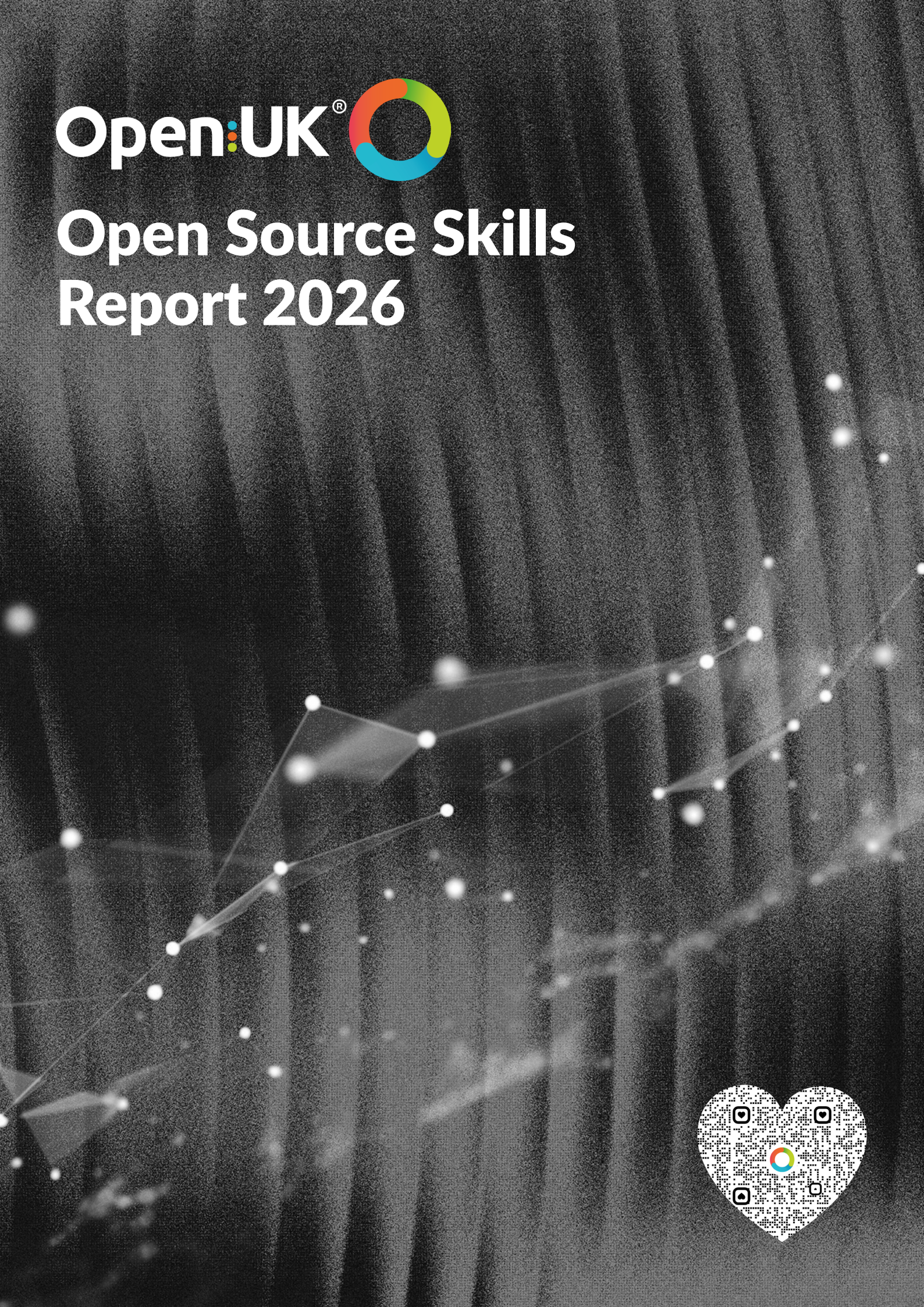
Open:UK®

Open Source Skills Report 2026



Index

1. Overview

1.1 Executive Summary

The UK's open source community continues to grow, but the pace and profile of that growth raises important questions about its long-term competitiveness. As of Q1 2026, there are 38,325 UK-based developers making at least one contribution to open source projects — a 7.0% year-on-year increase. In addition to this, there are also 5.5 million GitHub accounts in the UK now, representing 7.9% of the population. While consistent, this growth rate is the slowest when compared with six other nations for which we have data. India (50,054, 19.4% year on year increase) and Germany (49,077, 8.3% year-on-year increase) are growing faster, with India's rate nearly three times that of the UK. The direction of travel is positive but the relative pace is cause for attention.

The contributor base is expanding at every level of engagement. Those making 100 or more commits grew by 11.3% year on year, and those making 500 or more by 12.8%, outpacing growth at the entry level. This suggests that beyond simply attracting new contributors, the UK is deepening in terms of the number of those already active in open source. Contributors making 1,000 or more commits have grown by 389 since Q4 2022, nearly doubling in that period.

The broader skills picture is challenging. The UK's digital skills shortage is well documented and worsening, with research from the University of Birmingham estimating it could cost the economy up to £27.6 billion by 2030, with over 380,000 full-time equivalent jobs at risk. Despite a slight easing in overall hiring difficulties, IT and data skills remain the hardest to source in the UK for the fifth consecutive year. The emergence of AI has intensified rather than resolved the shortage, with demand for AI and machine learning roles growing. Organisations are responding by prioritising upskilling over hiring — 72% now do so, up from 48% the previous year — but investment in training budgets remains inconsistent.

Sustaining open source requires more than growth of only contributor numbers. Maintainers — those who review, secure and steward projects over the long term — face growing pressure. Burnout is widespread, with 60% having considered leaving open source projects due to stress and lack of recognition. The emergence of AI-generated contributions has added review burden without adding reviewer capacity, creating what GitHub describes as a "denial-of-service attack on maintainer attention". Financial sustainability remains elusive for most, where around 60% of maintainers remain unpaid. The case study of Joe Birr-Pixton and Rustls, explored in this report, illustrates both the transformative potential of sustained open source work and how exceptional that kind of supported, full-time maintainership remains.

The UK has the foundations of a strong open source ecosystem. However, to ensure that the ecosystem remains competitive and sustainable in a way that reflects the full breadth of UK talent, what it needs now is structural commitment in training investment and in maintainer support.

1.2 Introduction

Amanda Brock,
CEO, OpenUK and OpenHQ

This report looks at the open source community in the UK, and how skills have evolved in open source in the UK in 2026, from the number of folk engaging in collaborative development, to the challenges of maintainers, and the potential to meet the challenge of developing necessary software skills through participation in open source projects.

Joining Canonical in 2008 as a lawyer, working on the Ubuntu operating system, I quickly learned that open source is about "code and community". For open source to thrive, this has historically required an approach reflective of the "Apache Way" which is "people over code". Many have learned to their cost that success in open source is not as simple as building code or AI, but rather requires engagement with contributors and users forming a community that is required for projects to be successful.

Code has historically been split into its functionality and intellectual property, whilst people split into skills and their interactions with other humans. Both the code itself and the people in open source have been impacted by AI in the past couple of years. This report acknowledges the power of Artificial Intelligence (AI) but AI is not the main focus of this piece of work - not a statement we see often in 2026.

AI And Code

In our annual "State of Open Source in the UK" report to be published this summer we will delve deeper into the interaction between AI and open source software in the UK and globally. We will also introduce some of those building both of these in the UK, and consider how the two are inextricably linked.

Whilst not the core subject of this report the role of AI is acknowledged as we delve into open source skills in 2026.

AI and people

Vibe coding has enabled digital code-based outputs to be created by individuals whose activity would previously have been limited by their lack of skills. That lack of skills no longer constrains the instigator (or prompter) with the idea to generate an output and to do so at a low cost. This inferred output may therefore be one that the individual is ill-equipped to judge.

Today's challenge is that the instigator of an AI output may not have the skills to discern the quality and vulnerability of the code outputs created. This discernment is not about critical thinking but simply having the understanding and skill level that enables them to exercise judgement in a suitably discerning manner.

That's not to say that the use of these tools to generate outputs is bad but that they are better when accompanied by an appropriate level of discernment, but to be able to do this with AI outputs, skills are necessary. And some incredible outputs have already emerged from this with true value.

Open Source to the rescue

With a decreasing number of roles open to junior developer staff, apparently as a consequence of the ability of AI to perform many of the more mundane and formulaic tasks, there comes the challenge of building hands-on experience to enable learning which is garnered from completing those same tasks and gradually building skills. Ironically at the same time there is a shortage of staff with certain skills as reported in section 2, our literature review, which also identifies that the skills shortage is also evident in open source specific areas.

Dr Rebecca Taylor's contribution to this report and larger work on "unpaid work and open source", delves into the value of the skills built by individuals as they not only participate in an open source project with the opportunity to learn on the job (in their free time) and to improve their skills. It also explains how these skills can become "in demand", and their individual more employable, and able to build an international career from their public CV built in GitHub, Hugging Face and the like, from that contribution to open source. Considering the rise of AI and reduction in junior roles this is potentially more important than ever. In our recent Africa report the Kenyan Open Source Program Office explains that capacity building through teaching open source skills is critical today to Kenya's digital and sovereign strategy for its digital economy.

