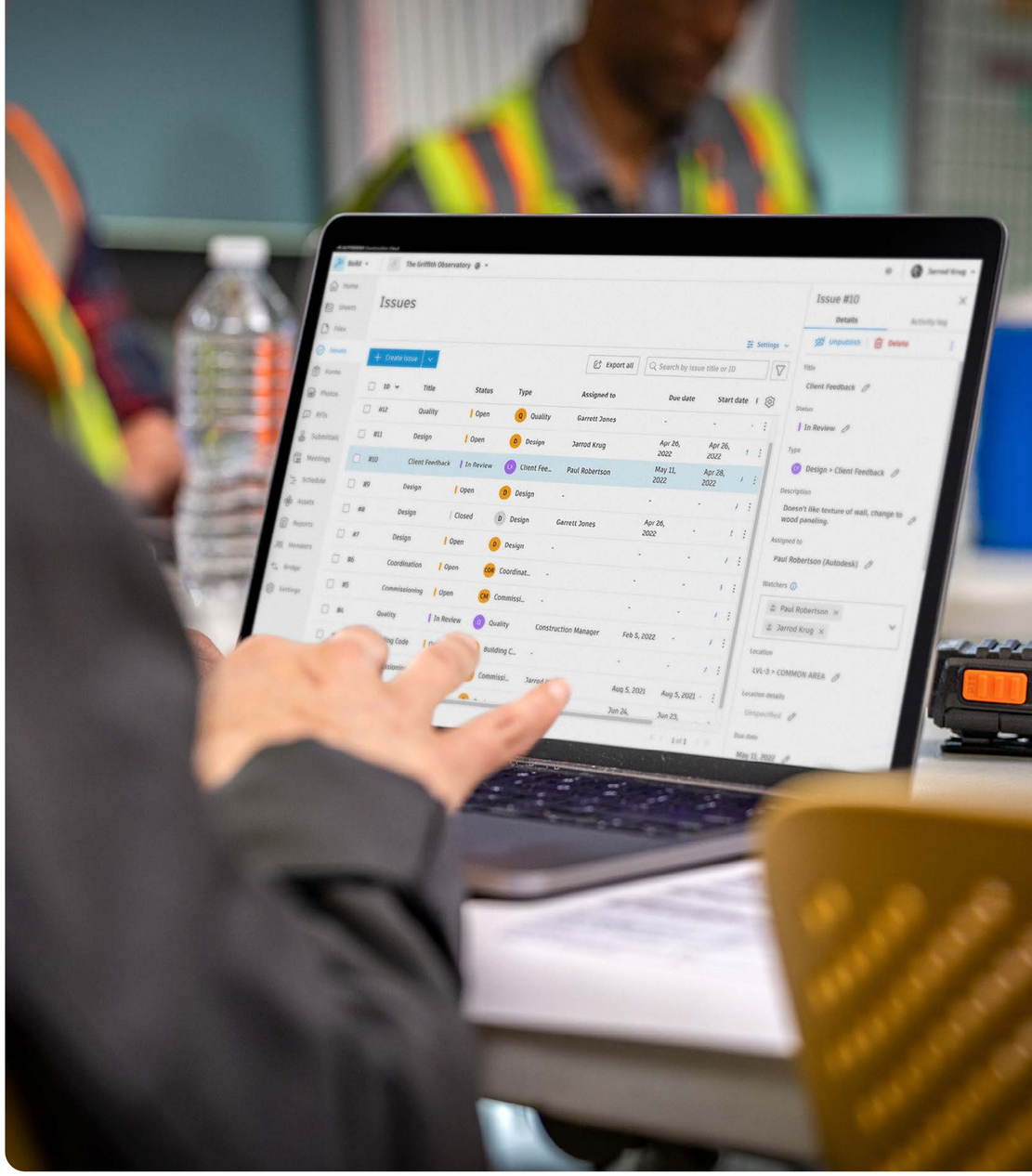
It may be able to read a document or answer a question, but it doesn't truly understand the project. It doesn't know what phase the team is in, how issues connect to schedules, what decisions are pending, or how information relates across the broader workflow.

It causes AI to operate in isolation and in many cases, the workflow stops there.

For AI systems to generate meaningful value, they need access to:

- Connected project data
- Structured workflows
- Historical information
- Real-time project conditions
- Organizational knowledge

This is where a platform approach to AI becomes a distinct advantage. Instead of bolting AI onto disconnected workflows, Autodesk Forma was designed to be AI-native, with AI embedded directly into the platform, data foundation, and operational workflows construction teams already use every day.



