

2024 Technology Adoption Roadmap for Software Engineering

More than 140 software engineering leaders from large enterprises shared their anticipated adoption timelines, enterprise value and deployment risk for 47 key technologies and practices. Use this infographic and analysis to guide technology adoption decisions and assess essential trends.

Enterprise value

The value score for each technology is determined by analyzing the value level reported by respondents planning to use or using the technology, taking into account increased cost-efficiency, improved speed and agility, enabled resilience, enhanced employee productivity, and delivery of superior capabilities to consumers.



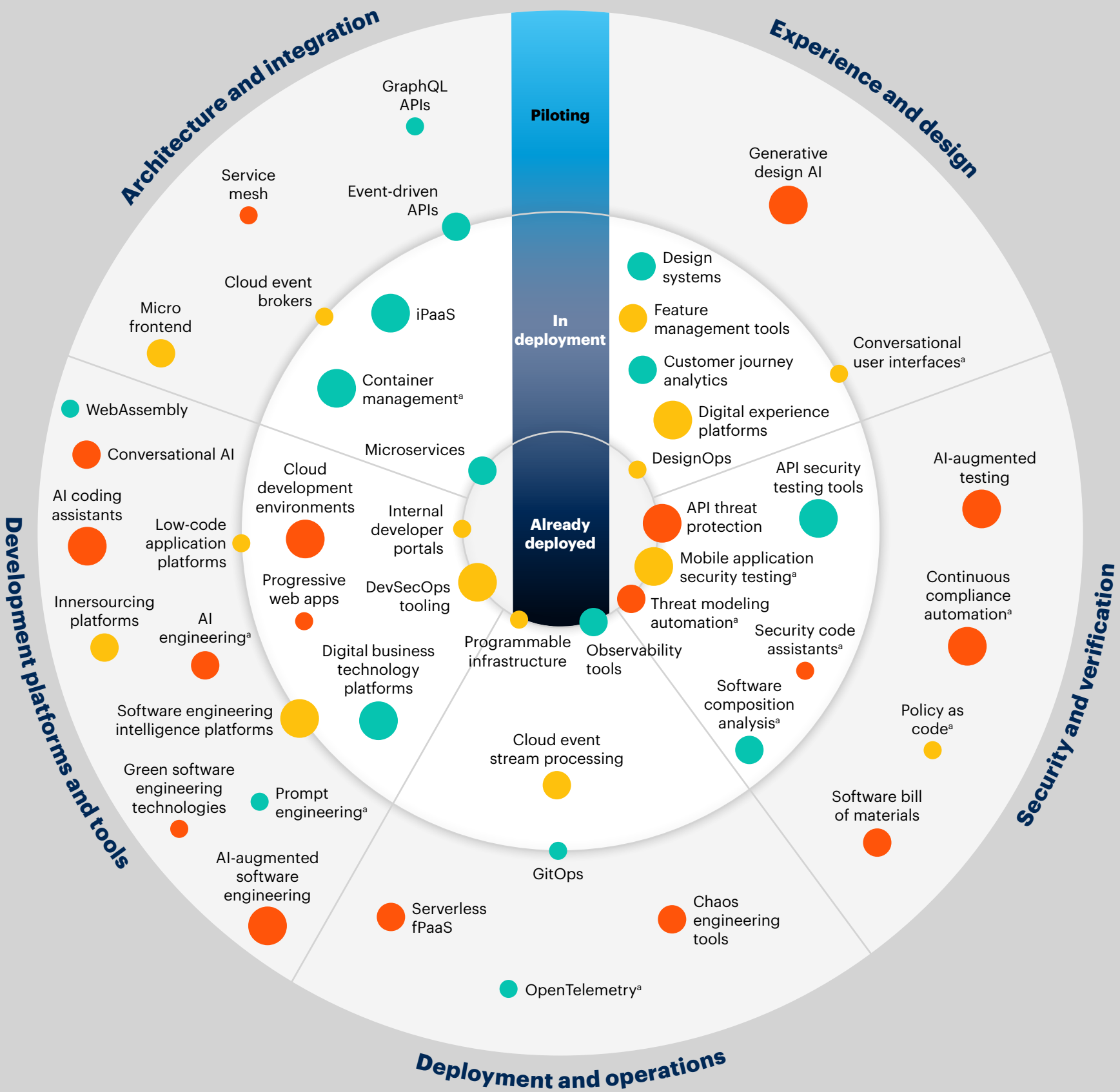
Deployment risk

The risk score for each technology is determined by analyzing the risk level reported by respondents planning to use or using the technology, taking into account potential risks such as talent unavailability, high or unpredictable costs, cybersecurity risk, and technical incompatibility or architecture complexity.



Adoption phase

The adoption phase is determined by the current deployment plans for a majority of organizations. Technologies placed on the border between phases are on the cusp of moving into the next deployment phase.



Key Take-Aways

Software Engineering

- Improving speed and agility is the top motivation for new technology adoption, a dramatic shift from last year.** Rapidly evolving business and customer needs are driving software engineering leaders to place significant emphasis on the speed and agility with which they're able to deliver new solutions. This explains why improving speed and agility is the most common value driver reported for this year's roadmap, with leaders selecting it as the primary value driver for 47% of the technologies. This marks a dramatic shift from 12 months ago, when the most common value drivers for technologies on the roadmap were providing cost efficiencies and delivering superior capabilities.
- Technical incompatibility/architecture complexity is currently the greatest concern associated with new technology deployment for software engineering leaders.** As technologies have proliferated and become inherently complex, new technology deployment presents challenges in integrating them successfully into the existing environment. Technical incompatibility/architecture complexity is therefore the most cited risk factor, noted by software engineering leaders as the primary risk factor for 43% of the technologies on the roadmap this year.
