Everything you *wished for?*

Has Gen AI for software lived up to the hype in the high-tech sector?

Capgemini

The world of software engineering is captivated by generative AI – and for good reason. The emerging technology continues to pave new roads of innovation for software development, with major benefits and use cases already identified. Our recent survey brings attention to how **Gen AI is being used in software development today**, and the important considerations for software organizations and platforms.

In September 2023, Microsoft began integrating Copilot AI technology into its Bing search engine software. The announcement was met with widespread acclaim, with industry experts hailing it as a game-changer that would change search engines forever. Google had to act fast. Just a few months later, they responded with their own Gemini AI technology, reclaiming their leadership position, for now.

High tech companies today face a critical paradox: the need to innovate quickly, without exhausting their developers in the process. When Gen AI emerged, leaders wondered – is this a technology that could solve both of these challenges? Two of the top questions that have arisen in our conversations with developers at software organizations have been:

• How can Gen AI speed up innovation and time to market?

• How can Gen AI improve developer experience?

To find answers, The Capgemini Research Institute surveyed over 1,000 senior executives and 1,000 software professionals (including architects, developers, testers, and project managers) from organizations with over $1 billion in annual revenue. We also included in-depth qualitative insights from 20 industry leaders, professionals, and entrepreneurs. In this report, we'll be focusing on the results of our study for two major entities in the high-tech industry: software companies and platforms.

The many faces of Gen AI

Gen AI has become so ubiquitous so fast, that it can make discussions confusing. There are three distinct categories of Gen AI that we're talking about in this report:

1. Pure Gen AI – the underlying technology – as in the sentence, "Gen AI is taking the world by storm." In this sense, we're talking about an existing technology that anyone can tap into.

2. Gen AI as an element of innovations, as in the phrase, "Companies are racing to one-up each other with Gen AI-powered apps." A subtle difference, but crucial for high tech companies. The need to be first with Gen AI-powered software is fueling an unprecedented search for speed and talent.

3. Gen AI as a tool for software engineers. This was the subject of our research, and forms the bulk of this Point of View.

High-tech is fueled by near-tech

The high-tech sector is the engine that powers the highest levels of innovation around the world, with technologies that transform businesses and entire markets. Yet often, these technologies don't yet exist – at least not in a tangible, marketable form. This is what we refer to as near-tech: the kind of technology that is not yet found in research labs, but is almost within reach.

Bringing near-tech to market requires significant investments of time and resources, and as demand for innovation outpaces operational budget growth, software developers are feeling the pressure to do more with less.

That pressure creates risk. Software engineering leaders who disregard developer experience risk losing their top talent, hurting software delivery velocity, and compromising quality. To meet core business goals, engineering leaders must prioritize and optimize developer experience – because you can't turn "near-tech" into "here-tech" if you're overlooking the people who make it possible.

So – can Gen AI resolve this paradox, enabling software developers to work faster with less burnout? Let's look at some results.