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Autodesk’s platform approach to AI

Rather than treating AI as a separate tool, Autodesk is embedding AI directly into Autodesk Forma where construction teams already work.

This matters because AI is only as powerful as the data and context behind it. When project information lives in a connected environment, AI can generate far more meaningful insights and support real operational workflows.

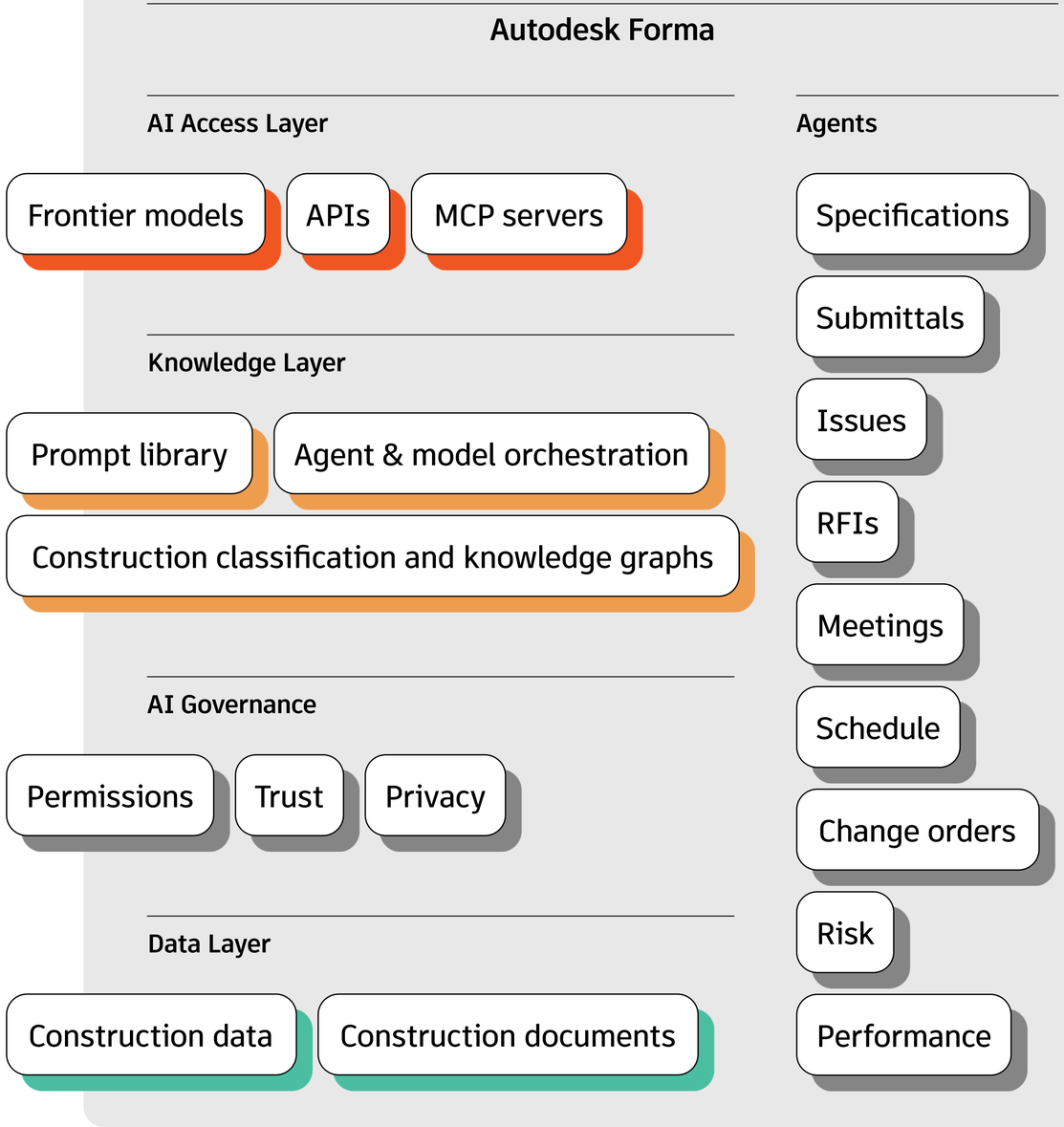
But connected data alone is not enough. What truly makes Autodesk’s approach different is the intelligence layer built on top of the connected data, the knowledge layer.

The knowledge layer houses Autodesk’s construction knowledge graph, data model, and ontology.

