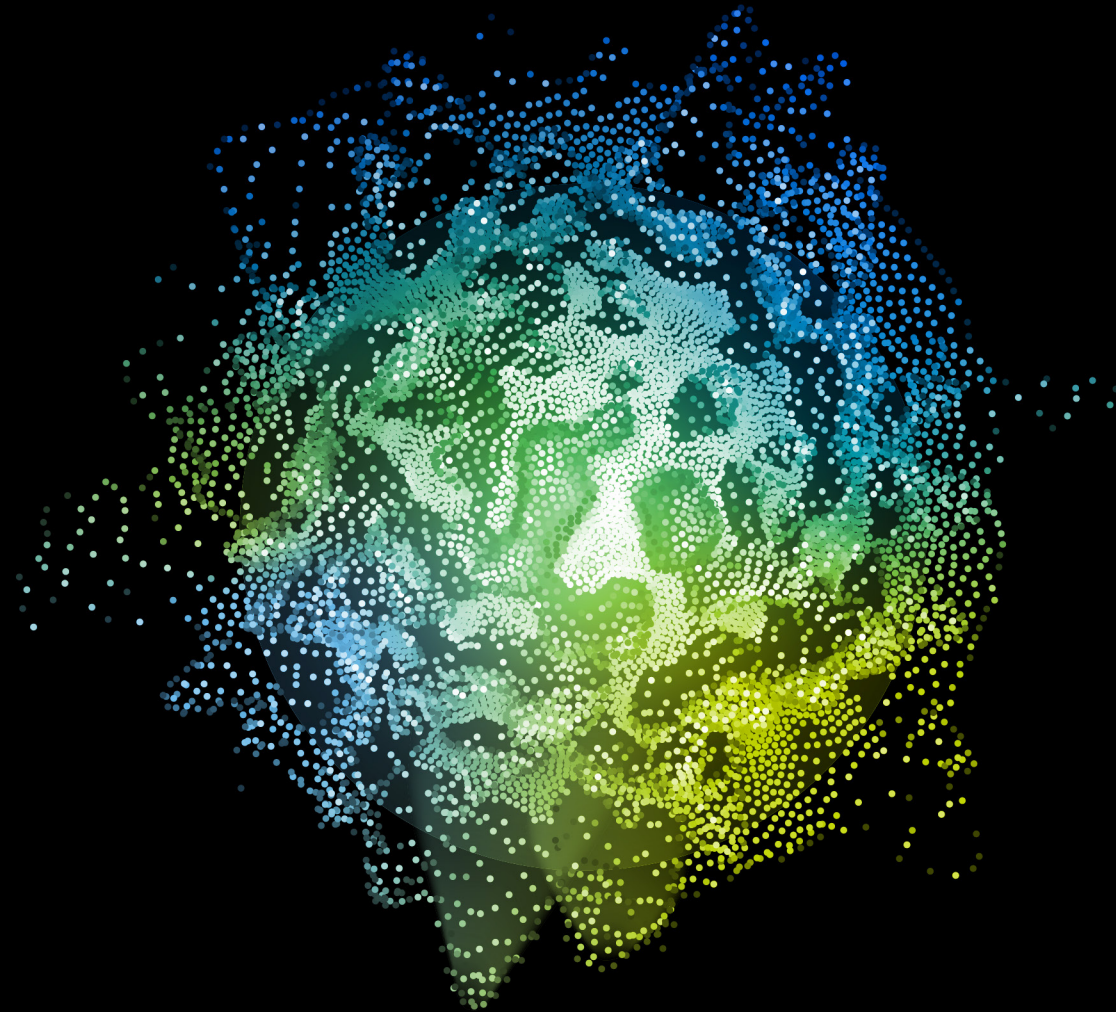# Deloitte.

Technology Skills Insights report

Full stack developer

Q1 2023

Welcome to the first edition of the Technology Skills Insights report

A letter from Josh Haims, principal of Cloud Enabled Workforce

Greetings, and welcome to the inaugural edition of our Technology Skills Insights (TSI) report. The TSI report is designed to offer our perspective on the technology skills that are in high demand today and the emerging trends transforming the industry, as well as share impactful resources to enhance professional development. As noted in the Tech Trends 2023 report, "Rather than competing for scarce tech talent, leaders would be wise to consider an abundance strategy, wherein technology talent can be curated, created, and cultivated. In other words, don't compete when you can create." To that end, our aim with this quarterly publication is to deliver information that is relevant and valuable to help everyone from seasoned technology executives to those just starting out to cultivate and create the next phase of their careers.

