



**GitHub
Copilot**

Xebia

Happy Developers, Happy Business

Why developer happiness should be your main priority, and how GitHub Copilot will help you achieve it.



What makes for a top-notch developer experience (DevEx), and why is it more crucial than ever? This e-book explores the growing importance of providing employees with a great experience and the game-changing impact of tools like GitHub Copilot. We will also share some real-life success stories from customers who have partnered with us to transform their DevEx by adopting GitHub Copilot.



I. Introducing Developer Experience

Recently, the concept of developer experience (DevEx) has emerged. But what is DevEx, and why should you care about it?

At its core, DevEx examines a developer's day-to-day work and the extent to which specific elements, such as systems, technology, processes, and culture, impact it. For example, are the tools available to developers boosting productivity? Is their working environment conducive to staying in the flow? Are systems and structures supporting collaboration? All these elements matter as, together, they influence the effectiveness of software development. As Idan Gazit, Senior Director of Research at GitHub, explains (1), "Building software is like having a giant house of cards in our brains. Tiny distractions can knock it over in an instant. DevEx is ultimately about how we contend with that house of cards."

Is your DevEx enabling developers to stack their cards ever higher? Before we get to that question, let's take a look at why DevEx is so relevant these days.

As is the case in many fields, the developer community, too, has been exposed to a wide range of new technologies at a fast pace. While this is incredible, keeping up with rapid innovation requires effort and dedication. Navigating this sea of tools can be tricky, even for the most tech-savvy individuals.

Developer-focused industry analyst firm Redmonk (2) adds that "Developers have access to an exponential amount of technology and DevOps tooling, which has produced a large degree of innovation and competition. Yet, **developers are on their own figuring out how it all works together, which has led to a fragmented DevEx.** It also puts pressure on developers to constantly learn about the latest products or even just how to connect to the newest API."

Gartner's recent research evidences the increasing importance of ensuring a more pleasing developer experience: "Seventy-eight percent of organizations surveyed by Gartner have established or planned a formal DevEx initiative. Accordingly, there has been a continued rise in dedicated DevEx and platform teams being formed to help improve developer experience within their organizations." (3) Why? That answer comes from Greg Mondello, Director of Product at GitHub: "It's no surprise that DevEx has seen a significant increase in investment over the past five years. In most contexts, software development capacity is the limiting factor for innovation. Therefore, improvements to the effectiveness of software development are inherently valuable. Moreover, development is only becoming more complex. Today, building software involves many tools, technologies, and services from different providers, which requires developers to manage far more intricate environments. At its best, a well-conceived DevEx provides greater consistency across environments, processes, and workflows while automating the more tedious and manual processes, enabling companies with better DevEx to outperform their competitors, regardless of vertical." (1)

Additionally, a 2023 Forrester Snapshot (4) shows that as a result of improving DevEx, DevOps professionals can impact revenue growth (85%), competitive positioning (84%) and developer retention (81%), as well as shorten time to market (77%) and boost developer productivity (74%).

"An organization that can deliver an awesome DevEx is likely to reap the benefits right across the business."

- Forrester Snapshot (2023)

The next part of this e-book will explore ways to improve your DevEx, before we focus on the power of Generative AI in the context of software development.

II. How Can You Improve Your DevEx?

To improve your DevEx, we recommend prioritizing key aspects that will help developers thrive. Some ways to strengthen your DevEx include:

1. Understanding the Importance of "Developer Flow"

Developer flow refers to a state of deep concentration and optimal productivity that developers experience when fully immersed in their work. When developers are 'in the flow', ideas and actions flow seamlessly without interruption or distraction. Time passes effortlessly as they solve complex problems and use their skills and knowledge to make significant progress. A sense of accomplishment and creativity characterizes developer flow and encourages innovative and efficient software development.

Rob Bos, DevOps Consultant and Trainer at Xebia:
"On average, developers are happy if they get a solid twelve weekly coding hours. Other tasks, like meetings, take up a lot of time. So, protecting that limited development time of being in the flow is crucial."