This is what automatically classifies data points allowing users to get insights in a way that could never happen before. It understands how work is structured in construction and how it’s connected. This is what makes Autodesk AI context-aware and turns project data into intelligence, orchestrating how the AI agents work together.

Instead of relying on disconnected AI tools or separate “construction intelligence” software, teams can access context aware AI capabilities directly inside the workflows they already use every day.

That creates a much more practical path for AI adoption. Less switching between systems. Less manual effort. Less disconnected information.



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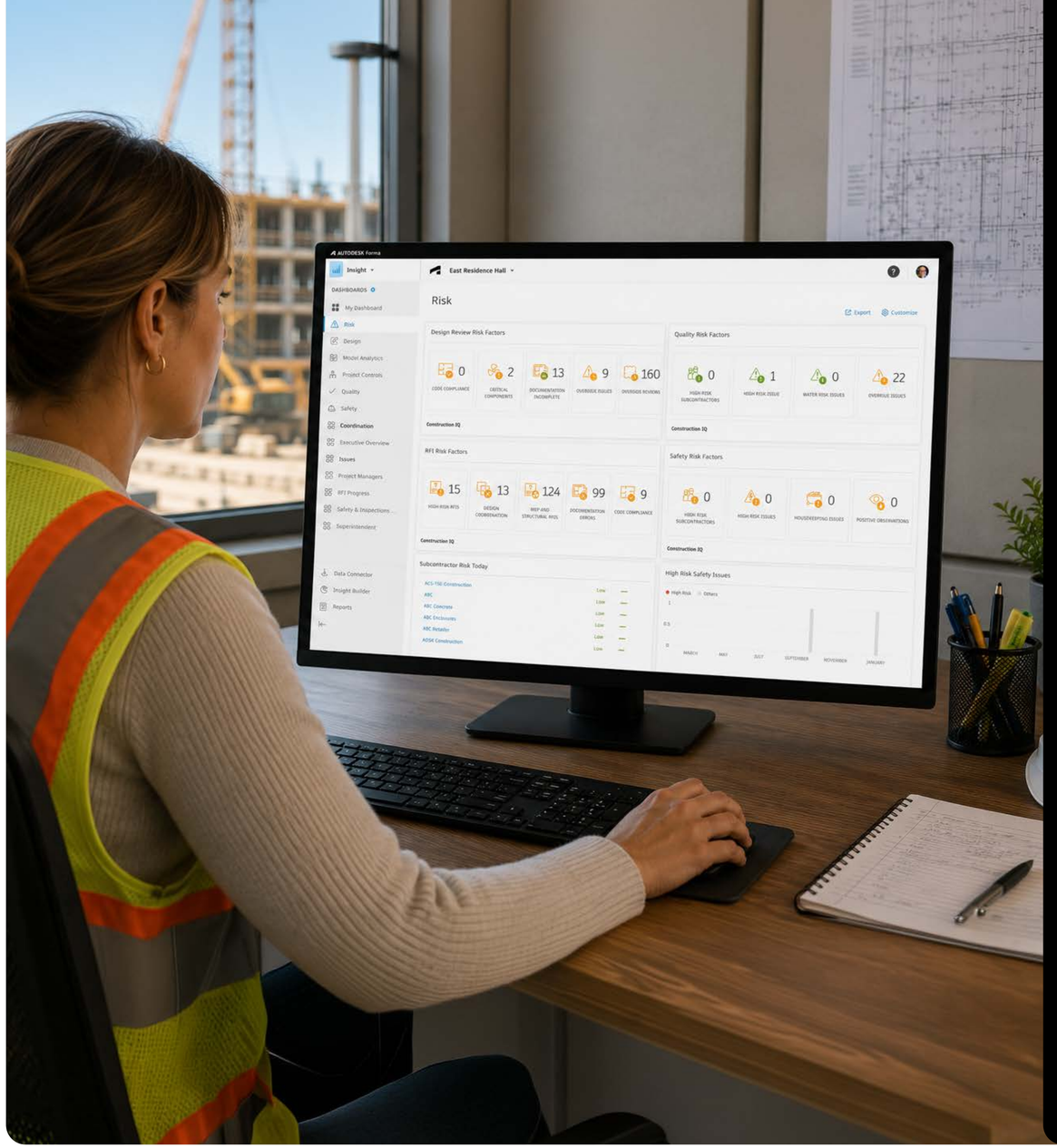
AI in Autodesk Forma today

Autodesk's approach to AI is focused on two things: helping teams better understand their projects and helping work move forward faster.

