IDC MarketScape

IDC MarketScape: Worldwide AI Coding and Software Engineering Technologies 2025 Vendor Assessment
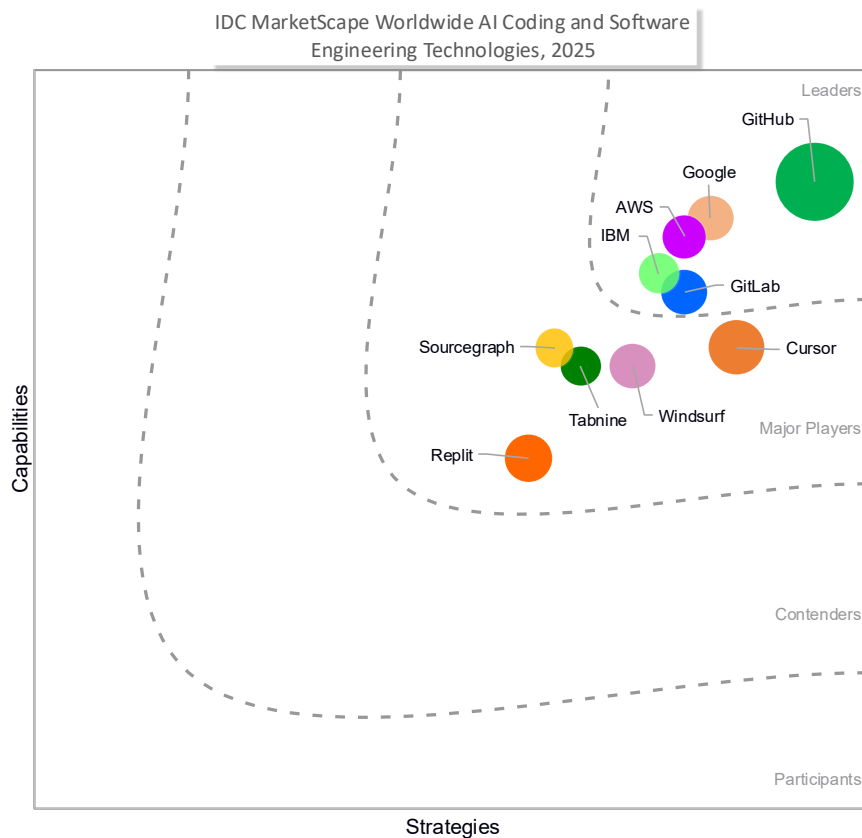
Arnal Dayaratna

THIS EXCERPT FEATURES IBM AS A LEADER

IDC MARKETSCAPE FIGURE

FIGURE 1

IDC MarketScape Worldwide AI Coding and Software Engineering Technologies Vendor Assessment

IDC MarketScape Worldwide AI Coding and Software Engineering Technologies, 2025

Source: IDC, 2025

July 2025, IDC #US52982525

Please see the Appendix for detailed methodology, market definition, and scoring criteria.

ABOUT THIS EXCERPT

The content for this excerpt was taken directly from IDC MarketScape: Worldwide AI Coding and Software Engineering Technologies 2025 Vendor Assessment (Doc # US52982525).

IDC OPINION

AI coding and software engineering technologies are at the center of a fierce new wave of competition that is transforming how software is developed, managed, and maintained. The rush to adopt these solutions is so intense that 91% of developers now rely on them across almost every aspect of their workflow, from code generation and test automation to intelligent refactoring and context-aware documentation. According to IDC survey data, organizations that have embraced these technologies are achieving productivity gains of roughly 35%. As a result, these technologies empower developers with more efficient debugging, streamlined navigation of sprawling code bases, and a dramatic reduction in the time spent on documentation and boilerplate code.

This is far more than incremental improvement. Teams equipped with these tools are delivering new features faster that respond to customer demands with newfound agility. Today's solutions provide end-to-end intelligent automation throughout the SDLC, supporting multiple programming languages, automatically surfacing the right documentation or best practices, and offering natural language interfaces so developers can build by describing what they want — no matter how they say it.

