



# Big Transitions in the Tech Industry

Hired's 2023 State  
of Software Engineers



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## Overview from Hired's CEO

As we reflected on 2022 and the data, so many images came to mind – a rollercoaster, a pendulum, a weathervane, a two-sided coin. It's been a challenging time for the tech industry.

Despite this, the tech industry unemployment rate continues to improve, dropping from 1.8% in December to 1.5% in January. This rate suggests many laid-off workers were quickly reabsorbed into the workforce and that several of the layoffs in the tech sector are non-technical workers, such as sales, marketing, or support roles.

We believe virtually every company, at this point, is a tech company. You may be in healthcare, manufacturing, or hospitality, but as part of this global economy, you have a tech team.

We're faced with a lot of big transitions, but we know software engineers are resilient, adaptable and creative problem-solvers. Software engineering is an incredible career choice,

providing opportunities to touch a multitude of industries and solve big issues. In fact, U.S. News & World Report recently named it #1 in their list of [100 Top Jobs](#).

We create this report every year to help talent professionals and software engineers understand the hiring climate, as well as what's top of mind for employers and engineers. It's part of our vision to make hiring more equitable, efficient, and transparent for all. We're here to support both employers and jobseekers every step of the way.



Josh Brenner  
CEO, Hired



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# Attracted to the field by new challenges and continuous learning, software engineers remain optimistic about the future.

- The San Francisco (SF) Bay Area pays the highest yearly average salaries (for both local and remote software engineering roles) – with \$180K for remote roles and \$176K for local roles. Lower cost of living market (LCOL) Philadelphia showed the most significant year-over-year change in both remote and local salaries (7% and 12%, respectively).
- The majority of engineers are still motivated by new challenges and continuous learning (69%), building products/solutions and problem-solving (66%), followed by earning potential and career stability (60%).
- Perhaps then, unsurprisingly, when learning a new skill (e.g. programming language, framework), the biggest motivator remains the simple joy of learning new things (40%). The second highest motivator was more practical: their current job requires it (25%).
- Despite mass downsizing in the second half of 2022, most (68%) of software engineers are not concerned they'll lose their jobs in the next six months. (The US total unemployment rate was 3.4% vs. 1.5% in the tech sector in January 2022.)
- What would motivate engineers the most to work overtime? 43% of survey respondents said higher compensation.



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# Layoffs (from May to December 2022) had the greatest impact on salaries and interview interest for junior and non-traditional engineers.

- Layoffs caused a considerable shift in employer demand toward candidates with more years of experience. By December 2022, 72% of interview requests (IVRs) went to candidates with six or more years of experience, up from 64% in January 2022. Senior talent also saw higher salary increases versus more junior talent from 2021 to 2022.
- Local salaries showed more volatility than remote salaries since layoffs began. Los Angeles saw the largest negative impact on local salaries, decreasing by 6% to \$152K. Philadelphia saw the greatest amount of growth, with local salaries increasing by 7% to \$150K.
- Remote salaries flattened. SF Bay Area had the highest salaries during the layoff period (May 1 to December 31, 2022) for remote roles at \$180K, followed by Seattle (\$175K) and New York (\$169K). For local roles, the highest paying markets were also the SF Bay Area (\$180K), Seattle (\$169K), and New York (\$162K).
- The wage gap for non-traditional educational background candidates widened in 2022 for both the US and UK. US candidates with non-traditional educational backgrounds made \$.96 to every dollar earned by candidates with traditional backgrounds – compared to \$.99 in 2021.



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Despite high-profile calls for return-to-office (RTO), demand for remote engineering talent remains high. Remote roles command higher salaries than local roles, especially in smaller markets.

- Software engineers received a higher proportion of interview requests (IVRs) for remote roles than for local ones in 2022 across every market, except London.
- At the end of December 2022, remote roles in every market except London still paid more than local roles.
- Layoffs didn't rock the demand for remote talent – it only had a small impact on employers' willingness to hire remotely. The percentage of active engineering positions “open to remote” fell slightly from 73% (June 2022) to 69% (December 2022).
- Layoffs also didn't affect employers' or candidates' desire for remote work. 39% of candidates with a Hired profile preferred only remote roles by December 2022, up from 16% of candidates in December 2021. Employers surveyed said flexibility was the top benefit they're prioritizing over the next six months beyond compensation, healthcare, and PTO.



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# The most in-demand coding skills and software engineering roles shifted this year.

- Natural Language Processing (NLP) engineers received the highest salary at \$179K per year. NLP engineers also had the highest salary growth year-over-year, with salaries increasing 10% from \$163K in 2021. Blockchain engineers commanded the second-highest engineering salaries (\$173K) – spurred on by a hot crypto market in early 2022 – and security engineers were third highest at \$172K.
- Backend engineers received 59% of all interview requests (the most) on Hired's platform by employers – putting the role slightly ahead of full stack engineers this year.
- The most in-demand skill was Ruby on Rails, with engineers skilled in this framework and scripting language receiving 1.64x more interview requests compared to the marketplace average. Ruby on Rails bumped Go from first place in 2022's report to fourth this year.
- This year, software candidates with the hottest\* skills (those on our list) – were more likely to get interview requests versus their peers.



# **2022: An Overall View**





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## 2022: An Overall View

Just a year ago, the tech industry was in boom times, rapidly hiring and scaling teams. Flash forward to 2023 and it's a different story. While the broader economy shows signs of slowing during the first quarter of 2023, tech feels especially implosive with company after company announcing layoffs.

Hired analyzes software engineering salary, talent, and market trends every year, disclosing, for example, which roles and locations pay the most as a yearly average. In 2022, however, this wouldn't tell the whole story.

In ["A Deeper Dive into Tech Layoffs"](#) on page 13, we provide data from May to the end of December 2022, or "the 2022 layoffs period" as delineated by the Hired data team. This gives a more realistic picture of where we are now than a typical year-over-year review.

We augmented this focused analysis with additional survey insights from engineering jobseekers on various topics, including how the layoffs affected their outlook on the industry and what motivates them to pursue this profession. This is detailed in ["More Software Engineering Perspectives: Findings"](#) on page 18.

Now, let's first take a look at highest paying markets for remote and local roles for 2022.



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# Highest Paying Markets: Remote and Local Roles

Again, the San Francisco Bay Area – the highest-paying region from last year's [State of Software Engineers report](#) – pays the highest average salaries this year, with \$180K for remote roles and \$176K for local roles. Seattle and New York regions followed in that order, paying the second and third-highest average salaries (remote and local salaries) of all markets.

But, some interesting trends emerged deeper in the 2022 salary data.

Compared to previous years, salaries across all regions showed large jumps, with the gap continuing to widen between remote and local salaries. Data shows remote roles paying more (except for London, which has finally reached salary parity between remote and local roles in 2022).

While (lower cost of living market) Philadelphia showed the largest year-over-year change in the United States in both remote and local salaries (7% and 12% respectively), it (along with Chicago) also saw one of the largest differences between local and remote salaries (\$14K difference in Chicago, \$12K difference in Philadelphia).

LCOL areas also saw local salaries rising faster than remote salaries this year, while higher cost of living (HCOL) areas showed the opposite: salaries rose faster for remote roles versus local roles.

Internationally, UK and Canadian engineering salaries grew faster than the US year-over-year, with UK salaries averaging £82K and Canadian salaries averaging CAD \$140K.

*“Whether due to salary transparency legislation or wage equality goals, the data indicates companies are beginning to ease their geographical pay bands in favor of a single band. As a result, remote software engineers in smaller markets are realizing they have more ability to attract higher compensation, particularly in companies employing similar roles in the higher cost of living markets.”*

— Hired CTO Dave Walters



# Salary Trends by Market

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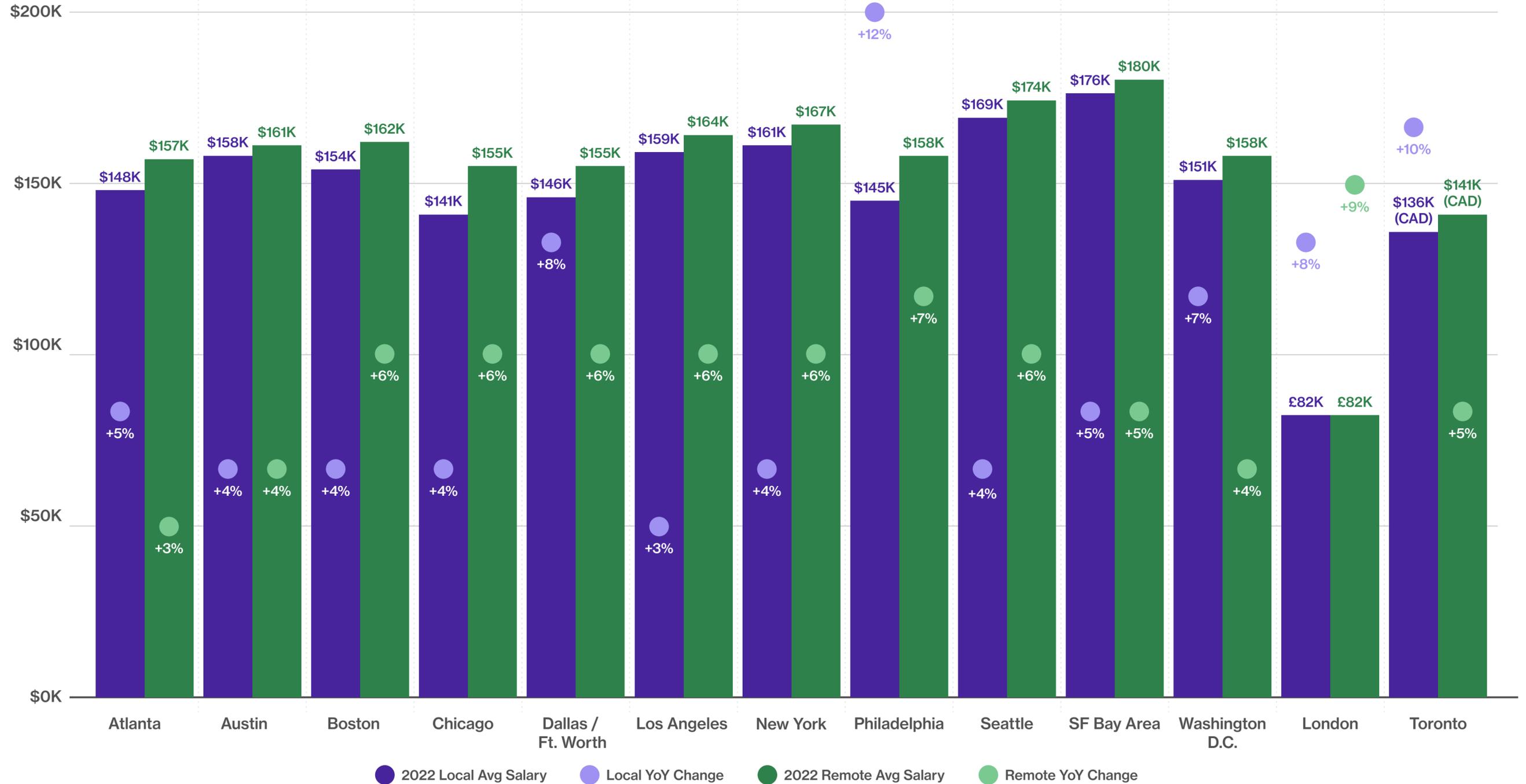
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## Salary Trends by Market





# Employer Demand for Local Versus Remote Talent

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In 2022, demand for remote talent increased across all markets. For software engineers specifically, they received a lot more interview requests (IVRs) for remote roles than for local ones in every market except London.

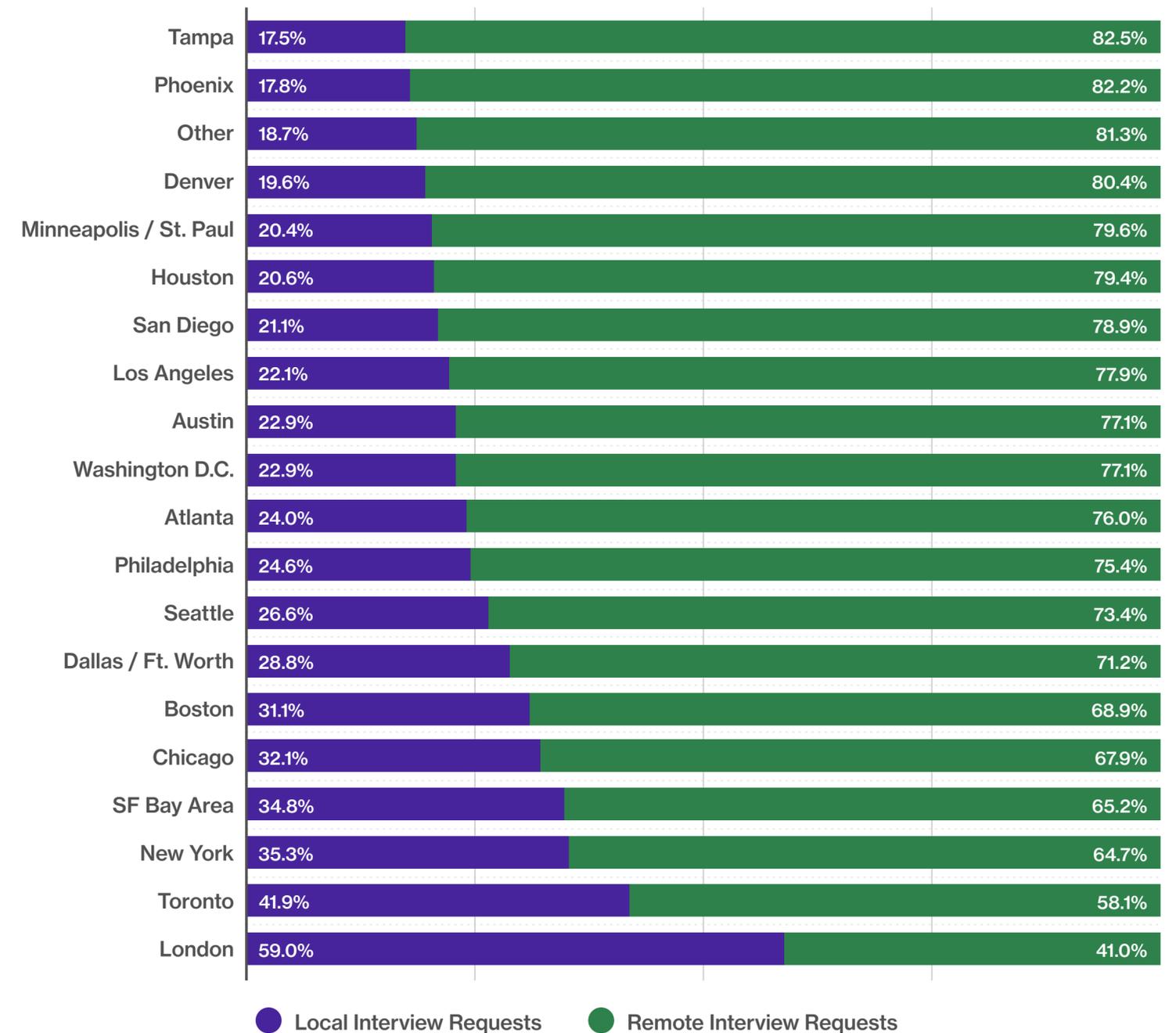
RTO pushes are still trending in headlines, but when we surveyed employers about the kind of team structure they're prioritizing for 2023, 52% are hiring for fully remote engineering teams, while 40% are focusing on hybrid.

New York, London, and the SF Bay Area saw the highest shift in IVRs towards remote roles, indicating the growing demand for remote engineers in those regions, while demand for local roles is down significantly in these HCOL markets.

Big hubs, such London, Toronto, and New York still have the strongest demand for local software engineering talent (though Tier 1 markets as a whole versus smaller markets showed the largest decrease in demand for candidates for local roles year-over-year, as well).

Toronto and London continue to trail behind the US in remote work adoption. London software engineers still get more local interview requests than remote ones – the only remaining market to see this phenomenon – with 59% of interview requests sent for local roles.