That strategy is built around two core areas: construction intelligence and AI-powered automation.

Together, these capabilities show what an AI-native construction platform looks like. Where AI is built directly into connected workflows instead of layered on afterward as a separate tool. Turning project data into insights, actions, and more efficient operations.



Good construction AI isn't built overnight

Autodesk has been investing in AI, automation, and data intelligence for decades across design, planning, and construction workflows.

That long-standing focus on connected data and operational workflows is what makes a platform approach to AI possible today.

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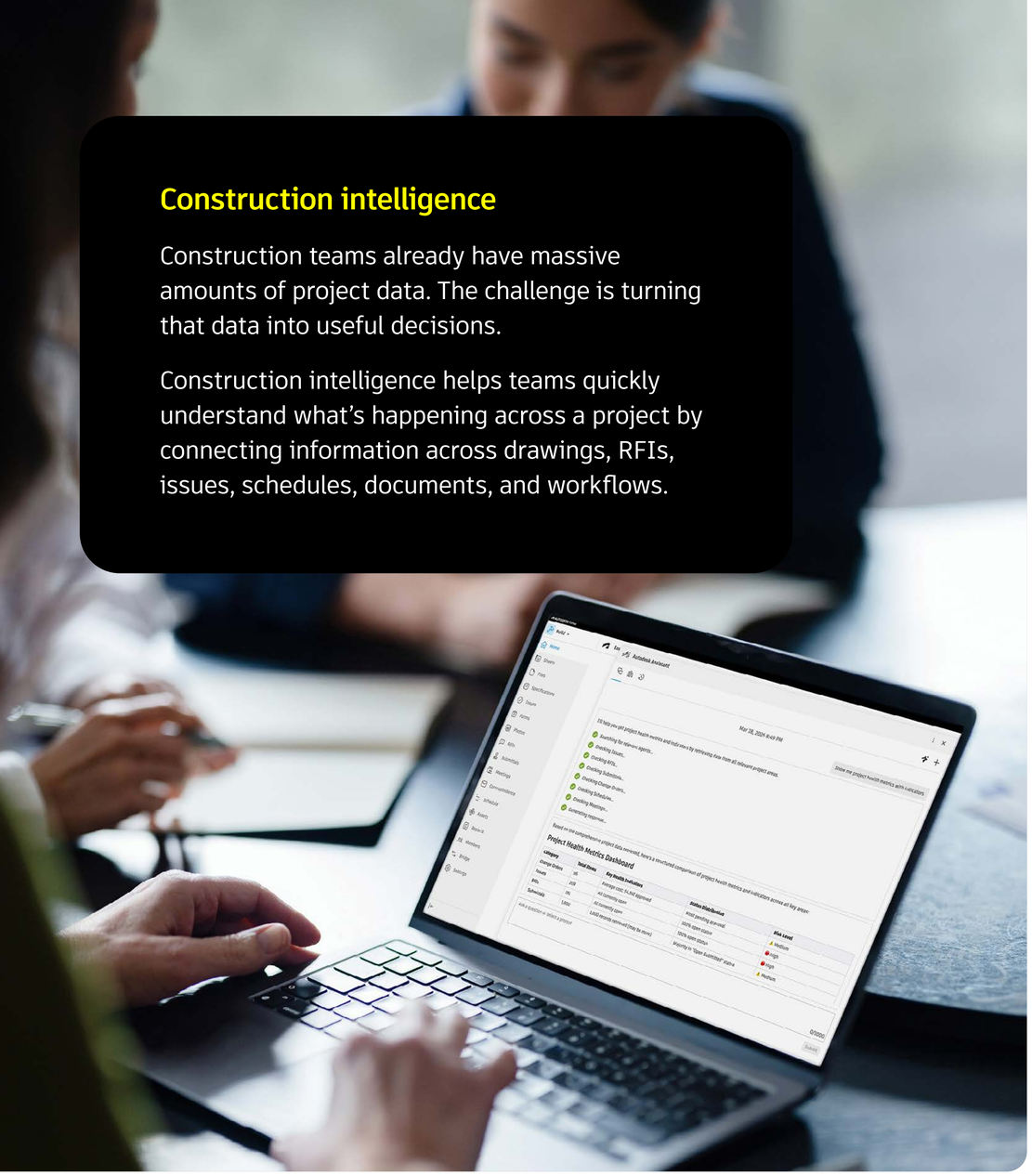

Construction intelligence

Construction teams already have massive amounts of project data. The challenge is turning that data into useful decisions.

