NTT DATA

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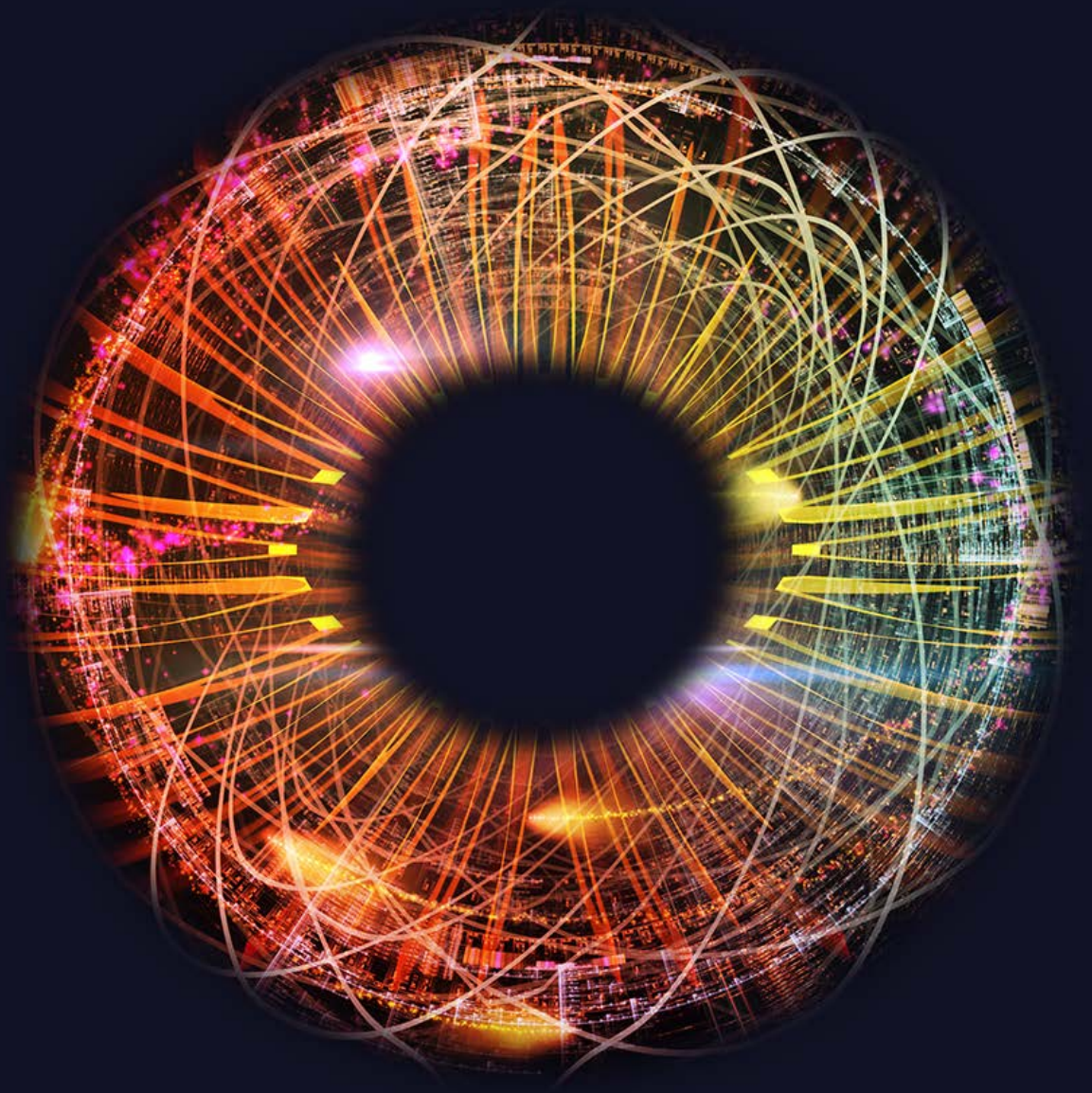
Micro-augmentation: How AI is driving faster time to market through SDLC



Helping telcos see Eye to AI.

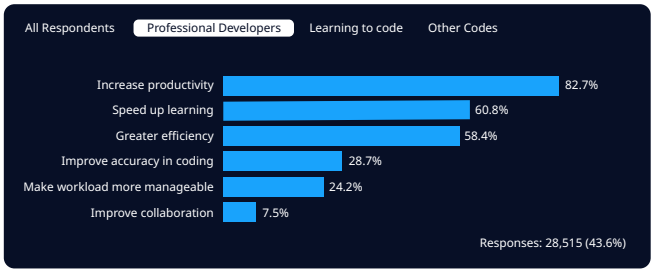
The transformation of software development

Software developers who specialise in building AI applications understand a good deal about how this technology will transform our lives.