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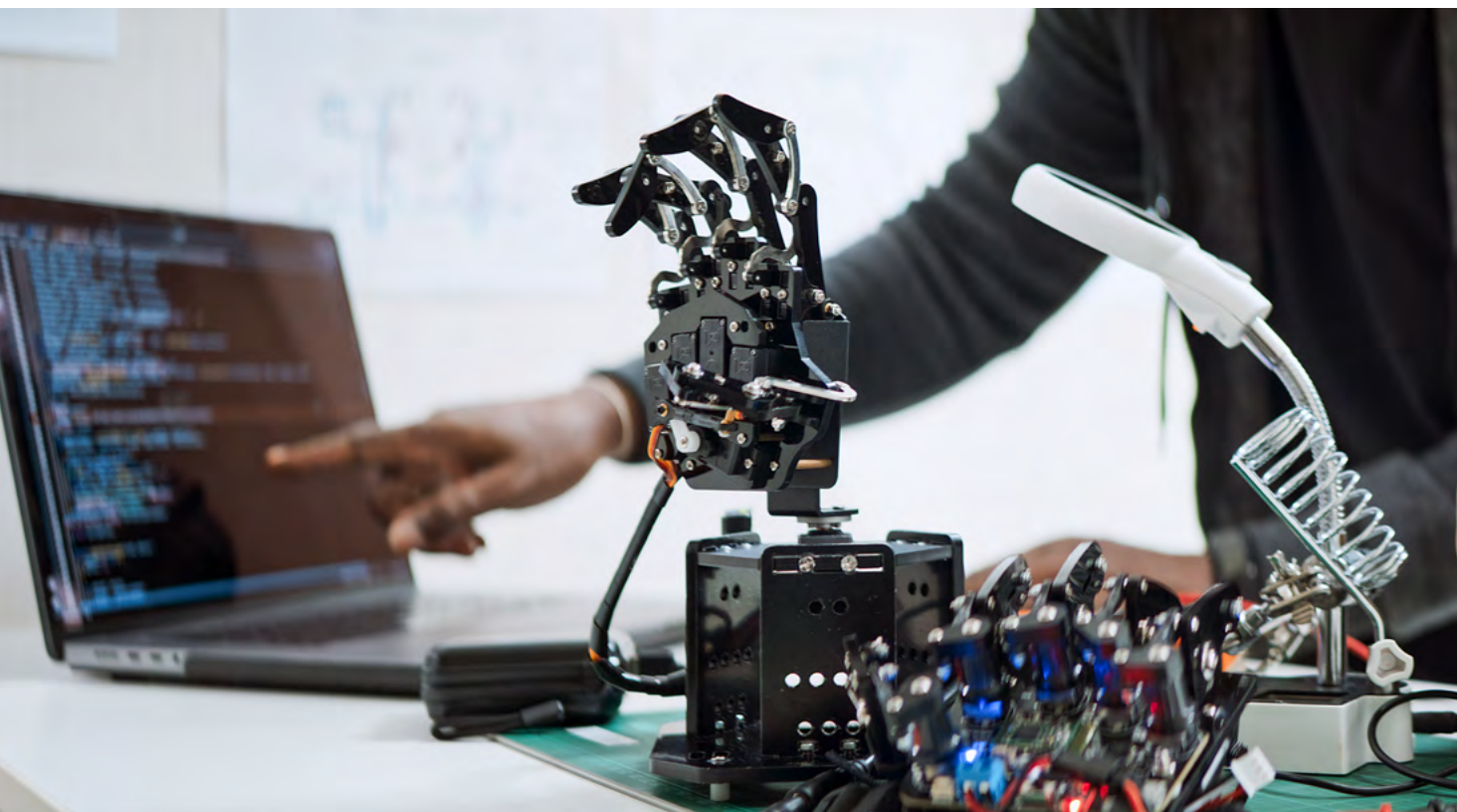
Gen AI benefits developers

Software leaders and senior software professionals both demonstrated substantial interest in incorporating Gen AI into their processes. 61% of software leaders see Gen AI as enabling developers to focus on new features and build complex systems, by helping to manage more repetitive tasks such as generic coding or testing. 49% expect increased testing capabilities to improve the overall quality of software.

Among the workforce, the results were even stronger. 69% of senior software professionals report high levels of satisfaction just by using Gen AI for software development, and 78% are optimistic about Gen AI's potential to enhance collaboration between business and technology teams.

Boosting productivity empowers developers

Companies that have already integrated Gen AI technology into their workflows have seen a 7–18% improvement in productivity for software developers, with the highest in specialized tasks such as coding assistance (34% maximum potential time savings) and creating documentation (35%).

That's less than many people expected, but still significant, especially when Gen AI's impact on software engineering is considered holistically. It is not just the time saving through the automation of tasks in the software development cycle, but the overall impact on developer experience that drives innovation.