### Local vs. Remote Interview Requests by Market





# Employer Demand for Local Versus Remote Talent

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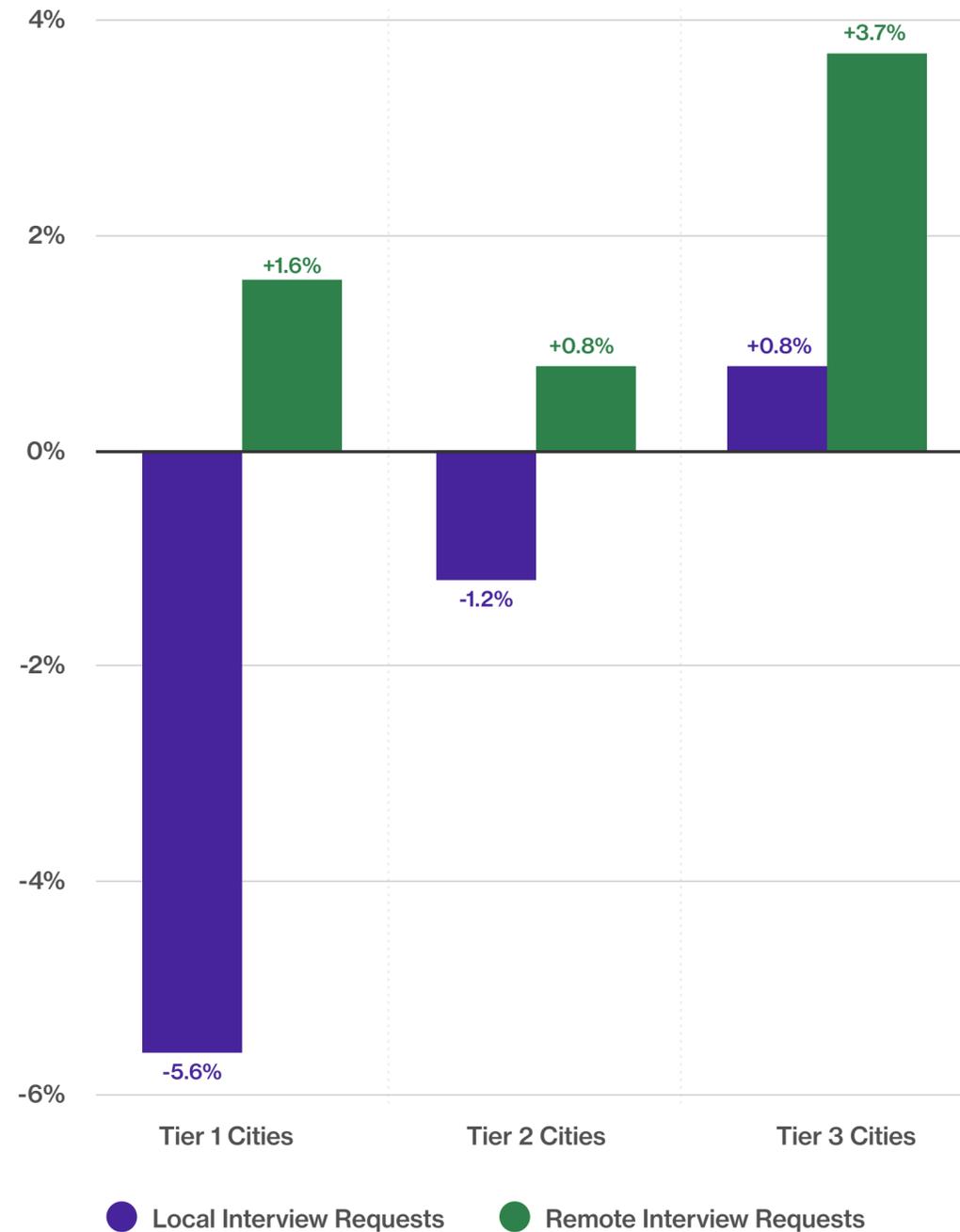
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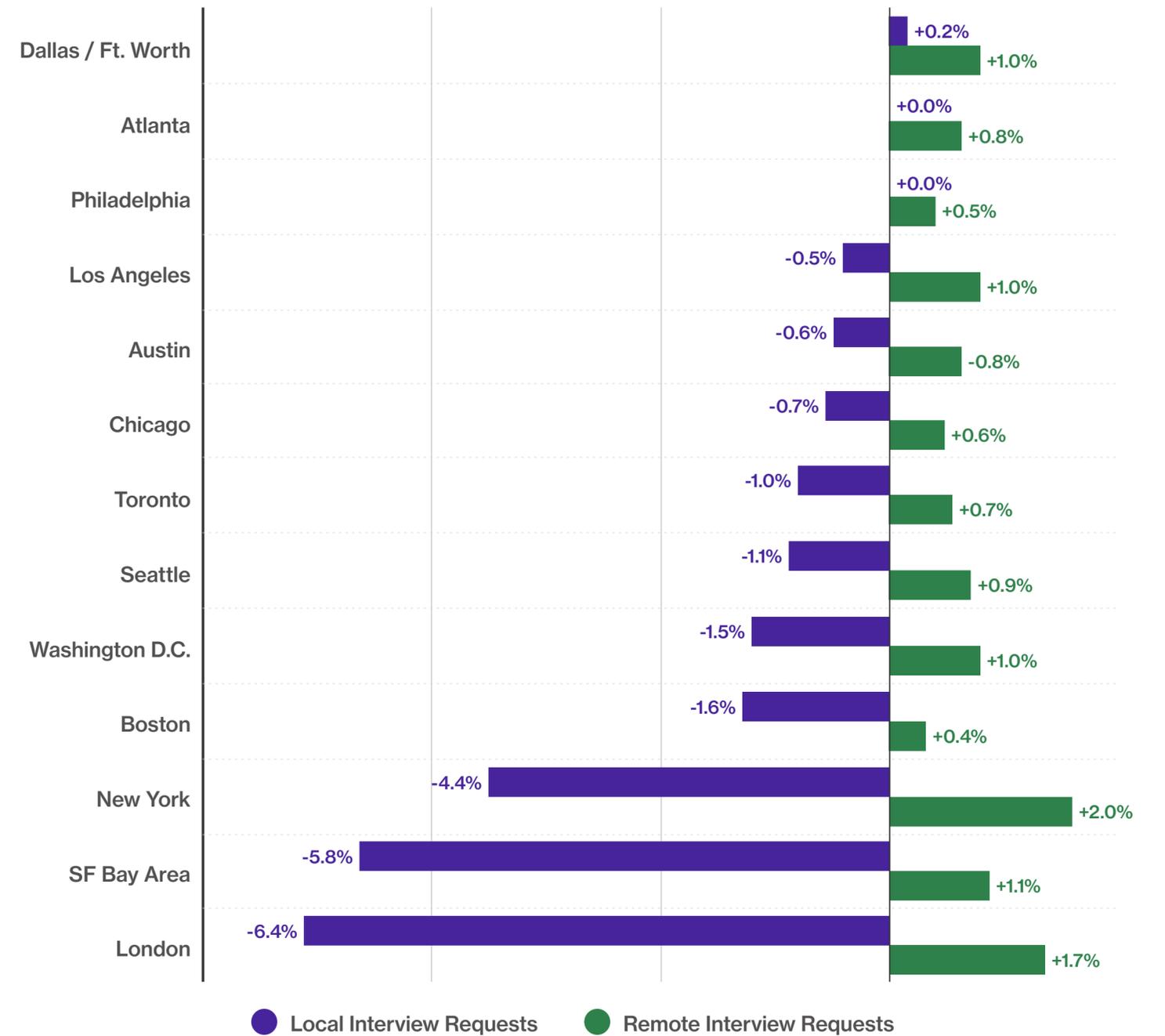
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### Remote vs. Local Demand by Market Tier



### Remote vs. Local Demand by Market



# A Deeper Dive into Tech Layoffs





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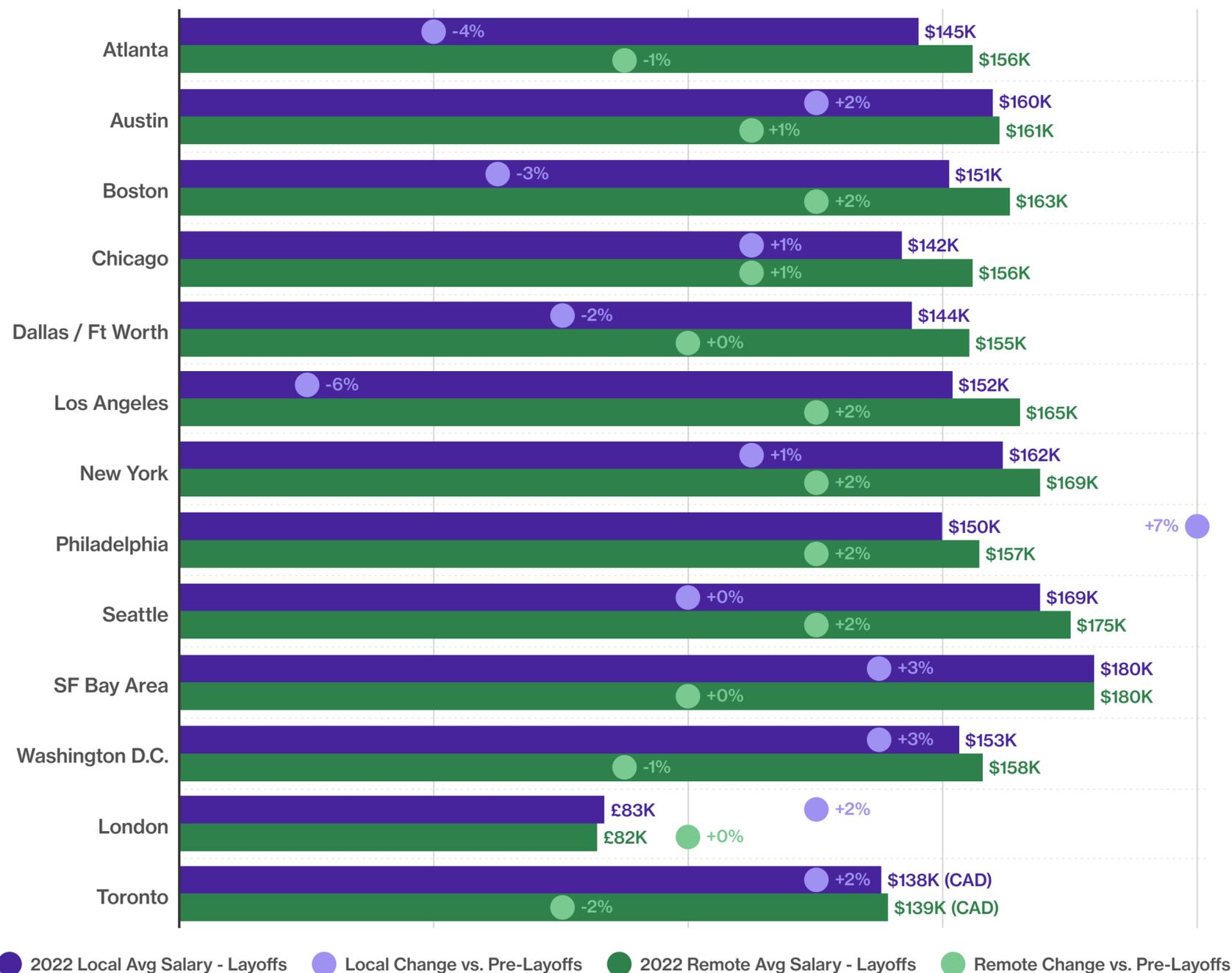
Hired examined salaries across markets before and after May 1, 2022 to see how companies shifted their salary offers to engineers as the industry began experiencing market volatility and mass layoffs – if at all.

### Local

Salaries for local roles showed more volatility, while remote salaries have remained flat since layoffs began. In the US, Los Angeles saw the largest negative impact to local salaries after layoffs began, with salaries for local roles decreasing by 6% to \$152K between May 1, 2022 and December 31, 2022 (layoffs period). However, salaries for local roles in Philadelphia saw the greatest amount of growth, with local salaries increasing by 7% to \$150K after layoffs began.

During the layoffs period, the highest paying markets for local roles were SF Bay Area (\$180K), Seattle (\$169K), and New York (\$162K).

### Average Remote & Local Salaries During 2022 Layoffs (May-Dec 2022)





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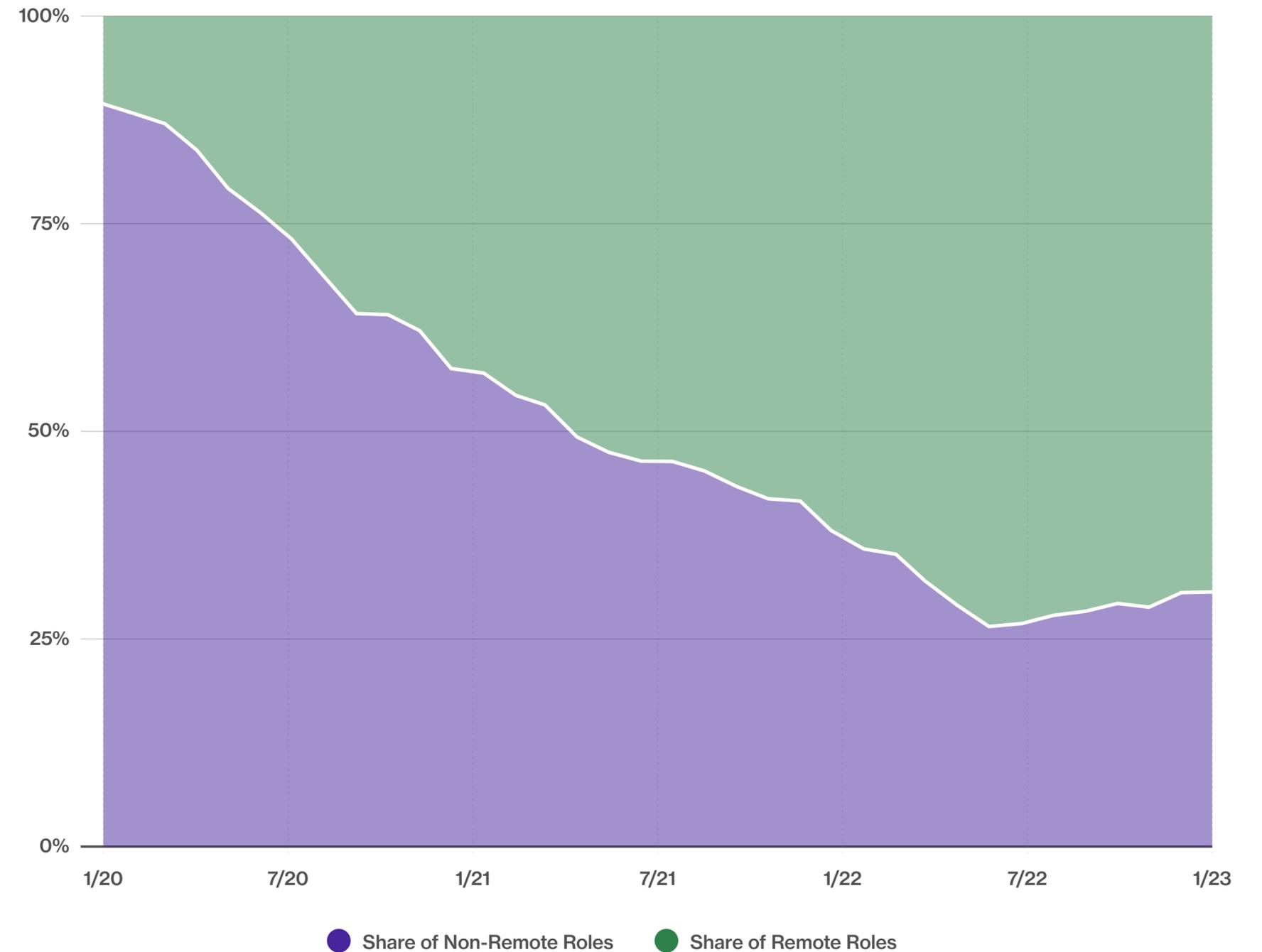
### Remote

In early 2022, the Great Resignation era pushed companies to expand searches for talent by offering remote roles. In January 2020, only 10% of engineering positions were open to remote. By June 2022, it was 73%.

As layoffs picked up in the second half of 2022, the trend started to reverse, with the percentage of active positions open to remote falling to 69% in November 2022 – indicating layoffs had a slight impact on employers' willingness to hire remotely.

By December 2022, employers held steady in their hunt for remote talent – with 69% of active positions open to remote.

### Remote vs. Non-Remote Positions





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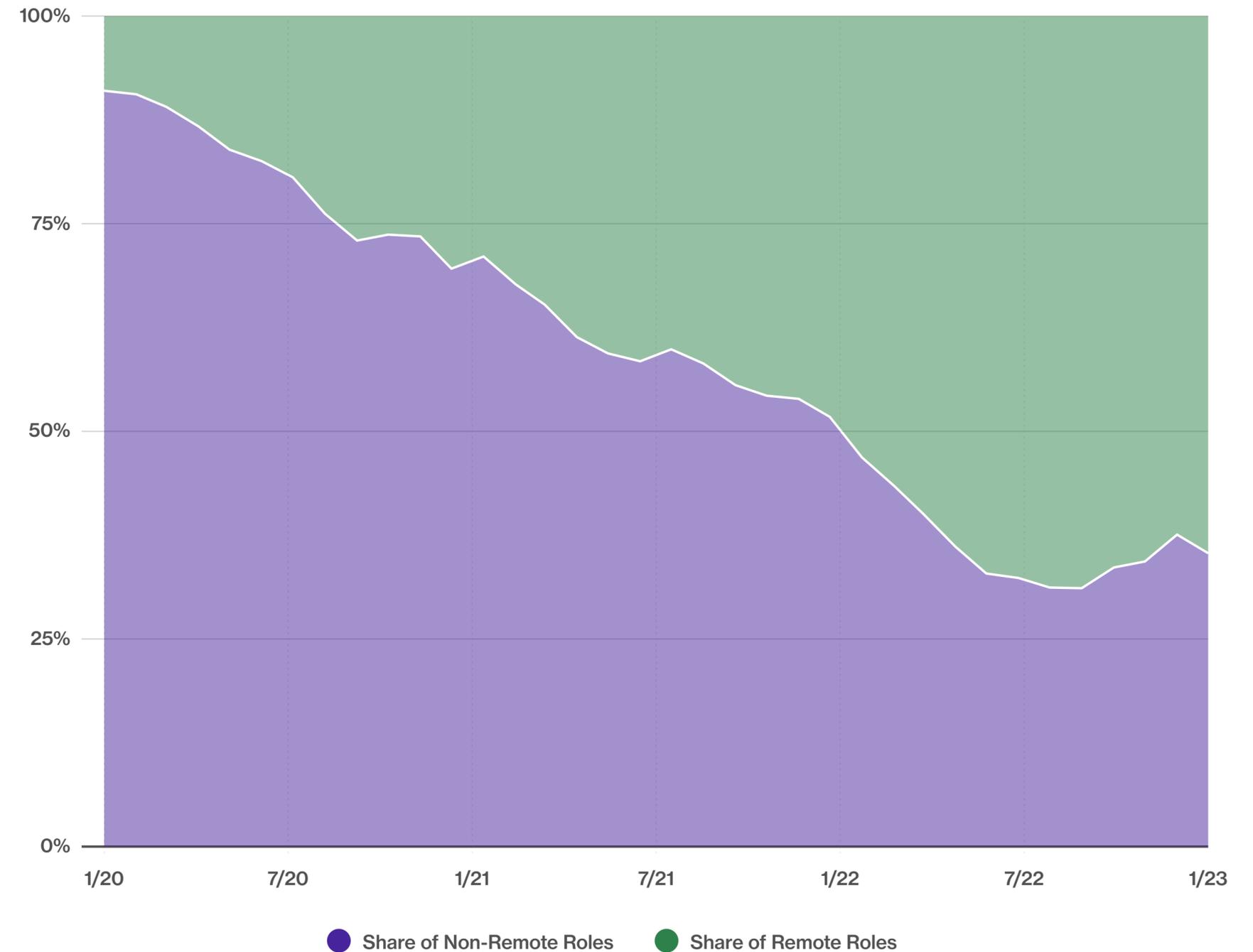
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Salaries for remote roles reflected this. SF Bay Area had the highest salaries during the layoffs period for remote roles at \$180K, followed by Seattle (\$175K) and New York (\$169K).

During layoffs, enterprise-sized companies were more apt to cut down on remote roles, decreasing remote active roles from November to December 2022 by 7%.

