

Generative AI and Software Engineering Teams: Adoption and Training



Generative AI (GenAI) is changing the way that software engineers and developers do their work, but how are organizations managing adoption, training and governance? Read on to find out.

One-Minute Insights:

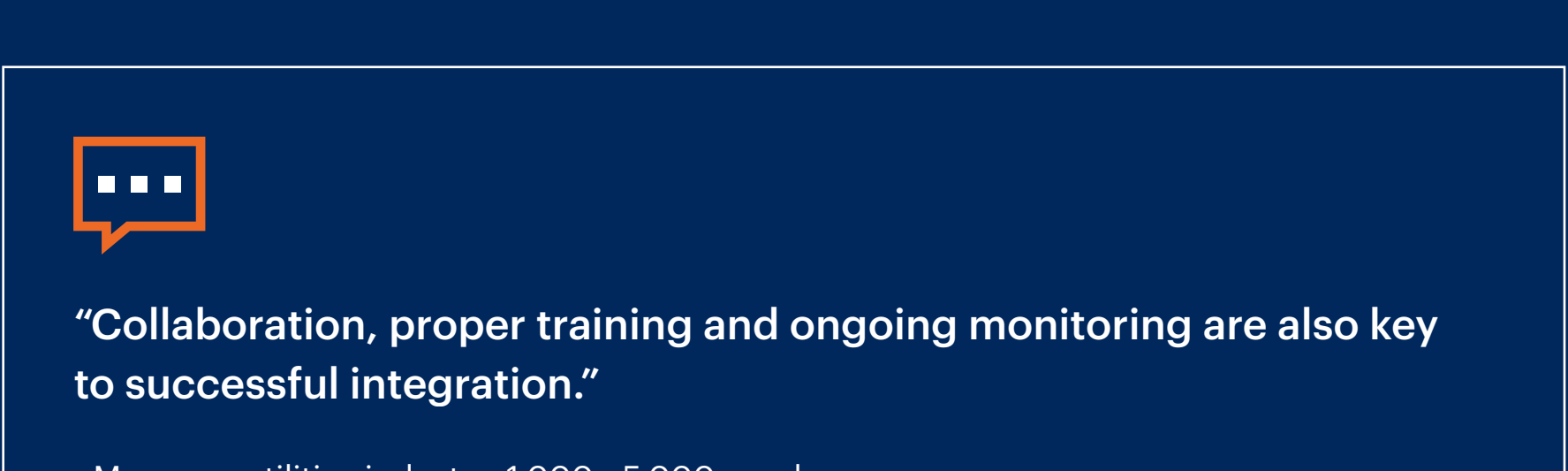
- Most organizations have adopted GenAI tools or plan to do so within the current quarter or year
- Code generation is a top use case, while tool cost is a significant barrier
- Respondents rely on employees and outside experts for GenAI training and plan to increase workload as a result of implementation
- Many organizations lack formal governance policies
- Those with governance policies in place rely on written guidelines to train staff in appropriate GenAI usage

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Data collection: Aug 23 - Sep 13, 2023

Respondents: 123 software engineering leaders who are familiar with generative AI initiatives in their organizations

Most organizations have adopted GenAI tools or plan to do so within 2023



"[GenAI is] still a new area with regulation and governance still catching up. We've taken a very pragmatic approach. Adoption is happening in small groups via experimentation — training and formal guidelines to follow."

- C-suite, finance industry, <1,000 employees

"Collaboration, proper training and ongoing monitoring are also key to successful integration."

- Manager, utilities industry, 1,000 - 5,000 employees

Question: What is the most important thing to keep in mind when integrating generative AI into a software engineering team?

Code generation is a top use case, while tool cost is a significant barrier

Respondents at organizations that have adopted or plan to adopt GenAI (n = 115) say their software engineers' and developers' current or planned use cases include **code generation (65%), code review (45%) and code documentation generation (42%)**.