These insights reports are designed to track skills and capability trends, spark conversations within your organization about how to best curate a workforce experience, and help design a future of delivering clear and differentiated talent. This issue is focused on the role of full stack developers, including important skills they must possess. As highlighted in the Tech Trends report, "To win the battle for talent in the long term and prepare for further changes to come, organizations should be prepared to eschew IT orthodoxies and prize flexibility as the best ability." Full stack developers truly exemplify this tenet.

Moving forward, the quarterly TSI report will help drive the agenda that matters to you—building and maintaining the workforce that will fuel your growth, including the roles that will be key to success. Stay ahead of the curve with the TSI report, and we look forward to the journey ahead.

Josh Haims

Principal
Cloud Enabled Workforce - US Offering Leader
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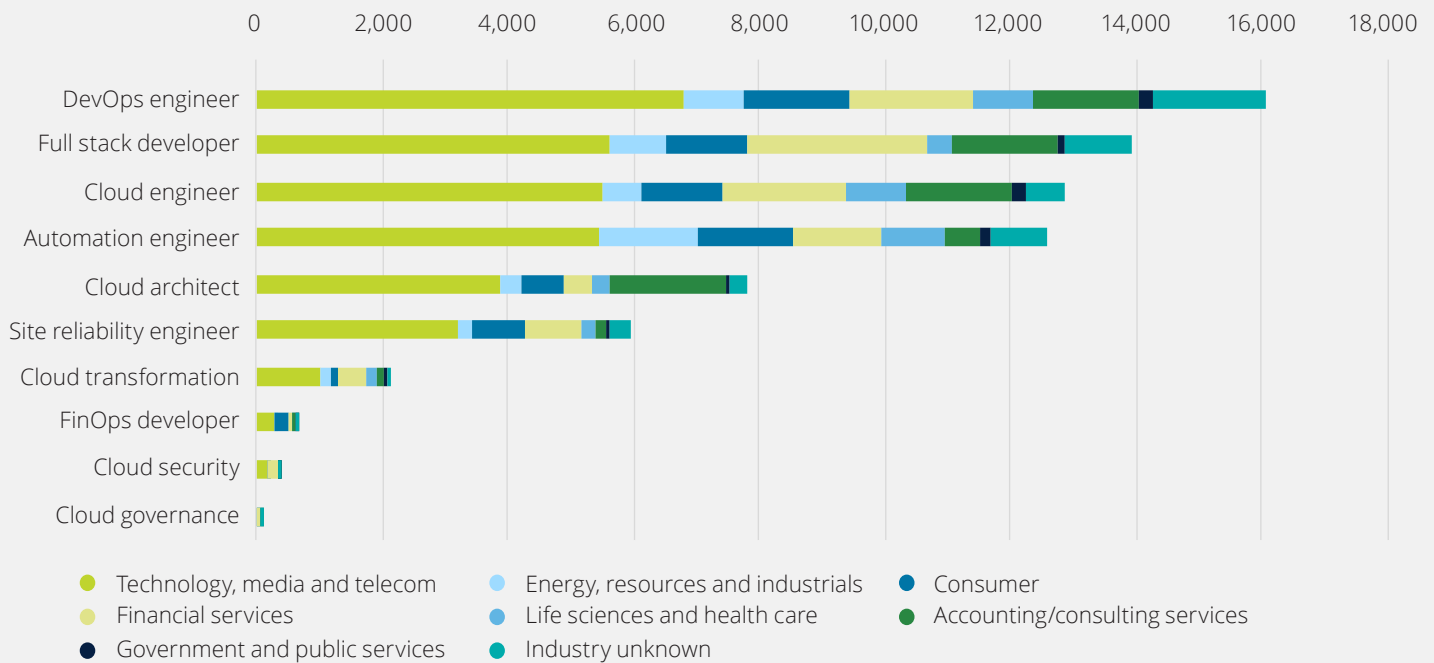
Talent spotlight: The full stack developer

Increased cloud demand and complexity has led to multiple industries fighting for the same tech talent. The unique experience and skill set of the full stack developer makes them one of the most sought-after roles across the finance, tech, health, and retail industries.

Over the past several years, cloud services, products, and platforms have become increasingly complex. As businesses grapple with evolving and competing within the marketplace, they're also seeking the right talent to help them tackle this complexity and keep pace with their competitors.

That's where the full stack developer (FSD) comes in. These professionals have creative client-side development experience and can work within sophisticated back-end application logic. They also have skills with sourcing and using data and are self-motivated to continue to upskill and understand evolving industry tools and languages. Essentially, these highly experienced individuals are able to work proficiently across the entire technology stack.