Maintainers

A recent report suggested that open source is "hidden in plain sight" but sadly this is not the case. The challenge for open source, whether in the context of software or AI, has long been that it is far from being in plain sight. Rather open source is the submarine powering the digital economy, and providing the infrastructure that lies beneath. It is invisible to the naked eye unless you know where and how to look for it. Very definitely not in plain sight, open source does however underlie the digital and AI technologies we require and rely upon day by day.

Our digital infrastructure and in some cases our national digital infrastructure is upheld by the open source community and maintainers of projects, whether built on code, AI or both.

UK Contributors and Commits

The standard measure of open source used in research and reporting has long been the number of GitHub accounts.

In 2026, for the first time the UK has hit over 5 million GitHub accounts, and is identified as one of three stand out countries in Europe by GitHub in its Octoverse report. We lead those three by number of developers and per capita, as Europe's longstanding number one in open source.

That 5.5 million GitHub accounts translates to 7.9% per capita which is reflective of the importance of open source and skills in open source to the UK.

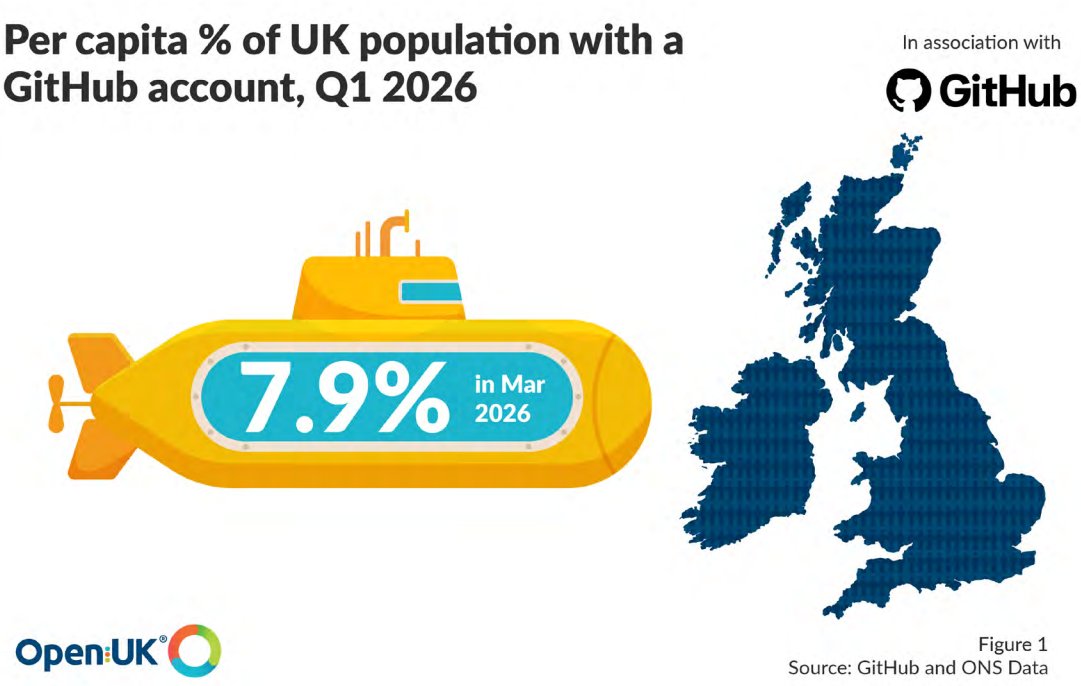


Figure 1
Source: GitHub and ONS Data

When we dive deeper into the contributions (code commits) made by those contributors we see that the number of new contributors has stagnated a little. It hasn't seen much growth over the last year but this must be read in the context of the last OpenUK Skills report which saw a very large growth of new contributors. The plateau may be a logical consequence of that growth.

When we look to the number of contributors who have made 1000 commits or more, the highest level that we monitor, what we see is that this number has almost doubled and that the community of skilled individuals is growing in depth.

Conclusion

The UK remains one of the world's most highly skilled open source communities and countries, leading Europe and with a significant global position. There is however some concern at the lower level of contribution and a marked opportunity for an increase in the skills development and utilisation of the opportunity for those at the early stages of evolving skills to build those skills through open source participation.

Not only does this offer individuals a career-enhancing opportunity and the ability to move beyond AI in coding to genuine skill development, but as Kenya identified it will enable capacity building in-country. What this engagement and participation also offers is future leadership. Today's new entrants will be tomorrow's leaders in open source projects. Leadership will enable influence and this will in turn support the current sovereignty goals of the political and policy folk.

The UK must seize the opportunity to build on its existing leadership as the "home of open source talent" to be the home of open source, through programs to encourage and build more open source skills and contribution.

1.3 Thought Leadership: Open source careers: building, showcasing, and sustaining developer skills

Rebecca Taylor, Associate Professor in Sociology, and Director of the Work Futures Research Centre, University of Southampton

Understanding the careers of open source software developers and engineers has been a key focus of my research over the past eight years. One recent study we undertook for Southampton Web Science institute, focused on software developer careers explored the experience of non-traditional groups - women and those from the global south (Taylor et al. 2020). A second study for DIGIT explored the organisational location of open source work and how that is navigated by developers and companies (Taylor et al 2022). These studies provided some interesting themes in relation to developer skills, skills in the broadest sense, both technical (coding, bug fixing, testing, systems administration etc.) and professional (team work, communication etc.). The studies highlighted various focal points at which we need to understand skills as they develop across the life course – first the process of **building** or developing skills in education and at the early career stage; second the way in which skills are demonstrated and **showcased** in the process of acquiring jobs; and finally the processes of continuing to build and **sustain** skills through out working lives and careers.

Building Skills – What is interesting about software developers, at least in the UK, is that whilst many transition from undergraduate or post graduate degrees in computing, a significant group come from other, mainly STEM, disciplines (See UK HESA data). This second group have learnt their software skills outside the context of a university degree. What we also know is that software developers often learn their software skills 'on the job' or are 'self-taught' making extensive use of online resources (technical documentation, forums and online communities, videos etc) to learn new languages and skills even where they have done a formal computing degree (Stackoverflow 2025). It's also interesting to track where and how specific open source software skills are acquired. The developers that we spoke to in our research had a mix of educational backgrounds and had encountered open source in a variety of different contexts, developing their skills at school or in education, or later through engaging with particular tools and communities to help them build things, attending hackathons and conferences, and in work contexts being supported to learn contribution protocols.

> **Julia** was VP engineering for a mobile app company which required a good knowledge of REACT native. During her working life she explained that she had learned most of her skills on the job. After dropping out of a computer science PHD she had worked for a succession of tech startups and games and mobile app companies in the US and Europe. Whilst Open source development was not central to these roles, it was still a key dimension of her skill set that she picked up along the way. As she explains: *'In the internship, I was still very much learning iOS development because I didn't take any iOS courses in school and so it was largely me pairing with another Engineer. But I'm pretty sure we did… I know specifically on a testing library that we were using we found a bug and he was like, "Let's just go and fix it; this will be an experience for you", and so we ended up doing that, like contributing'.*

Showcasing Skills

However they learn their software skills, developers go on to join an array of companies in various software roles – these range from small local start ups, to large global technology corporations (Stackoverflow 2025). Some bypass employment and go directly into freelance work for clients often mediated by platforms. Others manage a combination, holding multiple roles or wearing a number of hats (Taylor 2023). How they get these jobs, particularly when they are self taught, is another important question. How do they showcase their skills for prospective employers or clients?

Employers and policy makers routinely identify a digital / technical skills gap (Thomas et al. 2025). Indeed part of this policy report makes the point that it is open source skills that are particularly needed and which employers find hard to source. In our research the open source developers talked about their experience of being 'in demand'. Many we spoke to described being actively headhunted by companies looking to bolster their open source expertise – the research was done in 2022 and 2023 when open source programme or project offices (OSPOs) were on the rise across commercial tech companies. One mechanism for this recruitment was companies researching public Github or Gitlab contributions to identify prospective employees.

Jakob had worked as a software developer for commercial companies for over a decade whilst doing open source in his spare time. For several years he used the 10% days that his company offered to contribute to a particular open source project. '*I started to contribute back to the core of the module and more and more contributions. And in the end, I was invited to be a committer to the project. That project accepted the external contributors to be committers. I liked it. I found the community to be really helpful and friendly*'. Eventually he was approached by a recruiter from an open source company that was aware of his work through his community role and contributions and was looking for a person to contribute full time. For him this was a 'no brainer' since he would be paid to do open source

Adedayo was a Nigerian developer with a computer science degree who had been working in open source communities since he was at school. He had joined his local open source community hub and spent time there in a 'helpdesk role.' '*That was how I started like, you know, helping people out, I was contributing to people's project, talking to them about issues, talking about processes, telling them 'oh this is my experience*'. His early internships and part time work whilst studying was in startups that were primarily open source and after his military service he went into a full time stack engineering role which he said was a direct result of his Github profile *'I didn't do any technical interview so I just basically got the job because of what I was already doing, what I had, because of open source, right*'

Sustaining Skills

The final piece of the skills jigsaw is the question of how those skills were sustained in the context of different types of job and organisation and engagement with software communities over the course of working lives. In our research, developers talked about their active participation in open source communities at various points in their career.