This is possibly influenced by the sizeable investments and multi-year leases large enterprises have in real estate and branded office environments compared to more nimble SMBs. It's also easy to suggest big name companies and CEO peers' "back to the office" declarations bolstered their attitude towards RTO or converting to hybrid over fully remote.

### Enterprise Remote vs. Non-Remote Positions





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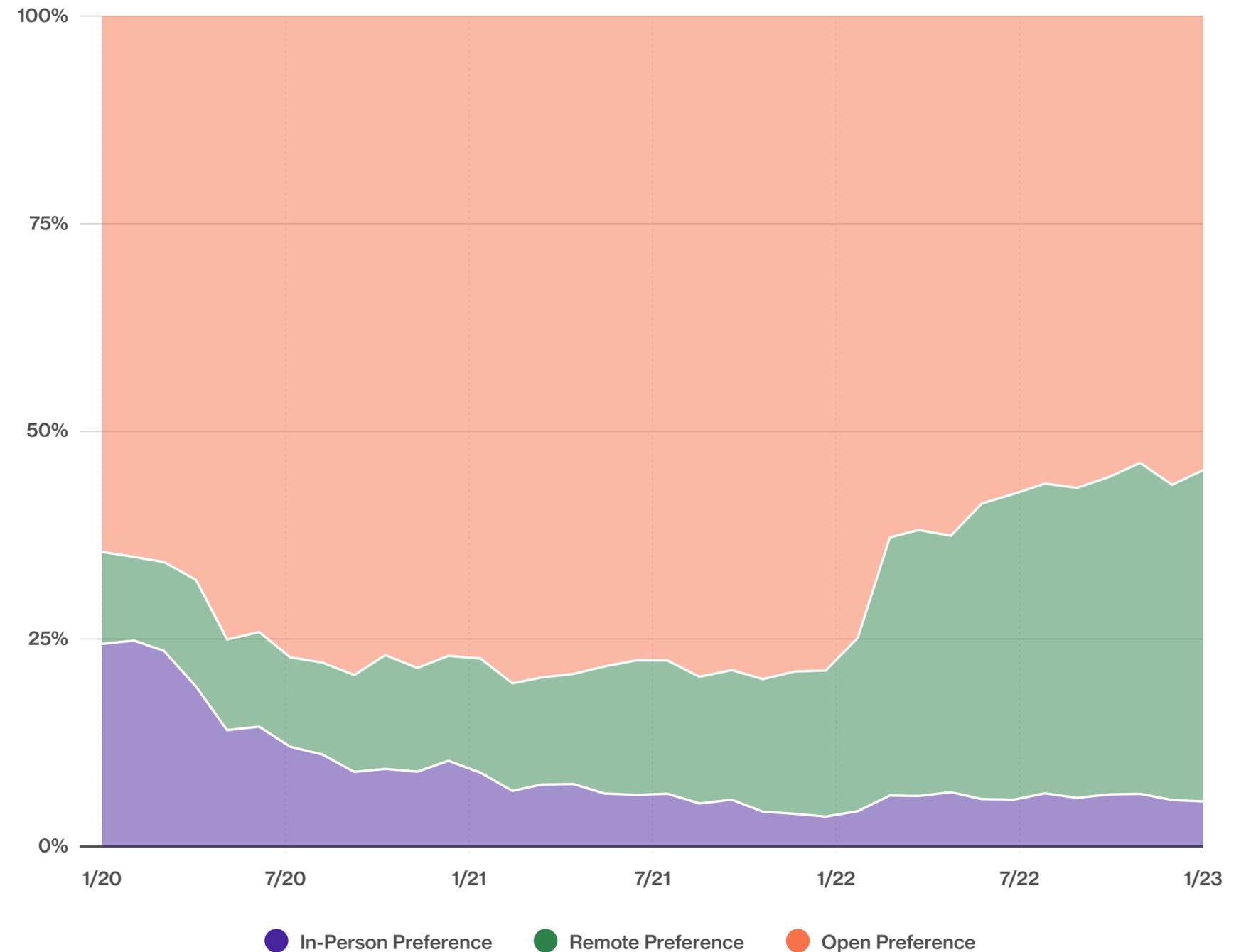
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Despite companies' emerging preference for hybrid/in-person work, on top of tech layoffs and hiring slowdowns, engineers are even more determined to keep remote work. This isn't a benefit they are quick to sacrifice. 39% of candidates with a Hired profile preferred only remote roles by December 2022, compared to 16% of candidates in December 2021.

In our survey, software engineers corroborate this sentiment about preferring remote or hybrid status.

When those currently working in remote or hybrid roles were asked if they would stay with an employer who mandated RTO, 21% would flat-out quit immediately. Another 49% would essentially "quiet quit" by staying while looking for another job.

### Jobseeker Remote Preferences





# More Software Engineering Perspectives: Findings

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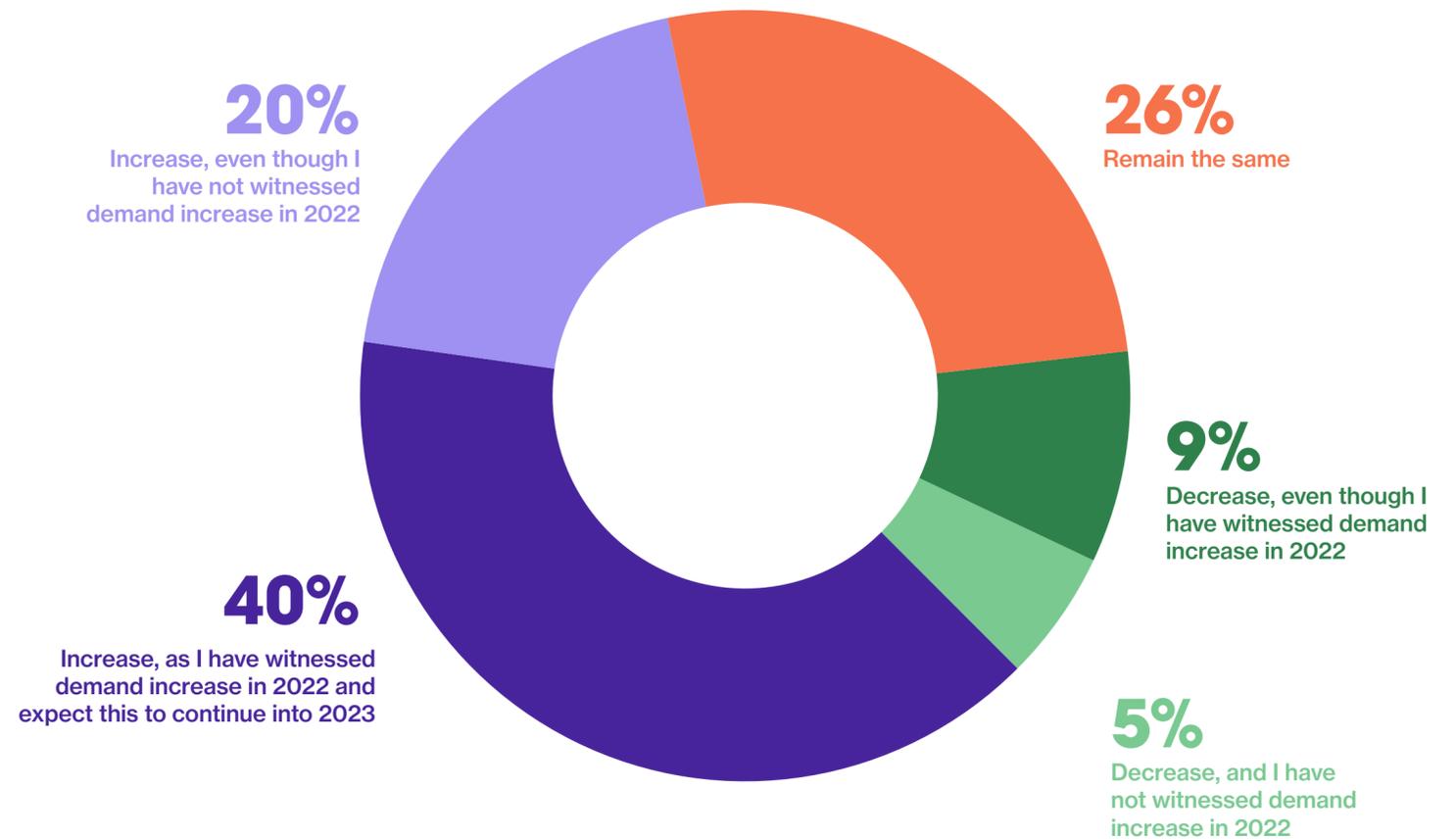
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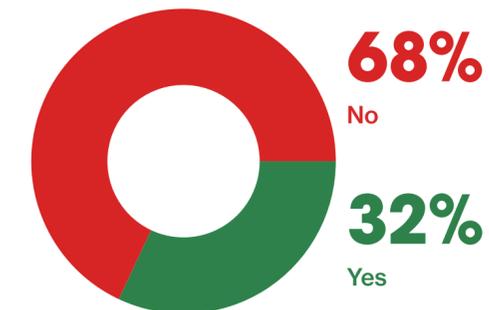
How have the layoffs affected software engineers' outlook? Despite mass downsizing efforts at the end of 2022, most (68%) software engineers are not concerned they will lose their jobs in the next six months.

And, they are mostly still hopeful. The majority (40%) of candidates witnessed the demand for engineering talent increase in 2022 and expect it to continue into 2023. 20% also feel it will increase – despite no personal evidence in 2022.

Do you think employers' demand for software engineering talent will increase, decrease, or remain the same in the next 6-12 months?



At the end of 2022, the tech industry saw a reduction of tech workforces with mass layoffs. Are you concerned you will lose your job within the next six months?





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What draws engineers to software development and motivates them stayed basically the same in 2022:

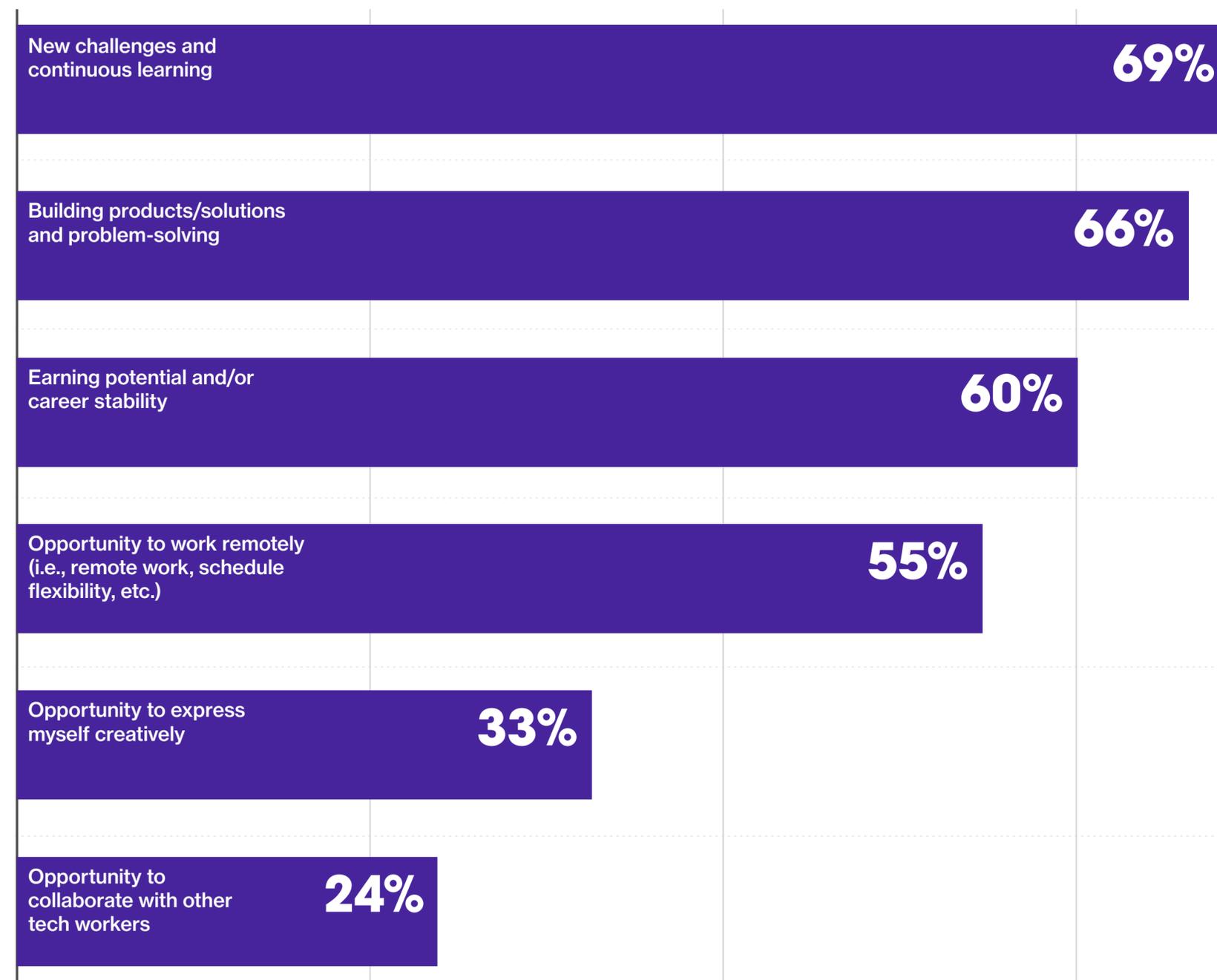
“New challenges and continuous learning” remained on top, although it dropped from 72% to 69%.

“Building products/solutions and problem-solving” was a close second, increasing from 64% to 66%.

“Earning potential” and “Career stability” were two choices in 2021, scoring third and sixth out of eight options. As a combined choice in 2022, “Earning potential and career stability” took the third spot with 60%.

Rankings agree, as ‘software developer’ topped the [Best Jobs of 2023 list in U.S. News and World Report](#).

### Which of the following most attracted you to a career in software engineering?





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For engineers committed to staying in their field – how “hardcore” are they willing to be to ensure job stability? It’s a split on working overtime. Almost half of the respondents (49%) said they would not be willing to work longer hours while 36% said they would if asked.

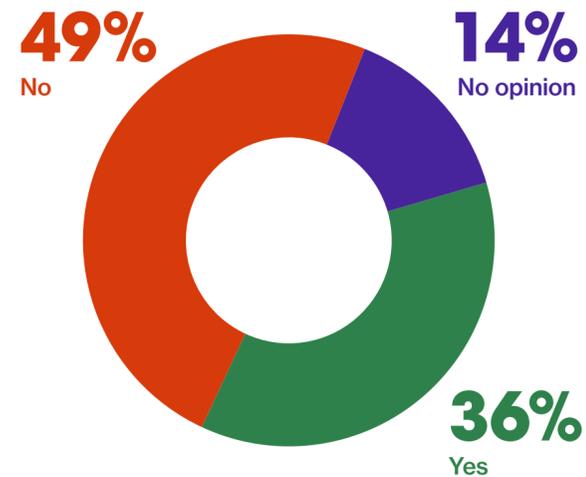
With leaner teams being asked to do more with less – engineers are feeling the pinch. More than half of respondents feel the push to work more hours or that it’s imminent.

What would motivate engineers to stay later at their jobs? Likely due to recent economic volatility, it comes down to compensation over passion. Survey respondents’ top three answers:

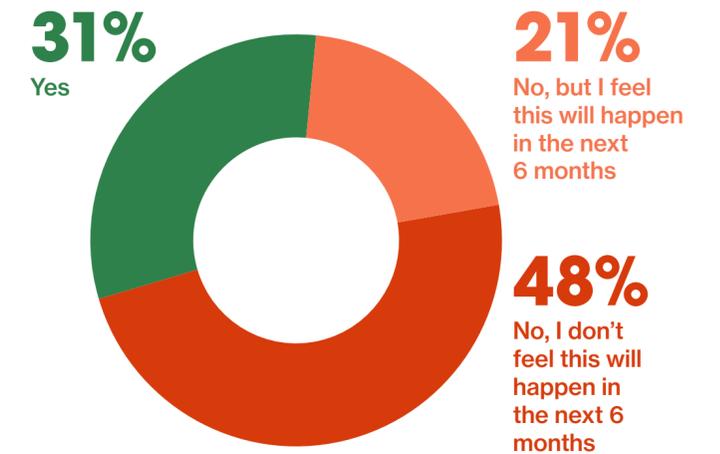
1. Higher compensation (43%)
2. A cause or project they care deeply about (29%)
3. Job security (11%)

Learning opportunities (9%) and more benefits (3%) rounded out the options, with the remaining respondents selecting “other” (4%) reiterating they were unwilling to work longer for any of the listed reasons. Many indicated the request to do so reflected poorly on the

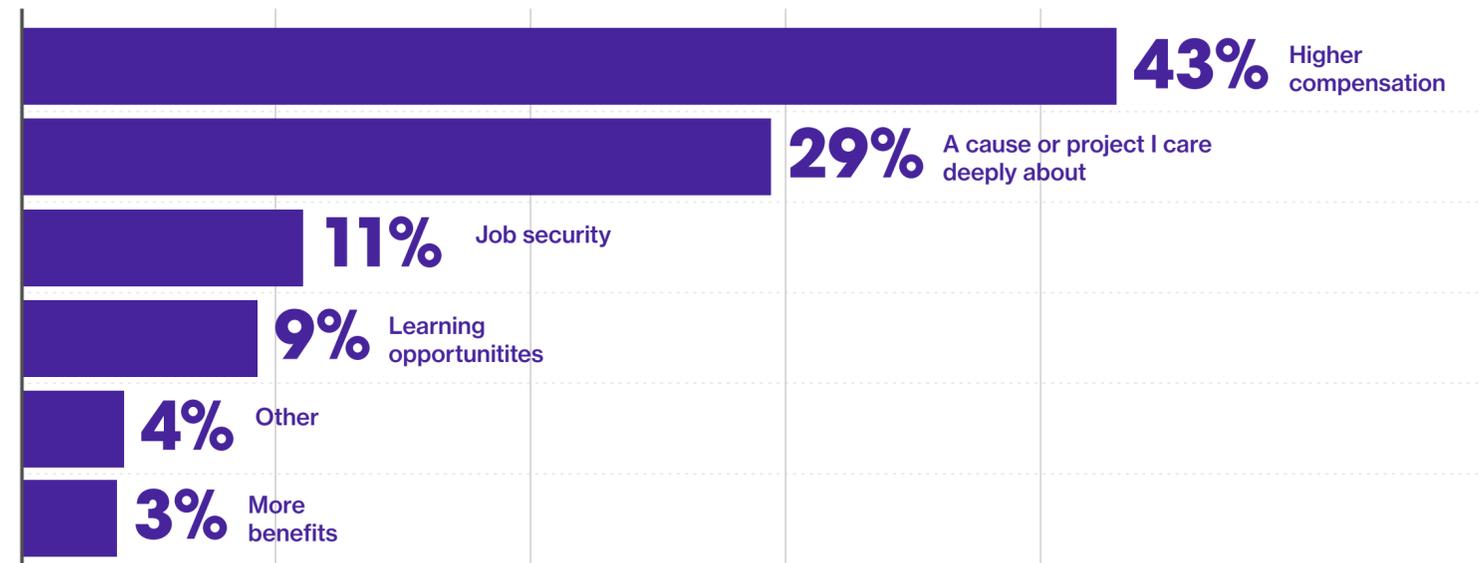
Some companies are cutting staff sizes and asking employees to work longer hours. Would you be willing to work longer hours?



