LTIMindtree

Point of View

GenAI in Software Development:

Accelerating Delivery Across the SDLC

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Accelerating Delivery Across the SDLC

While AI won't replace developers, it is already reshaping certain functions within the Software Development Life Cycle (SDLC). For CTOs, engineering leaders, and enterprise architects, the opportunity is clear: use AI to reduce manual effort, break functional silos, and shorten development cycles. From backlog grooming to code generation to QA automation, AI tools rapidly transform the SDLC into a more intelligent, agile, and efficient process.

How's it happening?

- AI in project management predicts bottlenecks and resource constraints early, enabling proactive planning.
- AI in design analyzes user interaction data to suggest UX improvements and bridge the research–implementation gap.
- AI in development generates, reviews, and optimizes code in real time.
- AI in QA creates test scenarios, automates validation, and improves release reliability.

When adopted across the SDLC, these tools transform disconnected tasks into a seamless, data-informed delivery engine, driving better software, faster launches, and smarter teams.

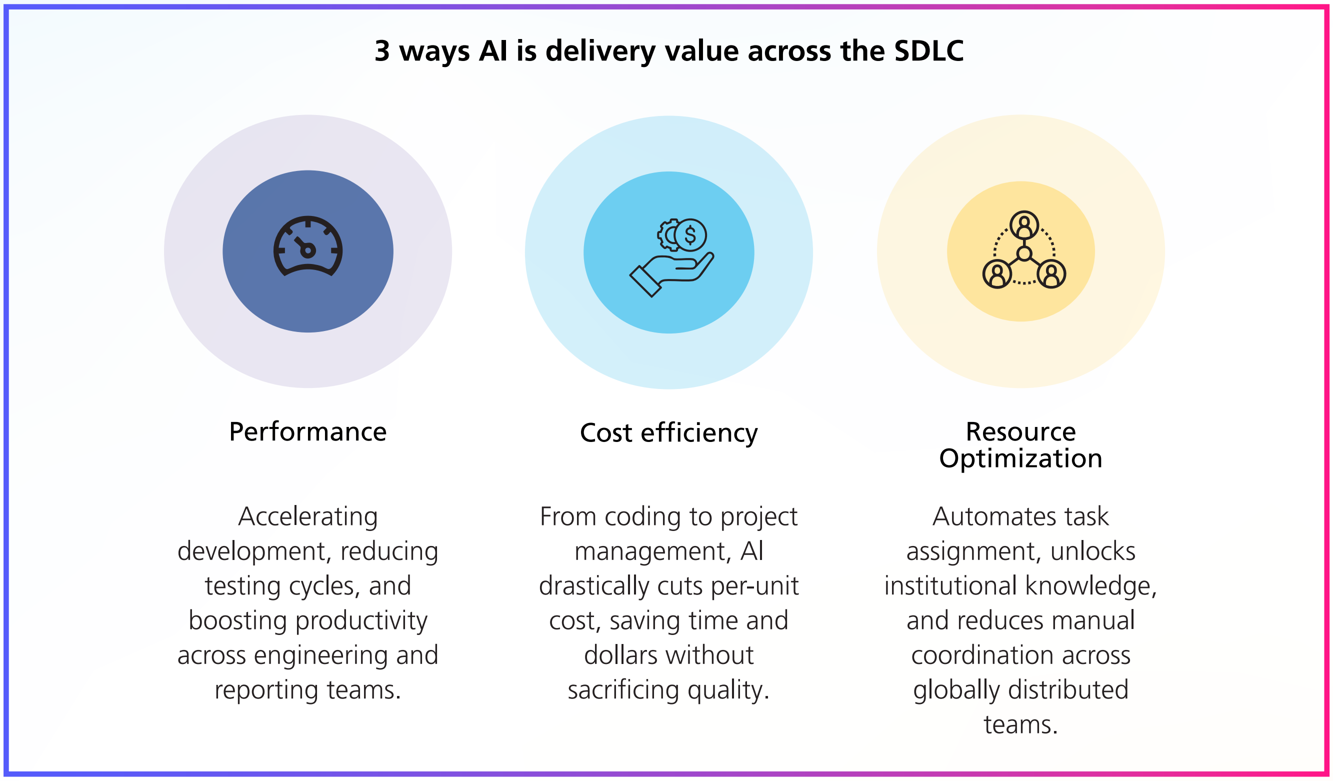
Why is traditional SDLC embracing AI tools?

The rise of powerful AI models and tools has led to a new development paradigm: the AI-native SDLC. Instead of siloed, manual processes, today's SDLC integrates AI across the pipeline, from requirements engineering and design to testing and deployment.