Tijmen van de Kamp, Global Solutions Lead at Xebia:
"Developing software is one of the most creative jobs today, and to be successful, developers need an inspiring environment. Sure, a ping-pong table and free snacks can add to a positive vibe, but they are nowhere near enough to make a real impact. Developers need more. It's up to us to help them get into the flow (and stay in it)."

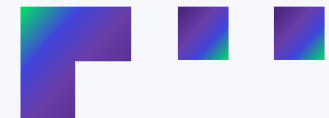
2. Reducing Cognitive Load (with GitHub Copilot)

In this context, cognitive load refers to how much a developer needs to think to complete a task (5). This includes managing complex codebases, understanding intricate system architectures, debugging issues, and integrating various technologies and tools. How much information an average person can process has long been a topic of research (starting with Miller, 1956), ranging from three to nine unrelated facts before confusion kicks in (5). Developers must process a lot of information when reading or writing code. When that information reaches a certain threshold, a high cognitive load can affect how well developers can focus, perform and, last but not least, enjoy their job.

Introducing tools like GitHub Copilot, which leverages generative AI to assist developers in writing code, can significantly reduce cognitive load by automating repetitive tasks and providing helpful suggestions in real-time. By offloading mundane tasks to AI, developers can focus more on creative problem-solving and innovation.

3. Encouraging Continuous Learning and Innovation

At Xebia, we are all about knowledge sharing. From training programs to more informal organization-wide events that spark innovation, we encourage every company we work with to invest in staying updated on, for instance, today's latest technologies. This is especially important for developers, as confirmed by recent GitHub research, revealing that the number one contributor to a positive DevEx is the opportunity to learn new skills (43%) (6).





Did you know that GitHub Copilot also provides the opportunity for continuous learning, for example, through GitHub Copilot Chat? It enables you to learn about the changes suggested or have the code explained!

By prioritizing developer flow, reducing cognitive load, and fostering continuous learning and innovation, you can significantly improve DevEx and empower developers to deliver high-quality software efficiently.

III. Generative AI — GitHub Copilot

Today, generative AI is indispensable across industries. The question is no longer whether you will work with it but which tools you choose and how to maximize their potential. With the launch of GitHub Copilot, a dream has come true for many developers, data, AI, and security professionals. Natalie Reinford, Business Development Director at Xebia: "AI tools can take time to gain popularity, but GitHub Copilot quickly became a favorite among developers. I have never seen a tool catch on this fast."

The rapid adoption of GitHub Copilot indicates an apparent demand for such a tool. So, what needs does GitHub Copilot meet, and how can it help improve DevEx?

AI: An Indispensable Part of DevEx

GitHub Copilot leverages advanced machine learning models to assist developers in writing code more efficiently and effectively. By analyzing code patterns and context, GitHub Copilot can generate suggestions, auto-complete code snippets, and even provide whole functions or classes based on the developer's input.

Key features of GitHub Copilot include:

- **Code Generation:** GitHub Copilot can generate code snippets and functions based on natural language descriptions provided by the developer. This feature streamlines the coding process and helps developers write code faster.
- **Context-Aware Suggestions:** GitHub Copilot analyzes the context of the written code and provides relevant suggestions in real-time. This contextual awareness enables Copilot to offer more accurate and valuable recommendations, improving the developer's productivity.
- **Code Understanding:** GitHub Copilot deeply understands various programming languages, libraries, and frameworks. It can adapt to different coding styles and environments, making it a versatile tool for developers working on diverse projects.
- **Collaborative Coding:** Copilot can be used collaboratively within integrated development environments (IDEs) such as Visual Studio Code. Multiple developers can leverage Copilot's suggestions and collaborate on code in real time, enhancing team productivity.

GitHub Copilot represents a considerable advancement in developer tooling, empowering developers to write code more efficiently, reduce cognitive load, and focus on solving complex problems. As the adoption of AI in software development continues to grow, tools like GitHub Copilot will play a crucial role in shaping the future of DevEx.

“GitHub Copilot and generative AI tools represent the next evolution of software engineering, providing new, transformative ways for developers to work with development processes.”