For those organizations (n = 115), prominent barriers to adopting GenAI on respondent software engineering teams include **cost of tools (41%), issues creating governance policy (38%) and cybersecurity problems (38%)**.

In your organization, what are the most significant barriers to adopting generative AI on your software engineering team? Select up to 3.

- 38% Cybersecurity
- 38% Governance policy creation
- 36% IP protection
- 31% Cost of generative AI tools
- 31% Generative AI skill gaps

n = 115

Lack of trust in tools/vendors 25% | Governance policy enforcement 24% | Poor quality code 19% | Lack of executive buy-in 18% | Lack of employee buy-in 12% | Difficulty training staff in generative AI 12% | Organizational ban on generative AI 3% | No barriers 3% | Don't know 0% | Other 0%

Question shown only to respondents who answered "Yes" or "Not yet, but we plan to" to "Has your organization adopted generative AI tools as part of your software engineers' and developers' tool stack?"

"AI should be seen as complementary to human software engineering creativity and not as a replacement."

- Director, software industry, <1,000 employees

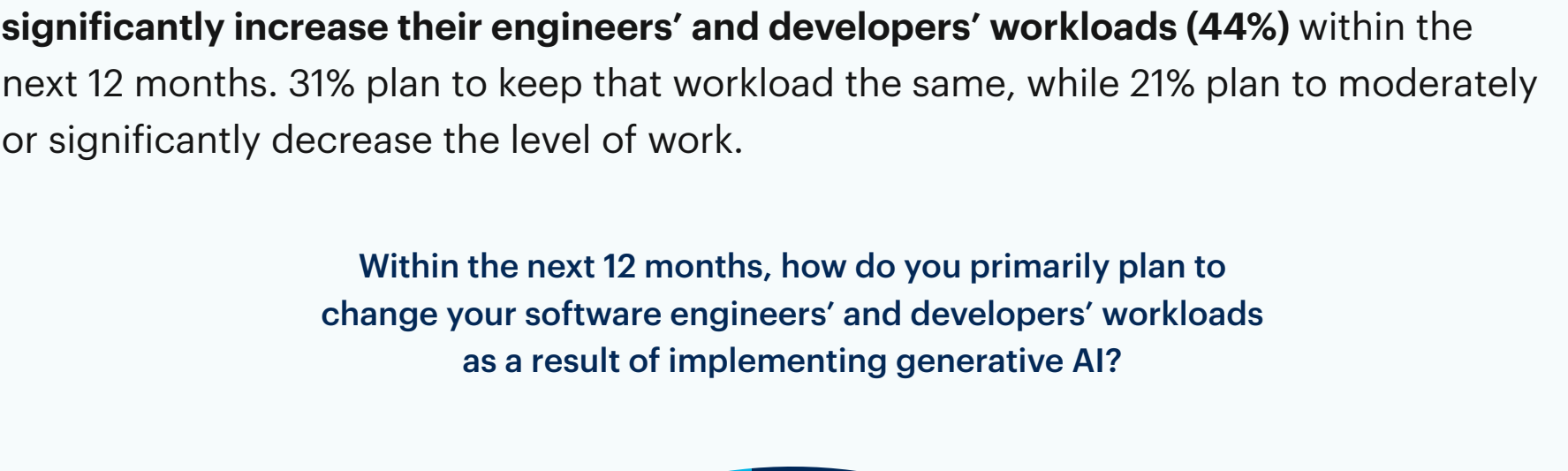
"Cost and skill gaps are the major challenges at this point."

- VP, transportation industry, <1,000 employees

Question: What is the most important thing to keep in mind when integrating generative AI into a software engineering team?