When this constituency speaks, it's worth listening, especially when you work in telecommunications. According to these specialist developers, telecoms has become one the top five industries creating demand for AI and machine learning. Asked which kinds of development projects are first in line to benefit from added AI functionality, AI developers identify two areas: first, data analysis and visualisation, and second, by a narrow margin, code generation itself. In fact, AI developers believe that code creation is being transformed faster than many other jobs associated with Generative AI, including search engines, chatbots, customer service apps, voice assistants and legal research.[1]

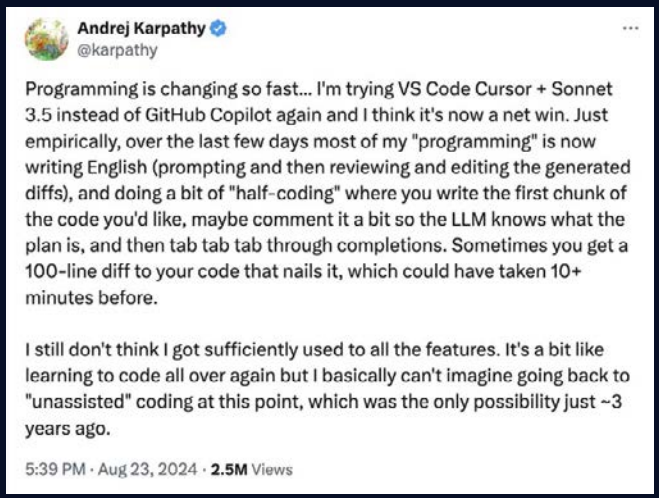
[1]Evans Data Corporation, AI and Machine Learning: A Comprehensive Survey of Developers (May 2024). Asked which industries are currently generating the greatest demand for AI and machine learning, respondents identified the following: Internet/media, automotive, accounting, banking/finance and telecommunications.

The wider global community of developers working across AI and non-AI projects are profoundly enthusiastic about AI's potential. Large numbers appreciate the productivity potential: 82% of respondents to Stack Overflow's Annual Developer Survey, for example, say they are already using AI to write code. Similarly large numbers plan to integrate AI for documentation (81%), testing (81%) and debugging (78%) over the next 12 months.



Q: For the AI tools you use as part of your development workflow, what are the MOST important benefits you are hoping to achieve?
Source: Stack Overflow Annual Developer Survey 2024.

This positive approach is also visible in the way developers discuss the impact of AI online. For example, here's Andrej Karpathy, a founding member of OpenAI and previous Senior Director of AI at Tesla, describing his experience of writing code using Cursor and Claude 3.5 Sonnet by Anthropic.



Developers understand that while AI frequently outperforms humans in terms of pattern recognition, these systems often struggle with multi-step problem solving, conceptualisation and other skills that human developers bring to their work on a daily basis. As a result, only 12% feel that AI is a threat to their current job. For the foreseeable future, they understand that AI's role will largely involve what we describe as micro-augmentation: tools and processes that help developers to do their jobs faster, with fewer errors and higher levels of quality.

Many economists agree that this will be the case, not just for software development, but the wider workforce, too. Describing the impact of Generative AI, Erik Brynjolfsson, an economist at Stanford University and leading expert on productivity-enhancing technologies, said recently: "It's rarely just replacing the entire job or an entire set of tasks. It's more often allowing people to do them better with more quality and effectiveness, augmenting their ability to do the job."

Eye to AI.

Engineer + machine: four opportunities for AI

In software development, AI promises to unleash a variety of new possibilities in terms of productivity, creativity and innovation, radically improving the developer experience (in other words, the combination of systems, technology, processes and culture that defines the efficiency of software development teams on a daily basis). NTT DATA sees four standout opportunities to augment the skills and experience of developers working in telecommunications.

Addressing the legacy challenge

Legacy technology is a millstone around the industry's neck: it complicates transformation, reinforces data silos and costs a lot to maintain. Generative AI tools can refactor legacy applications or help to transpose obsolete code into more modern languages. These are win-win scenarios for managers who understand that legacy applications are a barrier to progress and for developers who dislike working with legacy code.

Solving problems faster

On any given day, three-quarters of the world's developers spend up to an hour searching for solutions to problems. (The rest spend over an hour a day doing this.) Generative AI promises to minimise this vast drain on productivity. Increasingly, development teams are being equipped with reliable, scalable, enterprise-grade tools that rapidly supply the information required to resolve practical problems. Ultimately, these solutions will gain the ability to analyse the adjacent code environment and architectural constraints.