— Randy Pagels, DevOps Architect and Trainer at Xebia.

IV. A Developer's Experience With GitHub Copilot

As a passionate DevOps engineer and front-end development enthusiast with a unique edge as an AI-powered developer, Xebian Thijs Limmen shares his experiences incorporating GitHub Copilot into his daily workflow. How has this new tool reshaped his approach to coding?

AI-Assisted Development: "GitHub Copilot has become my constant coding companion, seamlessly understanding my intentions and providing invaluable suggestions. It's like having a virtual colleague who handles repetitive tasks and simplifies complex challenges, allowing me to focus on creative problem-solving."

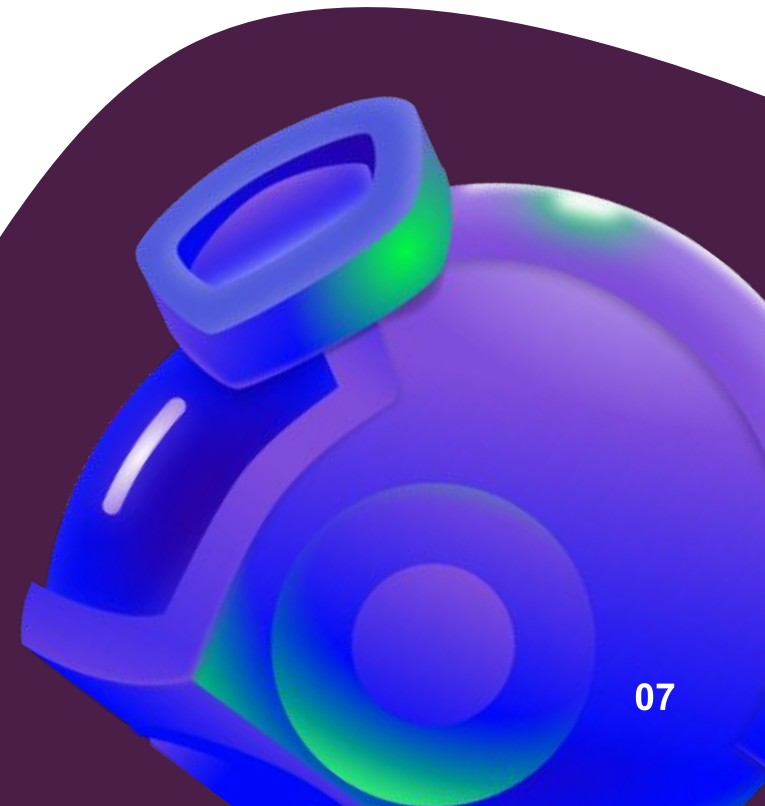
Enhanced Productivity: "I have become super productive since integrating GitHub Copilot into my workflow. If you use it well, what would have taken you a few hours can now be done in minutes. So, I hardly feel stressed about doing more because, at the end of the day, I always feel like I've done loads of work."

“GitHub Copilot allows you to deliver high-quality code faster”

- Thijs Limmen, DevOps Engineer and Developer at Xebia.

Reliability of GitHub Copilot: "It's called Copilot, you are still the pilot. I always check the generated code. But so far, I have found it to be very reliable. I can quickly see if the suggestions match my intentions, and I appreciate the tool's flexibility, from quick suggestions for simpler tasks to more extensive assistance via Copilot's chat."

Impact on Developer Experience: "GitHub Copilot has profoundly impacted how I experience my work. I feel less stressed about meeting deadlines and better equipped to deliver high-quality code in the most efficient way. By reducing cognitive load and streamlining my workflow, GitHub Copilot has enabled me to stay in a creative and productive state of mind."



V. Xebia's GitHub Copilot Adoption Framework

Although many developers are raving about GitHub Copilot and experimenting with AI tools both in and outside of work (6), integrating it at large can be complex. Van de Kamp: "When a team starts using a new tool like GitHub Copilot, it will go through a number of adoption phases. First, there will be some confusion and people will resist change. Then they will begin to explore what positive impact the tool can have for them in terms of value. Gradually their confidence in the new tool increases. As a result, their motivation to use it will increase and eventually they will experience greater job satisfaction."