Hannah was in a developer relations role for a company that was working mostly in open source. She had left university with a degree in Information technology and learned coding during her early, relatively low skilled internships and jobs in commercial companies. She discovered open source several years later attending a Hacktoberfest, as she was starting to develop her own games app. She went on to set up and maintain a successful open source community around this app. That experience changed her career path. Following redundancy from a digital health company with a stressful long hours culture, she realised the importance for her of open source principals, and owning her code. For her next job she sought out a role focused on open source technologies. '*I was specifically looking to swap technology tracks to Ruby on Rails. I was looking for a company that felt safe and felt right, and I was only interviewing at companies that had either good reputations or I knew people who could tell me about them. …[Company] it's very, very open source and the culture is very open source*'. That focus has continued to her current role where she supports open source communities.

Researching the structural context

The brief examples outlined above really only begin to shed light on the complexity of developer careers and journeys. They certainly make a case for understanding at a micro level how skills are built and sustained over the life course for individuals and they hint at the role played by demographic factors in shaping experiences. What needs more attention (and more research!) is the structural context to these careers. Skills development and career decisions do not take place in a vacuum. They are shaped by the priorities and resources of contemporary education systems, by government policy and support for technology and innovation and structures shaping labour markets (digital platforms for example are largely unregulated labour market intermediaries). In other words, how open source skills are built, showcased and sustained is not an individual 'problem' or even an organisational one, but is contingent on the governance of technology that shapes priorities, resources and cultures. Understanding the mechanisms that link the macro (structural) and micro (individual) levels will help to ensure that open source in the UK and beyond is a thriving and sustainable ecosystem.

2. Literature Review

2.1 Skills: A Year in Review

The tech industry faces a substantial skills shortage globally, but particularly in the UK. The 2024 Linux Professional Institute Report notes that 89% of UK employers experience difficulties in recruiting suitable IT candidates, citing a lack of experience (47%), and skills (38%) as primary barriers. They note that this shortage impacts over 20% of IT job vacancies and negatively affects 82% of organisations, with 20% describing the issue as "major". Similarly, The McKinsey Technology Trends Outlook 2024 report underscores a continued demand for emerging skills, particularly in areas such as generative AI, even amid economic uncertainty and sector-wide layoffs. This could be a reason that organisations are prioritising upskilling over hiring new talent.

The skills gap appears to be especially pronounced in open source. The 2024 State of Open Source Report for example, highlights that 38% of organisations face challenges with open source software (OSS) skills, and only 16% of surveyed organisations feel adequately staffed in this area. Linux skills, for instance, are in high demand, yet 43% of employers struggle to recruit candidates with the necessary expertise. This has also been found with The Linux Foundation: 10th Annual Open Source Jobs Report, which highlights that 93% of employers face difficulties in hiring skilled open source professionals, with cloud native and container skills currently dominating demand.

Addressing the Skills Gap

The LPI: Mind The Gap Whitepaper 2023 has highlighted that the UK faces severe shortage of open source talent, with calls for urgent investment in training and certification. Many organisations are reportedly turning to training initiatives in an attempt to address the skills gap. The 2024 State of Open Source Report by Open Logic reveals that nearly half (45.45%) of organisations are addressing skills shortages by training existing staff, while 38% hire experienced professionals. Certification emerges frequently as a potential solution to skills deficiencies. The Linux Professional Institute finds that over 60% of IT professionals attach high importance to obtaining certifications in open source technologies, and more than half (53%) report that the process of certification enhances their knowledge and confidence. As far back as 2023, The Linux Foundation Report, 2022, also shows that 90% of employers fund certifications, with 81% of professionals planning to earn one. Now in 2025, this trend continues with The LPI 2025 Open Source Professionals Job Survey Report showing that training/certification opportunities are highly valued by professionals, further showing that certifications are critical. However, the Linux Job Survey 2024 shows that training and certification is often still undervalued by organisations, as while 74% of respondents value employer-backed training and certification, such opportunities are often underfunded with only 24% of UK employers allocate substantial budgets for IT training, and 22% have reduced their training budgets entirely.

The skills challenge extends well beyond open source into the wider UK digital economy. The Manpower Group Talent Shortage Survey (2025) reports that 76% of UK employers experience difficulty filling roles due to a lack of skilled talent, though this marks the first decrease in a decade, down from 80% in 2024. Despite this marginal improvement, IT and data skills remain the hardest to find. This has not changed for the past five years. 75% of IT firms that planned to hire in Q1 2025 still reported struggling to find qualified candidates, according to the report. The economic consequences of these shortages are potentially severe. Research from City-REDI at the University of Birmingham estimates that digital skills shortages could cost the UK up to £27.6 billion by 2030, with over 380,000 full-time equivalent jobs at risk. The same report found that job postings requiring digital skills doubled from 2.4 million in 2012 to 4.9 million in 2022, with nearly 39% of all postings now highlighting the need for digital competencies. These impacts are unevenly distributed across regions, with London and the South East projected to bear the highest costs, while areas such as the North West and Yorkshire and the Humber face significant challenges relative to the size of their economies.

At the same time, the global developer community is growing at an unprecedented rate, which presents both opportunities and complexities for skills pipelines. GitHub's Octoverse 2025 report notes that over 36 million new developers joined the platform in the past year, bringing the total to over 180 million. Generative AI is now deeply embedded in development workflows, with more than 1.1 million public repositories using an LLM SDK, representing 178% year-on-year growth. This rapid expansion of AI-assisted development is reshaping the skills landscape itself, with 80% of new GitHub developers using Copilot within their first week, suggesting that AI literacy is fast becoming a baseline expectation rather than an advanced skill.

This growth also raises questions about skill depth and quality, as the demand for AI, machine learning, cloud computing and related competencies continues to outpace supply in many markets.

Alongside technical skills, diversity remains a persistent concern within the sector. The MThree Diversity in Tech Report (2024) highlights a positive shift in UK organisational demographics, with gender diversity issues falling from 40% to 26% year-on-year, and ethnic diversity challenges decreasing from 41% to 24%. However, 60% of organisations still acknowledge that their tech teams lack diversity, and over half (54%) of young tech workers report feeling uncomfortable at work due to aspects of their identity. The report also notes that the sector's reputation as male-dominated continues to deter over a third of prospective entrants. These findings show that while progress is being made, building a diverse and adequately skilled tech workforce requires sustained, coordinated effort.

2.2 The Role of Open Source in Developing Tech Skills

Open source presents unique opportunities and challenges for skills development. Unlike proprietary systems, open source technologies require a decentralised approach to training and certification, which can lead to inconsistent skill sets among employees. Statista 2022 data have shown a current demand from hiring managers for cloud and container technologies (Docker, Kubernetes), Linux administration and development and DevOps practices and security compliance. The Linux Professional Institute notes a significant disconnect between the demand for Linux related skills and the market's investment in standardised training and certifications. This "second gap", where organisations acknowledge the need for open source skills but fail to address it proactively, limits their ability to harness the full potential of these technologies.

Efforts to create a sustainable talent pipeline through education are also highlighted in recent reports. The Linux Foundation Talent Report, 2025 has found that 72% of organisations prioritise upskilling over hiring new talent, as it is 38% faster and more cost effective. In addition to this, The World Economic Forum: Future of Jobs Report, 2025 also has stated that employers prioritise upskilling and reskilling, with 85% planning workforce training initiatives. However, gaps remain, particularly in formal academic programs, where practical skills such as secure software development are reportedly underemphasised. The fireside chat with Pedro Martin Valera and the School of Code case study included in this report highlight the importance of skills and training and, in particular, the role that guidance and mentorship can play in helping turn learning into doing.

Recent reports have presented a strong consensus that the tech industry is facing evolving skills gaps, especially in open source. Training, certifications and hands-on learning are frequently cited as potential solutions, but this will only work if organisations commit to long term investments and align these efforts with business needs. Companies need to take a proactive approach, upskilling their teams, encouraging open source contributions and building mentorship and training programs in order to stay competitive in an evolving open source world.

2.3 Maintainers

Maintainers are essential to the open source world, they aid in ensuring software remains secure, functional and up to date. They manage code reviews, fix bugs, address security vulnerabilities and moderate communities, sometimes without financial compensation. The Tidelift State of Maintainers Report 2024 highlights that burnout among maintainers is widespread, 60% have considered leaving open source projects because of stress and lack of recognition. This trend could pose a risk to software supply chain security and overall project sustainability.

Financial challenges are still a key issue. According to the Tidelift Report, around 60% of maintainers are unpaid hobbyists. Paid maintainers spend more time on projects and implement more security practices, for example two factor authentication and signed releases, compared to unpaid peers. Predictable monthly income is cited as the best support mechanism, alongside mentorship programs and community growth initiatives.

