

Your quick-start guide

Generative AI for developer productivity

Google Cloud



\$130–265B

economic potential of gen AI for developer productivity (North America)¹

Software development teams are often scrambling to keep up with evolving expectations. They're being asked to build new and compelling digital experiences — often on tighter deadlines and with fewer resources. In other words, to do more with less.

Gen AI can help shift the balance. Today's powerful gen AI tools support use cases across the entire software development lifecycle — from writing code and test creation, to detecting and correcting errors. The result? More time for developers to focus on building innovative, high-impact features that align with end users' needs.

30–50%

faster app development and feature releases with gen AI²

And there's more. Improved developer productivity, faster deployment frequency, and an enhanced end user experience lead to greater economic value across the entire organization.

In this guide, we explore the most promising use cases of gen AI for developer productivity and share key considerations for starting your journey.

Accelerate software delivery with Gen AI.

1. McKinsey. (2023). [The economic potential of generative AI](#).

2. McKinsey. (2023). [In search of cloud value: Can generative AI transform cloud ROI?](#).

Gen AI is already having a tangible impact on developer productivity.

It helps:



Accelerate code development.

- Automate routine developer tasks
- Explain code in natural language
- Generate unit tests
- Suggest test plans and detect errors
- Highlight license terms of generated code to prevent copyright infringement



Automate non-coding processes.

- Locate engineering information faster using natural language search and chat
- Accelerate software development lifecycles through automation of code review, release management, and more



Simplify DevOps.

- Automate code reviews
- Monitor software performance and investigate issues
- Summarize and remediate security findings

Which can all add up to:

- Better quality code
- More time for strategic work
- Greater developer satisfaction and retention
- Faster time to market
- Reduced development and operational costs

**Consider
these steps
to boost
developer
productivity
with gen AI.**

- 1 Solve for what your developers and product leaders care about →
- 2 Prioritize trust and security →
- 3 Train and engage with software and product leaders →
- 4 Ensure safe governance and stewardship of customer data →
- 5 Be bold and responsible →
- 6 Plan for ubiquity and access →

Ready to go?

01 Solve for what your developers and product leaders care about.

Find out what matters most to your developers. Does your code review take too long? Is your release process too cumbersome? Are teams struggling to find the right information about existing code? Gen AI can help with all this, and more.

Look for solutions that can be customized to your code base and provide an integrated experience across the software development lifecycle. For example, if your software delivery is impacted by code review backlog, you could use gen AI tools like Codey to automate those reviews and accelerate your time to market.

And keep seeking feedback. Ask employees what's working and what's not, and adjust the gen AI tools you adopt accordingly. The effort pays off — with the potential to improve the developer experience and boost employee retention.

Tabnine uses Google Cloud to power its AI solution that provides code guidance to accelerate and improve developers' daily workflows. It helps more than 1 million developers code faster using AI.

[Read the full story](#)

Turing, an AI-powered tech services company, uses Gemini Duet AI to increase their developers' productivity. One leader said:

“Our early experience with Gemini has been very promising, with productivity gains around 33%. We're trying out newer features right now like indexing and debugging, which we expect to push productivity even higher.”

3. McKinsey. (2023). [Unleashing developer productivity with generative AI.](#)

88%

of developers agree that gen AI makes them happy at work³



02 Prioritize trust and security.

Stay on the front foot with critical issues like data privacy and third-party security by updating your governance and using the right gen AI tools. These guardrails can, for example, mitigate the risk of developers unintentionally exposing confidential information through tool prompts.

You can also look for ways to use gen AI to accelerate data security and threat detection. For example, Google Cloud recently launched [Gemini for Security Operations](#), a gen AI tool that helps security teams detect, investigate,

and respond to threats — including by analyzing large amounts of data in seconds, reducing time-consuming manual reviews, and improving response time.

To comply with ever-changing regulations while preserving customer trust, consider gen AI tools with copyright protection built in. Google Cloud's gen AI solutions give you full control over how your data is used, with [shared fate and indemnification](#) for gen AI outputs.



03 Train and engage with software and product leaders.

To hit the ground running with gen AI, you need to onboard your teams. Train developers in gen AI's capabilities, leveraging its natural language capabilities for coding and data science. Product managers can use interactive no-code and gen AI tools to create proof of concepts, along with all necessary building artifacts and key documents.

As job functions transform, some employees may need reskilling. Product and software engineering functions will likely intertwine as gen AI tools get better at autonomously building products and generating insights.

Employees may need to learn new skills like prompt engineering, model tuning, and modern application design that integrates gen AI tools and APIs.

And don't forget to plan for effective change management. Clearly communicate new responsibilities, update internal policies, and create a culture focused on responsible use of gen AI. Encourage employees to flag issues where they see them, especially during pilot phases.



04 Ensure safe governance and stewardship of customer data.

Take a proactive approach to data quality, security, and governance. Add interventions across the entire data lifecycle and establish data governance procedures for new types of data coming in.

With the regulatory landscape evolving quickly, actively monitor regulations to ensure compliance with new laws, and keep track of how your tech vendors are helping you comply.

For example, Google was one of the first in the industry to publish an [AI/ML Privacy Commitment](#), which states that customers should have the highest level of security and control over data stored in the cloud.



05 Be bold and responsible.

Take a holistic approach to responsible AI. Enact an organization-wide strategy and enterprise-wide controls that encourage thoughtful and safe adoption and scaling of new tools.

Establish a Center of Excellence as the single source of truth for internal policies around responsible AI. This function might focus on training modules for employees, handbooks, and stakeholder management.

And, to build trust and transparency, always explain when and how AI is used. For example, [Google watermarks images](#) generated by Google AI tools, and offers image markups for publishers to indicate when an image is AI-generated.

See Google's [responsible AI guidelines](#).



06 Plan for ubiquity and access.

This [new computing paradigm](#) uses more data, from more sources, in more flexible ways than ever. Choosing the right foundation models and tools will be critical.

Offer training in gen AI tools and techniques to a broad range of roles. Enable your teams to participate in rollouts and provide feedback, recognizing that new ideas can come from different parts of the organization.

And think about how gen AI can support your broader accessibility and inclusivity goals. For example, it can provide multimodal support — such as audio, video, assistance, and interfaces — to meet individual needs.



There's more to gen AI than developer productivity.

Get tips for getting started with gen AI in these areas:



Customer service modernization



Web modernization



Back office



Digital commerce

Time to take action with gen AI?

When a new technology moves as fast as gen AI, it can be hard to keep up. Google Cloud helps you solve for all the considerations outlined in this guide.

Our gen AI tools are backed with frameworks, tools, and governance structures to help you hit the ground running.



Contact us to set up time to discuss how to get started on your gen AI journey.