In 2022, did you or any of your colleagues feel more pressure to work longer hours?



If you were willing to work longer-than-normal hours, what would it be for?





# Priorities for Work Culture & Benefits

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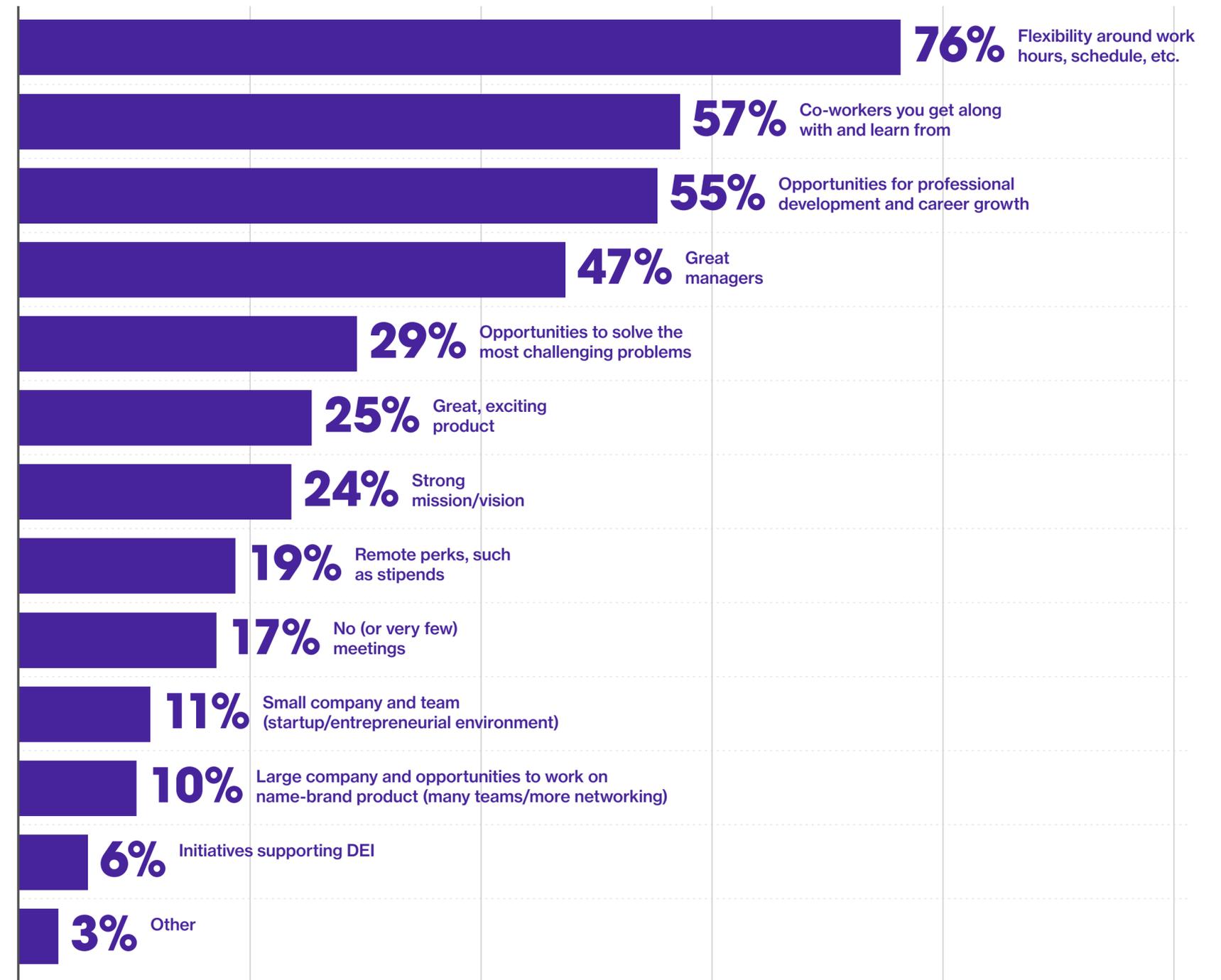
Overall, flexibility still reigns supreme for engineers in their ideal culture and work environment, with 76% ranking it number one.

Other priorities include:

- Coworkers they get along with and learn from (57%)
- Opportunities for professional development and career growth (55%)
- Great managers (47%)

And employers are listening. When asked which employee benefits they are prioritizing over the next six months – beyond compensation, healthcare, and PTO – an overwhelming majority of employers (79%) said: “flexible work schedules” (e.g. work from home flexibility, flexible hours).

## What makes an ideal company culture and work environment?





# Priorities for Work Culture & Benefits

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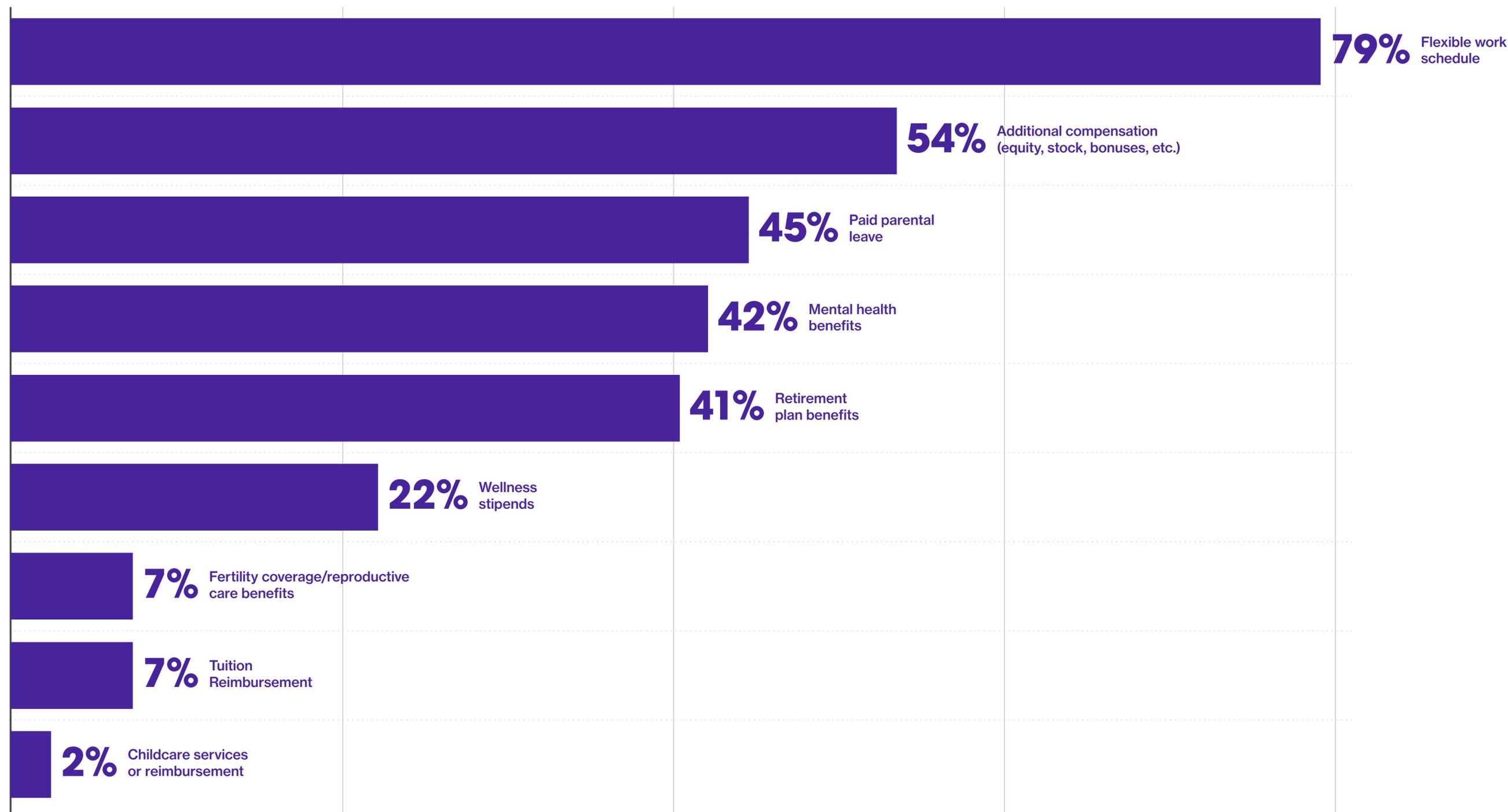
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### Beyond compensation, healthcare and PTO, which employee benefits will your company prioritize over the next 6 months?





# **Top Software Engineering Roles: Interest + Salaries**





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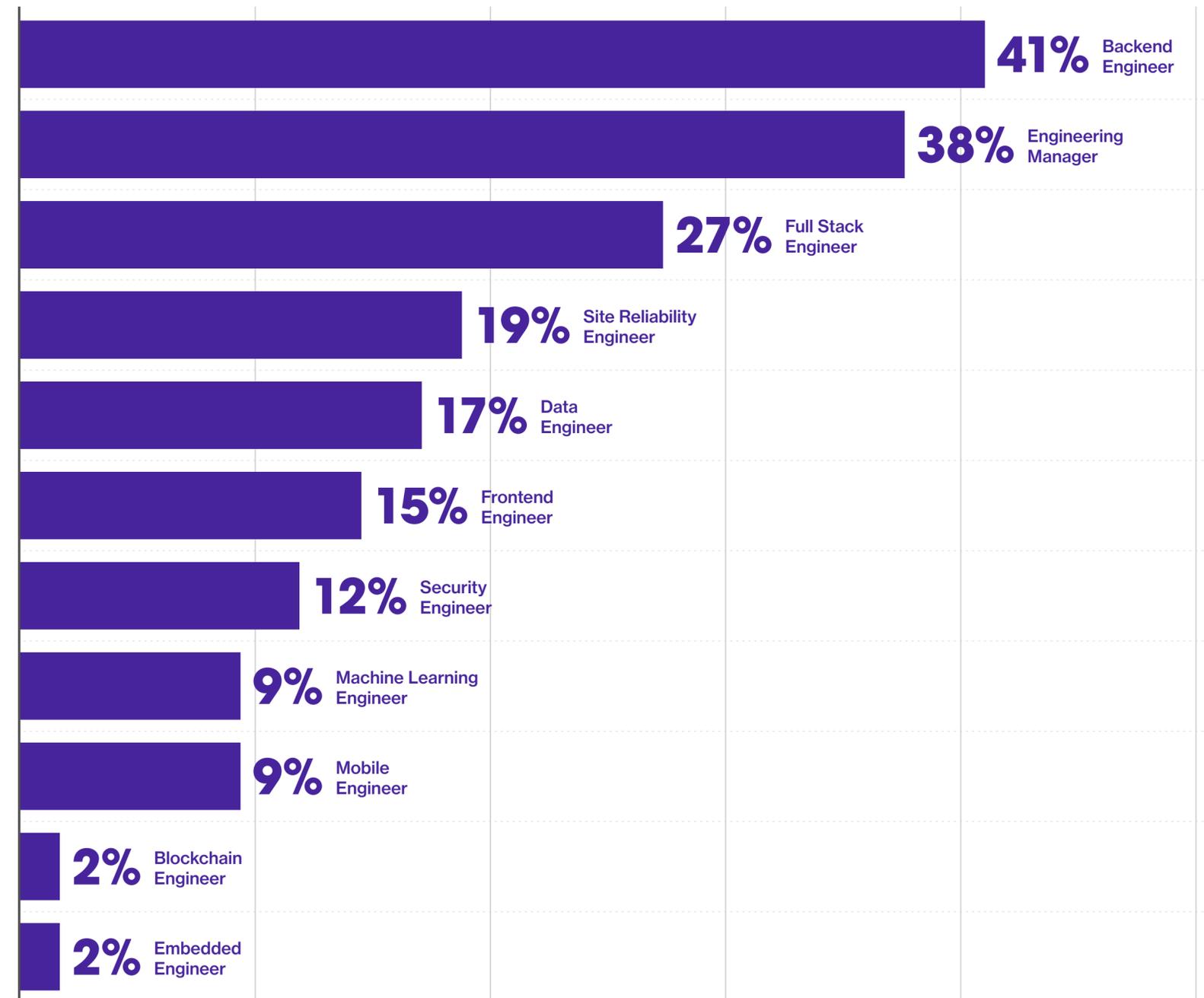
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## Demand by Role: Interviews

In 2022, companies on the Hired platform shifted their interest slightly to hiring backend engineers over full stack engineers, the most sought-after role in 2021.

In fact, employers surveyed stated if they were still hiring for engineering talent, the most difficult roles to fill over the last six months were backend engineers (41%), engineering managers across all areas (38%), and full stack engineers (27%).

### What roles have been the most difficult to fill in the past 6 months?





# Demand by Role: Interviews

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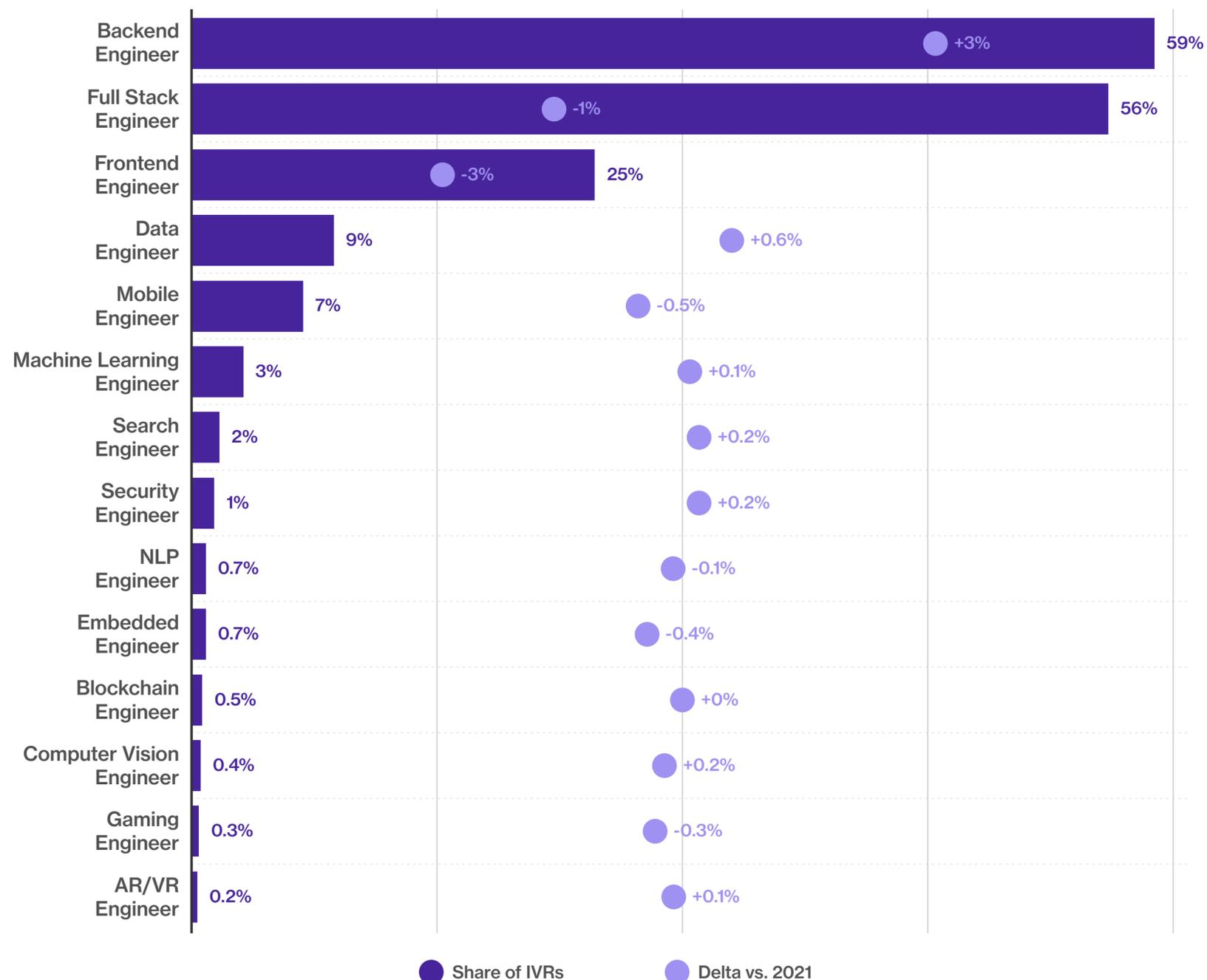
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This year backend engineer demand grew 3% – receiving 59% of all interview requests. Full stack engineers were a close second (56%) and frontend engineers came in third (25%).

Why? Hired CTO Dave Walters weighs in, saying,

*“Some of this shift may simply reflect a market shift on the Hired platform. Traditionally, smaller organizations find more value in the versatility of full stack engineers. They don’t need two engineers to complete the stack. Larger companies, while mindful of efficiencies, can afford to be more flexible, employing separate backend and frontend engineers. Practically speaking, it’s often easier to source and hire for both of these roles, at the scale large enterprises require. To illustrate, large enterprises sent 41% of software engineer IVRs in 2021, 44% in 2022. They’re more likely to source backend than frontend or full stack compared to other company sizes.”*

## Most in Demand Subroles by IVR Share





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## Demand by Role: Salaries

Artificial intelligence continues to have explosive growth, reshaping multiple industries and making headlines, from the AI art app Lensa to ChatGPT. More companies are prioritizing engineers well-versed in AI/Machine Learning and Natural Language Processing (NLP) as a way to remain ahead of competitors, while also stacking their engineering teams with talent who can create and drive operational efficiencies in the future.