The OpenSSF Blog 2024 notes that the rise of AI tools introduces opportunities as well as challenges. Although AI-assisted coding may reduce repetitive tasks, maintainers report increased review burdens and low trust in the contributions made from AI, with 64% being less willing to accept them. Despite this, automation and intelligent security tools are seen as critical to reduce fatigue and improve resilience.

Similarly, the Linux Foundation Blog 2023 emphasises that automation and scalable security practices are essential to reduce manual workload.

There are also issues concerning demographic trends. The Tidelift Blog Post: The Open Source Maintainer Community Is Getting Grayer, 2024, reports that the share of maintainers under the age of 26 has dropped sharply, from 25% in 2021 to just 10% in 2024, raising concerns about long-term viability. This indicates an aging maintainer population and a weak pipeline for new maintainers. In addition, the Linux Foundation Research Report 2023 found that only 35% of projects have a strong pipeline for new contributors, and less than one third have formal mentorship programs. This lack of structured onboarding and diversity initiatives further limits sustainability. At the same time, innovation in AI-native infrastructure and LLMOps is creating new opportunities for startups and developers.

Security remains a critical dimension of maintainer work. The OpenSSF Blog 2024 highlights that maintainers are increasingly adopting security evaluation methods such as Software Composition Analysis (SCA) and Static Application Security Testing (SAST). Paid maintainers are significantly more likely to implement advanced security practices, including reproducible builds and signed releases, which are vital for supply chain integrity. The Tidelift State of Maintainers Report 2024 reinforces this point, showing that paid maintainers spend significantly more time on security tasks compared to unpaid maintainers.

Finally, the LeadDev article on open source talent strategy, 2025, stresses the importance of recognition and community support. They argue that fostering a culture of respect, providing mentorship and integrating open source contributions into career development frameworks are essential steps to sustain the maintainer community.

Overall, sustaining the maintainer community requires a multi-faceted approach, including fair compensation, cultural recognition, improved tooling and proactive strategies to grow the contributor base. Without these measures, the open source ecosystem risks instability, security vulnerabilities and slow innovation.

2.4 Open Source Trends

The open source ecosystem is continuing to evolve rapidly, shaping opportunities and risks for organisations worldwide. Recent reports from Sonatypes State of Software Supply Chain 2024 and the Census III of Free and Open Source Software 2024 highlight growth in open source adoption, with more than 90% of modern applications now including open source software. This surge is a result of demand for cloud-native technologies, AI frameworks and container orchestration tools such as Kubernetes and Docker. However, the ecosystem faces increasing challenges in security and sustainability. Malicious package incidents have increased by over 150% year to year, with critical vulnerabilities often remain unpatched for more than 500 days, showing systemic weaknesses in supply chain resilience.

Addressing risks

Industry responses to these challenges are varied. Regulatory measures such as the EU's NIS2 directive and the UK's proposed Cyber Security and Resilience Bill aim to enforce stronger baselines, while initiatives like Software Bills of Materials (SBOMs) are gaining traction, with over 60,000 published globally. Organisations are also investing in automation and AI-driven security tools to mitigate such risks, although there are persisting concerns around trust and governance of AI-generated code. Paid support models and liability frameworks are emerging as potential peers to incentivise secure development practices, however adoption is still uneven, especially among SMEs.

Strategic Outlook

Companies should embed security into procurement and development lifecycles, invest in contributor support and adopt transparent practices such as reproducible builds and signed releases. As the ecosystem becomes more complex and interconnected. Strategies that combine technical safeguards, community incentives and regulatory compliance could be essential to ensure stability, security and innovation in the open source domain.

3. The Data

The 2025 GitHub Octoverse report noted the United Kingdom as one of three stand-out markets in the European region alongside Germany and France, fuelled by increased expenditure on cloud infrastructure, AI investments and startup-visa pipelines.

Today there are 5.5 Million GitHub accounts representing 7.9% of the UK population. This report shines a light on the people behind those accounts.

Figure 2
Source: GitHub

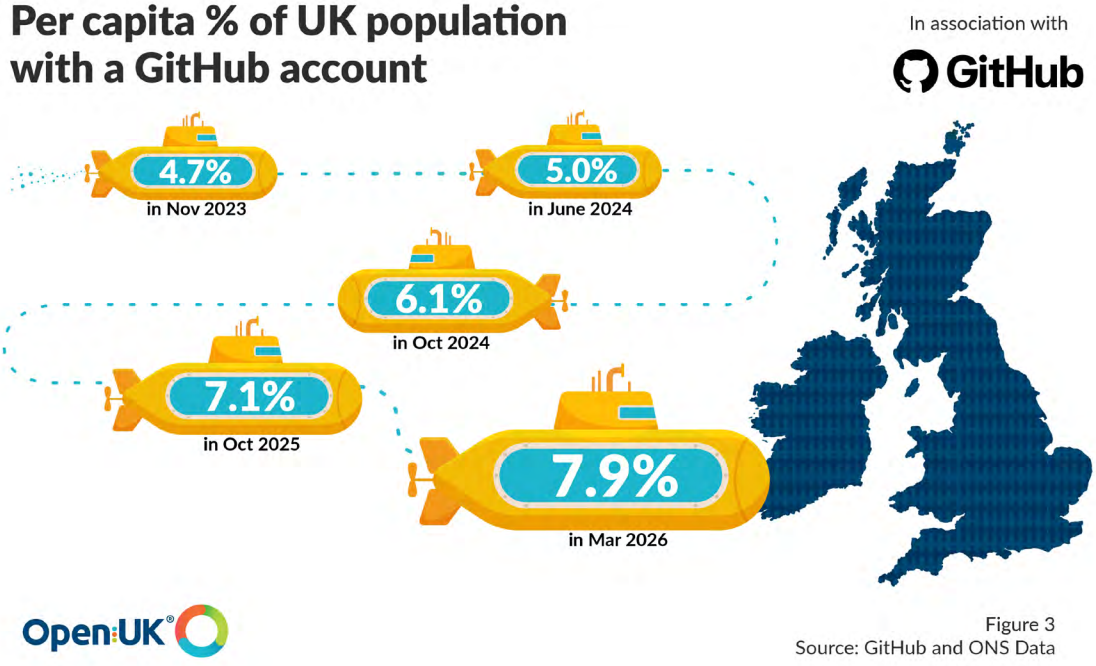


Figure 3
Source: GitHub and ONS Data

As of Q1 2026, as can be seen in Figure 4, there were 38,325 UK-based developers who had made at least one contribution accepted into open source projects, up from 35,806 the same time last year. This represents 7.0% year-on-year growth of UK contributors making at least one contribution.