Jesse Houwing, Trainer and Coach at Xebia: "GitHub Copilot is a very accessible tool. You can use it to have a conversation as if you were talking to, say, a colleague. But it's more than a bot or a search engine. Unlocking the full potential of GitHub Copilot requires a deep dive into its functionalities, but also an understanding of how it changes the day-to-day work of developers (and thus the software development process). And that's why we developed our framework, to learn, scale, and maximize business value faster."

Aware of GitHub Copilot's learning curve, GitHub approached Xebia to build and deliver a bootcamp. Bos: "Today, we are running most of them for all GitHub and Microsoft partners worldwide who want to use GitHub Copilot. Additionally, we have launched a complete GitHub Copilot Adoption Framework, which we have successfully delivered to over 3,000 developers across the globe. We don't aspire to hold everyone by the hand forever. That's why our program is founded on the train-the-trainer principle. We coach GitHub Copilot champions within the company, who can then show their teams how it works. This allows us to scale very quickly and promotes internal knowledge sharing, which we, as Xebia, value very highly."



Xebia's GitHub Copilot Adoption Framework includes a Proof of Concept (PoC) and a Quick Start.

01. Proof of Concept (PoC)

We offer a structured PoC framework for organizations looking to explore GitHub Copilot's capabilities and assess its impact.

- **Kick-off Meeting:** We initiate the process with a leadership-level discussion to align objectives and expectations. By emphasizing GitHub Copilot's role in improving developer productivity and enabling better software development, we set the stage for success.
- **Gathering Insights:** Through surveys and interviews with developers, we gather valuable insights into existing pain points and requirements, ensuring that GitHub Copilot's implementation addresses real-world challenges the developer community faces.
- **Success Criteria Definition:** Together with stakeholders, we define clear success criteria for the PoC. Success, in this context, is not just about using the tool but getting to a point where developers can't imagine a life without it.
- **Inspiration Session:** We conduct an interactive session introducing GitHub Copilot, its underlying technology, and practical usage scenarios. Managing expectations and showcasing its capabilities are crucial in setting the proper foundation for adoption.
- **Hands-on Experience:** Developers work with GitHub Copilot for two weeks, supported by regular Q&A sessions and office hours. This hands-on experience allows them to familiarize themselves with the tool and explore its features.
- **Feedback and Iteration:** We collect feedback from developers through surveys and deep-dive sessions to understand their experiences and address any challenges they encounter. This iterative approach ensures continuous improvement and refinement.
- **Advanced Training:** Following the initial trial period, we provide advanced training sessions (like our unique prompt engineering training) to explore GitHub Copilot's full potential. Our goal is not just to scratch the surface but to enable developers to unlock the tool's capabilities to the fullest.
- **Final Evaluation:** After another two weeks of working with GitHub Copilot, we conduct a final evaluation to assess the overall impact and gather insights for further optimization. This evaluation sets the stage for the next steps in the adoption journey.
- **Conclusion and Reporting:** The PoC concludes with a detailed report-out. We present findings, insights, and recommendations to stakeholders, one of which could be to proceed with a Quick Start.



02. Quick Start

Our Quick Start offers a robust implementation framework for organizations ready to scale GitHub Copilot adoption across larger teams. The elements implemented during these two to three months aim to enable fast-paced and self-supported adoption.

- **Response to PoC:** Building on the success of the PoC, Quick Start helps companies scale GitHub Copilot adoption. We collaborate closely with teams to design a program that meets organization-specific needs and objectives.
- **Enablement Plan:** Recognizing that rolling out GitHub Copilot to a larger audience requires a different approach, we focus on enablement through train-the-trainer sessions and tailor-made inspiration sessions, or we help establish a Center of Excellence. Our aim is to create a self-sustaining GitHub community that continuously shares knowledge and lessons learned internally.
- **Continuous Engagement:** We prioritize ongoing developer engagement through regular check-ins and support sessions. This ensures that momentum is maintained, and any challenges are addressed promptly.
- **Community Building:** Leveraging the train-the-trainer approach, we empower GitHub champions within the organization to lead knowledge-sharing initiatives and foster a culture of collaboration and innovation.