*“One of the classic aspirations of a company is to be a ‘disruptor’ in their industry and be the first to solve ongoing or new issues. NLP fits the bill.”*

— Hired CTO Dave Walters

It's not a surprise NLP engineers are massively in demand, as it's one of the hottest fields in software engineering today. NLP engineers received the highest salary at \$179K per year. NLP engineers also had the highest salary growth year-over-year, with salaries increasing 10% from \$163K in 2021.

Interestingly, eSMBs drove most of the demand and salary increase for NLP engineers. In 2020, eSMBs made up just 5.1% of IVRs to NLP engineers. By 2022, that figure had jumped to 18.9%. Salaries have similarly jumped across company size – from \$154K for eSMBs in 2020 to \$172K in 2022. ENT companies are also paying top dollar at \$184K in 2022.

*“NLP technologies – such as voice assistants, predictive text, and chatbots – are quickly becoming woven into all aspects of our daily lives. Bringing on board NLP engineering talent is critical, and it's driving the massive demand seen year-over-year for this specific skill set.”*

— Hired CTO Dave Walters



# Demand by Role: Salaries

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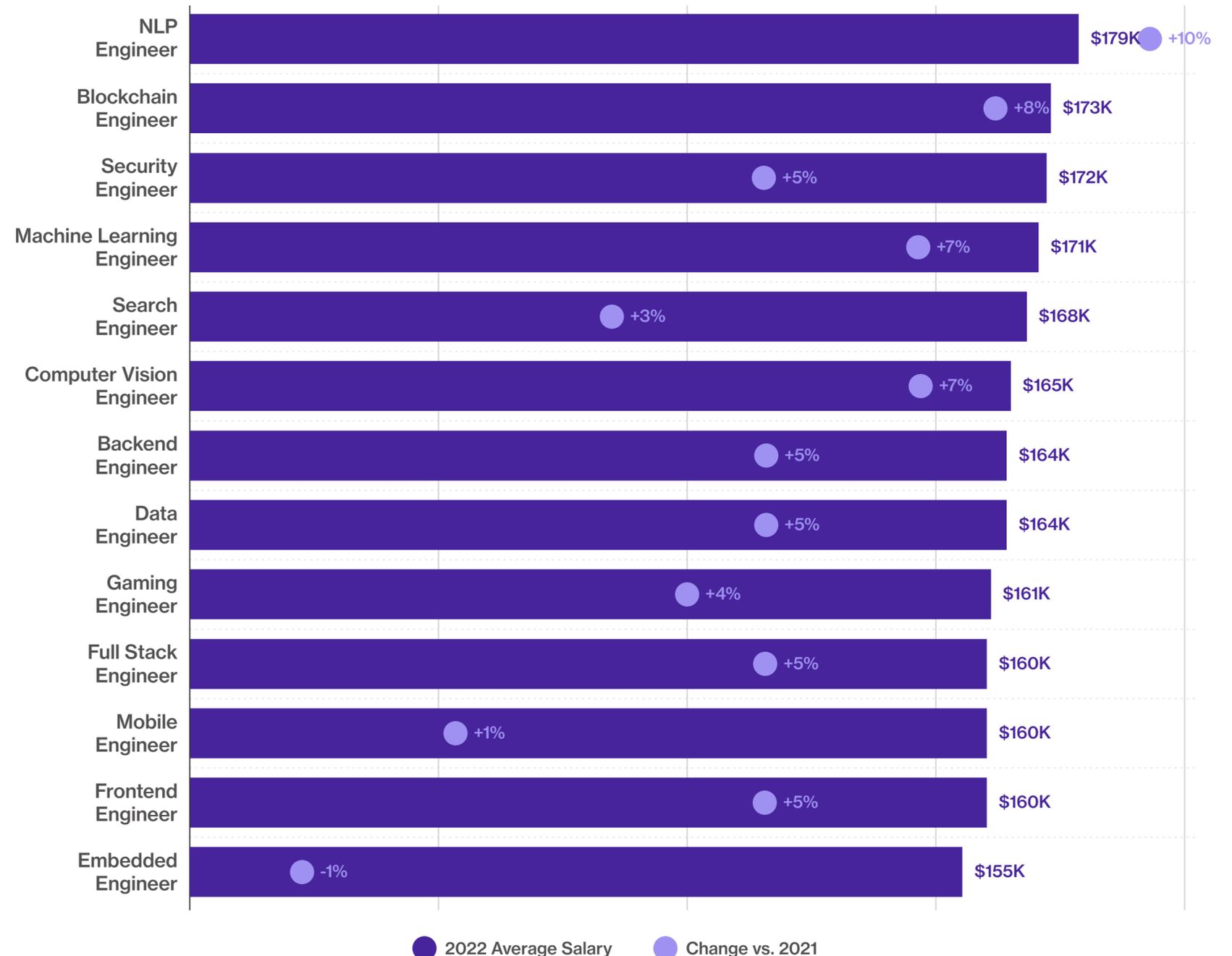
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2022 saw the peak (and then the fall) of cryptocurrency companies – and beyond bitcoin, blockchain augmented other hot tech areas, such as fintech, healthcare, supply chain, and logistics. Engineers with blockchain expertise commanded the second highest engineering salaries with \$173K on average per year, and the second highest salary growth from 2021 this year (8%).

Unfortunately, cybersecurity attacks showed little sign of slowing in 2022, driving the need for companies to guard against vulnerabilities. Salaries remained high for security engineers at \$172K, the third highest engineering salaries on the list. This year, specialty skills in machine learning, search, and computer vision also saw higher than average salaries – with larger salary increases for engineers across the board for these roles in 2022 versus prior years.

## Most in Demand Subroles by Salary





# Spotlight on Blockchain

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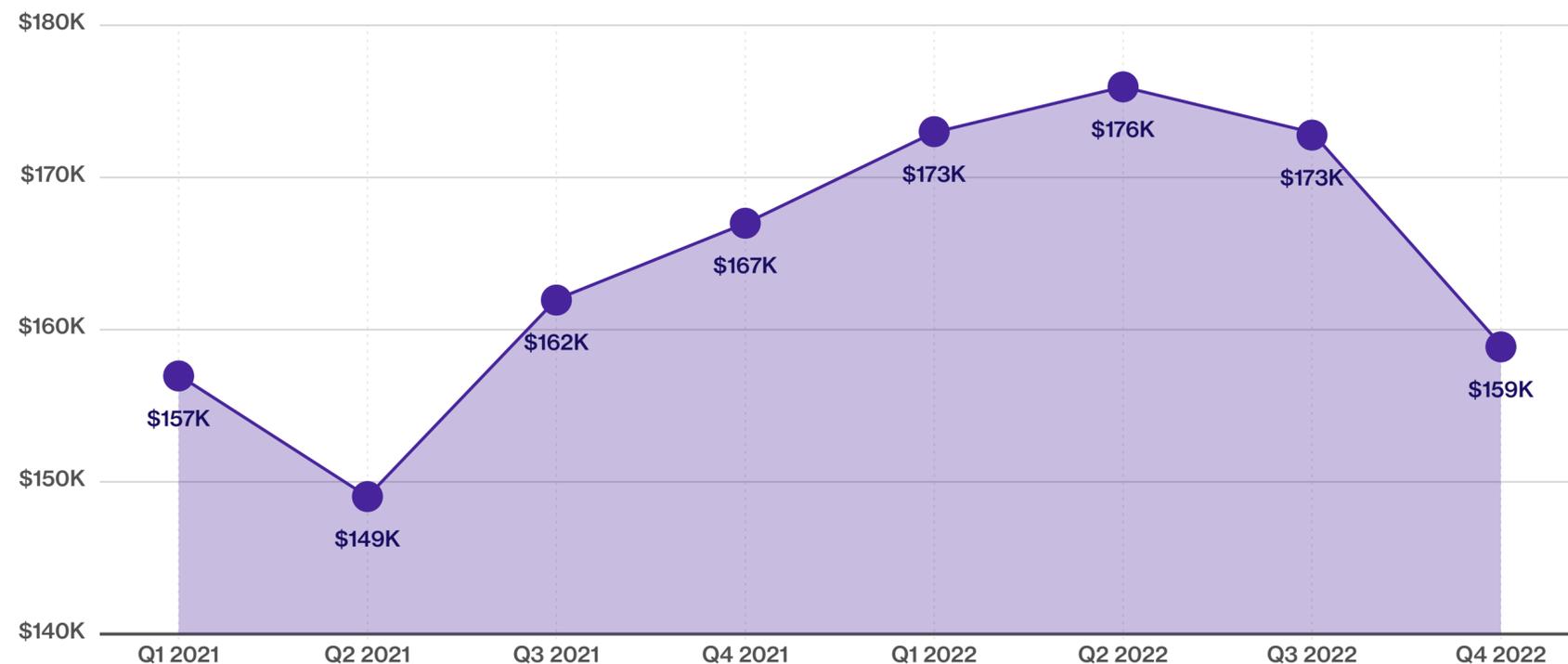
Methodology & Glossary

Even though it's been a volatile year for cryptocurrency, demand for skilled blockchain engineers held steady in 2022 compared to 2021. While the number of interviews for blockchain engineers dropped substantially from Q2 2022 to the close of 2022 – the salary for the role remained relatively level.

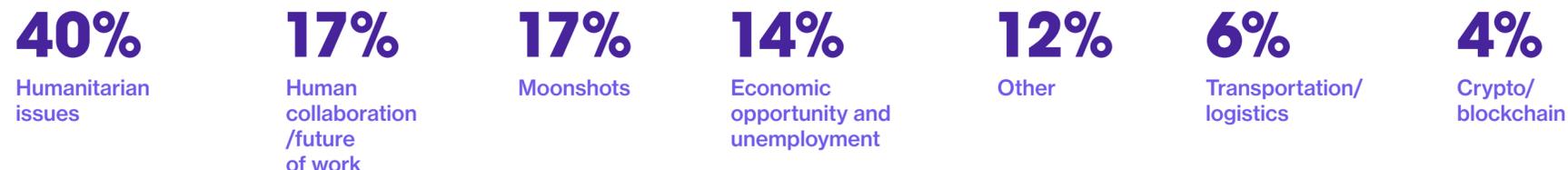
In a shift from the crypto boom times of 2021, the least amount of surveyed candidates (4%) responded that they're passionate about building products and coding for alternative currencies (e.g. cryptocurrency, blockchain).

Remember, blockchain is not wholly synonymous with cryptocurrency. Blockchain has multiple applications, such as the 'metaverse,' financial transactions, (in gaming, real estate, and insurance, for example), logistics/supply chain, and what many consider to be the next generation of the Internet.

### Average Blockchain Engineer Salary



### What are you most passionate about solving with your coding skills?





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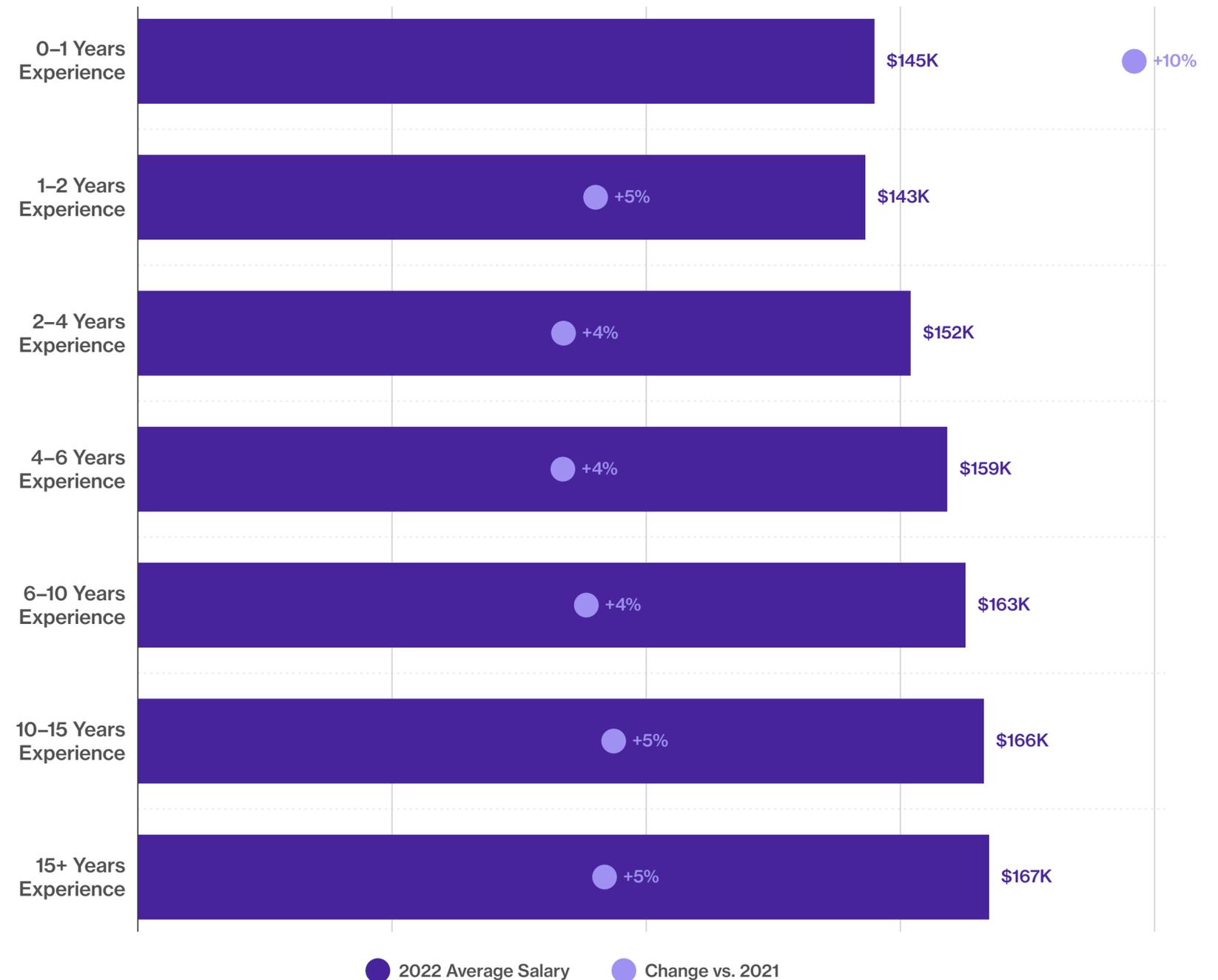
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# Demand by Years of Experience

Software engineers at the most junior and most senior positions saw the largest salary increases in 2022. While salaries increased for engineers across all years of experience compared to 2021, the most junior engineers (<1 year of experience) saw the highest increase in average salaries YoY, increasing 10% to 145K in 2022.

Zooming into the period after May 1, 2022 (or after layoffs began in higher numbers), candidates with six years of experience or less saw their salaries drop along with interview interest (8% decrease in IVRs), while those with six years of experience or more saw salaries rise slightly.

## Salary by Years of Experience





# Demand by Years of Experience

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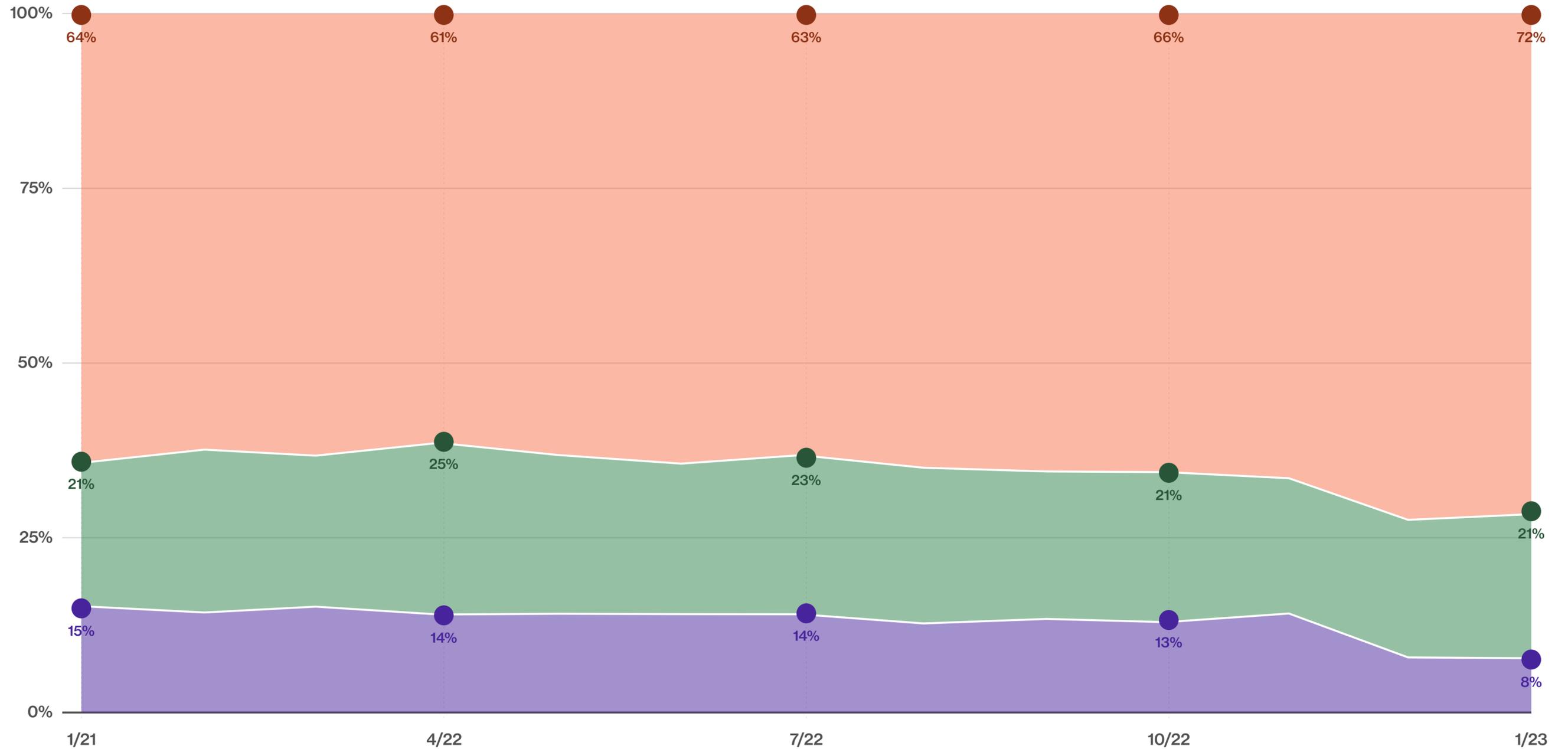
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### Demand by Years of Experience Through Layoffs



# Top Software Engineering Skills





# Hottest Software Engineering Skills\*

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In 2022, what programming skill was in the highest demand by employers and hiring managers? It was Ruby on Rails, with engineers skilled in this framework receiving 1.64x more interview requests compared to the marketplace average.