Respondents expect employees and outside experts to lead GenAI training and plan to increase workload as a result of implementation

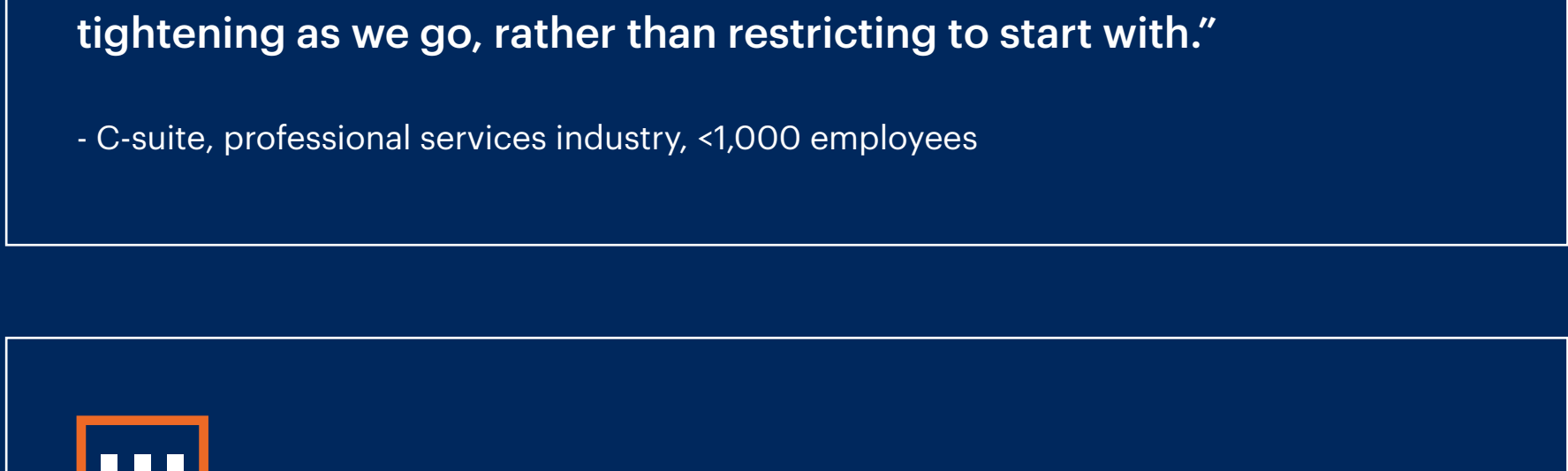
In order to train software engineers and developers on generative AI tools, respondent organizations that are using or plan to use GenAI (n = 115) rely on **employee-led experimentation (38%), outside training courses (37%) and sessions with outside experts (35%)**.



Training courses developed in house 27% | Knowledge base documentation developed in house 26% | Vendor-provided tool documentation 23% | Employees are reimbursed for courses/products of their choosing 19% | 1:1 coaching 17% | We don't provide generative AI training to our software engineers and developers 6% | Don't know 3% | Other 0%

Question shown only to respondents who answered "Yes" or "Not yet, but we plan to" to "Has your organization adopted generative AI tools as part of your software engineers' and developers' tool stack?"

As a result of implementing GenAI, respondents (n = 115) plan to **moderately or significantly increase their engineers' and developers' workloads (44%)** within the next 12 months. 31% plan to keep that the same, while 21% plan to moderately or significantly decrease the level of work.



"It's an exciting time; we tend to allow the team to experiment then tightening as we go, rather than restricting to start with."