VI. Customer Success Stories

Since launching our Adoption Framework, we have helped thousands of developers worldwide harness the potential of GitHub Copilot. Let's take a look at two of our latest customer success stories!

First, an engineering team at a multinational home improvement retail store identified the need to scale its GitHub Copilot adoption. The company enlisted Xebia to help them upskill developers, in close collaboration with its Learning and Development team.

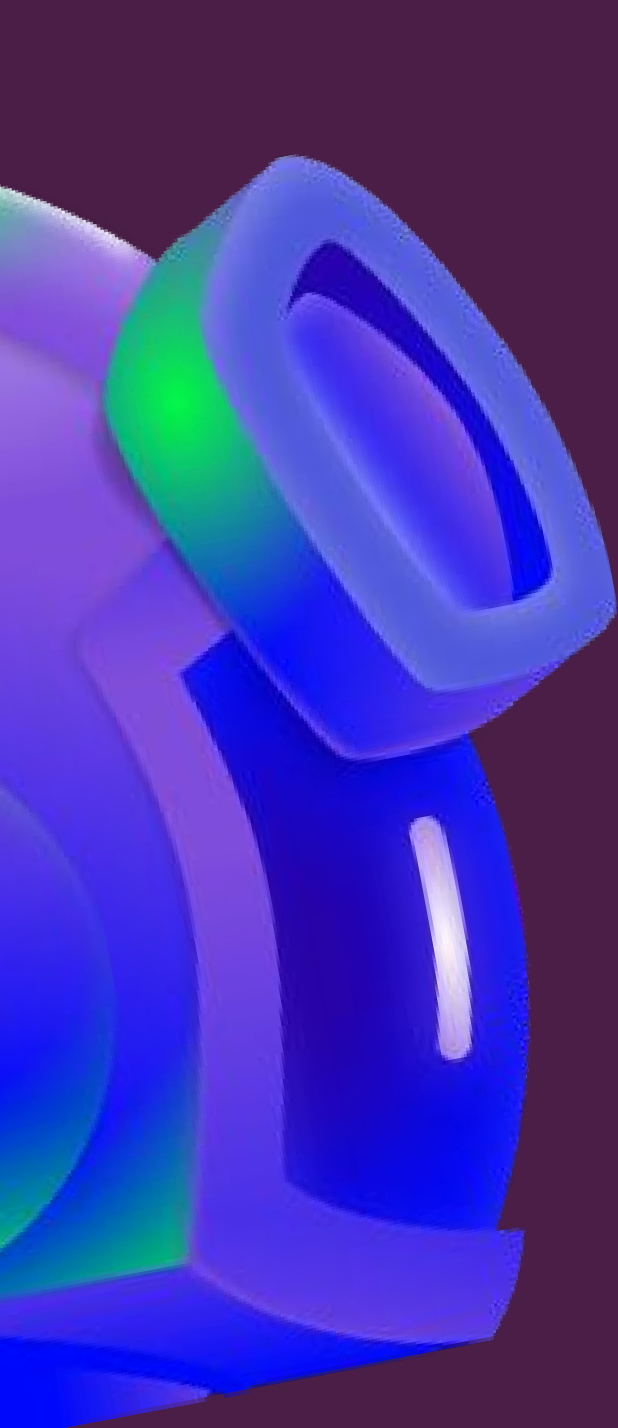
Even though the company is a GCP powerhouse, we convinced them that using GitHub Copilot is a perfect way to improve your developer experience. Through internal boot camps and hackathons, we familiarised thousands of developers with GitHub Copilot and showed them how to maximize its value. Today, the company is pleased with the results — among other things, a 35% increase in active GitHub Copilot usage - and continues its journey to get all its 9,000+ engineers to use this new tool.