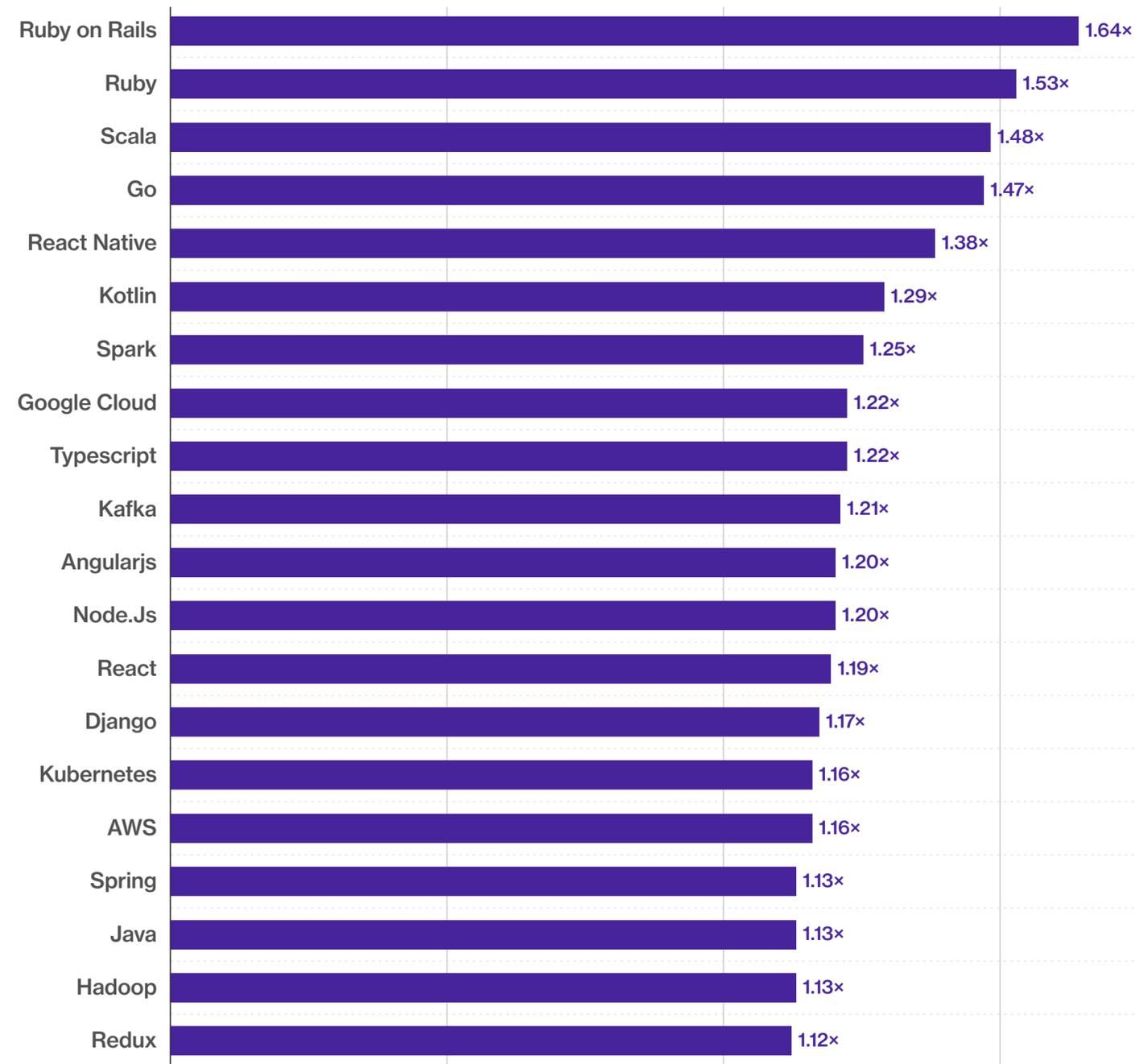
This year Ruby on Rails moved up one position to take the top slot for the most coveted engineer skill for employers, with Ruby and Scala being the second and third most in-demand skills, respectively.

*"Ruby on Rails (RoR) is a very mature and easy-to-use framework, which leads to its popularity among engineers and engineering leaders. It allows for faster coding (or increased productivity) which helps engineers deliver minimum viable products (MVPs) and features at a higher pace."*

— Hired CTO Dave Walters

Go, 2021's leading programming skill, saw rapid adoption by larger companies (Uber, Twitch, Slack) last year, and its simplicity and power made it popular among engineers. "While a favorite among engineers," added Walters, "Go may be less in demand by employers now due to a temporary shift in hiring needs."

### Demand for Coding Skill vs. Hired Marketplace Average Demand



\* "Hottest skills" refers to a combination of the most specialized skills (i.e. fewer engineers have it, so it's in higher demand) and skills in the highest demand from employers (i.e. companies are looking for those skills in candidates, so there are more opportunities for engineers with those skills).



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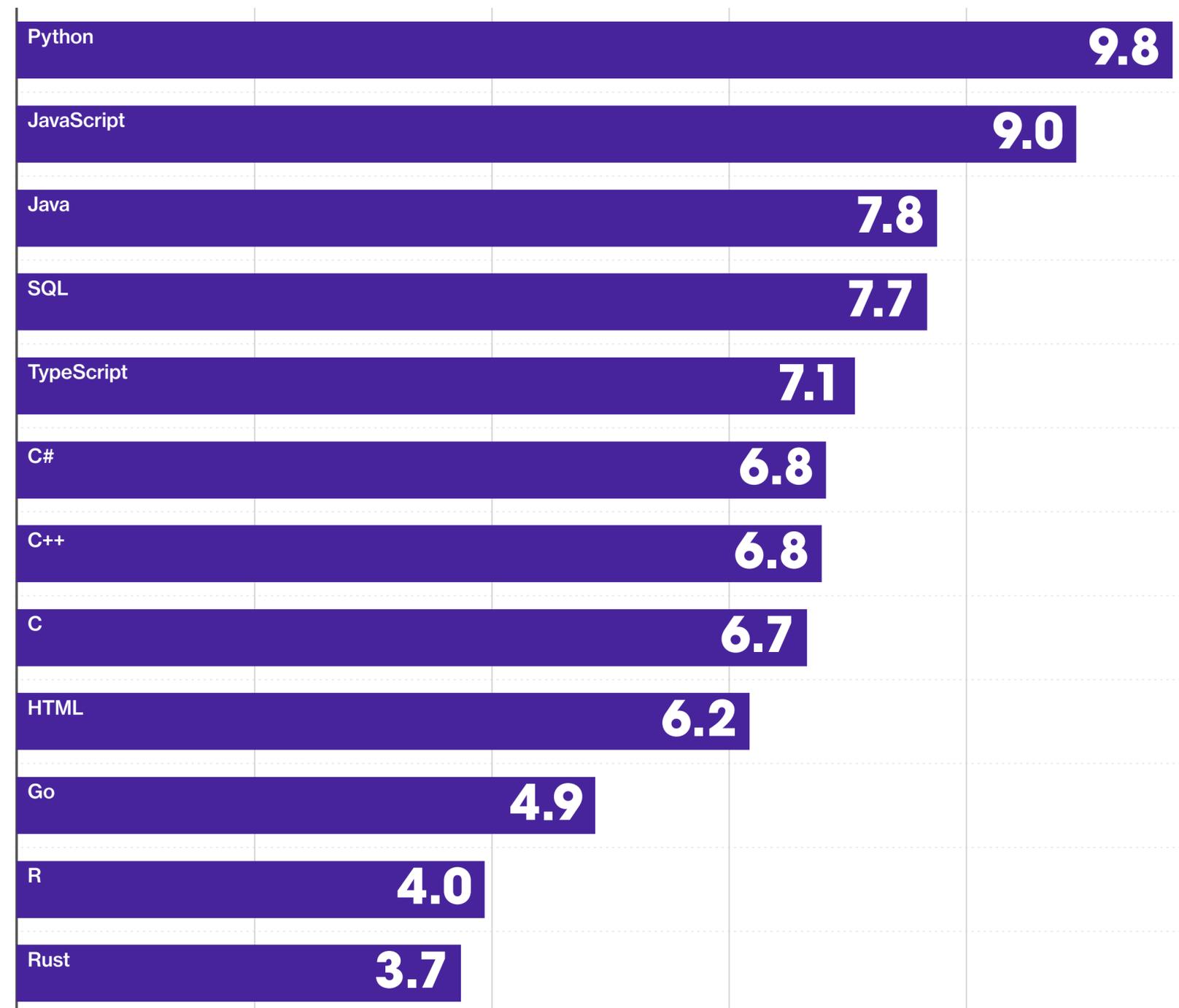
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# Software Engineers' Favorite and Least Favorite Languages

Based on our 2022 survey of more than 1300 software engineers, we found engineers ranked Python as their favorite programming language. JavaScript and Java followed as second and third choices.

### Software Engineers' Language Preferences





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# Software Engineers' Favorite and Least Favorite Languages

Why? Engineers attributed their favorite (and least favorite) languages as follows:

For the programming languages that you marked as your **favorites**, select the reasons why

- 66%** Resources available for learning and development
- 64%** I know it well
- 64%** The ecosystem (useful and well-maintained libraries and packages)
- 58%** It is fun to program in
- 53%** Community support (tone of the community, open to newcomers)
- 45%** The programming language is in high-demand
- 38%** Large companies use it
- 26%** It was the first programming language I learned

For the programming languages that you marked as your **least favorites**, select the reasons why

- 55%** It is not fun to program in
- 42%** It's complex and overwhelming
- 32%** Bad experience working with it
- 22%** Does not lend to future engineering positions or upward career mobility
- 18%** Not many companies use it
- 16%** Other (please specify)
- 12%** Lack of resources available for learning and development
- 11%** Lack of community support



# The Non-Traditional Coding Path

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Almost half of surveyed candidates (46%) who started a new job in 2022 felt their employer focused more on skills than pedigree (i.e. degrees, recognizable brands on their resume, etc.). The majority (64%) of employers surveyed are actively looking for and considering engineering candidates with a non-traditional background (e.g. bootcamps and being self-taught).

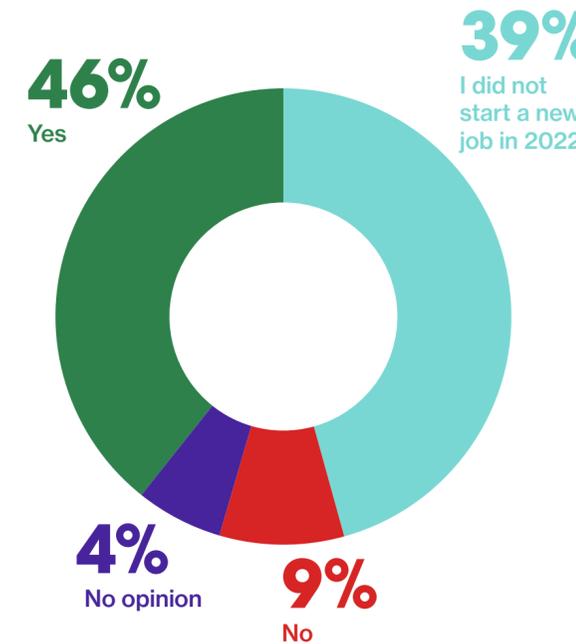
And that's good news – relaxing requirements of engineering degrees at top universities when able allows for a more diverse team with a mix of backgrounds, experience, and points of view. Some may be hobby coders who attended bootcamps, while others may be on their second or third career and learn tech skills in immersive programs or at night.

Most (44%) of surveyed candidates listed they have a computer science/engineering degree, while almost 26% of them were “self-taught.” When asked what resources candidates use to learn new skills, the majority said free sites/blogs/resources, followed by online courses – ahead of company resources and training.

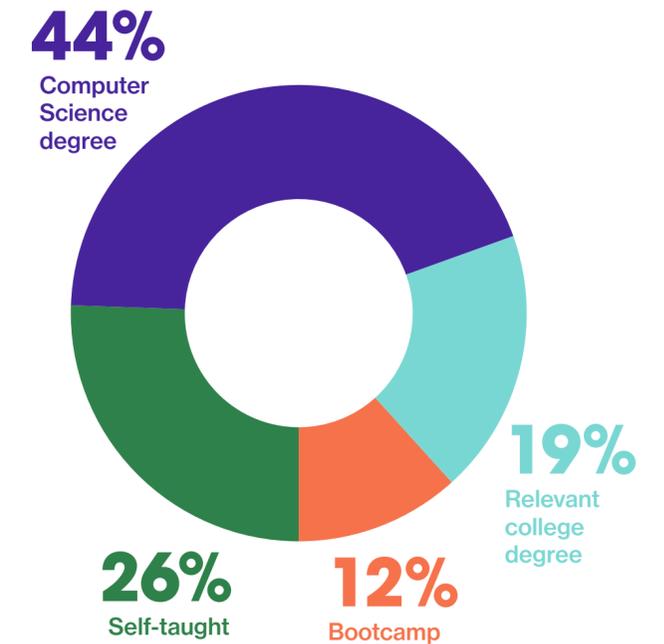
An incredibly wise talent leader named Catherine Davies once shared she tries to incorporate “different ways of thinking, views, opinions, and values. All the different ways of thinking together makes our products better.

It reflects our customers more because they are an incredibly diverse mix. You should have that mix internally, not just for the health of the organization, but for the relevancy of your product or service.”

### If you started a new job in 2022, did you feel the company or hiring team focused more on skills hiring versus pedigree



### How did you learn to program?



### What resources do you use to learn (new skills) and educate yourself in software engineering?





# The Non-Traditional Coding Path

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When examining Hired data across the US and UK, the demand for software engineering candidates with non-traditional educational backgrounds has held steady.

However, while salaries grew YoY for engineers of traditional and non-traditional backgrounds, the wage gap for non-traditional educational background candidates widened in 2022 for both the US and UK – with both regions showing smaller YoY salary increases for non-traditional educational background candidates.

In 2022, US candidates with non-traditional educational backgrounds made \$.96 to every dollar earned by candidates with traditional backgrounds, compared to \$.99 in 2021.

Engineering candidates with traditional educational backgrounds still make more than candidates with non-traditional backgrounds – \$163K (up from \$157K in 2021) versus \$157K for software engineers with non-traditional educational backgrounds.

### US Traditional Education vs. Non-Traditional Education Wage Gap



### UK Traditional Education vs. Non-Traditional Education Wage Gap





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# Top Skills for Engineering Managers

Engineers have not been spared from layoffs, or the effects of broader company downsizing – and the onus has been on engineers in smaller teams to do more with less.

According to the software engineers participating in our survey, engineering managers have to be much more versatile this year – possessing skills spanning from communications (top-ranked skill) to the ability to build products.

In your opinion, what will the **top skills for engineering managers** be over the next six months?

01 **Communication skills**

02 **Leadership & team management skills**

03 **Building (teams and/or products)**

04 **Coding expertise**

05 **Previous work experience**



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# Top Skills for Engineering Managers

Surveyed employers agree, prioritizing engineering managers with soft skills (e.g. leadership prowess, communication savvy, and teamwork abilities) while hard skills (e.g. certain coding skills and languages) are an extremely close second.

Employers also have a clear preference this year for the “right” kind of engineering manager.

Which engineering management (EM) archetypes are **most important** to your org?

