

Everything *you wished for?*

Has Gen AI for software lived up
to the hype in the telco sector?

Capgemini 



Two years after Open AI introduced generative AI to the public through its ChatGPT application, the world of software engineering is still captivated – and for good reason. The emerging technology continues to blaze a path of innovation for software, with new benefits and use cases being identified every day.

Our recent survey focuses on how Gen AI is being used in software development today, and the implications for organizations in the telco industry.

Over the past two years, Gen AI has sparked more speculation than any technology we've seen. Around the world, some of the questions we've heard from telco employees include:

- How are software developers using Gen AI?
- What are the risks?
- Will Gen AI solve the scarcity of software development talent?
- How will it change my role?
- Will Gen AI change coding quality, either for better or for worse?
- Above all, how can telcos capitalize on this trend?

To find answers, The Capgemini Research Institute [recently interviewed](#) 1,000 senior executives and 1,000 software professionals from organizations with over \$1 billion in annual revenue. We also included in-depth qualitative insights from 20 industry leaders, professionals, and entrepreneurs. The results paint a picture of an industry in the first stages of a profound change.

Software is now the differentiator

Gone are the days when telco companies custom-build their own hardware and software. The transition of software from the periphery to the very core of telcos' operations and strategies also indicates a shift in how telco companies position themselves and differentiate from each other. Software is now the leading business differentiator between telco products.

How a telco leverages software for differentiation and approaches the software development life cycle – from building, upgrading, and debugging software, and now, whether they use Gen AI – this is how today's telco leaders are made.

Alongside the benefits, this transition to software-centric strategies presents challenges as well, such as skill gaps and cybersecurity risks.



The challenges of software

The sheer scale of the IT landscape is a challenge in itself. Groundbreaking new software tends to capture our attention both through media coverage and word-of-mouth recommendations. However, telcos also need to maintain vast amounts of legacy software to keep earlier products running in top shape.

Many telcos desperately need to [modernize their IT ecosystems](#), but the scale of the undertaking makes that a daunting project. In the meantime, resources are spread thin, and the opportunity costs of operating on a legacy platform keep growing.

One more challenge connected with software today is the overall [CO₂ footprint](#) of telco operations. Telcos are among the largest companies operating in the world, with complex ecosystems and multiple generations of technology to manage. The amount of energy required to maintain and run them is immense.

There has been a lot of hope that Gen AI will benefit coding, productivity, and legacy upgrading – and we're here to tell you that there is much to be excited about. Let's turn to the results of our survey, and find out why.



Excitement about Gen AI

Our research indicates substantial interest in integrating Gen AI technology into software engineering workflows, with 61% of software leaders believing that Gen AI fosters innovative work, and 49% anticipating that it will enhance the quality of software.

These sentiments are also reflected among the workforce. 69% of senior software professionals report a high level of

satisfaction with their use of Gen AI in projects, while 78% are optimistic about its potential to enhance collaboration between business and technology teams.

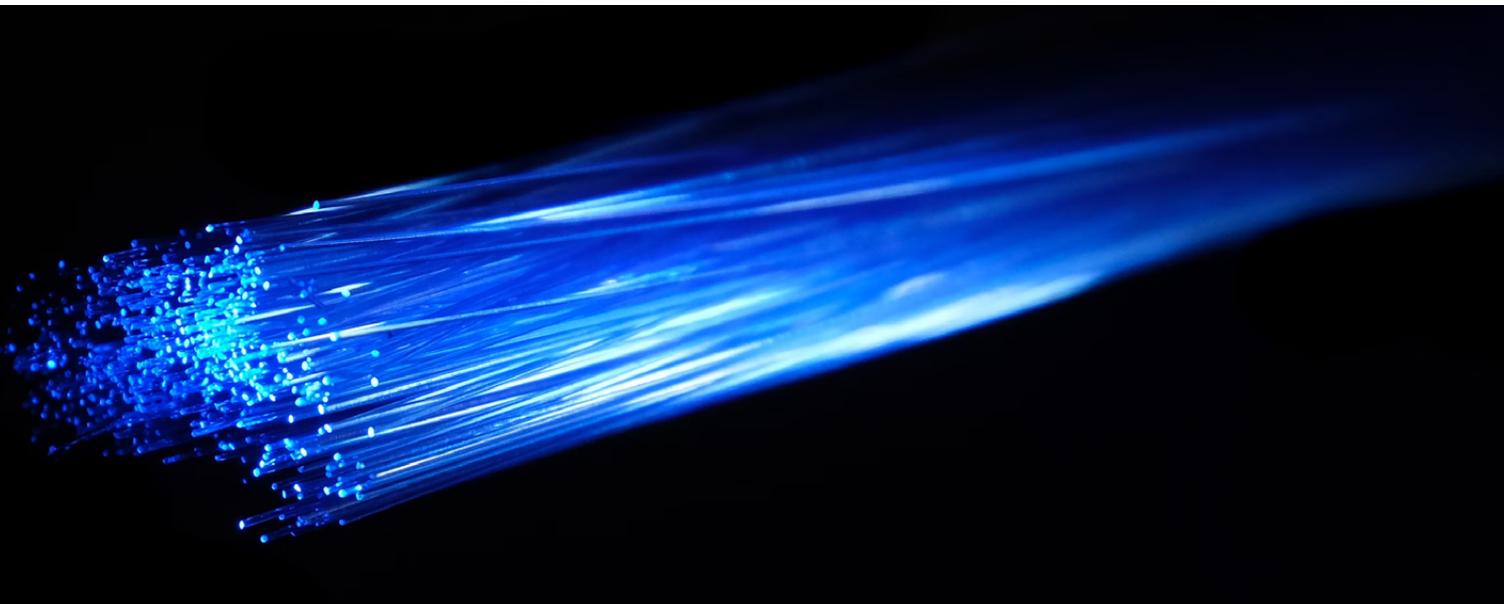
From the C-suite to the junior team, software personnel are confirming what we've been increasingly seeing over the past two years: the potential for Gen AI to turbocharge software development is something to be truly excited about.