The landscape is transitioning toward incorporating agentic capabilities, where AI systems can interpret high-level objectives, plan and execute multistep tasks, and autonomously manage complex workflows. For example, an agentic assistant can identify a bug, propose a fix, write and run tests, and submit a pull request with minimal human intervention. This shift is redefining the developer's role, placing greater emphasis on strategic oversight of agentic developer technologies that includes attention to the prompts and context responsible for their behavior. Meanwhile, organizations that invest in these technologies gain a significant advantage in delivering high-quality software at speed.

IDC MARKETSCAPE VENDOR INCLUSION CRITERIA

Vendors were considered for inclusion in this evaluation based on the following criteria:

- **Primary function:** The product must serve first and foremost as an AI-powered coding or software engineering technology, supporting tasks such as code generation, explanation, context-aware suggestions, automated code review, refactoring, or other software engineering functions.
- **Standalone offering:** It must be sold as an independent, commercially available product rather than as an unreleased feature or bundled add-on.
- **General availability:** The solution must be fully released to the public; beta or limited-preview offerings do not qualify.
- **Advanced AI foundation:** The technology must rely on large language models (LLMs) or equivalent advanced AI systems that are purpose trained or fine-tuned for software development workflows.
- **Multilanguage or multi-framework scope:** Support for at least two programming languages or frameworks is mandatory.
- **Professional developer focus:** The intended users must be professional software engineers or development teams, not hobbyists or end-user business developer personas.
- **Market credibility:** The vendor must demonstrate meaningful recognition, either through affiliation with a well-known parent company or through visible traction in the developer community.
- **Enterprise-grade features:** The product must include capabilities important to enterprises, such as strong security and compliance controls, customization for proprietary code bases, scalability for large teams, and administrative tooling.
- **Ongoing investment:** Evidence of active development and regular product updates is required.

This set of criteria reflects the expanded scope and capabilities of today's AI coding and software engineering technologies.

ADVICE FOR TECHNOLOGY BUYERS

Focus on Support for Core Development Languages and Frameworks

Evaluate the AI coding and software engineering technology's proficiency in the programming languages, frameworks, and libraries your teams use daily. This extends beyond surface-level syntax recognition to understanding language-specific conventions, design patterns, and best practices. Assess its ability to keep up with new language versions and emerging libraries and its capacity to leverage your existing code base and documentation to further refine its recommendations. Ongoing compatibility with your technical stack ensures the value and relevance to the full spectrum of high-

value development activities, from code creation and refactoring to testing, debugging, and architectural guidance.

Ensure Seamless Integration with Version Control Repositories

Verify that the technology integrates natively with your organization's version control systems, such as Git, and supports your established workflows around branching, merging, and pull requests. It should analyze commit histories, understand the evolution of your code base, and provide context-aware suggestions based on recent changes and code ownership. Features such as automated code suggestions during pull requests, inline code review assistance, and support for resolving merge conflicts streamline collaboration and reduce manual effort. Integration with version control also enables better traceability, as the technology's contributions can be tracked and audited alongside human-generated code.

Emphasize Rigorous Security, Privacy, and Data Handling Standards

Scrutinize the technology's security posture across several dimensions. For example, review data retention policies to determine whether code, prompts, or usage data are stored, for how long, and under what conditions data is accessed or deleted. Determine whether your code is used for model training; select tools that guarantee your data is not incorporated into future model updates or shared beyond your organization. Assess compliance with standards such as GDPR and SOC 2, and ensure support for granular access controls and auditability. Review license agreements for risks to intellectual property. Finally, evaluate the technology's ability to avoid generating insecure code and whether it offers automated security scanning or compliance checks as part of its workflow.

Prioritize Code Customization to Reflect the Specificity of Your Organization's Code Base

Select an AI Coding and Software Engineering Technology that can be tailored to your organization's unique coding standards, architectural conventions, and business logic. It should allow configuration of custom linting rules, enforcement of internal style guides, and incorporation of proprietary libraries or frameworks into its suggestion engine. It should learn from your historical code repositories, adapting its recommendations to reflect your preferred patterns for error handling, modularization, and naming conventions. The ability to embed custom code snippets, templates, and reusable components ensures AI outputs are not only syntactically correct but also contextually relevant and production ready, reducing the need for manual rework.