- 01 The Tech Lead EM:**  
excels at keeping abreast of architecture and technical changes
- 02 The Team Lead EM:**  
manages team members and leads a product's technical direction
- 03 The Lead of Leads EM:**  
able to lead larger groups of 9-30 people
- 04 The Product EM:**  
works with a Product Manager to scope and plan deliverables for a team; may also act as a Product Manager for teams without one
- 05 The Delivery EM:**  
thrives in project or date-driven organizations that demand lots of paperwork or time in meetings

For Engineering Manager roles, please rank the areas your company **specifically prioritizes.**

- 01 Soft skills:**  
leadership, communication, teamwork, etc.
- 02 Hard skills:**  
coding languages, etc.
- 03 Years of experience**



# Top Skills for Engineering Managers

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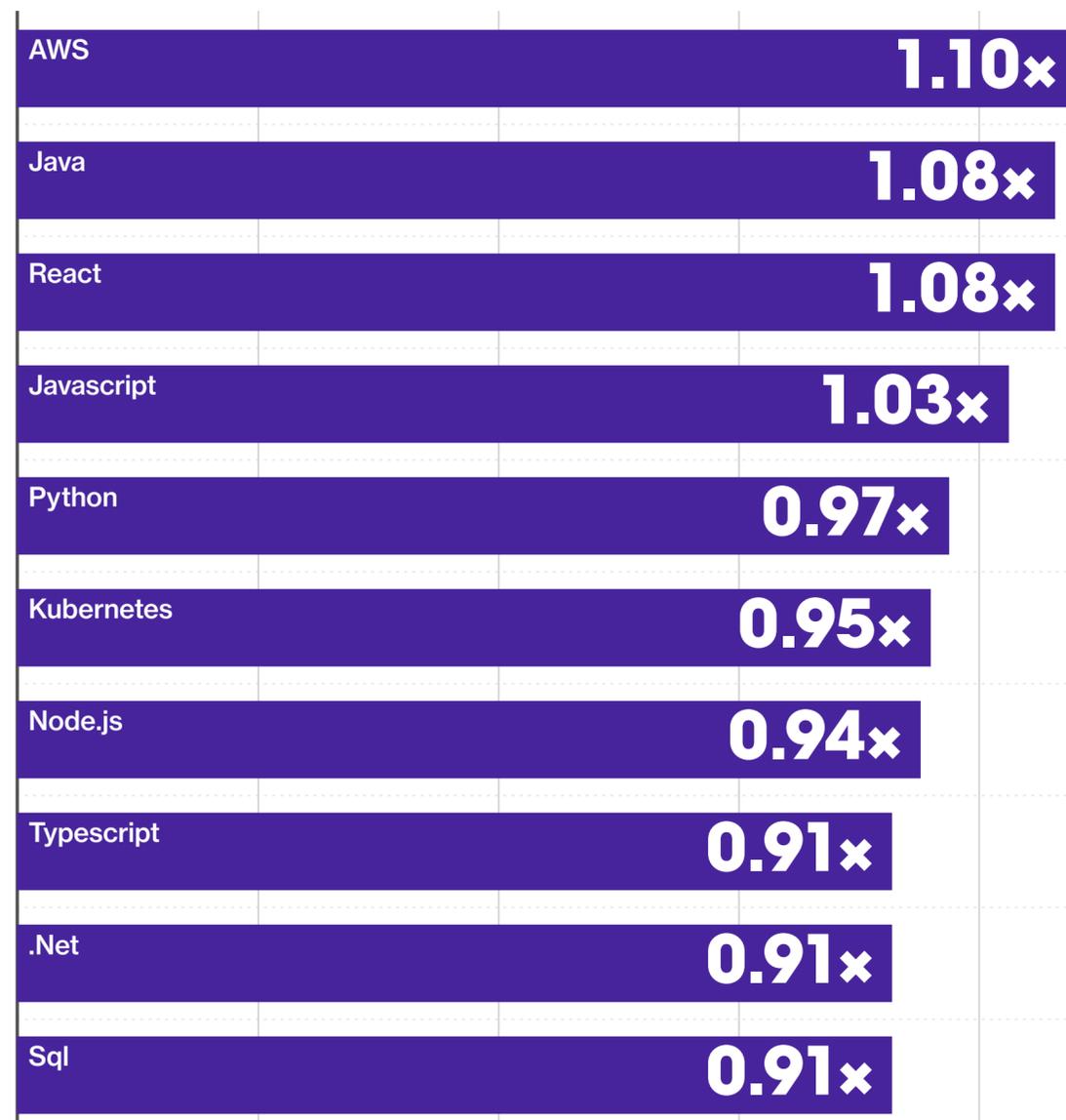
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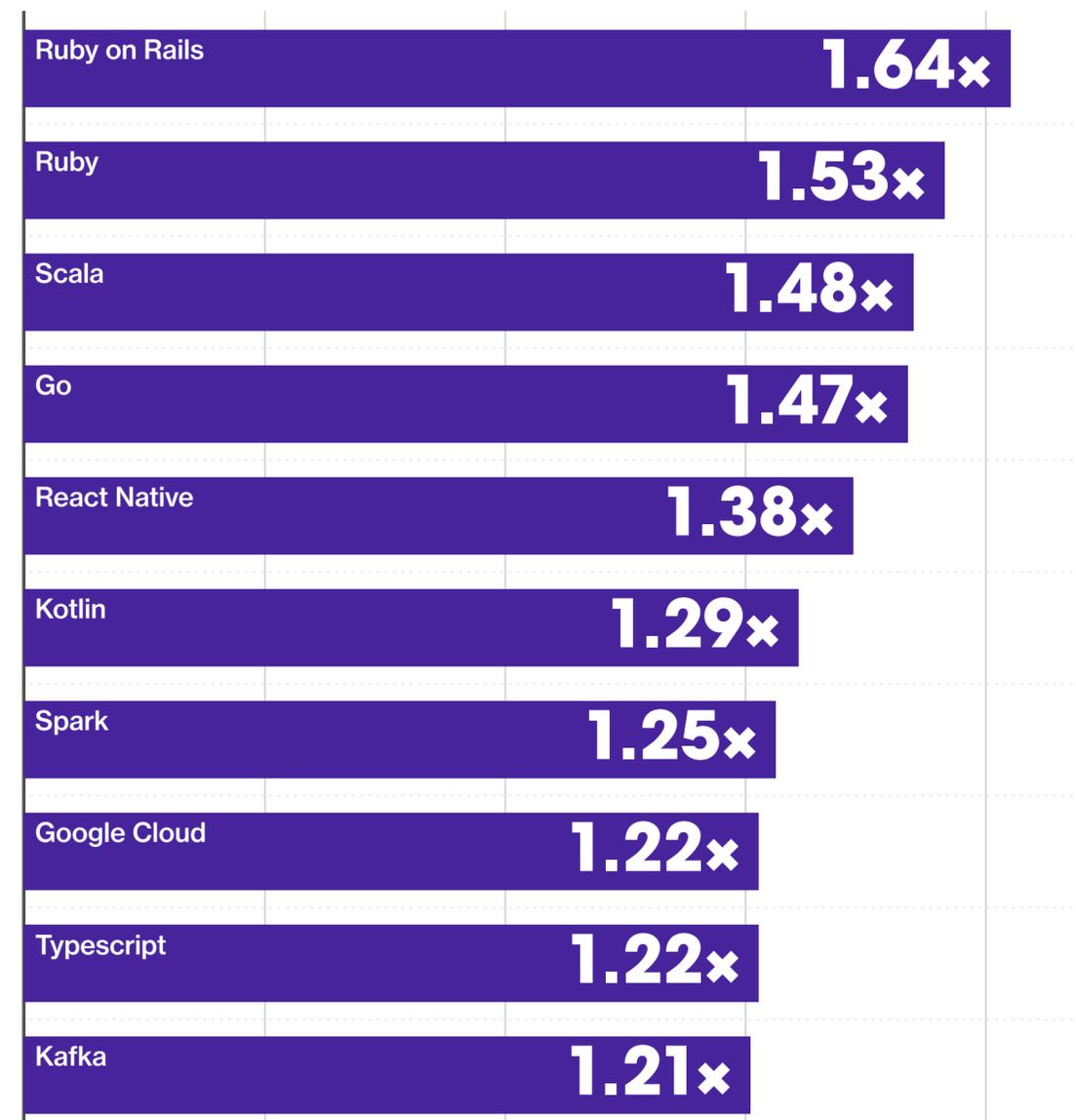
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Hired also found employers seek similar technical skills in management or independent contributor (IC) talent. Seven of the top 10 engineering management skills appear in the top 20 SWE skills.

### Hottest Engineering Manager Skills vs. Hired Marketplace Average



### Hottest Individual Contributor Skills vs. Hired Marketplace Average





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# Most Common Engineering Skills by Subrole

Are you interested in a specific engineering specialization? Here are the most commonly-listed skills\* on Hired jobseekers' profiles for each of these subroles.

While “hot” skills such as Ruby, Kotlin and Go were in demand by employers this year, many were not as commonly listed on candidate profiles.

In other words, it was a specialist market this year. Jobseekers with specialized or “hot” skills, received more interviews this year versus generalists.

Note: the most commonly listed skills on jobseekers profiles were measured by the number of candidates with at least 1 IVR with the listed skill on their profile across various subroles.

If you're ready to upskill, check out the Hired partners offering bootcamps, courses, and certifications in the “What's Next” section, later in the report.

### All Software Engineering

01 **Javascript**

02 **Python**

03 **Java**

04 **SQL**

05 **React**

06 **AWS**

07 **Node.Js**

08 **HTML**

09 **CSS**

10 **Typescript**

### Backend Engineer Skills

01 **Javascript**

02 **Java**

03 **Python**

04 **SQL**

05 **React**

06 **AWS**

07 **Node.Js**

08 **HTML**

09 **CSS**

10 **MySQL**

### Blockchain Engineer Skills

01 **Javascript**

02 **React**

03 **Python**

04 **Node.Js**

05 **Java**

06 **AWS**

\* Lists determined by volume of those skills exhibited by engineers on Hired's platform, not demand.



# Most Common Engineering Skills by Subrole

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### Data Engineer Skills

- 01 **Python**
- 02 **SQL**
- 03 **Java**
- 04 **Javascript**
- 05 **Aws**
- 06 **Linux**
- 07 **Docker**
- 08 **MySQL**
- 09 **C++**
- 10 **C#**

### Embedded Engineer Skills

- 01 **C++**
- 02 **Python**
- 03 **C**
- 04 **Linux**
- 05 **Java**

### Frontend Engineer Skills

- 01 **Javascript**
- 02 **React**
- 03 **Node.js**
- 04 **CSS**
- 05 **HTML**
- 06 **Typescript**
- 07 **SQL**
- 08 **Python**
- 09 **Java**
- 10 **AWS**

### Full Stack Engineer Skills

- 01 **Javascript**
- 02 **React**
- 03 **Python**
- 04 **Java**
- 05 **SQL**
- 06 **Node.Js**
- 07 **CSS**
- 08 **HTML**
- 09 **AWS**
- 10 **Typescript**



# Most Common Engineering Skills by Subrole

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### Machine Learning Skills

- 01 **Python**
- 02 **Machine Learning**
- 03 **SQL**
- 04 **Java**
- 05 **Aws**
- 06 **Javascript**
- 07 **C++**
- 08 **Docker**
- 09 **Linux**
- 10 **MySQL**

### Mobile Engineer Skills

- 01 **Javascript**
- 02 **Java**
- 03 **React**
- 04 **Android**
- 05 **Python**
- 06 **iOS**
- 07 **Swift**
- 08 **Node.Js**
- 09 **Css**
- 10 **SQL**

### Security Engineer Skills

- 01 **Python**
- 02 **Java**
- 03 **Javascript**
- 04 **Aws**
- 05 **SQL**
- 06 **Linux**

### Site Reliability Skills

- 01 **Aws**
- 02 **Terraform**
- 03 **Docker**
- 04 **Kubernetes**
- 05 **Python**



# **Demand for Underrepresented Candidates**



# Demand for Underrepresented Candidates

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Which markets sought underrepresented\* talent the most?

Tier 3 markets including

1. Tampa (32%)
2. Atlanta (31%)
2. Columbus (31%)

sent the highest number of IVRs to underrepresented talent.

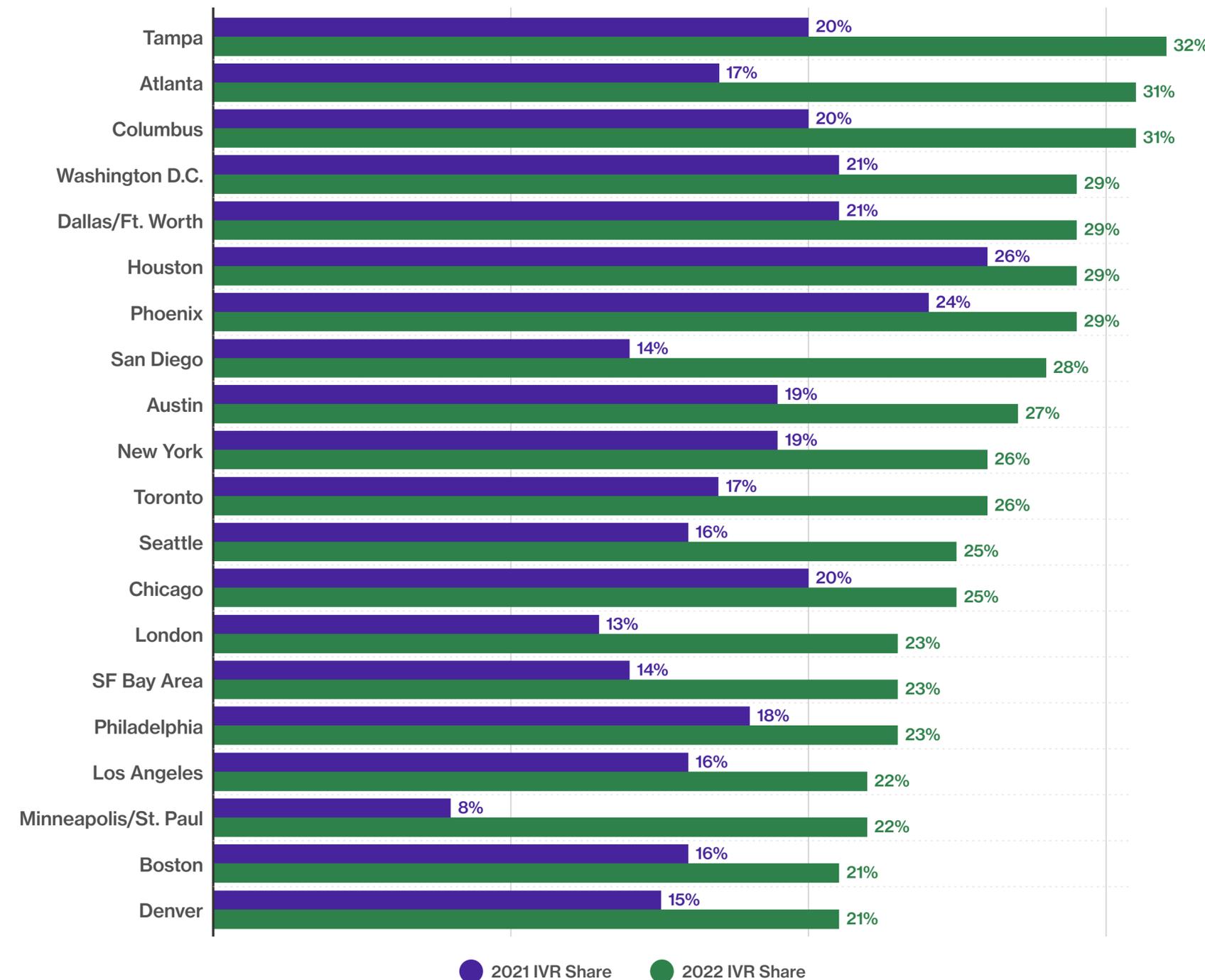
Outside the US, data shows London and Toronto sent significantly more IVRs to these candidates in 2022 vs. 2021.

- London increased IVRs to underrepresented candidates 10% from 13% to 23%.
- Toronto increased IVRs to underrepresented candidates 9% from 17% to 26%.

We've also seen IVRs to underrepresented candidates grow YoY across subroles to:

- 26% of frontend engineer IVRs
- 25% of backend engineer IVRs
- 24% of (tie) mobile, ML, and security engineer IVRs.

### Share of IVRs Going to Underrepresented Candidates by Market



\* Underrepresented is defined by non-white/non-Asian and non-male candidates.



# Demand for Underrepresented Candidates

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In "What Top Employers Do Differently: New Hiring Data to Win in 2023," Hired determined nearly 20% of North American companies used Hired's DEI feature, Diversity Goals, in 2022.

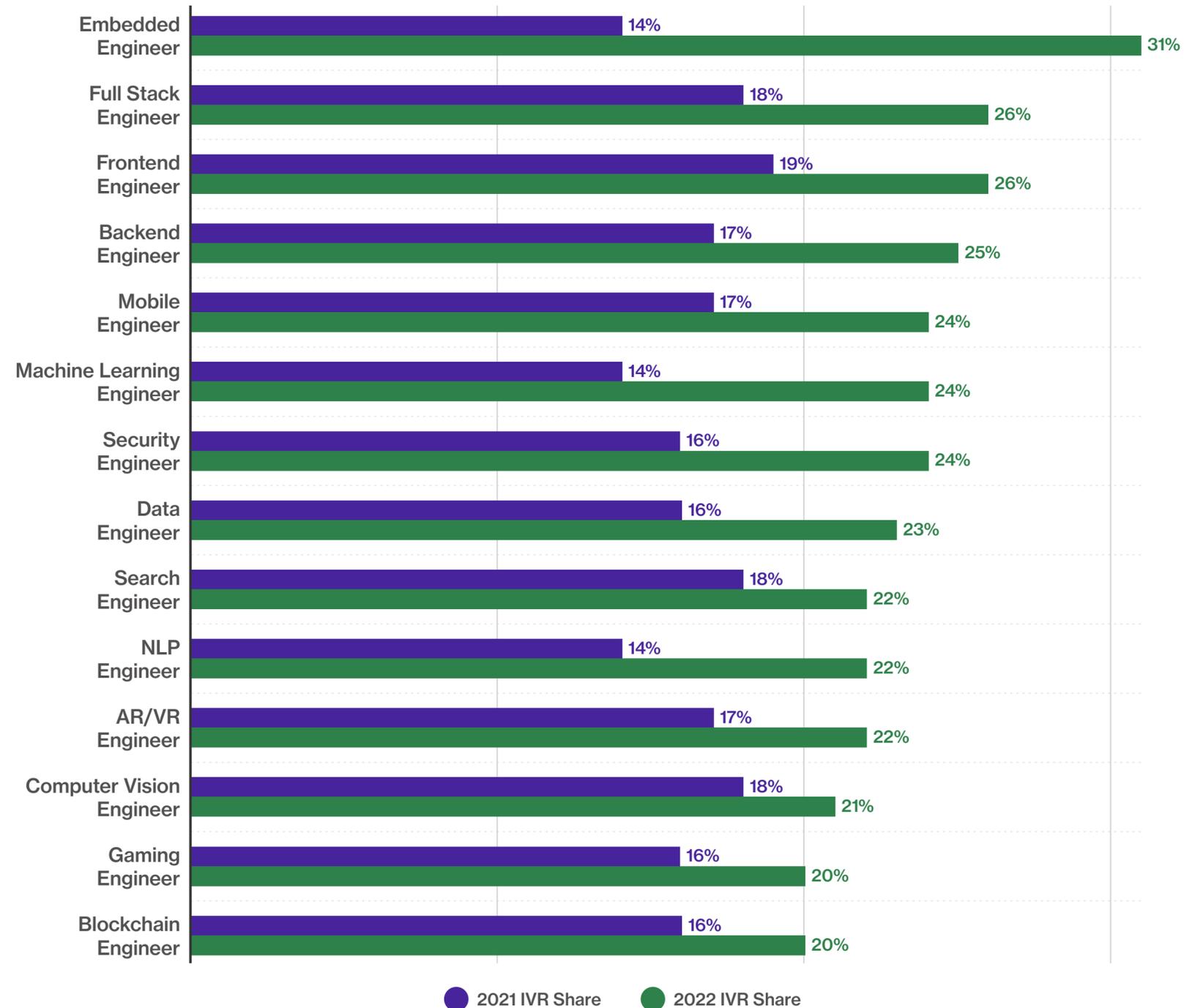
When toggled "on," this feature:

- surfaces more underrepresented talent in employers' search results
- increases the overall percentage of underrepresented candidates receiving IVRs and final offers.

Hired's 2022 List of Top Employers Winning Tech Talent revealed the top 10 North American SMBs sent the highest median percentage of IVRs to underrepresented candidates, at 36%.

As companies navigate pressure and uncertainty in 2023, it's critical to continue prioritizing DEI in interviews and job offers.