- C-suite, professional services industry, <1,000 employees

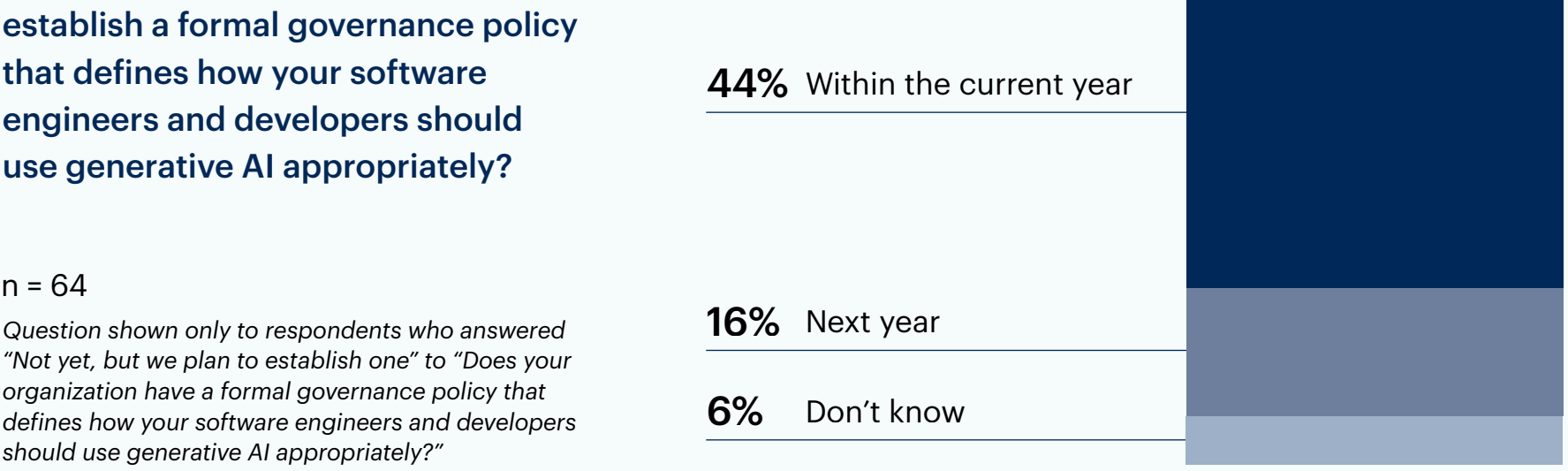
"AI is a tool to support and increase productivity. However, [the] engineering team should have enough acumen to validate the output of AI and critically validate it."

- Director, professional services industry, 5,000 - 10,000 employees

Question: What is the most important thing to keep in mind when integrating generative AI into a software engineering team?

Many organizations lack formal governance policies; those with policies in place rely on written guidelines to train staff in appropriate GenAI usage

Around two-thirds (67%) of all survey respondents (n = 123) **do not have a formal governance policy** for GenAI — but 52% plan to establish one. Less than one-third (29%) already have a policy in place.



Among those whose organizations plan to establish a GenAI governance policy (n = 64), **44% expect to do so within the current year**, 31% plan to within the current quarter.

When does your organization plan to establish a formal governance policy that defines how your software engineers and developers should use generative AI appropriately?

- 44% Within the current year
- 31% Within the current quarter
- 16% Next year
- 6% Don't know
- 3% Within the current month

n = 64

Question shown only to respondents who answered "Not yet, but we plan to establish one" to "Does your organization have a formal governance policy that defines how your software engineers and developers should use generative AI appropriately?"

Organizations with an established GenAI governance policy (n = 36) use **written guidelines (64%)** to train software engineers and developers on adherence. **Some route questions to an in-house GenAI expert (47%), offer training sessions (42%) or mandate training courses (42%)** to help staff understand their governance policies.

What is your organization's approach to training your software engineers and developers how to adhere to your generative AI governance policies? Select all that apply.

- 64% Provide written guidelines
- 47% Route any questions to an in-house generative AI expert
- 42% Offer training sessions
- 42% Mandate governance policy training courses
- 11% We don't provide generative AI governance training to our software engineers and developers
- 0% Don't know
- 0% Other

n = 36

Question shown only to respondents who answered "Yes" to "Does your organization have a formal governance policy that defines how your software engineers and developers should use generative AI appropriately?"

"We need checks and balances in place with a very narrow focus for the AI. Start small and grow as we gain more experience."

- VP, professional services industry, 1,000 - 5,000 employees

"The legal implications are yet to be settled, so generally speaking you want to make sure you have a clear understanding with your counsel."

- Director, consumer goods industry, <1,000 employees

Question: What is the most important thing to keep in mind when integrating generative AI into a software engineering team?

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Respondent Breakdown