- Cost considerations are becoming less of a factor in software engineering leaders' technology deployment decisions.** In last year's survey, cost considerations were a clear priority for software engineering leaders as they were cited prevalently, both for the potential value technologies could create by reducing ongoing costs and for the risk of high or unpredictable costs from deploying the technology. That did not hold true this year. Instead, this year no technology has "providing cost efficiency and savings" as the primary value factor and only 11% had "high or unpredictable costs" as the primary risk factor.
- Deployment risk has become a more important factor in technology adoption plans over the past 12 months.** Software engineering leaders are exhibiting caution in their adoption plans for technologies they rate as high risk. Only 29% of high-risk technologies are currently in deployment, a shift from last year when the high-risk technologies were evenly split between the piloting and deployment phases.
- Software engineering leaders are exploring several AI-driven technologies as they rationalize the hype and enthusiasm for these new tools against their risks and unproven utility.** There are seven AI-related technologies on software engineering leaders' adoption roadmaps this year, all of which are currently in the piloting phase. With the exception of prompt engineering, leaders rate all of the AI-driven technologies as high risk.
- The need to improve developer experience and productivity continues to drive technology adoption.** Improving developer experience or productivity was the second most common value driver software engineering leaders reported and was associated with 19% of technologies on this year's roadmap, which is consistent with findings from last year.
- Building secure software engineering solutions is a high priority, with leaders indicating significant plans to adopt new technologies in the security and verification category.** While software engineering leaders report adoption plans across all categories to support delivery activities, the security and verification category has a high number of technologies and the highest proportion in the deployment phase. Compared to last year's roadmap, leaders have advanced some of the newer technologies, but technologies in deployment last year have not moved forward.
- As leaders report more concerns about technical incompatibility/architecture complexity, their perceptions of the technologies that can manage these concerns have become more favorable.** Technical incompatibility/architecture complexity is front-of-mind for software engineering leaders as the top risk factor associated with technology adoption, and their perceptions of technologies that can mitigate that risk have improved. Overall, leaders rate architecture and integration technologies medium value and low risk. Compared to last year, the percentage of architecture and integration technologies that leaders rate high risk has decreased by 22%, with only one technology rated high risk and most technologies rated low risk.