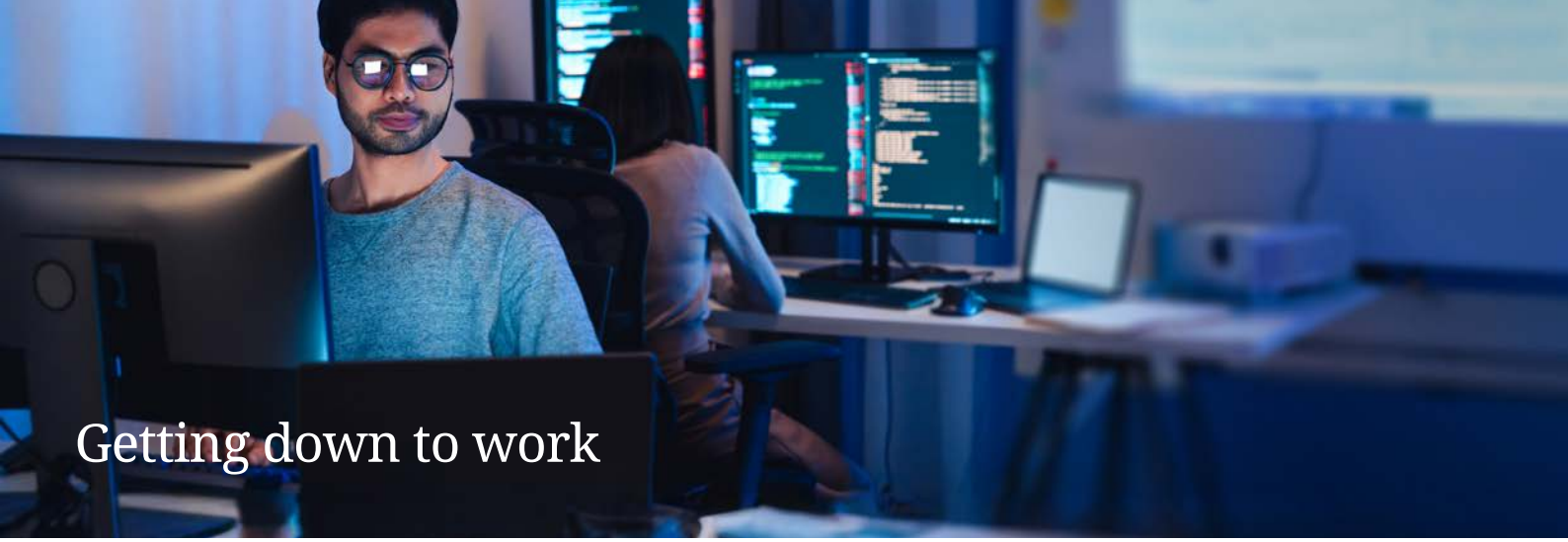
The creativity dividend

When developers become more efficient by using AI, they gain time that can be used for research, innovation or developing new features. Under these circumstances, telcos might adopt policies similar to Google's 20% time. Not only has this policy led to the creation of some of the company's leading products (e.g. Gmail, Google Maps), it has enhanced job satisfaction, boosted collaboration and allowed developers to learn new skills.

Turbocharging product management

At every telco, product managers play a pivotal role in innovation, synthesising knowledge of markets, customers and technology to define roadmaps for innovation. In many ways, it's the ultimate cross-functional role, reliant on input from a host of collaborators, including developers, finance, design and customer experience. If all these collaborators can save time thanks to AI-driven augmentation, they can spare more time to work with product managers, accelerating the cadence of innovation across the business.

Eye to AI.



Getting down to work

Three strong arguments exist for focusing on AI's potential to augment software development in telecommunications. Regardless of where you stand on the Telco to Techco debate, one thing is certain: as computing and code become dominant within networks, software development teams are set to become increasingly important.

All too often, the telecommunications sector finds itself constrained by rising costs, pricing power erosion and operational complexity. Deploying AI across the business offers a way out of this impasse. By improving the productivity of software developers, telcos can roll out these solutions more rapidly and successfully.

The third and final argument for building micro-augmentation solutions is the cost of building applications. Development talent doesn't come cheap. Under these circumstances, using AI to leverage the skills and experience of your workforce makes good economic sense.

To successfully create micro-augmented solutions for development teams, managers need to understand in detail how developers spend their time. Which pain points constrain productivity? Which use cases offer the most potential for augmentation by Generative AI? At the intersection of these two categories, software organisations will be able to identify the tasks where augmentation needs to be prioritised.