We find that the time saved with Gen AI across these specialized tasks is already being re-allocated to more innovative work such as developing new software features (50% of organizations are doing so) and upskilling (47%). When Gen AI automates repetitive and mundane tasks, the effects can be profound.
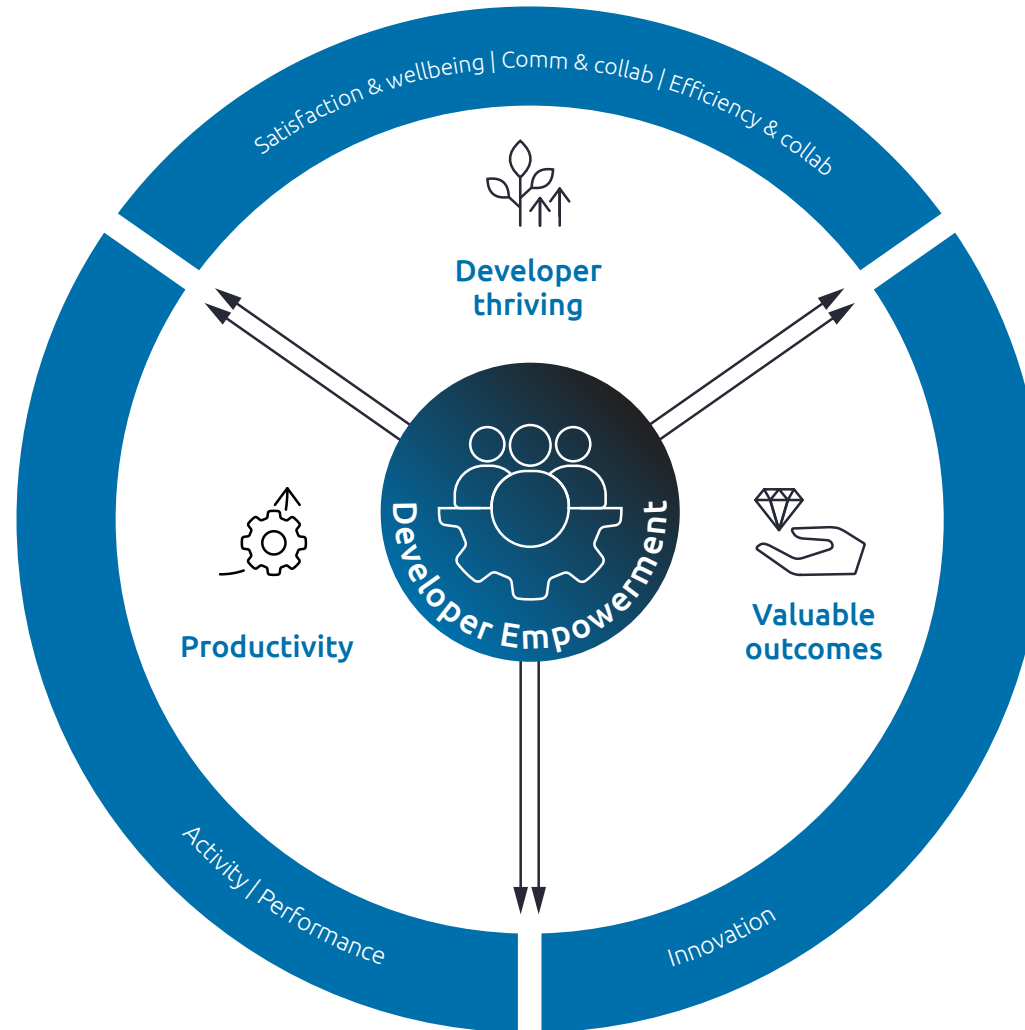
Peak performance for software developers

The ideal for software developers is to reach a "flow state." This is reflected in the commonly used SPACE framework, which categorizes the key elements (Satisfaction and well-being, Performance, Activity, Communication and collaboration, and Efficiency and flow) influencing developer productivity and the ultimate value they produce.

Software development teams navigate a growing array of tools, technologies, and processes that increase developers' cognitive load. As this cognitive load rises, it limits their ability to reach a flow state. As friction is reduced, developers are empowered, productivity is maximized, and business goals are accelerated – quite significantly, it turns out.

One Gartner study found that good developer experience improves developer productivity by 31%, and organizations with high-quality developer experience are 33% more likely to attain their target business outcomes. Gen AI has the potential to empower developers: by handling all peripheral tasks, it allows them to focus on the core creative development at the center of the software development life cycle (SDLC). This empowers developers in three ways:

- It enhances their productivity

- It allows them to thrive through enhanced flow, communication, and well-being,

- It enables them to drive value outcomes through enhanced creativity, and imagine the unimaginable.

These three dimensions of developer empowerment also incorporate the elements of the SPACE framework, as presented in this graphic.

Satisfaction & wellbeing | Comm & collab | Efficiency & collab

Developer thriving

Developer Empowerment

Productivity

Valuable outcomes

Activity | Performance

Innovation

You are what you eat

Platform and software companies have been hopeful that integrating generative AI into software development will not only save time for their developers and help them become more productive, but will also have a positive impact on their developers' experience.

The results of our survey indicate that this is true: by reducing the burden of repetitive and mundane tasks, generative AI allows software developers to focus on more engaging and creative work, which brings them more satisfaction. This plays a driving role in boosting productivity, quality of software, and the development of innovative Gen AI-integrated features for consumers.

Gen AI is turning up the pressure on platforms and software organizations, creating one tech race after another that cannot be lost. But Gen AI is also the best tool software developers have for staying ahead of the competition – and enjoying their work more as they do. In other words, the key to faster development of Gen AI products is the strategic use of Gen AI in the SDLC.

There's only one way for high tech leaders to beat the competition, and continue releasing the latest Gen AI products out to the public: it starts with looking inwards, and using Gen AI to give your developers every advantage.
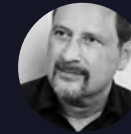
Read more of our research here.

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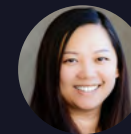& Digital Industry
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