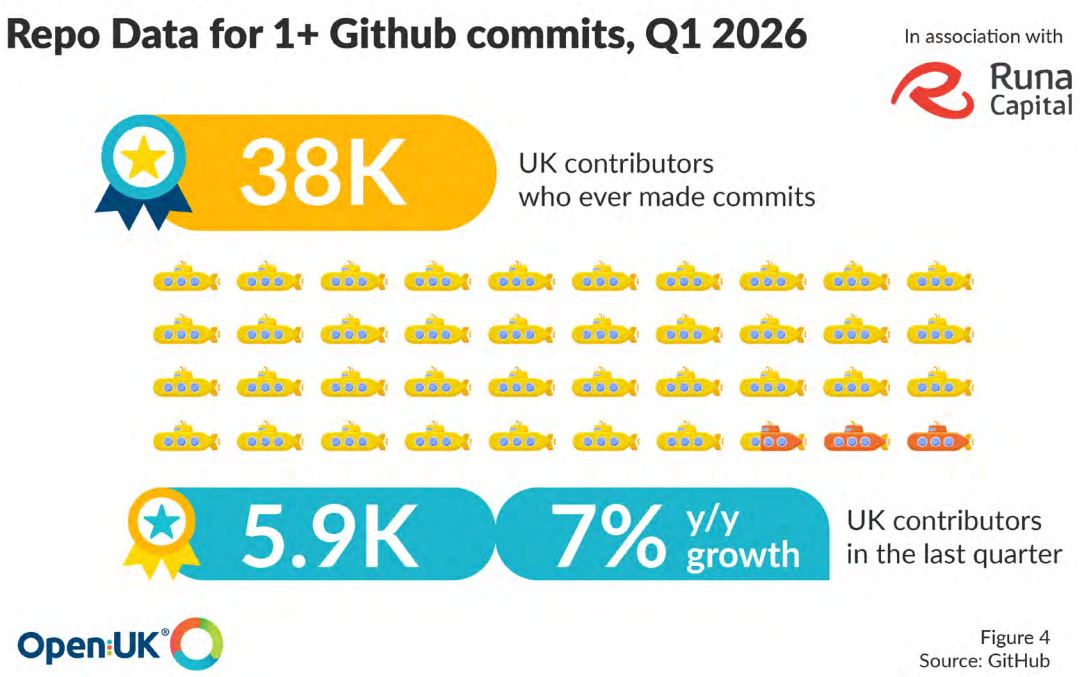


Figure 4
Source: GitHub

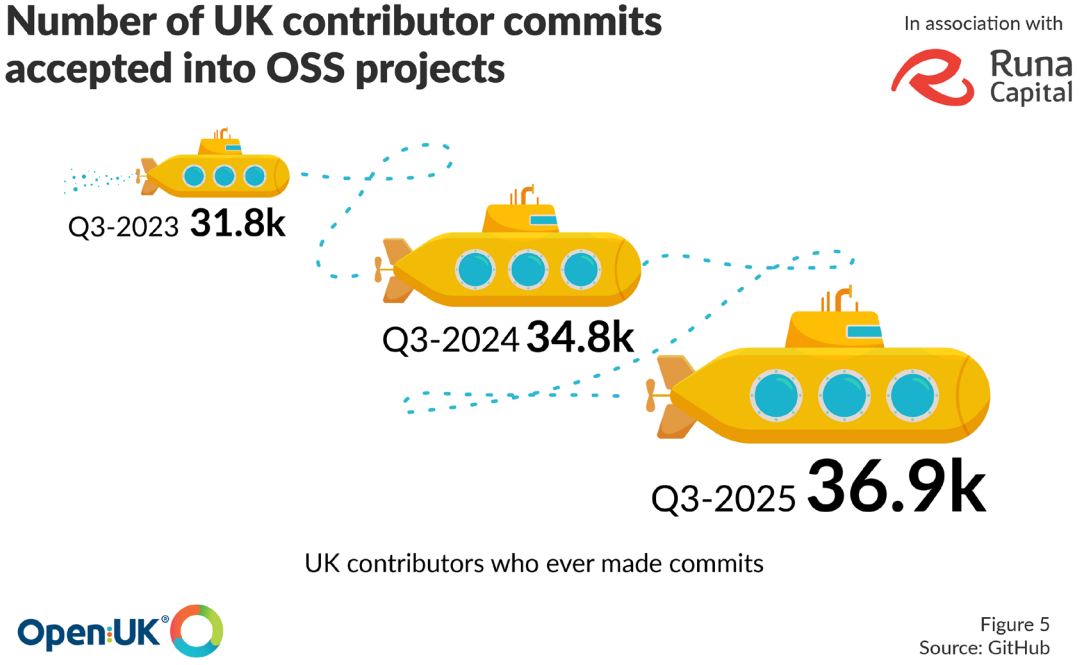


Figure 5
Source: GitHub

Figure 6 demonstrates the continued increase in the number of developers who have had contributions accepted into open source projects — rising by 2,519 in the 12-month period to Q1 2026, compared to 2,499 in the equivalent prior-year period.

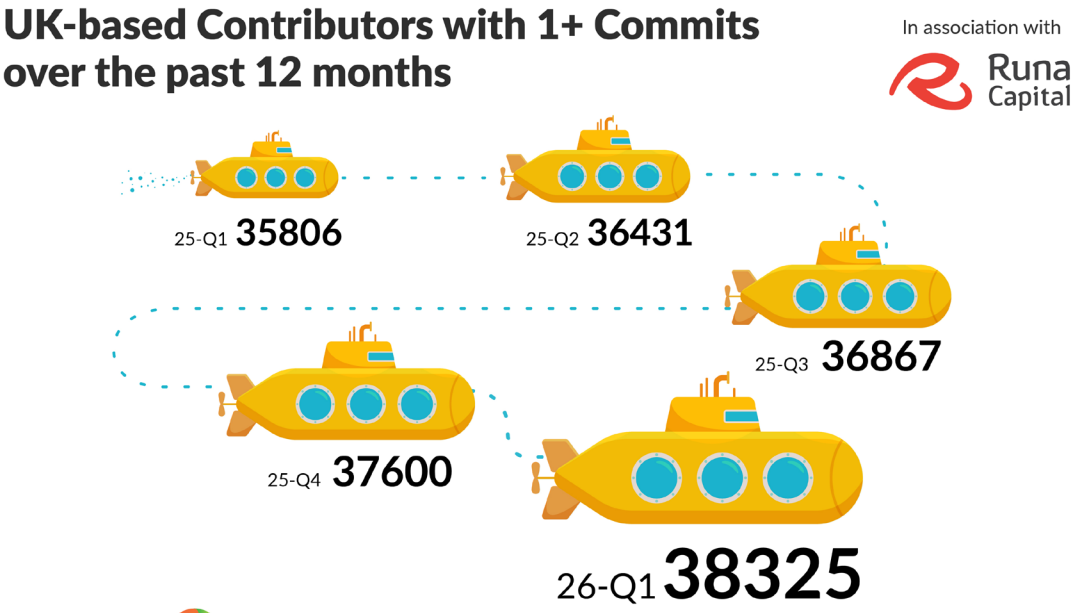


Figure 6
Source: GitHub

Growth across all commit levels between Q1 2025 and Q1 2026 remains steady, as shown in Figure 7. The UK's open source contributor base continues to expand at every tier of engagement, from occasional contributors through to the most prolific:

Those making 1+ commits increased by 2,519, similar to last year's increase of 2,499;
those making 3+ commits increased by 1,641 (prior year: 1,849);
those making 10+ commits increased by 1,021 (prior year: 1,114);
those making 100+ commits increased by 426 (prior year: 418);
those making 500+ commits increased by 202 (prior year: 217);
and those making 1,000+ commits increased by 106 (prior year: 135).

These figures are broadly comparable to the prior year's increases. Notably, the steepest proportional growth is concentrated in the higher-commitment tiers, where contributors making 100+ commits grew by 11.3%, and those making 500+ by 12.8%, outpacing the 7.0% growth at the 1+ level.

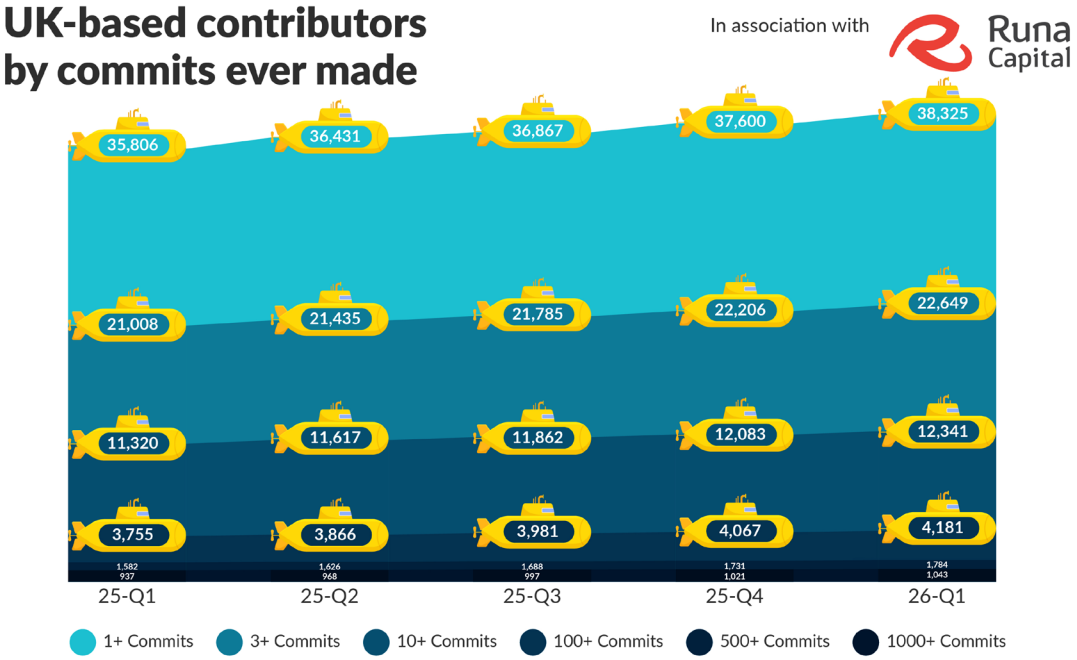


Figure 7
Source: Runa Capital

Since Q4 2022, the number of contributors making 1,000+ commits has grown by 389, from 654 to 1,043, meaning this most committed cohort has grown by nearly 60% in that period.