AI tools now assist with:

- Predicting resource bottlenecks
- Allocating tasks dynamically
- Estimating budgets and timelines
- Generating and reviewing code
- Simulating test cases

This shift is happening. To understand how, we must examine three core areas where AI delivers measurable value: performance, cost, and resource efficiency.



3 ways AI is delivery value across the SDLC

Performance

Accelerating development, reducing testing cycles, and boosting productivity across engineering and reporting teams.

Cost efficiency

From coding to project management, AI drastically cuts per-unit cost, saving time and dollars without sacrificing quality.

Resource Optimization

Automates task assignment, unlocks institutional knowledge, and reduces manual coordination across globally distributed teams.

Figure 1: Benefits of AI in SDLC

Performance gains across the SDLC

Traditional agile sprints operate in 2-week cycles to balance development, testing, and reporting. But AI assistance is compressing this cycle dramatically.

In engineering, AI coding assistants have shown a 50 % increase in developer output. In reporting, tools like ChatGPT reduce time spent on documentation and team updates by an estimated 30%2. And it’s not just anecdotal:

- 91% of software professionals expect AI to impact their role moderately.
- 21% already use AI tools in their daily workflows.
- By 2030, AI could replace up to 80% of today’s project management tasks.

Cost efficiency through AI-driven development

One of the biggest drivers of AI adoption is economics.
AI tools can generate, review, and validate code at a fraction of the cost of a full-time software engineer, without needing breaks, context switching, or fixed salaries.

Daily cost of a software engineer	Daily cost of an equivalent AI model
• Software Engineer Salary: USD 150,000 • Benefits, taxes, etc.: USD 50,000 Total: USD 200,000 • Working days per year: 250 • Cost per day for Software Engineer: USD 800 • Avg # lines of code committed per day: 100 • Cost per line of code: USD 8	• Avg number of GPT-4 tokens per line: 10 • Avg # lines of code committed per day: 100 • Price for GPT-4: 0.036/1K tokens • Cost per line of code: USD 0.0036

Note: We assumed the data based on current market standards as per FY25-26

The table above highlights the drastic cost difference between software engineers and equivalent AI models.
AI model offers benefits such as no need for breaks, doesn't resign, retains context, and generates code consistently regardless of whether it is a prototype or production-ready.
While they do make mistakes, these errors are quickly corrected with minimal cost to revise. However, human intervention is required as AI models are susceptible to hallucinations, faulty code generation, a lack of transparency, and data governance.

Resource optimization without additional headcount

AI tools can eliminate manual overhead by automatically pulling knowledge from:

- Code repositories
- Docs and wikis
- Communication logs
- Project management platforms

They ensure every team member has the latest updates, regardless of time zone, and dynamically allocate tasks based on skills, project phases, or role.
AI also assists in code generation and review, following standardized guidelines.
The result: less duplication, fewer missed handoffs, and higher productivity across distributed teams.

Comparative analysis of AI tools in SDLC stages

Selecting the right tools can be pivotal for successfully navigating the use of AI in SDLC. To ensure thorough analysis, we evaluate several AI tools in the SDLC pipeline using criteria such as performance, usability, integrability, Impact on SDLC, and cost.

The following table compares some commonly used AI tools across different areas of software development.

Requirement Gathering

Tool	Domain	Performance	Usability	Integration Capabilities	Impact on SDLC	Cost
Aqua	Requirement gathering	High accuracy in identifying and removing redundant tickets	Easy voice-based tool for requirement generation	Integrates with Jira, Jenkins, Powershell, Oracle DB, Azure DevOps	Cuts 20% time & resources via streamlined test case creation	USD 17 /month
SpaCy	Requirement gathering	Effective in processing & understanding large volumes of text	Developer-centric , powerful NLP capabilities	Integrates seamlessly with TensorFlow and PyTorch	Cuts 20% time & resources via streamlined test case creation	Open Sources
GeniePM	Requirement gathering	Accurately prioritizes automatic requirement based on goals	Interactive UI	Integrates with Jira, Notion, and CSV	Boosts developer productivity with precise & current descriptions on demand	USD 12.50/ user/ month