However, the FSD will not render front- or back-end developers obsolete. Front-end developers, for example, tend to have greater depth at delivering creative, customer-centric UX/UI experiences, a crucial piece of the development puzzle. The value of FSDs is their ability to understand and execute across several areas of the organization, including production, business logic, and data layers—enabling expedited time to market for application or product prototyping, increased transparency, and savings in resources and costs. Due to their propensity to continually be honing their skills, these developers will have a finger on the pulse of the hottest technologies and trends, like AI/ML, DevOps methodologies, and shifting left-of-quality tasks earlier in the development process.

Demand for role by industry: Q1 FY23

Legend:
- Technology, media and telecom
- Financial services
- Government and public services
- Energy, resources and industrials
- Life sciences and health care
- Industry unknown
- Consumer
- Accounting/consulting services

Source: Deloitte Human Capital Data Lake [analysis of publicly available job postings] Oct 2022–Jan 2023

The demand for the top 10 cloud roles has leaders in finance, tech, health, and retail industries fighting for the same talent. FinOps talent and non-tech firms have a slower pace in the adoption of multiple languages in their ecosystems—giving tech giants a slight lead.

US distribution of full stack developer demand: Q1 FY23
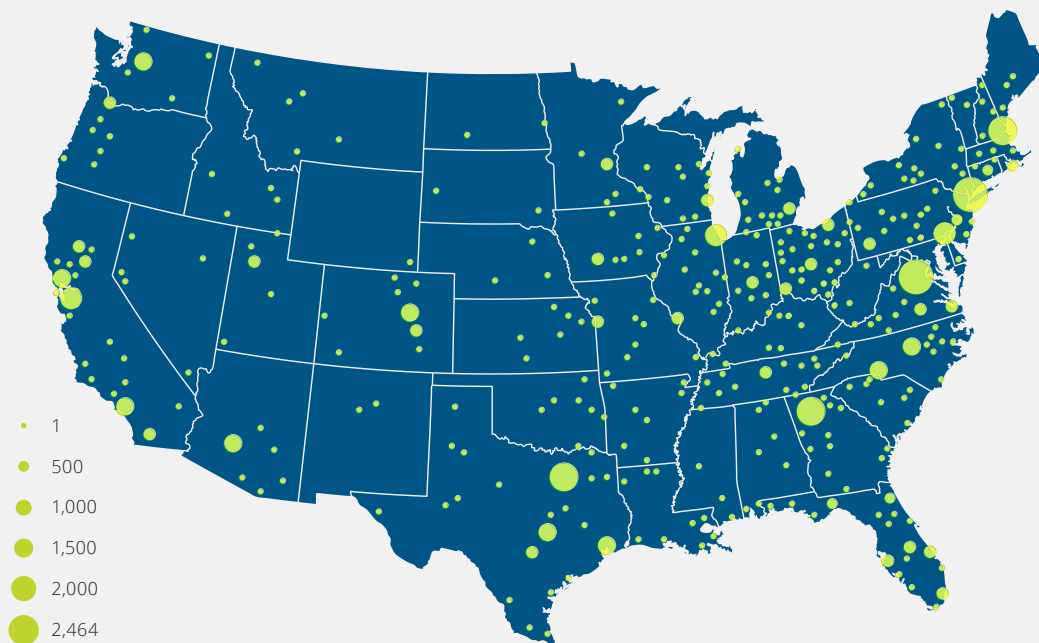
- 1
- 500
- 1,000
- 1,500
- 2,000
- 2,464

Source: Deloitte Human Capital Data Lake [analysis of publicly available job postings] Oct 2022–Jan 2023

Top developer demand is sought most from legacy and emerging tech hubs.
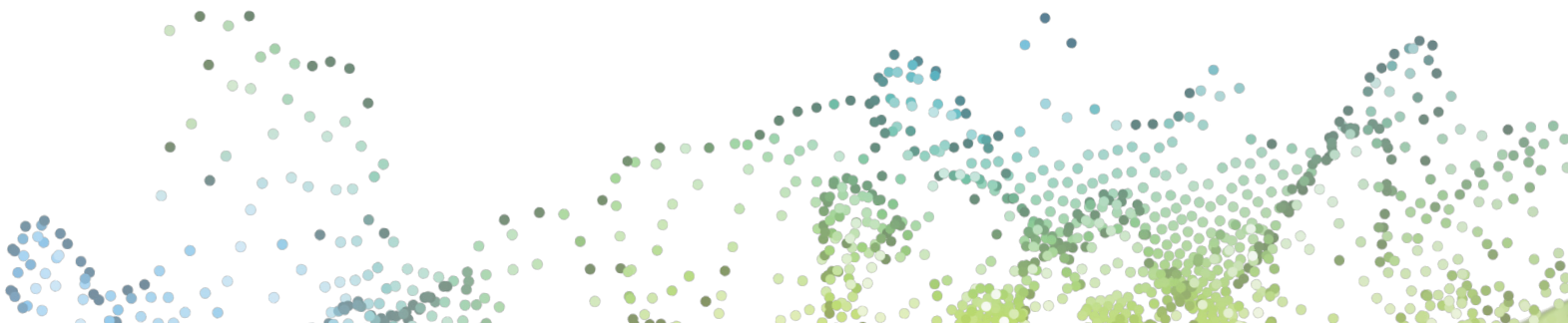
Deloitte leadership Q&A

Paul Barnhill, US engineering managing director, Deloitte Consulting LLP, offers his perspective on the full stack developer role and what he thinks the future could look like.