How much time is Gen AI saving?

One of the most frequently mentioned predictions that we've seen for Gen AI is its impact on speed and productivity, with projections suggesting code development could be performed up to 50% faster across the entire software development life cycle. And while the results of our survey indicate that Gen AI does enhance efficiency, the current reported productivity gains don't quite hit that mark, ranging from just 7% to 18% compared with companies that are not using generative AI.

And yet, it's worth noting a higher impact of Gen AI on time savings for certain specialized tasks within the software development life cycle. We found the most potential with coding assistance, with average efficiency improvements of 9%, and in some cases reaching 34%. Similar numbers were reported for the creation of documentation, with 10% on average, and a 35% maximum potential for time savings.

These results aren't likely to immediately upend the telco industry as it stands – but they do have the potential to transform it. For one thing, even gradual advancements over time will add up, and as tools, processes, and professional experience continue to mature and become augmented by generative AI, we anticipate that these productivity gains are only going to continue to improve.



Gen AI is not replacing developers...

If software development tasks on average can be completed 7–18% faster, does that imply companies will reduce their workforce accordingly? We're pleased to report that's not the case: only 4% of organizations intend to use Gen AI to cut their headcount. In fact, this was the lowest response to any question in the entire survey.

Instead, we're seeing confirmation of what many have hoped for: generative AI is helping to close the talent gap. Where telcos have previously been forced to prioritize which projects are given the resources needed to move forward, and which are delayed or even shelved, this shrinking of the talent gap is very good news. With Gen AI, it's conceivable that telcos will be able to differentiate by investing in more robust software features, with less of a cost on stabilization and basic operations.

...it's complimenting them

Our survey indicates that developers see Gen AI as less of a threat, and more of a powerful tool to augment processes and spur productivity. As such, they're taking the initiative to have the technology handle more painstaking tasks such as creating documentation, ensuring comprehensive code coverage in automated testing, and debugging.

For a busy software developer, any time saved on these repetitive tasks is time that they can devote to those that bring higher value and greater personal fulfillment. How much personal fulfillment? Our survey results provide an answer, with 69% of senior software professionals reporting high levels of satisfaction from using generative AI.

One area where this is especially helpful is in managing legacy software. Updating or even rewriting software in a new language – these are exactly the kinds of tasks that Gen AI excels at. It can help seek out places to automate. It can go apply new standards to old code. Gen AI can search through haystacks of old code and find the needle that needs attention. The potential for Gen AI to augment the development of groundbreaking new code may be where the excitement is. But pound for pound, the value of Gen AI to manage legacy software is unmatched.





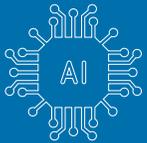
Gen AI tips the differentiation stack

Considering the many benefits that Gen AI-integration can bring to the telco sector, the degree to which telcos leverage Gen AI in their software will soon be a powerful differentiator. The company that leverages Gen AI across their SDLC can build faster, price better, and serve customers that much faster.

And yet, experts are predicting that like hardware, even software will become ubiquitous across the telco industry. In fact, this has already been happening in both the financial and retail sectors, where a majority of companies are developing software using the same Amazon Web Services (AWS) cloud computing platform.

If this happens in the telco sector, what might it then mean for business differentiation? Surely, the speed with which companies develop, test, and release their software will still be a crucial factor. Yet companies focusing on excelling in the competitive landscape will have to then look beyond the network product itself, and focus on what to build on top of it.