Coding

Tool	Domain	Performance	Usability	Integration Capabilities	Impact on SDLC	Cost
GitHub Copilot	Code generation, Testing	High accuracy in code completion and suggestions	Intuitive, user-friendly, integrates with VS Code, Visual Studio, JetBrains IDEs, and Neovim	Integrates with VS Code, Azure DevOps, and the GitHub ecosystem	Improves developer productivity by speeding up the coding phase with reliable code suggestions	USD 39/ user / month
Jit Codes	Code generation	Efficient in custom code generation; reusable code snippets library	Simple UI; extensive community support	-	Simplifies coding, improves coding time	USD 12/ month/ billed annually
Tabnine	Code assistance, Testing	AI-driven code generation, review, and analysis, High precision in code quality assessment, refactoring, and security checks	Easy to use, converts natural language prompts into code	Integrates with VS Code, Visual Studio, and other popular IDEs	Enhance code quality and security through contextual code suggestions	USD 39/ user / month
Codeium	Code assistance	High accuracy in AI-driven code personalization and code autocompletion	Flexible deployment options (SaaS, on-prem, VPC)	Compatible with Windsurf Editor, VSCode and JetBrains IDEs	Enhance code maintainability	USD 60 \ user \ month

Tool	Domain	Performance	Usability	Integration Capabilities	Impact on SDLC	Cost
Amazon Q Developer	Code review	Code review Accurate real-time code generation from prompt and context	User-friendly UI with chat functionality	Integrates with VS Code, Visual Studio, and other popular IDEs	Improves coding efficiency and accuracy	USD 19 /user/ month

Testing

Tool	Domain	Performance	Usability	Integration Capabilities	Impact on SDLC	Cost
Katalon Studio	Testing	AI-powered, accurate test case generation and execution	User-friendly with drag-and-drop features	Integrates with CI/CD tools, Jira, Git, Jenkins	Accelerates testing cycles and improves software quality	USD 84 / user / month
KaneAI	Testing	High precision in using natural language to express complex conditions and assertions in test case generation	User-friendly UI	Generate tests from Jira, Slack, or GitHub by tagging KaneAI	Reduce unexpected test failures through Gen AI-driven auto-healing capabilities	USD 35 / month
TestGrid	Testing	High performance in AI-driven automated testing using CoTester	Create and execute test cases without any programming knowledge	Compatible with popular CI/CD tools like Jenkins, Jira, and Slack	Reduce testing time by running multiple test cases simultaneously	USD 30 / month

Special Mention

Tool	Domain	Performance	Usability	Integration Capabilities	Impact on SDLC	Cost
IBM watsonx.ai	LLM-based application development	Accurate inferencing supports prompt tuning, Text extraction, and Model hosting	User-friendly but requires expertise to operate	Integrates with Jira, SAP, Oracle, Salesforce, Google, and Microsoft ecosystem	Developer-ready AI with SDKs, APIs, frameworks & templates	USD 1050 /month - tier fee

Comparing AI tools across key metrics: Accuracy, speed, usability, and integration

Here's how leading GenAI tools stack across SDLC-relevant metrics such as accuracy, speed, usability, and integration flexibility.

Performance: Accuracy, scalability, resource utilization

AI tools in software development vary widely in how they balance precision, scalability, and resource consumption. Here's how the leading players compare:

- IBM watsonx.ai delivers high accuracy in AI-driven NLP tasks and performs well in enterprise-grade environments, though it may be resource-intensive and require significant infrastructure.
- GitHub Copilot offers reliable accuracy in code suggestions across IDEs, with strong scalability across diverse development pipelines.
- Codeium is lightweight and performs well in smaller projects, providing accurate suggestions and high responsiveness.
- Tabnine excels in delivering context-aware, AI-driven code completions with solid accuracy across common programming environments.

- Amazon Q Developer leverages AWS integration to provide fast, scalable code generation and task assistance.
- Katalon Studio is effective in functional testing scenarios but can be resource intensive with limited scalability.
- GeniePM offers high scalability in project management and requirements gathering, though not specialized in deep technical performance.
- Aqua scores high in test case management but may face challenges with large datasets.
- Jit Codes generates quick code snippets with acceptable accuracy but requires user validation.
- KaneAI and TestGrid have limited available data for accuracy and scalability assessments.

