



The next leap in AI product development: from assisted to autonomous

For exponential growth, transition from
AI-coding tools to AI-supported workflows
or AI-led PDLC



AI coding assistants were hailed as a breakthrough with developers reporting eye-popping productivity gains.

Chief Information Officers (CIOs) opened the champagne and toasted AI coding tools as the clearest AI win yet.

Once the euphoria faded and the development team went back to coding, a dawning realization occurred. If individual developers are so productive, why is the product development lifecycle (PDLC) so slow to ship products?

AI coding tools do not address the fragmented, siloed systems that commonly consume developers' time in non-coding tasks. AI agents, context engineering, and embedded controls can help streamline these tasks.

Fixing the systematic friction that slows down the entire journey from idea to production can be eased by transitioning to an AI-led PDLC system. AI orchestrates, automates, and streamlines non-coding tasks such as design, testing, compliance, and deployment. AI agents act as digital co-workers that manage the friction-heavy handoffs, translations, and administrative burns that traditionally show the production system down.

This paper is your roadmap to embedding AI into your PDLC, either in a support function or leading capacity. We will explore the best fit for your organization, the significant possibilities of an AI-led PDLC system, point out risks with an unmanaged transition, and identify specific AI agents needed for agentifying a PDLC.

KPMG Blaze™

An agentic PDLC enabler

Organizations face increasing pressure to modernize legacy technology and accelerate product development while continuing to support complex, mission-critical environments.

That's where KPMG Blaze comes in. It's an agentic PDLC enabler that utilizes advanced AI and automation to accelerate the transition of legacy IT infrastructures to agile, cloud-native architectures. Blaze ingests the entire legacy codebase, automatically mapping requirements, tracing dependencies via call graphs, and extracting data lineage to preserve business logic. It explains, documents, modernizes, converts, and more.

For your company's transition from AI-assisted coding to AI-supported or AI-led PDLC, Blaze deploys directly within your cloud environment or on-premises infrastructure.

From AI-assisted to AI-supported or AI-led PDLC

With AI-assisted tools, developers can write code quicker, commit lines faster, and clear their individual backlogs with unprecedented speed. But if your organization’s underlying product delivery pipeline is still a manual, siloed mess, faster production is a mirage.

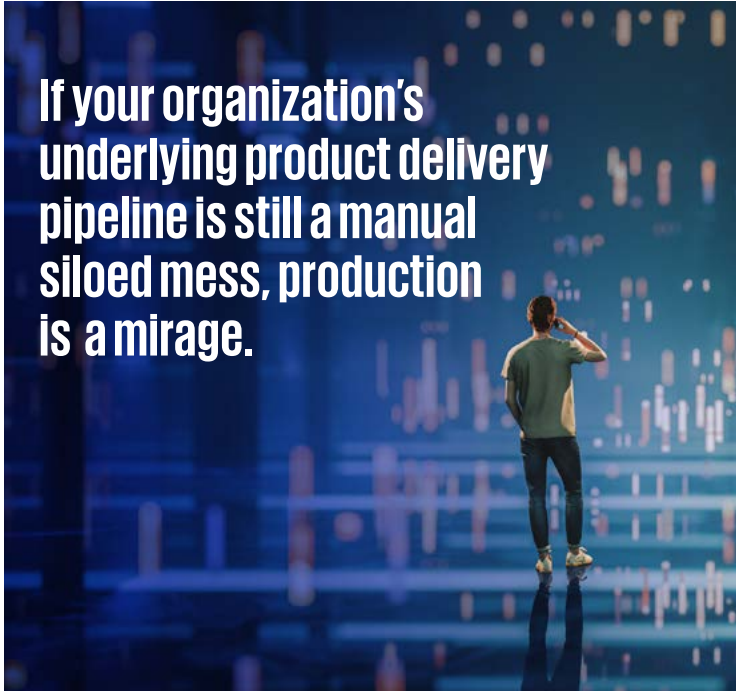
To break through the productivity plateau, make the leap from an AI-assisted to an AI-supported or AI-led PDLC. The difference is structural, going from an individual

productivity tool to a holistic system that can transform how the PDLC functions. AI-supported PDLC involves automating one or two manual tasks with agents while AI-led merges PDLC phases into continuous loops and redefines delivery models. In terms of the crawl, walk, run analogy, AI-assisted is crawl. AI-supported is the walk. AI-led is run.

AI-Supported PDLC vs. AI-Led PDLC

To understand what this shift looks like in practice, look past the technology and evaluate how work, context, and metrics change between these two operating states:

Dimension	AI-Supported PDLC	AI-Led PDLC
Primary Actor	Human-led, tool-supported. The developer manually stitches tools together.	AI-led, human-governed. AI agents proactively manage workflows.
Scope of AI	Siloed task automation. AI is confined to specific point solutions.	End-to-end orchestration. AI orchestrates across the entire lifecycle.
Context	Generic & out-of-context. The tool lacks company-specific rules.	Deeply contextualized. AI is infused with your company’s business logic.
Key Metric	Developer velocity. Measuring individual activity and output.	Idea-to-production cycle time. Measuring the speed of the entire system.
KPIs	Code commit frequency. Bugs per 1,000 lines.	Idea-to-production cycle time. Change Failure Rate and Wait Time%.