Full stack developers (FSDs) are in high demand. Do they have the same role in traditional on-prem environments as in the cloud? What value do they bring compared to other developer capabilities?

The value of FSDs really comes from their having a wide range of skills that naturally transfer from the traditional on-prem environment to the cloud. The difference is that the cloud provides for new skills and an evolved way of exercising existing skills. For example, in the cloud world, capability with concepts such as "infrastructure as code" is an in-demand skill FSDs can bring to their work. Implementing and prototyping front-end UI while making products more robust on the back end is where they really excel.

Is a full stack developer a rarity in terms of finding someone who can work front AND back end?

I'm not sure they would consider themselves rarities, but I'd say they are. Companies consistently seek to have FSDs on their delivery teams as go-to leaders who can work front- and back-end environments in a single role.

How will the continued emergence of DevOps, ML/AI, AIOps, and FinOps impact the role of full stack developers in three to five years?

I think AIOps and MLOps will be the most impactful to FSDs, likely within an even shorter time frame. DevOps has been around for a while, but trends such as increased self-service capabilities, greater focus on tooling, and low-code, no-code (LCNC) platforms will likely benefit developers because less code is needed.

As much as full stack developers are in demand today, what predictions do you have for how their roles might evolve?

Even though FSDs are abstracting away the implementation complexity, their knowledge of security, operations, and infrastructure just adds more strength to their armor. As polyglots [Ed: multilingual capability], it can be relatively easy and even necessary for them to achieve more and learn more languages as technology evolves.

How can businesses improve the acquisition, retention, or upskilling of full stack developers in today's talent environment?

That's the million-dollar question! Organizations need to acknowledge shift-left to improve release quality more cheaply by testing earlier in the software development process, and perhaps most importantly, organizations can't ignore the burden of cognitive overload. I think, with most developers, organizations have focused on abstracting away their need to worry about security, ops, and infrastructure. Let FSDs focus on their full-stack domain and development. In terms of upskilling, many FSDs are actually self-taught and adventurous with learning. Organizations should consider providing the funding for additional training, meetups, certifications, and things like that to encourage this behavior.

Field notes:

- Organizations should give time and space for FSDs to continue with their training and professional evolution.

- While FSDs are rare, role redundancy and overlap are important even if not every developer is an FSD.

- Increasingly, FSDs are expected to focus on securing code at each layer in the stack. So, organizations need to provide tools, training, and appropriate levels of governance for FSD accountability.

- FSDs evolve over time, but developers can be leveled up through access to training and the resources to acquire additional skills.

- It's unlikely front- and back-end developer roles will become obsolete, so investments can be justified over the long term.

Paul Barnhill

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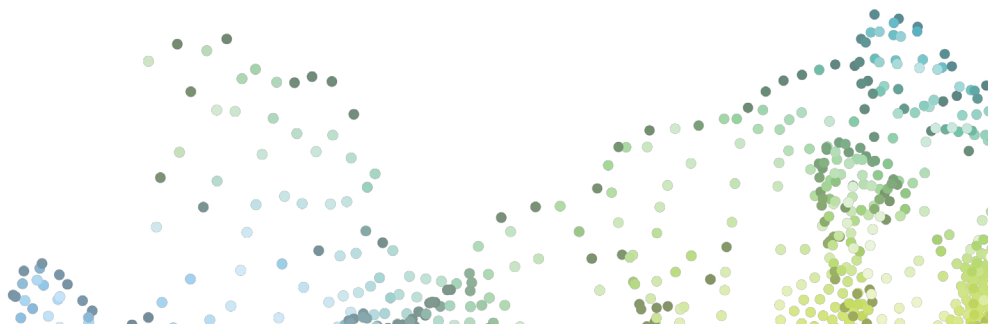
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Human capital technology trends: Discover how technology is enabling the shift from traditional talent models to workforce ecosystems

LinkedIn Newsletter by Mike Kavis, Managing Director, Deloitte Consulting LLP: Artifical Intelligence (AI) is getting a lot of press these days and one utility, ChatGPT, is probably getting the most hype. What is ChatGPT? Let's ask ChatGPT.

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