Construction intelligence helps teams quickly understand what's happening across a project by connecting information across drawings, RFIs, issues, schedules, documents, and workflows.

Autodesk Assistant

This is where everything comes together—connected data, project relationships, and workflow context. Autodesk Assistant does far more than answer questions. Behind the scenes, it communicates with specialized agents across specifications, RFIs, issues, meetings, schedules, submittals, change orders, project health, performance analysis, and risk management to generate connected, context-aware insights.

Instead of manually searching through disconnected systems, teams can simply ask a question and get answers connected across the entire project environment.

But the Assistant is not just a chatbot. It's an operational AI layer built directly into construction workflows—helping teams surface risks faster, understand project status, identify schedule impacts, and move work forward with less manual effort.

The result is a fundamentally different way to interact with project data: Faster answers, better visibility, and insights that are immediately actionable.

Construction IQ

Construction IQ helps teams identify risk before it turns into costly project issues.

Using AI and machine learning, Construction IQ analyzes patterns across project data—including issues, RFIs, checklists, forms, and quality and safety observations—to surface areas that may require attention.

Instead of reacting to problems after they escalate, teams can proactively focus on the issues most likely to impact schedule, quality, safety, or project performance.

Construction IQ also helps prioritize risk by highlighting trends, recurring problem areas, and high-risk activities across projects, giving teams better visibility into where action is needed most.

The result is a more proactive approach to project management helping teams reduce risk, improve quality outcomes, and make faster, more informed decisions.

AI-automated workflows

AI becomes even more valuable when it helps move work forward automatically. Instead of only generating insights, AI-powered workflows can assist with repetitive operational tasks. The goal is not to introduce more complexity, but it's to remove friction from everyday work.

AI-automated workflows in Autodesk Forma

AI-powered issue creation

AI-powered issue creation helps field teams document issues faster directly from mobile devices. Users can capture photos, answer a simple prompt, and automatically generate a detailed, context-rich issue with key information already filled in. Teams stay in control by reviewing and editing before submission, while AI handles the manual work behind the scenes.

AI-powered specification breakdown

AI automatically organizes specification documents into structured, searchable sections, making it easier for teams to understand design intent, responsibilities, and potential risks without manually digging through hundreds of pages of documentation.

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AI-powered RFI creation

AI streamlines the RFI process by automatically generating context-aware RFIs from a simple prompt. The system helps populate key fields, organize relevant information, and create more complete, consistent RFIs faster—reducing manual effort and helping teams respond more quickly.

Automatic submittal logs

AI helps automate submittal tracking by organizing and structuring incoming project data into a clear, consistent log. This reduces manual data entry, improves visibility, and helps teams keep workflows moving without spending hours managing documentation.

07

Building trust in construction AI

Trust will determine how quickly AI is adopted across construction.

This industry operates in high-risk environments where decisions impact budgets, schedules, safety, compliance, and project outcomes. If teams don't trust the AI, they simply won't use it.

And trust is about more than whether the technology works.

Construction organizations need confidence that AI systems are:

- Secure
- Reliable
- Transparent
- Properly governed
- Built around responsible data practices

Teams also need visibility into how AI arrives at recommendations and where information is coming from. If outputs feel inaccurate, inconsistent, or disconnected from project reality, adoption breaks down quickly.

That's why human oversight remains critical.

AI can help teams process information faster, identify patterns, and reduce manual work. But construction professionals still provide the judgment, experience, and context projects depend on every day.

The goal is not removing humans from decision-making. The goal is helping them make better decisions with better information.

This is especially important in construction because no two projects are exactly alike. Field conditions change. Priorities shift. Teams constantly make judgment calls based on experience, collaboration, and real-world context that AI alone cannot fully understand.

The most effective AI systems are designed to support expertise, not replace it.

Learn more about Autodesk's approach to Trusted AI

Autodesk's Trusted AI principles focus on security, privacy, transparency, accountability, and human-centered design to help organizations adopt AI responsibly across design and construction workflows.