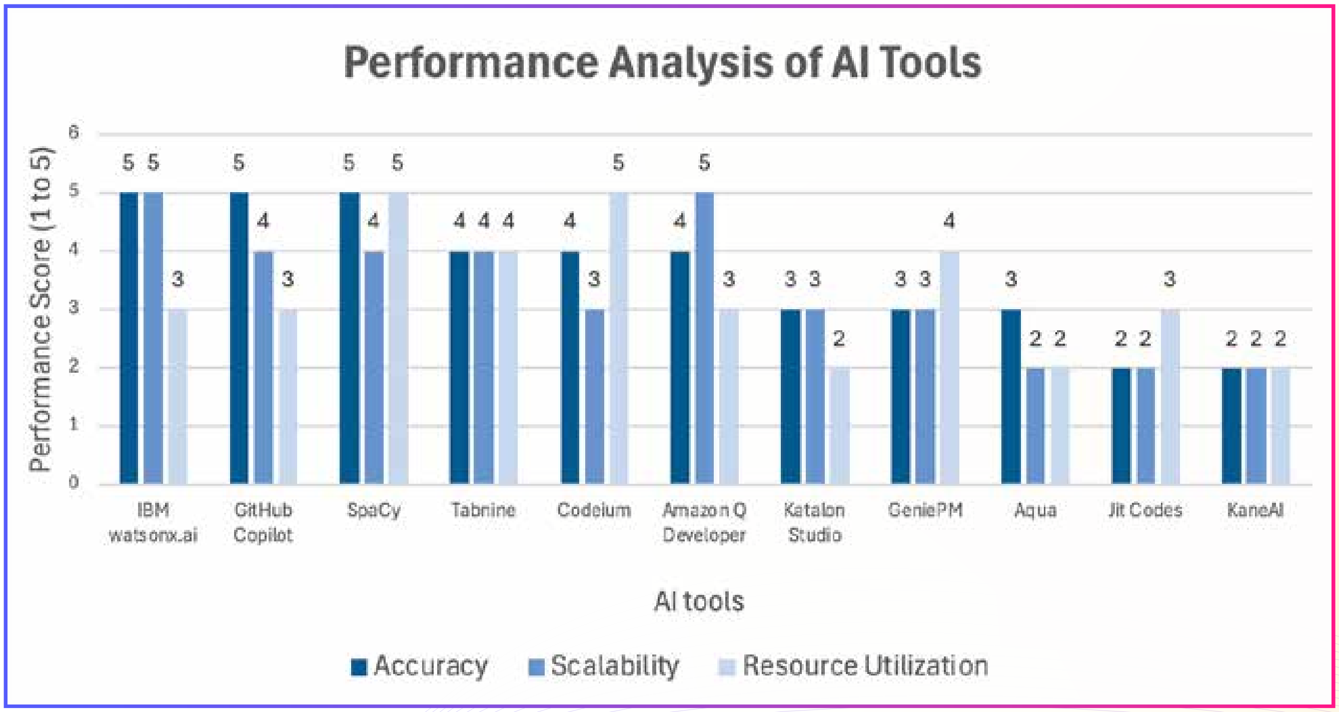


Figure 2: Performance analysis of AI tools

Speed

Speed reflects how efficiently tools execute tasks like code suggestions, NLP processing, or test generation:

- SpaCy leads in NLP efficiency, making it a strong choice for fast, large-scale language processing tasks.
- GitHub Copilot is quick to generate contextually relevant code snippets with minimal latency.
- Tabnine delivers instant completions with consistently low latency.
- Codeium provides responsive real-time suggestions, ideal for agile coding environments.
- Amazon Q Developer accelerates development workflows using AI prompts.
- IBM watsonx.ai is powerful but may experience slower processing due to resource demands.
- Jit Codes offers fast snippet generation with minimal delay.
- Katalon Studio performs consistently but may slow down with complex test scenarios.
- GeniePM is moderately fast for project-related tasks.
- Aqua, KaneAI, and TestGrid are either slower on larger datasets or lack sufficient speed data.

Usability

Usability impacts how easily developers or testers can adopt and integrate these tools into existing environments:

- GitHub Copilot is highly intuitive and integrates seamlessly with popular IDEs, making it a favorite among developers.
- SpaCy is well-documented and developer-friendly, particularly for data science and NLP users.
- Tabnine provides a clean, easy-to-use interface with minimal learning curve.
- Codeium features helpful wizards and a lightweight design ideal for smaller projects.
- Katalon Studio offers a structured UI for test management with helpful visual guides.
- GeniePM is designed for ease-of-use in project workflows and planning tools.
- Amazon Q Developer integrates smoothly with AWS/GitHub workflows and is straightforward to use.
- IBM watsonx.ai is powerful but can be complex for new users.
- Aqua is comprehensive but may feel heavy for lightweight needs.

- Jit Codes, KaneAI, and TestGrid provide basic usability but may lack onboarding support or extensive documentation.

Integration

Integration flexibility plays a key role in enterprise tool adoption, especially across CI/CD pipelines, IDEs, and cloud platforms:

- GitHub Copilot integrates deeply with multiple IDEs and developer workflows.
- IBM watsonx.ai supports broad integration across IBM and external platforms.
- Amazon Q Developer fits well within AWS and GitHub pipelines.
- Katalon Studio connects easily with CI/CD tools like Jenkins and Jira.
- Aqua offers broad third-party integration support across testing tools.
- GeniePM aligns well with major project management systems.
- SpaCy and Codeium both offer flexible integration with IDEs and coding platforms.
- Tabnine is extendable through custom components and plugin frameworks.
- Jit Codes is best suited for smaller teams with limited integration needs.
- KaneAI and TestGrid offer limited public documentation on integration capabilities.