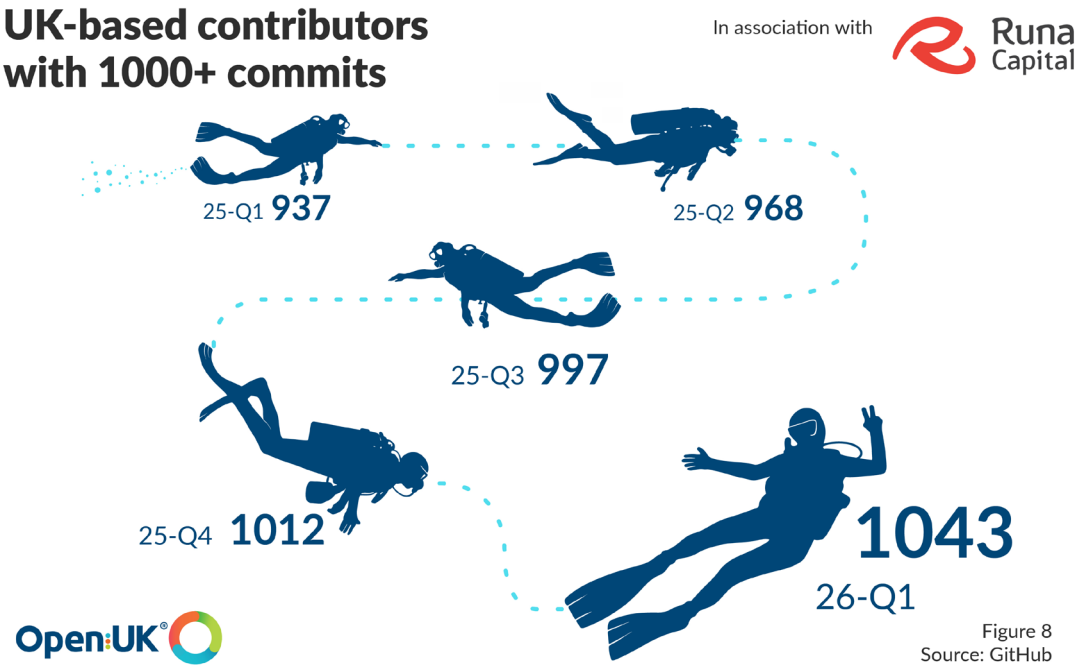


Figure 8
Source: GitHub

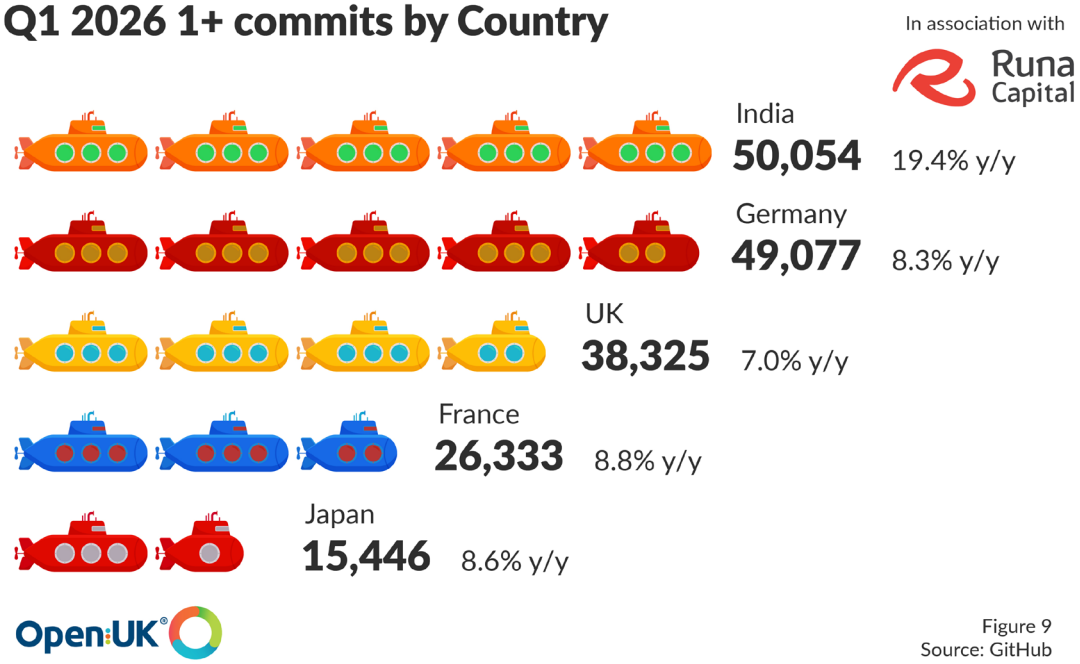


Figure 9
Source: GitHub

4. Case Studies & Fireside Chats

4.1 Case Study: Rustls

Joe Birr-Pixton
Security and Embedded Engineer

The story of Rustls and its creator Joe Birr-Pixton, showcases the potential of open source software as both a career path and a platform for addressing critical industry needs. Joe's story is one of rare successes in a landscape where most open source contributors work without adequate financial support, but it highlights the unique skillset developed through open source work. His experience offers valuable insight into skill development through community engagement, and the systemic barriers facing those working to keep open source projects viable and build enduring careers in this space.

The Beginning

Joe began Rustls as a software project in 2016, as a personal project to improve the landscape of TLS software and stay connected with cybersecurity and programming. At the time, he had transitioned into a less security focused role and wanted a project that would let him hone his expertise. His choice of programming language, Rust, was newly stabilised at version 1.0, and aligned with his interest in leveraging memory safe coding practices to build a Transport Layer Security (TLS) library. Rust as a language is well known from a security perspective because of its memory safety features which have been promoted by the White House.

Out of this came Rustls, a memory-safe TLS library written in Rust that focuses on simplicity, safety and performance.

Initially, Rustls was a weekend hobby project with no expectation of commercial support. Joe spent years developing and maintaining the project in his spare time, while working a full-time job. This role as an open source software "maintainer" meant he held accountability for the Rustls project to the rest of the world. As he refined the library and the use of memory safety in software security became increasingly important, Rustls' reputation grew. It eventually attracted interest from users and organisations eager to fund additional features and maintenance, as is often the case with open source projects as they gain users and adoption.

Project Evolution & Skill Development

Joe's work on Rustls demonstrates how open source projects cultivate skills far beyond technical expertise. Through maintaining the project, he deepened his security knowledge and learned to manage contributors, set development priorities, navigate governance structures, and sustain a community. These capabilities, while critical, are often undervalued in traditional career pathways, despite being central to the eventual commercialisation of Rustls.

A Rare Opportunity

In 2021, Joe began receiving funding offers for Rustls. By 2023, he was able to leave his role at a large technology company and focus on the project full-time. He emphasises that this is highly unusual: most maintainers juggle their projects alongside other responsibilities, often at personal cost. The open source ecosystem still relies heavily on unpaid labour, with limited routes to full-time sustainability. While Joe attributes some of his success to timing and luck, his skill and persistence have been equally important.

Current Funding Landscape

As of 2025, Rustls is primarily supported through a grant from the Sovereign Tech Agency, delivered via ISRG's Prossimo initiative, which focuses on memory-safe implementations of core internet protocols. This funding supports Joe and one co-maintainer, and the team is exploring future options with the Rust Foundation.

Challenges for Rustls

Despite growing adoption, memory-safe libraries like Rustls continue to face barriers, particularly in an ecosystem dominated by long-established projects such as OpenSSL. Joe notes that replacing even 30 - 40% of OpenSSL use would be a major milestone. He must also balance the project's core technical aims with the expectations of sponsors; challenges that are common across open source maintenance and underline the need for more systemic support.

Recent Developments and Governance Evolution

Since 2024, Rustls has undergone a period of formalisation and renewal. Joining the Rust Foundation's Rust Innovation Lab has provided governance support, strategic guidance and help navigating sustainability models. These types of support are often unavailable to technically led open source projects.
While this does not include direct funding, the Rust Foundation's support has helped strengthen project structures and clarify Rustls' long-term direction, marking a shift from a purely technical effort to one requiring community stewardship, collaboration, and long-term planning.

Open Source as a Skills Platform

Joe's journey illustrates how open source projects act as powerful incubators for talent. Through Rustls, he has developed deep expertise in memory safety and cryptographic design alongside leadership, stakeholder engagement and collaborative skills. His role now involves long-term planning and governance, including designing a stable API that can be supported "for years and years".

He also draws parallels with his civic role as a town councillor and deputy mayor, where decision-making is open, collective and accountable, mirroring many of the principles and challenges of open source governance.

For the UK, this presents a significant opportunity. Open source initiatives can cultivate the technical and leadership skills needed for future cybersecurity and software engineering challenges. However, realising this potential requires addressing the systemic barriers that make Joe's experience the exception rather than the norm.

Sustainability and Open Source as a Public Good

Joe emphasises that open source software should be treated as public infrastructure requiring stable, long-term investment; something private companies rarely provide. He identifies two viable sustainability models: public good funding, through governments or grant-making bodies, or private good subsidisation, where commercial models are built around open source cores. He notes that switching between these models mid-way is rarely successful; choosing a clear path early is essential for trust and long-term viability.

Rustls now underpins an estimated 200,000 software projects and indirectly supports 2–3 billion end users through services such as WhatsApp on Android. This scale underscores the need for sustained and predictable investment.

The evolution of Rustls positions it not just as a technical achievement but as an example of how maintainers can build meaningful, sustainable careers while influencing critical global digital infrastructure. Joe's experience highlights both the transformative potential of open source work and the fragility of the systems that support it, particularly within the UK's developing digital ecosystem.