Second, a multinational data analytics and consumer credit reporting company with close to 6,000 developers across the globe reached out to us. At that moment, only a few hundred developers were using GitHub Copilot, and the company was looking for help to scale beyond that number.

Esteban Garcia, CEO of Xebia Microsoft Services in the US: "Taking into account some of the groundwork the company had already done, we were able to bypass some preliminary stages, like a pilot program. A quick assessment of where the company was along its journey enabled our team to immediately focus on the client's need to scale its adoption of GitHub Copilot."

We embedded a GitHub Copilot team within their engineering team to help fully integrate the tool into their way of working. Additionally, we created a prompt engineering course — now a standard part of our global customer offering - which we iterated quickly to scale to all the company's engineers.





Are You Next?

In this e-book, we touched on the growing importance of a good DevEx and how GitHub Copilot can contribute to it.

GitHub Copilot represents a paradigm shift in tooling for developers — using generative AI to streamline code creation and reduce cognitive load. By helping developers write code more efficiently and effectively, GitHub Copilot enables them to focus on the most fun (and most rewarding) part of the job: solving complex problems and delivering high-quality software.

With our GitHub Copilot Adoption Framework, our goal is to help organizations worldwide successfully integrate the tool into their workflows. By following a structured approach to adoption, we aim to help you harness the full potential of GitHub Copilot and drive innovation at scale.

Want to give your developers the absolute best experience? Then embracing tools like GitHub Copilot, and guiding your teams in adopting it, is a must. So, are you ready to empower your developers and unlock new capabilities with GitHub Copilot? [Reach out](#) or [sign up for our GitHub Copilot Training!](#)

Copilot is not a solution to all your problems

Copilot can boost productivity, simplify code comprehension, and handle repetitive tasks. However, it's not a quick fix for fundamental issues like code architecture, scalability, or bad practices. It works based on your existing code, so it's important to use it carefully!

About Us

Today, thousands of companies are using technology to revolutionize their industry and gain a greater share of their respective markets. Xebia helps lead the way by implementing solutions built on Microsoft technology. We also work with your teams to deliver state-of-the-art software that runs on cloud-scale infrastructures and is seamlessly managed and deployed from a single control plane.

With over **1500** Microsoft professionals, including **24** Microsoft Most Valuable Professionals, **5** Microsoft Regional Directors, **43** GitHub trainers, and **9** MCTs, Xebia has a wealth of expertise in Microsoft technology with a deep understanding of the technological ecosystem.

As a trusted partner, we support you with expert services, [training](#), and [managed services](#) in the Microsoft ecosystem. We specialize in Software Technology, Cloud Infrastructures and Data & AI solutions on Microsoft Azure, with a DevOps mindset.

Our Partnership is Your Competitive Edge

We have maintained and grown a solid strategic partnership with Microsoft for over two decades. Our close ties enable us to access exclusive Microsoft and GitHub programs and resources. As our client, your company benefits from these resources to help you meet your most pressing challenges, facilitate growth, and capture a larger market segment as you become a technological leader in your industry.

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About Xebia

Xebia is an IT Consultancy and Software Development Company that has been creating digital leaders across the globe since 2001. With offices on every continent, we help the top 250 companies worldwide embrace innovation, adopt the latest technologies, and implement the most successful business models.

To meet every digital demand, Xebia is organized into chapters. These are teams with tremendous knowledge and experience in Agile, DevOps, Data and AI, Cloud, Software Development, Security, Quality Assurance, Low Code, and Microsoft Services. In addition to high-quality consulting and state-of-the-art software, Xebia Academy offers the training that modern companies need to work better, smarter, and faster.

Today, Xebia continues to expand through a buy and build strategy. We partner with leading IT companies to gain a greater foothold in the digital space.

Find more information on how Xebia is driving innovation at xebia.com.

The background of the page is a dark, purple-tinted photograph. It shows a bicycle parked against a wall covered in graffiti. The bicycle's fender has the "Xebia" logo on it. The graffiti includes various tags and symbols, such as "WE", "UNDISCLOSED", and "156".

Creating Digital Leaders.