Learn more

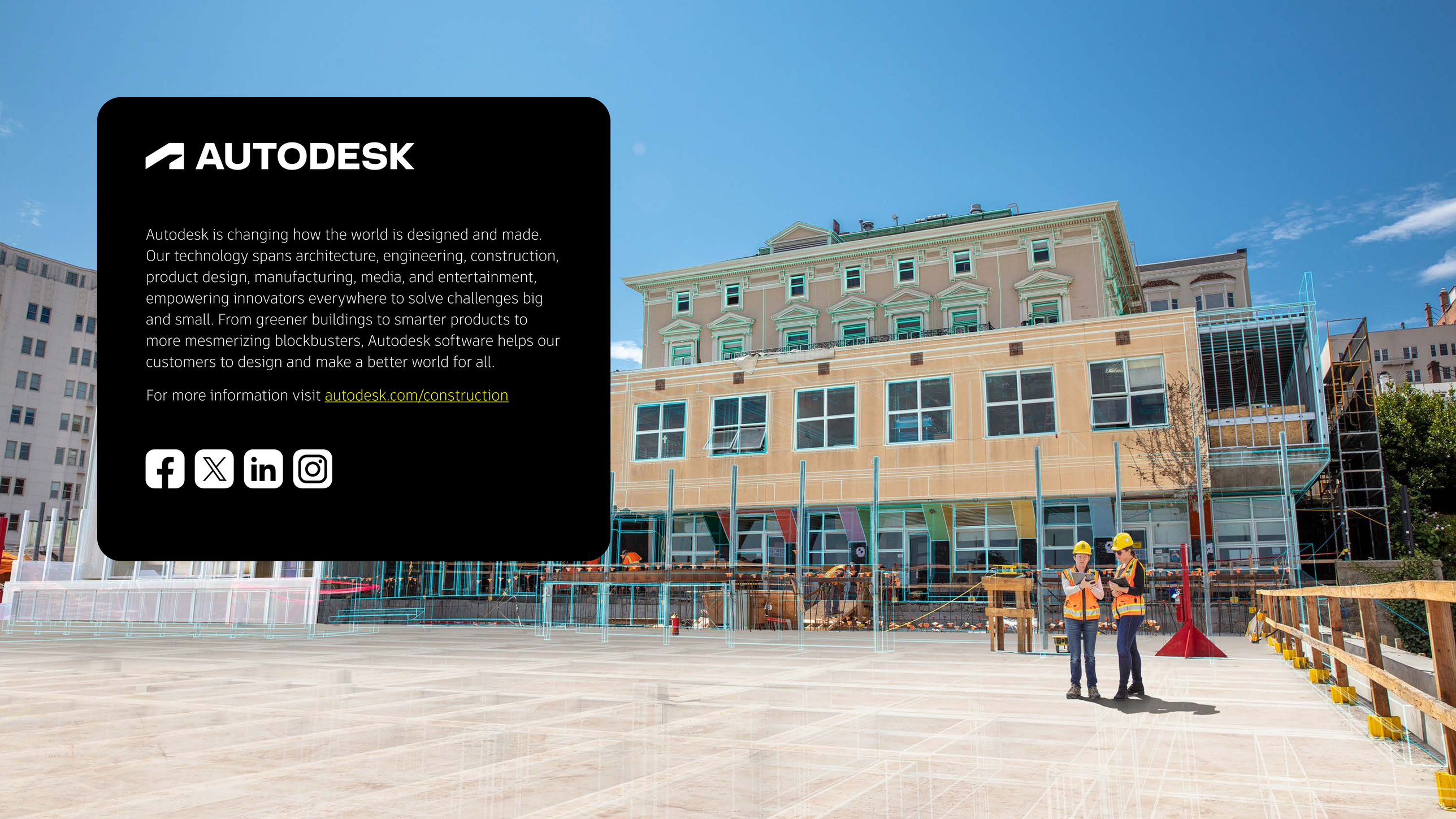
Conclusion

AI is not a future concept for construction anymore. It’s already changing how projects are planned, managed, and delivered.

But the real value of AI is not automation for the sake of automation. It’s helping teams navigate growing project complexity with better information, faster insights, and more connected workflows.

The companies that will benefit most are not the ones chasing hype or layering disconnected AI tools onto existing processes. They are the ones building strong data foundations, integrating AI into real workflows, and staying focused on practical outcomes.

While the industry is still early in its AI journey, one thing is already clear; AI will play a major role in the future of construction, and the organizations that learn how to leverage it effectively today will be better prepared for what comes next.



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Autodesk is changing how the world is designed and made. Our technology spans architecture, engineering, construction, product design, manufacturing, media, and entertainment, empowering innovators everywhere to solve challenges big and small. From greener buildings to smarter products to more mesmerizing blockbusters, Autodesk software helps our customers to design and make a better world for all.

For more information visit autodesk.com/construction