4.2 Fireside Chat: Pedro Martin Valera, RedBadger

Senior Software Engineer, Red Badger
Instructor, General Assembly

About Pedro

A senior software engineer with two jobs, I work at Red Badger as a consultant and I teach software development to non-technical people at General Assembly, which is a boot camp academy. I teach immersive courses that are designed to take non-technical people and enable them to become coders. Based in London, I'm originally from Venezuela and back home I was an environmental science teacher for almost 15 years. Thirteen years ago, due to the political situation in Venezuela, I left the country for England. I spoke no English and my degree did not translate so I was unable to teach and instead worked in construction as a labourer, where I learnt English. A couple years later my wife had the idea to create a website, something that would now take me two days, but at the time took me three months! I did it and thought it was great so I went to the General Assembly, trained as a software engineer and they were crazy enough to hire me as a teaching assistant immediately after. I've been teaching there for almost 11 years.

Teaching versus doing, why do you need both?

The truth is, I think I would teach for free. That's just me… engaged and high spirited. I love to be a part of someone else's learning journey, seeing where they're at several years later and feeling grateful to have been a part of that journey. Since the moment I started teaching I just could not stop.

What role does open source play for you?

One of the things that attracted me to software development is that things evolve so rapidly and the community knows that the only way to keep up is to be proactive in your learning and training. Most of the people have the spirit and ethos to share knowledge. Engineers love to do things and then talk about it. Having something you built be consumed or utilised by other people makes you feel that you are a very small part of something that is great. The only place I have really seen this flourish and evolve is within the open source community.

One of the great things about the company I work for, Red Badger, is that I can contribute to open source projects for up to 20 hours a month as employees and be paid to do this. It's a pat on the back, a way of acknowledging that we benefit from the open source community so we want to give back and help others.

What approach do you take when teaching?

What I think is needed, for many people, is an instructor or mentor then and to help them go to a corpus of curriculum and to go through it, and hopefully inspire them. In my classroom what I encourage is not that you necessarily understand the content, it's that you feel safe to ask questions. Nothing we are doing is going to break the internet, no one is being harmed, so just experiment and if something goes wrong, that's okay! Ask questions, ask your peers, learn from each other. As well as this, I think contributing to open source projects is a good way to gain practical experience, as it allows you to apply your knowledge to real world challenges, collaborate with the global community, and see the real impact of their work.

What are your feelings about the futures of those you teach?

Unfortunately the prospects are not the same as when I entered the industry 10 years ago and this is because of the pandemic. After COVID-19, big corporations made massive layoffs in software departments

and a lot of other companies followed. I think my students will have more challenges in learning the ropes in a placement as a junior or as an apprentice than when I was a junior 10 years ago. Nowadays, companies want people that are mid-seniors, but how can you get into that if you don't have the experience? It's hard to keep your spirits high when dealing with so much rejection during the hiring process. I've now seen many people who, after five months of trying to find a job, they just return back to where they were before. That's a horrible feeling. All the toil and sweat they put in, all the effort, and the money is just not paying back. I think that's where getting involved in the open source community can be invaluable, as a way to gain the practical experience these companies want.

To what extent do you think open source aligns with fostering innovation in the broader tech industry?
I think it goes hand in hand. We are very blessed that the engineering department is spearheaded by Stu, he's a crazy head and I say that with all the love and good intentions. So for example, what Stu is doing in terms of open source with something called Crux, which is a cross-platform tool that is fully testable. It's all the business logic in one place and we try user interfaces as a side effect. It's something that no one has tried before and we are proving it is a good way to do things. We have been paid by clients to implement that and they are receiving millions of savings on that, which is proving the value of this product we built as open source.

Have you considered international jobs where you'd be working remotely?

Personally, I don't see myself doing that because I have two children and the opportunities here in terms of education and access to whatever is happening in London. For them I think that is invaluable. But I have seen many UK graduate developers going abroad because it's cheaper to work completely remotely, earning a GBP salary but living in Portugal, Spain, Cyprus, Malta, etc.

What would your advice be for developing skills and how to stay connected to that despite seeing a difficult pathway?

I think that most engineers by nature are curious. But what I have found, especially with British educated young people, is that they are afraid to ask questions because they are worried about how teachers, instructors or facilitators will look at them if they are wrong - a very British approach to being scared of being foolish or failing.

So my advice is to not be afraid to ask questions. Maybe no one will answer it but what if they do? And don't think your questions are stupid because you are not too different from the rest of us and that question has probably popped into other peoples heads and perhaps another person has seen that problem with a very different perspective and your question can help them to rephrase it.

Once you have enough knowledge, return the favour, write a paper, write a full-blown comment on an issue on GitHub. Don't be afraid, if you are wrong, the community will help you figure out the correct answer through a collaborative conversation. Also, we are not breaking the internet. Most likely, if you are starting out, you won't be in a very sensitive place where if you do something it will break the system. If something goes wrong we have the system to roll back, make everything green again and solve the issue. So don't be afraid, just experiment and ask questions!

How do you balance technical and non-technical skills?

What I normally do, even just internally within the team, is ask them often, perhaps once a week, to do a demo about what they're doing, explain to us what they're doing, what challenges they faced, how they got around it. Through that exposition and being in front of your peers with them asking you questions, not with a spirit of inquisition but just wanting to pick your brain to find out the thought process, they will learn to order their ideas and think about the process. The process for me to code is not about typing keys on a keyboard. It is about translating into plain English what we want to solve and how we might solve it, then talking about that with peers, being open to critique and then applying that and demoing it. By doing that once, twice, three times a week, everyone benefits - yourself, the client, our mini community. I hope that inspires people so that when they move on to a different project they carry on with that same spirit.

5. Conclusion

Dr Jennifer Barth,
Research Director, Symmetry Research and OpenUK

Open source is often discussed in terms of technology, innovation, and infrastructure. Yet what this report makes clear is that its most profound impact is on people: how they learn, how they work, how they are recognised, and how they build meaningful careers. At a time when the UK faces a deepening digital skills shortage and increasing global competition, open source offers not just a technical solution, but a human one if we choose to see it that way.

Across the UK and globally, open source functions as a powerful, often informal education system. Many developers build their skills through self-teaching, online communities, and direct participation in open projects. This learning is continuous, practical, and deeply embedded in real-world problem solving. It begins early, often through curiosity and experimentation, and continues throughout careers as contributors adapt to new tools, languages, and challenges. In this way, open source is not simply a repository of code, but a dynamic environment where skills are constantly built, tested, and refined - if given the opportunity.

Contributions are public, persistent, and globally accessible. They form a record of what an individual can do which is often used for job applications and assessment of aptitude. For many developers, this visibility translates directly into opportunity. Employers increasingly identify and recruit talent through open source activity, sometimes bypassing traditional hiring processes altogether.

This has significant implications for inclusion and social mobility. Open source provides pathways into the technology sector for those who might otherwise be excluded: career changers, individuals from non-traditional educational backgrounds, and those entering the workforce from different regions or circumstances. By lowering barriers to entry and enabling people to demonstrate their abilities in practice, it opens doors that formal systems often leave closed. In doing so, it expands the talent pool at a time when demand for digital skills continues to outstrip supply.

It's always important to realise the breadth of depth of skills in this area. Participation in open source develops a wide range of professional and human skills that are increasingly critical in modern work. Contributors learn to collaborate across borders and cultures, communicate complex ideas, manage projects, mentor others, and navigate governance structures. These are not peripheral benefits; they are central to the functioning of open source communities and to the sustainability of the software they produce.

At the same time, this report highlights a stark imbalance. While open source is foundational to the digital systems on which society depends, the people who maintain and sustain it are frequently invisible. Maintainers—those responsible for reviewing code, fixing vulnerabilities, and ensuring long-term stability—carry significant responsibility, often without financial compensation or formal recognition. Many experience high levels of stress and burnout, and a substantial proportion have considered leaving open source altogether. This presents a clear risk not only to individual wellbeing but to the resilience and security of the broader software ecosystem. Maintainers are a group we want to further understand and will do so in subsequent reports.

In the UK the contributor base is growing and deepening, with increasing numbers of highly committed participants. Yet the wider skills landscape remains challenging. Employers continue to struggle to find the expertise they need, while investment in training and development is inconsistent. Open source already plays a critical role in addressing these gaps, but it is not yet fully integrated into national approaches to skills, education, and workforce development.

Open source provides a unique lens through which to understand the people behind digital infrastructure—their journeys, their contributions, and their impact. By bringing these stories into view, we can better recognise the value they create, inspire new entrants, and build a more inclusive and sustainable talent pipeline. Joe Birr-Pixton at Rustls is an excellent example of commitment through the most lean times and

growing something to recognition slowly and amidst resource constraints. Pedro Martín Valera's journey and desire to both build and teach shows a commitment to training and extending skills and opportunities for people.

One can argue that open source should be understood not only as a technological asset but as a public good and a skills engine. This means investing in training and mentorship, embedding open source into education and career pathways, and creating mechanisms to support and reward maintainers. It also means acknowledging that the health of the ecosystem depends on the people within it - their motivation, their recognition, and their ability to sustain their work over time.

Ultimately, open source has already demonstrated its capacity to build skills, create opportunity, and underpin innovation at scale. The challenge now is to ensure that the individuals behind this system are no longer hidden. As always this is a call to the public and pirate sector - by making open source skills and people visible, valuing their contributions, and supporting their development, the UK can strengthen not only its open source ecosystem but its broader digital future.