### Share of IVRs Going to Underrepresented Candidates by Subrole



**What's  
Next?**





## What's Next?

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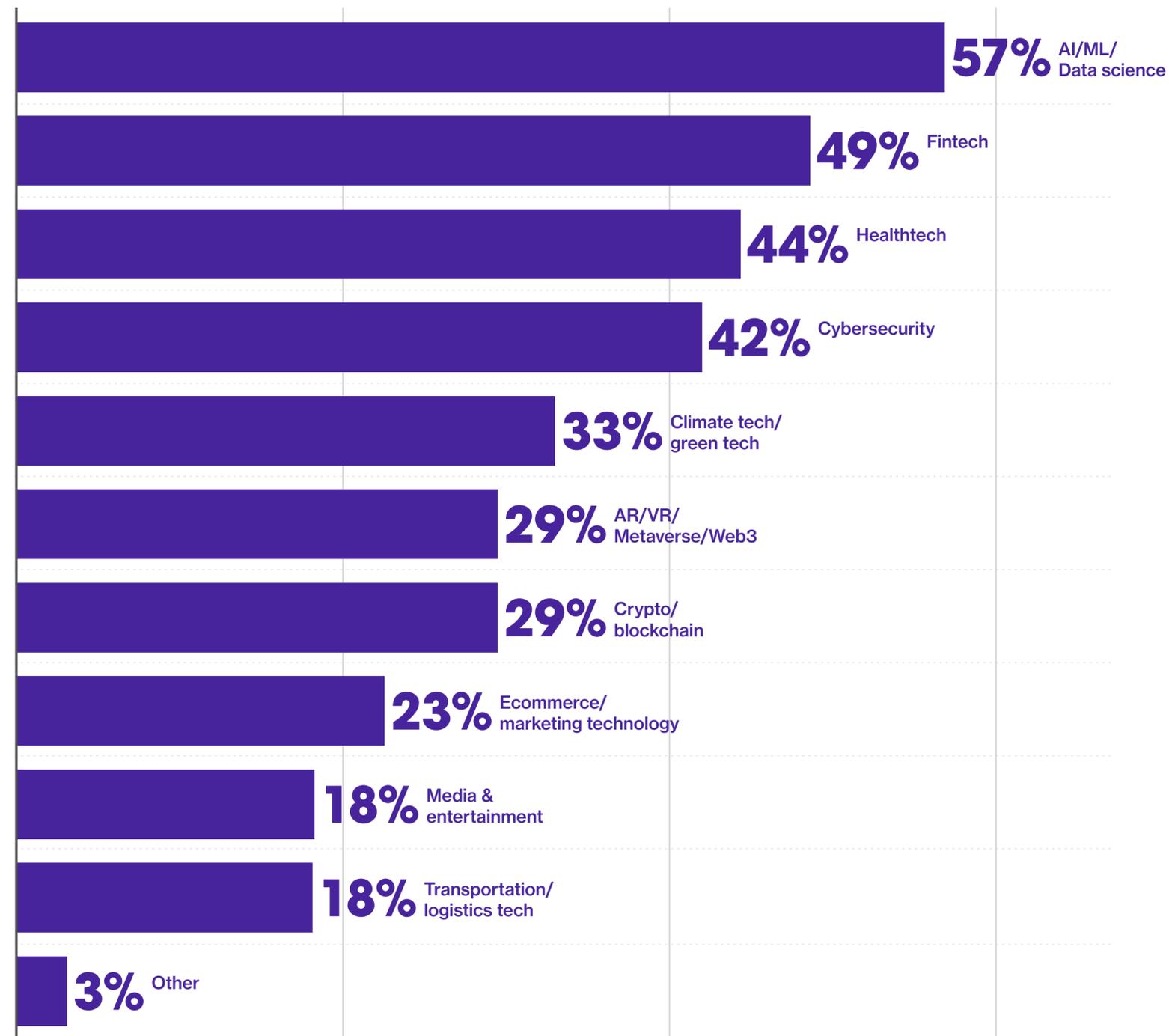
In line with NLP engineers receiving the highest salaries this year, software engineers (57% of respondents) believe AI, machine learning, and data science to be the hottest focus areas to keep an eye on for in 2023, followed by fintech (49%) and healthtech (44%).

When asked what coding languages should be mastered going into 2023, most (64%) respondents ranked Python as the number one programming language; followed by JavaScript (49%), then SQL (44%).

And while the tech industry is set to navigate more volatility in 2023, this hasn't dampened engineers' passion for the field. Enjoyment (40%) is still the biggest motivator driving candidates to learn a new skill (e.g., programming language, framework) – followed by job requirement (25%). Only 17% of engineers listed that knowing a skill will be in high demand is a top motivator.

Software engineers still remain committed to using their coding skills to solve big, meaty problems (30% of surveyed candidates want to solve humanitarian issues, such as climate change), followed by the future of work/ collaboration (17%) and moonshots (17%).

### In your opinion, what are the hottest industries to watch out for in 2023 for software engineers?





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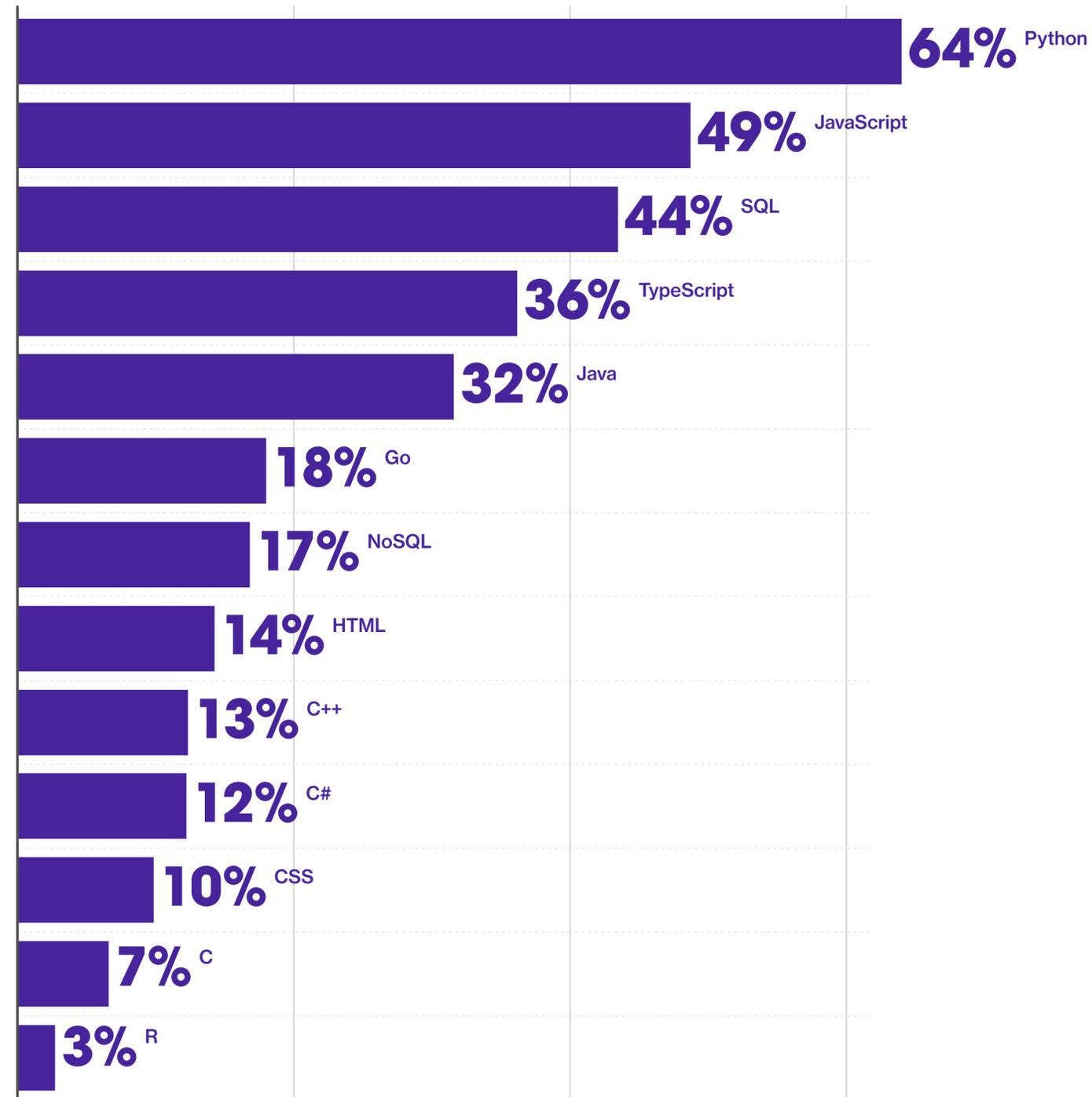
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### What are the top 3 skills software engineers should learn/know right now in your opinion



### When you decide to learn a new skill, what is your biggest motivator?



### What are you most passionate about solving with your coding skills?





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## Resources for Jobseekers

When a jobseeker joins Hired, they have many resources for learning and advancement, beginning with the support of the [Candidate Experience Team](#). This enthusiastic group provides support, encouragement, as well as coaching.

Bookmark the [Hired Blog for jobseekers](#) for tons of helpful articles and links to videos on demand, such as:

- [How to Get Approved on Hired](#)
- [Common FAQs: The Importance of Upskilling for Tech Talent: AMA featuring SitePoint \(Video on Demand\)](#)
- Find inspiration and learn about others' career journeys in our [Candidate Spotlights](#)
- [How to Build Leverage in a Volatile Job Market, featuring Leaders from TopResume, Glassdoor, and Ladies Get Paid \(Video on Demand\)](#)
- Learn about the role of the Candidate Experience Team and [How to Get More Interviews and Better Matches on the Hired Platform](#)

For professional development, [Hired partners](#) offer several opportunities, including:

### Bootcamps & Coding Schools



[General Assembly](#)



[Boolean](#)



[Makers](#)



[Per Scholas](#)

### Workshops & Upskilling



[2U](#)



[Blockchain Training Alliance](#)



[Educative](#)



[SitePoint](#)



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# Employers: How to Attract and Retain Software Engineers

## Foster more opportunities for connection and collaboration

The widespread adoption of remote and hybrid work has created new opportunities to rethink how workplaces connect, communicate, and collaborate – but it has also introduced new challenges for workers. Surveyed software engineers cited their top concerns to be the lack of:

- In-person interaction
- Learning
- Opportunities to network

Workers have been isolated for long stretches at this point – especially if they are fully working remotely – and it's no surprise many people are craving human connection like never before. Companies must find new, and engaging ways to reintroduce this critical element back into their company cultures.

According to our survey, 55% of software engineers value opportunities for professional development, even over great

managers, and remote perks, such as stipends. Seize the opportunity to stand out to top talent by offering training and skill-building workshops, mentorship programs, and networking events to provide employees with new opportunities to learn from their peers, and uplevel their careers.

Even virtual companies and hybrid teams can connect for online trivia and games, as well as cross-functional hackathons. Hired hosts an internal hackathon twice a year to foster team-building and innovation within the company.

Teams work together to identify a project with themes such as “scalability,” “efficiency,” and “improving the candidate or customer experience.”

Hired Product Design Manager Mario Ayerbe reflected on the 2023 event, saying,

*"The amount of creativity and disruption can't be quantified. Seeing those ideas in action is a good motivation booster to start the year."*

To assist employers and jobseekers in networking and community support, Hired partners with several organizations including:

- [Baddies in Tech](#)
- [Blacks in Technology](#)
- [Coding Black Females](#)
- [Colorintech](#)
- [Muslimic Makers](#)
- [Diversability](#)
- [QTBIPOC Design](#)
- [Sista Circle: BWiT](#)
- [Techqueria](#)



## Big Transitions in the Tech Industry

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# Employers: How to Attract and Retain Software Engineers

## Be transparent about changing policies to maintain trust

With redacted work-from-home policies, hiring freezes and layoffs leading news headlines each day – workers may be concerned and wondering how these issues may impact them. To strengthen and preserve your employer brand, set a tone of trust with employees, while outlining clear expectations about any upcoming workplace changes.

These changes may include:

### Work-from-home policies

Whether you opt to be remote, hybrid or a fully in-office workforce, communication will be key to alert employees about what's coming next, including any changes and shifts in flexibility.

### Compensation

If wage transparency laws have gone into effect in your state, now is the time to set clear policies about how these ranges will be disclosed. Prepare to have open dialogue with employees, who may now have questions about salary discrepancies. Even if

these laws don't yet apply to your company, disclosing salary bands for roles can be instrumental in closing wage expectation gaps, preventing wage discrimination across gender and race.

### Company headcount

if you are planning on issuing a hiring freeze or have plans to downsize your workforce, be clear and transparent about why these changes are occurring and how you will support your workforce through this tough transition with empathy, including severance packages and benefits.

Implementing surveys is also a great way to encourage transparency and a continuous positive feedback loop for any concerns employees may be having, but are hesitant to share. At Hired, we've established several methods for collecting employee feedback: anonymous channels, Q&A tools, regularly-scheduled engagement surveys and performance reviews. All of these aim to create a safe space for employees to share their opinions about workplace policies.

Transparency is an absolute necessity to build trust, and this has become even more critical in virtual workplaces, where employees may not have the confidence to communicate their concerns as comfortably and openly as they would in person.

*Related: [How to Foster Psychological Safety in Workplaces, from Interviewing to Management](#)*

Finally, consider mission transparency. Senior Engineering Manager at Hired, Dan Baker points out the importance of an employee's sense of contribution.

*"As Big Tech layoffs hit our news feeds, now more than ever, engineers are asking, 'am I crucial to the company mission?' If the answer is 'no,' or the company's mission is unclear, employees feel less secure in their roles.*

*When employers take the time to clarify contribution expectations and how they connect to the organization's success, the easier it will be to tackle goals and inspire employee retention."*



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# Employers: How to Attract and Retain Software Engineers

## Establish an adaptable culture embracing experimentation & innovation

According to our survey, software engineers are most attracted to:

- building products/solutions
- problem-solving
- new challenges and continuous learning

Embracing a culture of experimentation and innovation will not only be key to attracting and retaining qualified talent, but it can also inspire more creative solutions to give your company a competitive edge. To truly unlock this potential, leaders must nurture a positive environment that values professional development, growth, and opportunities for learning.

## How Hired supports innovation among engineering managers and individual contributors

*"In any organization that seeks to innovate, there are three core pillars for decision-making:*

- 1. The vision of the org as a whole (Executive Leadership),*
- 2. The voice of the customers (Customer Success Teams), and*
- 3. What can be achieved to maximize 1 + 2 (Tech Team).*

*Hired has subscribed to the concept of servant leadership for a long time. In this context, it means the leaders inspire teams from the bottom up to find creative solutions instead of pushing down pre-decided terms and specifications.*

*This management culture is crucial to the three pillars philosophy because creativity is an individual contributor's core value to the org. Plus, it's impossible to expect an engineer to feel fulfilled in a role without a significant expression of creativity.*

*There are two concrete examples I want to call out demonstrating how we, at Hired, instill innovation as a cultural staple of every individual contributor's role.*

*First, we often break small, medium, and large tasks into a two phases. One is a research phase where the expectation is simply to explore a problem or idea and come up with potential solutions. Then, there's an execution phase to concrete delivery.*

*Second, Hackathons are an important institution in our growing org. They give every team member an opportunity to be unbribled in their expression, and leadership cares about the ideas they produce. The competition is fierce."*

*– Hired Sr. Engineering Manager Dan Baker*

*"If you want to inspire creativity, allow engineers, particularly senior engineers on your team, to contribute to technical design and approach. This helps develop their ability to experiment instead of receiving technical details from above."*

*— Hired CTO Dave Walters*



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## Changing mindsets

“I think it starts a little bit with changing the mindset of what you’re looking for and being open to those non-traditional backgrounds,” says Tech Recruiting Leader Nathalie Grandy.

“I’m always encouraging managers to think about the 80/20 rule, meaning 80% existing skill set and 20% coachability.

You’re going to find some of those future rock stars, who are eager to learn. It may start with a wish list, but take a step back and open it up a bit.”

During the hiring process, be deliberate in seeking out and understanding candidate strengths that go beyond the resume: flexible thinking, adaptability, and the ability to grow in a role and learn new skills independently.

If you have concerns about skill competency, we can help!

- Filter candidates using earned Hired Assessment badges. Not sure how? Ask your Customer Success Manager to show you!
- Use the [Hired Assessment tool to asynchronously evaluate multiple candidates](#) regardless of time zones.
- Don’t have the time? [Lean on Hired Technical Sourcer](#) to screen, shortlist, and handle communications with candidates and hiring teams to keep things running smoothly.

We’re here to help you build a stronger employer brand and find the right talent to achieve your goals – whether you’re a start-up or a global enterprise.

**[Let’s talk about how we may help.](#)**



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# Methodology

This report is based on proprietary data gathered and analyzed by Hired's data science teams. For the purpose of this report, Hired examined software engineering candidate interview requests (IVR) and salary data from January 2021 through December 2022 inclusive.

The data included reflects over 68,500 candidates and 494,000 interview requests between companies and software engineers on Hired during this time period. A minimum of 500 interview requests, in a given market, were required for salary-related data to be valid and included in the report. Of note, for the sections on the demand for certain software engineering roles and skills, candidates can have multiple subroles as well as several skills associated with their candidate profile (e.g., a candidate with a primary role of software engineer can have both NLP engineer and machine learning engineer subroles on their profile). Positions can also have multiple subroles. Candidates can have multiple skills associated with their candidate profile (Java, C, C++, etc.) All salaries indicated reflect an employer's salary at the time of the interview request.

In addition to our proprietary data, we collected survey responses from more than 1300 software engineers and 120 talent professionals and hiring managers on Hired's marketplace to inform our understanding of engineers' working preferences and the hiring climate.

## COL:

Cost of Living

- HCOL – High/Higher Cost of Living
- LCOL – Low/Lower Cost of Living
- MCOL – Medium Cost of Living

## Tier 1 markets:

- San Francisco Bay Area
- New York
- London

## Tier 2 markets:

- Seattle
- Los Angeles
- Boston
- Washington D.C.
- Toronto

## Tier 3 markets:

- Philadelphia
- Other
- Austin
- Minneapolis/St Paul
- Dallas/Ft Worth
- Denver
- Tampa
- Chicago
- Atlanta
- Phoenix
- Houston
- San Diego
- Columbus



[hired.com](https://hired.com)