AI-led requirements

The transition to an AI-led PDLC requires context engineering, agentic capabilities, embedded controls, and human accountability.

Context engineering

Context engineering involves designing and managing the informational boundaries and domain-specific knowledge that AI models use to generate accurate, relevant outputs. In an AI-led product development lifecycle, it ensures that models understand the specific business environment, user intent, and technical constraints.

Agentic capabilities

Agentic capabilities refer to an AI system's ability to act autonomously to achieve goals within the product development lifecycle. Rather than just responding to prompts, AI agents independently plan tasks, execute multi-step workflows, write code, or test features. AI agents are proactive collaborators capable of reasoning and adapting.

Embedded controls

Embedded controls are the automated governance, security, and quality assurance mechanisms seamlessly integrated throughout the AI-led development lifecycle. These guardrails ensure that AI systems operate within defined ethical, legal, and operational boundaries. Embedded controls mitigate risks in real-time.

Human accountability

Human accountability ensures that while AI handles autonomous tasks, ultimate responsibility for product decisions, quality, and ethical implications remains with human teams. This involves establishing clear “human-in-the-loop” checkpoints, overseeing AI governance, and validating AI-generated outcomes.



The three risks of an unmanaged transition

Transitioning to an AI-led PDLC can be a profound change coming from an AI-assisted environment. An unmanaged transition exposes three critical risks:

1 Amplify hidden flaws

If the current PDLC is undocumented, inconsistent, or chaotic, an agentic system will automate the chaos, turning slow inefficiencies into systematic bottlenecks.

Fix: map and standardize the value stream before introducing autonomous agents to execute it.

2 The black block governance crisis

Manual compliance cannot keep pace with autonomous compliance. Without embedded policy-as-code and real-time observability into the AI orchestrators, it can create auditability blind spots.

Fix: shift from retroactive audits to policy-as-code. Embed security guardrails directly into the AI orchestrators so compliance is continuous.

3 The operating model gap

Humans are accustomed to operating in silos. AI leads to an operating clash. Teams structured for slow, manual handoffs will culturally reject an automated pipeline.

Fix: Leadership must actively transition the workforce from manual doers to strategic supervisors of the AI system.

The time is now for an AI-led PDLC

Until recently, the technology that enables building an AI-led PDLC wasn't practical. Teaching an AI model with your company's specific rules, architectural standards, and security protocol required a lot of fine-tuning and testing.

With the arrival of frontier models capable of processing 1 to 2 million tokens simultaneously, the context window is large enough to inject your company's entire codebase, compliance protocols, and architectural standards on the fly.

AI has instantaneous recall of your company's entire systemic environment without the massive overhead of custom model training. This isn't AI that waits for a human to type in a prompt. It's agentic AI that operates autonomously, breaking down complex goals into sub-tasks, calling external tools, and communicating with other agents.

To accomplish this, the AI-led PDLC operates with three orchestrating agents that manage and coordinate a fleet of specialized worker agents. This designed workflow delivers a more efficient process without creating new headaches like agent sprawl and chaotic loops. Coding, testing, and compliance are managed by these context-aware agents.



How KPMG can help

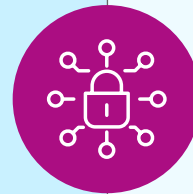
The market is flooded with AI assisting tools. The challenge is that coding tools alone cannot address all the challenges of a manual, siloed development process. For that, you must transition to an AI-supported or an AI-led PDLC that can deliver measurable, bottom-line results.

Here is how KPMG LLP can guide your journey to an agentic PDLC.



Assess maturity and identify agents

We benchmark the current state of the PDLC and map human personas. We then identify and prioritize the specific AI agents need to augment the staff. Across client engagements, we routinely discover 30+ high-value agent use cases requiring context and coordination.



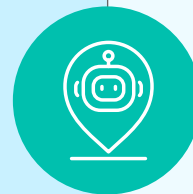
Secure the perimeter

An AI-led system cannot operate as a black box. With the threat of rogue models and cyber vulnerabilities, enterprise-grade cybersecurity is a prime objective. Leveraging our Trusted AI framework, we implement robust security protocols, governance, and control planes needed to prevent data leakage and erratic agent behavior, helping to make your automation safe, auditable, and strictly compliant.



Build orchestration and context layer

Identifying agents is only the first part. Avoiding agent sprawl and making them work together is the challenging part. KPMG designs the master operating model that deploys three orchestrating agents to coordinate and manage a fleet of worker agents. We help integrate your specific business rules, security standards, and architectural context throughout the system.



Deliver an ROI-focused roadmap

We provide a prioritized plan to produce results, from driving down change failure rate and slashing system wait time to radically compressing idea-to-production cycle time. The goal: ensure your company's investment in an AI-led PDLC delivers true value that can be measured and reported to leadership.

Don't underestimate the journey or the accomplishment. Transitioning to an AI-supported or AI-led PDLC is a fundamental business transformation. KPMG has the cross-functional team and expertise to provide strategic oversight and guidance, ensuring the transition is safe, measurable, and delivers end-to-end value.

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