In addition, we recommend a two-stage approach to planning, developing and scaling micro-augmentation projects.

Phase 1.

Gen AI Launchpad

Initially, micro-augmentation projects should begin with an agile, lightweight approach. After identifying promising use cases, a small team can then proceed to develop prototypes rapidly with the aim of developing a data-driven roadmap. In this phase, all activity should be underpinned by lean business cases, service design and customer feedback.

Phase 2.

The AI Factory

In this phase, the development effort begins to take on the form of a central hub dedicated to innovative micro-augmentation. The hub, resourced without negatively impacting BAU, makes a simple offer to the business: "Bring us your challenges, and we will supply the solutions." Engagement with business units follows a well-defined sequence: Discovery and Prioritisation, followed by Development.

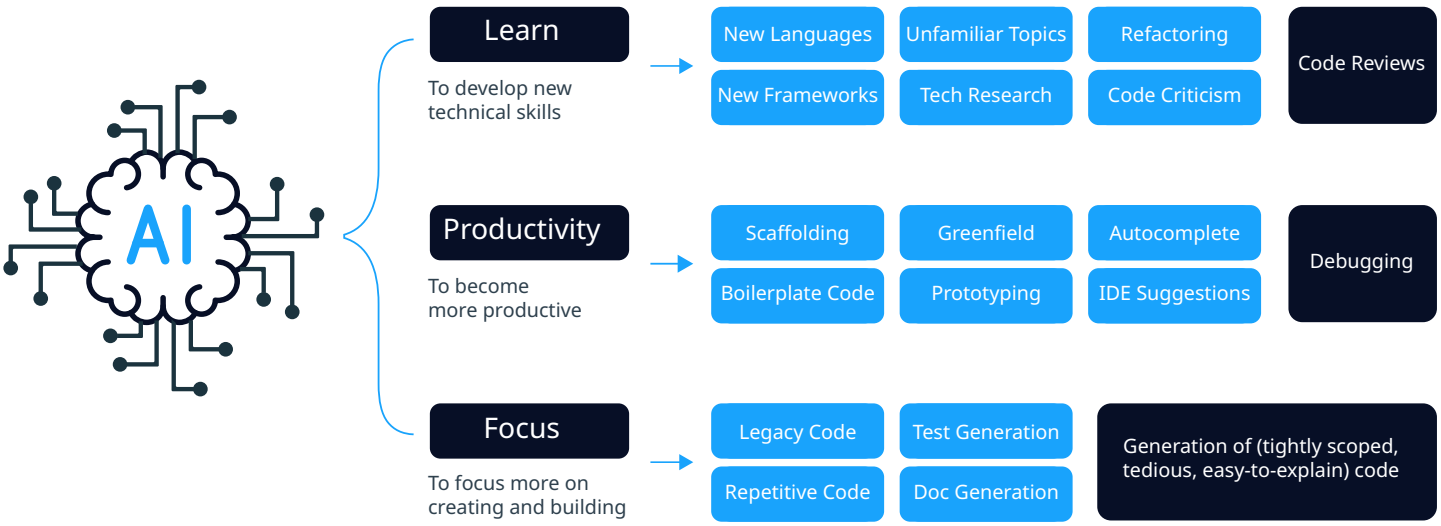
The emergence of AI tools, methodologies and frameworks in everyday software development promises to create change on a scale that surpasses the impact of techniques like DevOps and platforms like the cloud. If developers know one thing, it's that change is a constant. Invariably, it creates new roles, new skills and new possibilities. Your development teams are ready to explore the future. The question on their minds is whether decision-makers in the telecommunications sector share that enthusiasm.

Eye to AI.