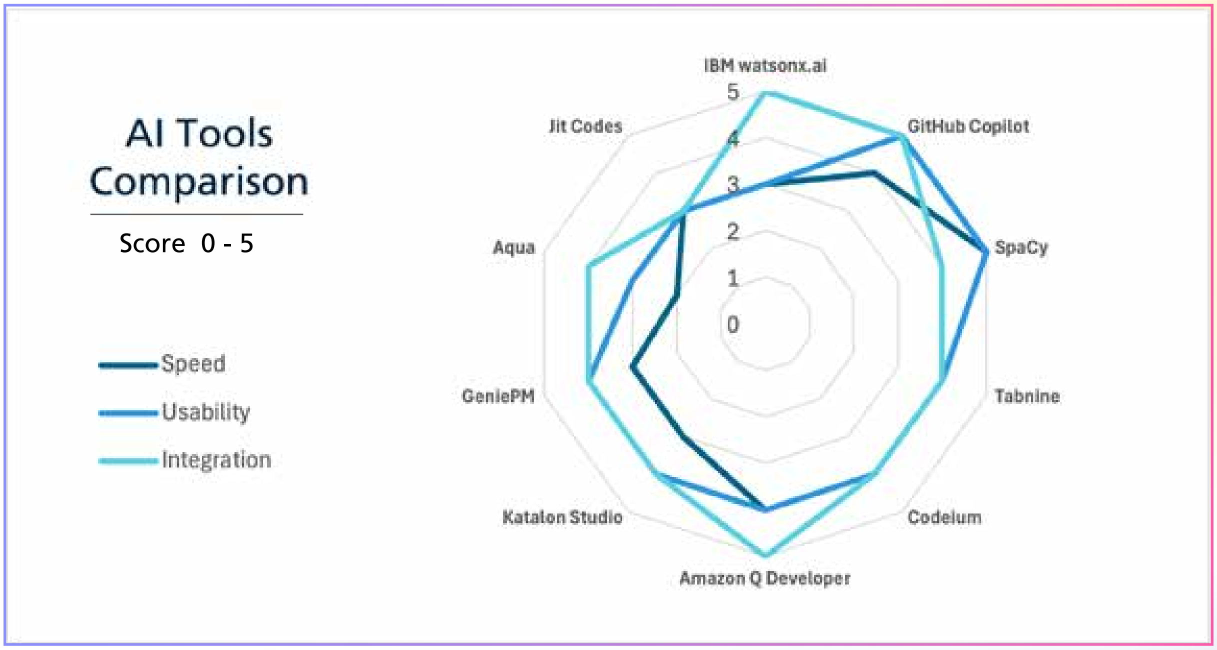


Figure 3: AI tools comparison based on speed, usability, and integration capabilities

Conclusion

As GenAI becomes more embedded in the software development lifecycle, its role shifts from task-level automation to strategic augmentation.

The real advantage lies not in replacing developers but in enabling faster decisions, smarter collaboration, and continuous optimization across the SDLC.

To unlock lasting impact, enterprises should treat GenAI not as a standalone tool but as an evolving layer of intelligence that strengthens every stage of software delivery.

Methodolgy

To ensure a fair and unbiased evaluation of GenAI tools across the SDLC, the authors adopted a structured, multi-criteria analysis framework that reflects LTIMindtree's commitment to transparent, research-driven guidance for enterprise adoption. Tools were assessed based on five key dimensions: performance, usability, integration capabilities, impact on SDLC, and cost, using publicly available documentation, platform specifications, and user-reported metrics. This methodology is grounded in objective indicators, including accuracy, scalability, resource utilization, and speed. The approach emphasizes predictive planning, automated code generation, intelligent testing, seamless integration, and collaborative efficiency. Tools like GitHub Copilot, Codeium, and Tabnine enhance coding productivity with high accuracy and real-time suggestions, while Amazon Q Developer and IBM watsonx.ai offer scalable support for code review and NLP tasks. Testing is streamlined through platforms like Katalon Studio, KaneAI, and TestGrid, which automate test case generation and execution. For project management and requirement gathering, tools such as GeniePM, Aqua, SpaCy, and Jit Codes provide dynamic task allocation and deep text analysis. Collectively, these tools enable faster decisions, smarter collaboration, and continuous optimization across distributed teams.

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