6. Formalities

6.1 Contributors

Professor Amanda Brock, CEO, OpenUK

OpenUK CEO, Amanda's built one of open source's most recognised and impactful organisations. Executive Producer of State of Open Con (2023- 2025), Amanda's a globally sought-after keynote speaker.A lawyer with 25 years' experience, 5 as GC of Canonical, she's been instrumental in shaping open source's legal frameworks, as she was internet law during the early 2000's. Regularly contributing to tech press, she edited 'Open Source: Law, Policy and Practice', (2022).

Recognition: Computer Weekly 50 Most Influential Women in UK Tech (2023, 2024); Computing IT Leaders 100 (2023, 2024); Lifetime Achievement Award WIPL (2022); Women Who Will Changemaker (2023); INvolve Heroes (2022, 2023); Novi Awards (2024) and Ambassador, Open Charge Alliance.

Advisory Appointments: UK Cabinet Office Open Standards Board; UKRI Digital Research Infrastructure; UKRI Exascale; KDE; commercial boards – Mimoto, Scarf, FerretDB and Space Aye; and is Fellow Open Forum Academy; Distinguished Fellow Rust Foundation; and European Representative, OIN.

Dr Jennifer Barth, Founder Symmetry and Research Director OpenUK

Jenn has more than 15 years of experience leading independent research on the intersections of emerging technologies and socioeconomic change. She provides companies with independent thought leadership and media engagement opportunities on global issues impacting and shaping our current and future technical-social lives. Her work spans the digital through to social and economic change. She has looked at sustainability, workforce skills and organisational competitiveness strategies through and beyond the pandemic with Microsoft and many other big and small organisations and works as the Chief Research Office researching the role of open source software and its potential to fuel the circular economy with OpenUK. She has experience working on the human impact of artificial intelligence (AI) through fieldwork experiments with IBM Watson, Microsoft and other providers. She is skilled at blending research methods and working with people to bring to life the stories behind numbers. Dr Barth earned her DPhil in Geography from the University of Oxford.

Karan Saini, Operations Manager, OpenHQ

Karan Saini is a New Delhi-based security researcher, public interest technologist, and open source contributor. He was most recently a Senior Information Controls Fellow with the Open Technology Fund, hosted by the Internet Governance Project at Georgia Tech, where he researched the scale of DNS-based web censorship in India. He regularly writes for leading publications and has contributed to award-winning media projects.

Pedro Martín Valera, Senior Software Engineer, Red Badger

Pedro Martin Valera is a Senior Software Engineer at Red Badger and a Distinguished Faculty member at General Assembly, where he has taught software development to non-technical people for nearly a decade. Originally from Caracas, Venezuela, he arrived in London in 2013 and retrained as a web developer after a career as an environmental science teacher. Pedro is passionate about open source, accessibility, and inclusive education — including the design of General Assembly's first Spanish-language immersive course for people with disabilities. A regular open source contributor, he believes curiosity, asking questions, and giving back to the community are essential to every engineer's growth.

Joe Birr-Pixton, Creator of Rustls

Joe hails from Cambridge, UK. He is a security engineer, formerly with Twilio, Electric Imp, BlackBerry, Good Technology, Thales, and nCipher. These days he mostly works in Rust. His professional experience is in C and C++. He is the original author of the "rustls" Rust crate, which provides TLS support to most of the Rust ecosystem.

Rebecca Taylor, Associate Professor, University of Southampton

Rebecca Taylor is an Associate Professor, Sociologist of work and organisations at the University of Southampton and co-director of the Work Futures Research Centre. Her research interests are in unpaid work, digital labour and public service delivery with a focus on policy and practice. A central strand of this work is on Open Source labour and the organisational context to open source software development.

6.2 About the Creators of this Report

OpenUK

OpenUK is the unique open tech industry organisation for the business of open technology in the UK. It spans the opens – software, hardware, data, standards and AI and is the convening point for the UK's business, academic and contributing communities across open tech. Our work supports the UK's journey to become "The State of Open". Our organisation is run with the support of our volunteer community and their leadership in the tradition of open source manner delivering on three pillars: community, legal and policy and learning. OpenUK's Community is recognised through our world-leading recognition programme including the Open UK Awards (the Oscars of Open Source) now in their 7th year, New Year's Honours Lists and Ambassador Scheme.

OpenUK undertakes research and reporting both on its own account through its "State of Open Reports" and on a commissioned basis for third parties. Case studies, Thought Leadership, Surveys and desk-based research are included in our reporting which pushes the envelope and leads the way. Our Research and Reporting Show and Tell events coalesce the global open source research communities digitally to regularly update and share research practices and topics.

The community's strength is channelled to enable a cohesive voice that responds to legislative proposals and sets policy. We have set the agenda in policy matters across openness in the UK and beyond. OpenUK's Policy work leads the conversations around open source licensing and commercialisation, AI openness and cloud computing and other key topics across open source, as they emerge. Engagement with UK policy makers is supported by a volunteer Policy Advisory Board and by experts across our volunteer Advisory Boards and the open source communities. Our Advisory Boards span AI, Communications Tech, Data, Finance, Hardware, Healthcare, Security, Software, Space, Sustainability and Quantum Computing. We are able to provide industry experts across the opens for speaking engagements, consultancy and advisory boards.

OpenUK is the second organisation established anywhere in the world with open source policy as its purpose, our approach is holistic to and representative of the entire open ecosystem. OpenUK undertakes a broad range of activities in support of its policy work and is a day one member of GaiaX and UK's GaiaX Hub Coordinator, hosted one of the biggest tech events at COP26, and was the first organisation in open tech to put a Sustainability Policy and Chief Sustainability Officer in place. Skills and Learning form our third pillar and our Learning work has spanned initiatives for children including our award winning Kids Camps which teach coding, open source and sustainability in a real world context; and exploring the business of open source through our Founder training. We have shared several hundred hours of digital training. Our ambitions include a UK apprenticeship module and adding open source to the UK curriculum.

The State of Open Con has become one of the world's leading open source conferences since its inception by OpenUK in 2023. In 2027 we expect to host 1000 people across 8 tracks and plenary sessions, with at least 50 partners in our delegate experience space and over 200 speakers in London. For 2026 we are on the road, with smaller events across the UK, meeting our audience.

Our small events team deliver to the highest standards a series of unique events through the year and our community organise UK-wide OpenUK meet-ups. Contact OpenUK mailto:admin@openuk.uk

Symmetry

Symmetry Research, an FSP company, looks beyond the surface and behind the curtain of the fundamental innovations and trends shaping our society, markets, culture, and values. We are academics and researchers looking at the intersections of emerging technology and socioeconomic impact, producing independent research for thought leadership and business solutions. Symmetry's mission is to share and grow knowledge about the interaction of technology and everyday lives. We want to understand the past, present, and future of human interaction with emerging technologies and socioeconomic changes—from behaviour to context, nature to nurture, origin to experiences—helping our clients engage their clients and public imagination.

7.3 Methodology

The research used a mixed method approach to explore and demonstrate the state of Open Source Software in relation to skills in the UK. Interviews were conducted with industry leaders, founders and Open Source Software experts and included as case studies and thought leadership.

Runa Capital supported our assessment of local repositories to establish comparisons in locally based contributions and repositories from each country. Runa Capital created a dashboard collecting data on open source repositories, users and activities. The data collection processes are automated, leveraging the APIs and tools provided by GitHub and updated daily. Runa gathers data about all repositories with more than 1000 stars at the time of collection. The author of the repository can be an individual or an organisation and where they own multiple repositories, each is considered as a separate entity. For any author who has at least one repository exceeding 1000 stars, information is collected on all repositories they own. A commit in the content of version control with Git is a record of changes made to a set of files. All commits to 1000+ stars repos are collected. Every instance where a user makes a change to the code is monitored. Users are collected in terms of repository authors and contributors including profile information, number of repositories owned and largest repository. To determine the user's geolocation the process uses the Google Maps API. This is updated for user profiles once per 6 months. Contributors from the United Kingdom are defined as users who have been geographically pinpointed as being in the United Kingdom through the geolocation process. These users are identified based on the location data they provide in their GitHub profiles, which is then verified and refined using geolocation tools.

GitHub supplied data on the total number of developers, in particular using data from GitHub Innovation Graph from which the heatmap has been produced. In the data provided by GitHub, countries with less than 100 developer accounts were excluded due to privacy concerns.

6.4 Acknowledgements

The research was led by Dr Jennifer Barth, Founder and Research Director at Symmetry Research, an FSP Company and OpenUK's Chief Research Officer in partnership with Amanda Brock, CEO OpenUK. Thank you to Runa Capital and GitHub for sharing data.Thank you to our team of economists, psychologists, data scientists and social scientists to all who contributed, and in particular to Karan Saini, and Zin Nwe Zaw Lwin. We are grateful to the individuals who participated and provided us with case studies, fireside chats and thought leadership to bring the key issues to life.

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