Getting down to work

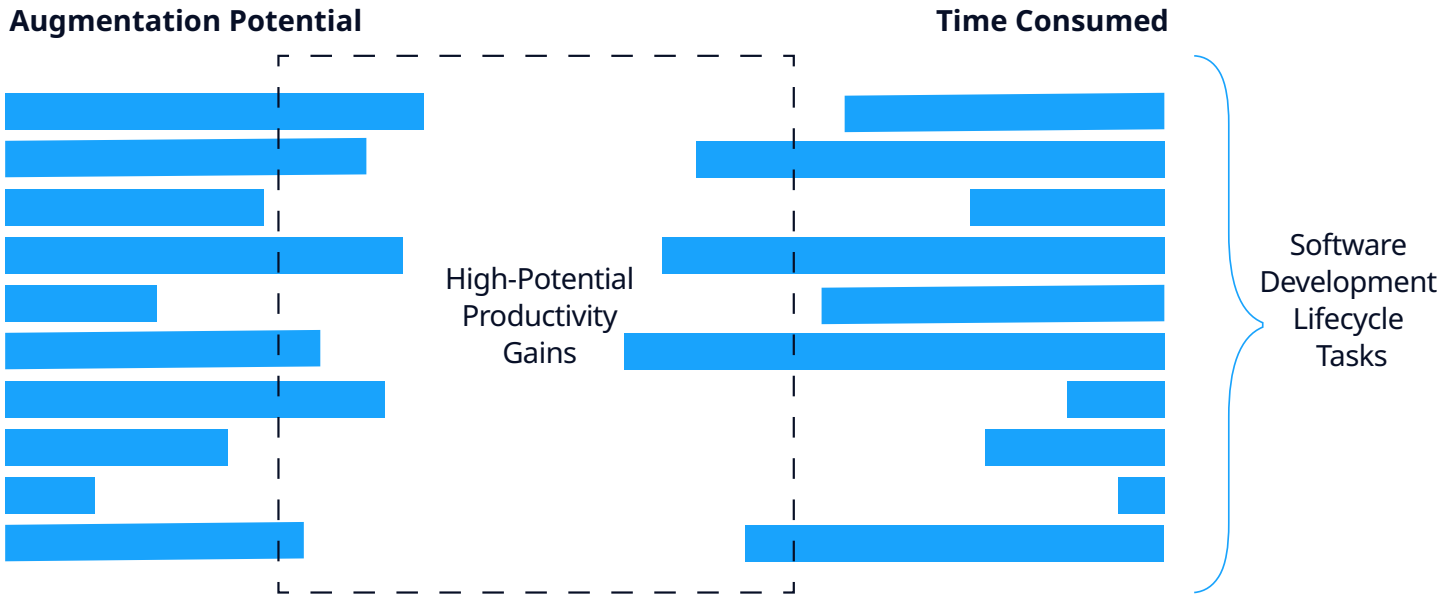
Jobs To Be Done: how AI augments software development

The potential for AI micro-augmentation in software development clusters around three broad sets of tasks: on-the-job learning, productivity and workflow focus.



How to identify high-productivity use cases

Managers should prioritise the micro-augmentation of tasks that consume the most developer time and offer the best potential for productive use of AI.



Eye to AI.

"We're putting AI to the test ourselves and looking at the efficiencies it can bring to our developers and the clients they support,"

"Software development is a major part of our work, and we're deploying AI to accelerate everything: planning, development, testing and deployment. Our clients are benefitting in terms of reduced costs and shorter time-to-market."

Tom Winstanley, CTO and Head of New Ventures at NTT DATA UK.

Where's the value?

One of NTT DATA's key development assets is Axet Gaia (short for Generative AI Asset), a platform that maximises Generative AI's contribution to software development. Gaia allows developers to request ideas – and specific code segments – that resolve specific problems. It also hunts down bugs, explains code, builds CI/CD pipelines and modernises legacy code.

To date, Axet Gaia contains responses to 250,000 developer questions.

Some 9,000 employees working on projects for over 400 clients in 15 territories currently use the system.

The ROI on solutions like Axet Gaia is attractive.

On average developers become up to 20% more efficient.

Software defects decline by 15%.

Machines now take care of up to one-third of the repetitive tasks, including data entry, that used to be performed by human developers.

There's more to come. AI's impact will become broader as solutions create further productivity gains in the many roles clustered around development itself, including architects, data scientists, UX designers and software testers. In addition, addressing higher value use cases will deepen AI's impact. For example, large-scale deployment of agentic systems has the potential to transform telcos' fragmented application stacks, creating an intelligent orchestration layer that aggregates data flows and optimises performance with specific business goals in mind.

"If you are responsible for ten different interconnected platforms at a telco in five to ten years' time, you are likely to be using the equivalent of Digital Twin technology to manage this fragmented ecosystem," says Francesco Palma, Technology Solutions Director at NTT DATA UK&I. "AI will run 'what if' simulations to evaluate the potential of upgrades, migrations and new product launches. The approach here is very strategic: we're looking at a sophisticated system that becomes a reliable partner for managers making high-impact, high-risk decisions in complex industries like telecommunications, software, media and pharmaceuticals."

aws Google Cloud NVIDIA Microsoft

Our hyper-scale technology partners are moving at pace to help developers increase productivity on most of their cloud services.
With the depth of our partnerships, we leverage the strengths of each partner, enabling telecom providers to scale from proof of concept in production, seamlessly.

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Ready to explore the future of software development?

Book a complimentary assessment and discover the impact of AI on your time to market via software development productivity.

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