Integrate Deeply into the Existing Development Toolchain

A high-impact AI coding and software engineering technology supports the majority of technologies your developers use by creating a unified and efficient workflow for developers. For instance, technologies in this space should either plug into popular IDEs, code editors, and code repositories or rely on well-established technologies at their core. The technology should integrate with CI/CD systems to support automated code reviews, enforcement of coding standards, and flagging of potential issues before code is merged. Integration with automated testing frameworks allows the technology to suggest or generate relevant unit and integration tests that improve code quality. It should also support collaboration features such as shared code snippets, team-based configuration, and feedback mechanisms that enable continuous improvement and knowledge sharing across distributed teams.

Plan Thoroughly for Developer Onboarding, Training, and Change Management

A successful rollout of AI coding and software engineering technologies requires a well-structured onboarding and training program. Develop comprehensive documentation, interactive tutorials, and hands-on workshops tailored to different user groups, from junior developers to senior architects. Establish clear guidelines for when and how to use the technology, as well as escalation paths for addressing issues or limitations. Encourage early adopters to act as champions, sharing tips, best practices, and success stories with their peers. Regularly solicit feedback to refine training materials and address emerging challenges. Proactively manage change by communicating the benefits of the technology, addressing concerns about job displacement or code quality, and fostering a culture of collaboration between humans and AI.

Analyze Total Cost of Ownership, Scalability, and Future Road Map

Conduct a thorough analysis of all direct and indirect costs associated with adopting the AI coding and software engineering technology. This includes licensing or subscription fees, infrastructure requirements, training and onboarding expenses, and ongoing support or maintenance. Evaluate the scalability of the solution in terms of user limits, supported languages, and ability to handle growing code bases or distributed teams. Consider the long-term road map, including planned feature enhancements, support for emerging technologies, and alignment with your organization's strategic goals. A comprehensive total-cost-of-ownership (TCO) assessment ensures that the solution remains cost-effective as your needs evolve, while a clear understanding of the road map helps future proof your investment.

Evaluate the Foundation Model and the Vendor Behind It

AI coding and software engineering technologies stand or fall on the strength of the foundation model or models that power them and the reliability of the company that produces that model. Before purchase, insist on evidence that the model delivers consistently high accuracy on code completion, documentation, security analysis, and other tasks that matter to your teams. Review published benchmarks, third-party audits, and fine-tuning capabilities. Examine the model's training corpus, its update cadence, and the provider's road map for new releases, safeguards, and performance gains. Equally, scrutinize the vendor's financial stability, commitment to enterprise support, and posture on security, privacy, and IP indemnification. A vendor with transparent pricing, clear service-level guarantees, and a track record of rapidly addressing vulnerabilities reduces operational risk. By weighting both model quality and vendor strength, you protect your organization from stagnation, unexpected cost spikes, or compliance gaps and you keep the option open to adopt newer or complementary models as they mature.

VENDOR SUMMARY PROFILES

This section briefly explains IDC's key observations resulting in a vendor's position in the IDC MarketScape. While every vendor is evaluated against each of the criteria outlined in the Appendix, the description here provides a summary of each vendor's strengths and challenges.

IBM

After a thorough evaluation of IBM's strategies and capabilities, IDC has positioned the company in the Leaders category in this 2025 IDC MarketScape for worldwide AI coding and software engineering technologies.

Company Overview

IBM watsonx Code Assistant is an enterprise-grade software engineering technology designed to accelerate software delivery and modernization for large organizations. Built on the watsonx platform and powered by IBM's Granite foundation models, watsonx Code Assistant delivers robust project understanding, secure integration, and automated support across the entire software development life cycle. The platform's architecture is engineered for seamless deployment in cloud, on-premises, and hybrid environments, ensuring compliance and data sovereignty for regulated industries. Its deep support for legacy modernization, hybrid cloud automation, and infrastructure as code — alongside enterprise-grade security, governance, and customization — makes watsonx Code Assistant a strategic solution for organizations seeking to boost productivity, enhance code quality, and streamline transformation initiatives. IBM's

commitment to operational efficiency and regulatory compliance is reflected in watsonx Code Assistant's rapidly expanding capabilities and its adoption by enterprises with complex, mission-critical workloads.