For telcos, one area they can focus on is building customized customer experiences, with new tools that optimize network performance by analyzing traffic, predicting congestion, and allocating resources. These Gen AI-powered tools will enhance the customer experience, and increase the value of their software products over their competitors.



Predictive analytics and network traffic: How Gen AI-powered software improves the experience of train passengers

A train is passing through a picturesque landscape in France, at 6:00pm on a Saturday in June. The sun is setting behind the hills, and the sky transforms into a breathtaking canvas of vibrant oranges and soft purples, casting a warm glow over the rolling fields and silhouetting the distant trees in a serene country landscape.

One by one the passengers take out their phones and start taking pictures of the sunset view. But when they try to send these images to their friends and loved ones, or post them on social media, they see a spinning cogwheel icon, or a message: “device cannot connect to the network.”

In terms of customer experience, telcos can view this as a prime opportunity for differentiation: develop the software that can analyze train traffic and optimize network resources along the train route, ensuring that passengers are able to share their experiences with others (not to mention the ability to send work emails while traveling!).

Software engineers will need to develop the software that enhances this customer experience – and as we’ve noted before, Gen AI makes it possible to complete these tasks quicker and more efficiently. An added benefit of such Gen AI-powered predictive technology is that it increases network resources when they are needed, and reduces them when they are not – which improves sustainability.





Seven recommendations

So, is Gen AI everything software developers wished for? According to our research: yes. Will every organization benefit from the technology equally? No. There are significant challenges related to legacy systems, data access, privacy and security, network complexity and skills. The companies that learn how to overcome these challenges will benefit most, and will enjoy the greatest advantage when it comes to software development.

To take one example, large, carrier-grade networks are based on standards developed by different vendors, and often lack coordinated programmability or telemetry. As a result, it can be difficult to integrate such networks Gen AI. Some telecom companies will learn how to overcome this challenge; others will not. Multiply this kind of challenge many times over, and you can see the gulf that begins to appear between telco companies with strong AI strategies, and all the rest.

Here, then, are seven recommendations for getting the maximum benefit out of Gen AI in your company:

1. Develop a comprehensive gen AI roadmap

A good roadmap balances quick wins with long-term success. To that end, companies should focus on pilot programs that demonstrate tangible ROI, such as AI-driven customer service bots or network optimization tools. When pilots are successful, companies can then take steps to scale initiatives that align with long-term organizational goals, such as those that improve network performance or enable autonomous networks.

2. Modernize legacy infrastructure

This means cloud, plus programmable APIs to integrate legacy systems with new AI solutions. DevOps and MLOps practices will also accelerate the development and deployment of AI-enabled solutions, driving faster time to market and operational efficiency.

3. Invest in talent and training

One final stat from our research: a staggering 58% of telco software employees are using unapproved Gen

AI tools in their work. Clearly, that can't continue. The solution includes the Gen AI roadmap discussed above, and training: in AI, machine learning, and modern software development methodologies. At the same time, telco companies should be actively recruiting experts like AI architects, data scientists, and software engineers to fill key roles and bridge skills gaps.

4. Foster a data-driven culture

This begins with establishing robust data governance frameworks to ensure data quality, security, and ethical use across the organization. Additionally, data democratization – making data more accessible to all relevant teams – encourages cross-functional collaboration and fuels innovation in AI-driven projects.

5. Prioritize AI ethics and transparency

Organizations should develop ethical AI guidelines to ensure transparency, fairness, and compliance with regulations. Additionally, investing in explainable AI technologies is crucial for building trust with stakeholders. These features help provide clarity around AI-driven decisions and foster confidence with both customers and regulators.

6. Leverage partnerships and ecosystems

With high demand for generative AI talent and an ongoing skills shortage, companies should tap into partner ecosystems to bridge gaps. Collaborating with AI startups, academic institutions, and technology providers can accelerate the co-development of innovative solutions and help stay ahead of industry trends. Additionally, participating in open innovation initiatives, like open-source projects and industry consortia, can further boost AI development and drive faster adoption across the organization.

7. Enhance customer-centric innovation

Finally, Gen AI enables a new level of highly personalized customer experiences, with services and content tailored to individual preferences and behaviors. Developing these experiences should be a priority. This includes AI-driven feedback mechanisms to continuously gather and analyze customer input, driving ongoing improvements and innovation.



Gen AI has a home in telco

In order to maximize success in a competitive industry, we know that telcos need to move quickly. Their software engineers need to develop, test, release, and manage high-quality software faster than their competitors. And with Gen AI contributing to increasing timesavings across the software development life cycle, and freeing up developers to take on higher-value tasks, we revisit our initial question: has Gen AI lived up to the hype in the telco sector?

Based on our survey findings: yes. By complementing developers and enhancing software development across the industry, generative AI will soon become a major factor in elevating one telco over another.

Read our original research on the state of [Gen AI and software development](#).



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