Quick facts include:

- **Launched:** 2023
- **Parent company:** IBM
- **Foundation models:** IBM Granite models, domain tuned for enterprise/legacy code
- **Pricing:** Enterprise subscription, consumption, air-gapped available
- **IDEs and code editor support:** VS Code, Eclipse, IBM Z Open Editor, Red Hat OpenShift, Ansible Automation Platform
- **Latest features:** COBOL to Java, Java modernization, Ansible playbook generation, code similarity checks
- **Notable:** Mainframe/Java modernization, compliance, on-prem security, infra-as-code automation

Strengths

- **Mainframe domain and language expertise:** IBM watsonx Code Assistant for Z offers deep specialization in mainframe environments, supporting languages such as COBOL, PL/I, JCL, and REXX that are critical for sectors like banking, insurance, and government. This capability enables application analysis, code generation, explanation, and transformation for these languages, directly addressing the skills gap as experienced mainframe developers retire and accelerating the onboarding of new talent with modern tools. The solution empowers organizations to maintain, extend, and modernize their mainframe applications while ensuring business continuity and reducing technical debt.

- **Enterprise governance framework:** The platform incorporates robust governance features designed for highly regulated industries, including provenance tracking for code and AI-generated suggestions, bias detection and mitigation, and fine-grained access controls. These tools support auditability, regulatory compliance, and ethical AI practices throughout the software development life cycle. Organizations can confidently adopt AI coding assistance, knowing responsible AI management and documentation are embedded at every step.

- **Hybrid infrastructure support:** Through integration with Red Hat Ansible Lightspeed, watsonx Code Assistant enables advanced automation across hybrid IT environments, including traditional datacenters, private clouds, and public clouds. The assistant generates and validates Ansible playbooks, streamlining

infrastructure provisioning, configuration, and management while reducing human error. This automation promotes standardization and accelerates the adoption of modern DevOps practices, bridging legacy and cloud-native operations.

- **Domain-specific optimization:** IBM has developed specialized model variants within watsonx Code Assistant, finely tuned for specific industries and technical domains. These models incorporate industry terminology, regulatory requirements, and best practices, resulting in more accurate and contextually relevant code suggestions. Enterprises benefit from improved productivity, reduced risk, and AI assistance tailored to their unique business and regulatory environments.

Challenges

Large-scale code analysis and transformation tasks can be computationally intensive and time consuming, especially for extensive legacy code bases. This can lead to longer project timelines and increased resource consumption, requiring careful planning and prioritization.

While IBM excels in legacy and hybrid environments, its native support for modern cloud-native patterns, such as serverless architectures or infrastructure as code with Terraform, is less mature. Organizations pursuing cutting-edge cloud-native strategies may need to supplement IBM's tools with additional solutions to achieve comprehensive coverage.

Consider IBM When

IBM's solution is well suited for large enterprises with significant investments in mainframe, enterprise Java, or hybrid cloud environments planning major modernization or transformation initiatives. The platform's deep specialization in COBOL modernization and mainframe optimization is particularly valuable for organizations developing mission-critical mainframe applications. If your organization operates in a regulated industry where auditability, traceability, and code provenance are essential, IBM's strong compliance and governance features will be a key benefit. The ability to deploy on-premises or in hybrid environments is especially important for organizations with strict data residency or air-gapped requirements. IBM's integration with Red Hat Ansible Lightspeed also makes this portfolio a strong fit for teams looking to automate infrastructure provisioning and configuration as part of their modernization journey.

Reading an IDC MarketScape Graph

For the purposes of this analysis, IDC divided potential key measures for success into two primary categories: capabilities and strategies.

Positioning on the y-axis reflects the vendor's current capabilities and menu of services and how well aligned the vendor is to customer needs. The capabilities category focuses on the capabilities of the company and product today, here and now. Under this category, IDC analysts will look at how well a vendor is building/delivering capabilities that enable it to execute its chosen strategy in the market.

Positioning on the x-axis, or strategies axis, indicates how well the vendor's future strategy aligns with what customers will require in three to five years. The strategies category focuses on high-level decisions and underlying assumptions about offerings, customer segments, and business and go-to-market plans for the next three to five years.

The size of the individual vendor markers in the IDC MarketScape represents the market share of each individual vendor within the specific market segment being assessed.

IDC MarketScape Methodology

IDC MarketScape criteria selection, weightings, and vendor scores represent well-researched IDC judgment about the market and specific vendors. IDC analysts tailor the range of standard characteristics by which vendors are measured through structured discussions, surveys, and interviews with market leaders, participants, and end users. Market weightings are based on user interviews, buyer surveys, and the input of IDC experts in each market. IDC analysts base individual vendor scores, and ultimately vendor positions on the IDC MarketScape, on detailed surveys and interviews with the vendors, publicly available information, and end-user experiences in an effort to provide an accurate and consistent assessment of each vendor's characteristics, behavior, and capability.

Market Definition

AI coding and software engineering technologies are a category of solutions that apply artificial intelligence — including machine learning, large language models, and natural language processing — to automate, enhance, and optimize key aspects of the software development life cycle. These technologies began with applications such as code generation, code completion, and debugging and have rapidly evolved into

platforms that support a broad spectrum of development-related activities. Today, AI coding and software engineering technologies enable automated code review, testing, refactoring, documentation generation, and integration with CI/CD pipelines, making software development faster, more reliable, and more scalable. By combining software engineering principles with AI-driven automation, these technologies are transforming how software is designed, built, tested, and maintained and are becoming foundational to modern software engineering practices.

LEARN MORE

Related Research

- *IDC MarketScape: Worldwide FinOps Cloud Costs Optimization Multicloud 2025 Vendor Assessment* (IDC #US52991225, June 2025)
- *IDC MarketScape: Worldwide AI-Enabled Marketing Platforms for Enterprise Companies 2025 Vendor Assessment* (IDC #US53601725, June 2025)
- *IDC Market Glance: Cloud-Native Software Engineering, 2Q25* (IDC #EUR153369225, May 2025)
- *IDC MarketScape: Worldwide Data Clean Room Technology for Advertising and Marketing Use Cases 2025 Vendor Assessment* (IDC #US52035625, May 2025)
- *To Manage the Coming Exponential Growth of AI and Applications, Organizations Need a Strategic Pivot in Software Engineering* (IDC #EUR153198325, February 2025)

Synopsis

This IDC study considers the space of AI coding and software engineering technologies.

"AI coding and software engineering platforms are revolutionizing software development, enabling developers to shift beyond repetitive tasks and prioritize high-impact innovation. With documented productivity improvements of up to 35% and broad industry adoption, these solutions now take responsibility for the entire software development life cycle — from planning and coding to testing, deployment, and monitoring. Rather than simply accelerating code creation, these technologies are transforming how software is conceived, delivered, and maintained.

As these platforms evolve into agentic solutions, the role of developers is fundamentally changing: developers are moving from manual implementation to directing technical vision, managing complex project architecture, ensuring software

quality, and exercising informed judgment around requirements and risk. This shift allows technical teams to concentrate on higher-level design, governance, and aligning software outcomes with organizational objectives. For technology buyers and IT leaders, embracing the full transition of AI-driven coding and software engineering solutions to end-to-end SDLC platforms positions their organizations to deliver higher-quality, future-ready software at unprecedented speed." — Arnal Dayaratna, research vice president, Software Development at IDC

ABOUT IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications, and consumer technology markets. With more than 1,300 analysts worldwide, IDC offers global, regional, and local expertise on technology, IT benchmarking and sourcing, and industry opportunities and trends in over 110 countries. IDC's analysis and insight helps IT professionals, business executives, and the investment community to make fact-based technology decisions and to achieve their key business objectives. Founded in 1964, IDC is a wholly owned subsidiary of International Data Group (IDG, Inc.).

Global Headquarters

140 Kendrick Street
Building B
Needham, MA 02494
USA
508.872.8200
Twitter: @IDC
blogs.idc.com
www.idc.com