Mercer | mettl

Tech skills & trends report 2022

A programming skills trends analysis for HR and programming leaders

welcome to brighter

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Introduction

We are amidst a technological revolution unseen in history, where new technologies are coming to the forefront, and older ones are receding to the background at a frantic pace.

Organizations across sectors and industries are evolving rapidly to embed technology into the core of their businesses. COVID-19 and its many fallouts have also expedited this churn.

Additionally, new organizations or startups based on tech developments as a strategic differentiator are coming up every day the world over.

Case in point: The boom of e-commerce, mobility, cloud and shared economy, and now the mainstreaming of AI and blockchain.

This exclusive report will help you identify top tech skills that are required across industries and job roles and their growing or dwindling demand.

Executive summary

This report is powered by Mercer | Mettl's tech assessment data, consisting of 200,000+ assessments from 2019-2021, and offers in-depth insights into the hottest tech skills across industries and job roles.

The Hot Skills Index and In-demand Index present critical findings around the in-demand skills and the skills set that are expected from specific tech job profiles in the near future.

This report maps the shift and details insights into existing scenarios and the road ahead for top tech skills, sectors and jobs.

> Mercer | Mettl's Tech Skills and Trends Report 2022 examines the technologies that will shape the tech industry's future.

Key findings

1. Hot Skills Index (The most sought-after skills)

Front-end programming skills

The fundamentals of front-end programming, such as JavaScript, HTML and CSS, have remained the same. However, the frameworks have undergone significant upgrades, which is why frameworks and libraries such as AngularJS, React, Vue.JS, jQuery, and Bootstrap have gained unprecedented popularity. And their ascend will likely be more prominent in 2022.

Back-end programming skills

Java continues to be the hottest and the most used skill in back-end programming. Java-based APIs and frameworks such as Java Web Services, Java Rest APIs, Spring and Hibernate are in-demand skills and are expected to acquire more prominence in 2022. Apart from Java, JavaScript-based back-end frameworks such as Node.JS, Express.JS continue to remain highly vaunted.

DB and Data Science skills

Skills such as SQL, AWS and Azure have gained prominence due to the strategic importance of data analyses and increasing usage of cloud systems. Besides, Python has become one of the most popular languages due to its easy-to-use, dynamic nature and vast library support. It is used widely in web programming, automation, data visualization and data science.

Other skills

Skills such as Agile methodologies are sought-after due to increased focus on making software faster and cross-functional. DevOps and their various tools have gained importance due to an enhanced focus on creating safe, secure and efficient cloud-based software.

2. In-demand Index (Most in-demand job roles)

Java, JavaScript and SQL

Java, JavaScript and SQL developers are still the most sought-after due to the adoption of these languages in various organizations.

Full Stack

There is a drastic growth in the demand for highly skilled individuals who can work on front-end and back-end technologies. They are greatly valued in product-led companies and startups, where they create innovative products.

DevOps

DevOps has become one of the hottest roles for acquisition across industries, apart from front-end, back-end and full-stack. Due to increased emphasis on **network security, rapid adoption of cloud systems, and agile methodologies,** DevOps has become more critical than ever and will continue to be so in 2022.

Data Science

Data scientist is one of the hottest roles after technology. Python is one of the most popular languages in data science, while Hadoop continues to be a widely used tool.

3. Hot Skills Index across industries

The skills required for various industries mirror their business requirements. For example, finance and banking sectors have registered significant demand for data and network security skills. Additionally, the need for data management, data analysis and DevOps has increased significantly across industries due to their strategic shift toward data analysis.

4. Skills movement from 2019-2021

Front-end skills

Data indicates that JS, HTML and CSS continue to lead the charts. However, Angular, jQuery, React and Bootstrap have gained the most in the last three years, and the tailwinds will continue unabated.

Back-end skills

Data suggests that Java, C# and .NET frameworks continue to find the most traction. However, Python, REST APIs, Spring and Hibernate have gained the most in the last three years, and the trend will likely continue in 2022.

1. Decoding 2021's Tech Skills Hotness Index

This trend analysis measures the Hottest Tech Skills Index of 2021 across industries on a descending scale of skills demand.

As we examine the top 5 hot tech skills, the overview indicates that the tech world seeks to build more interactive front-end interfaces, large-scale database systems and a robust back-end.

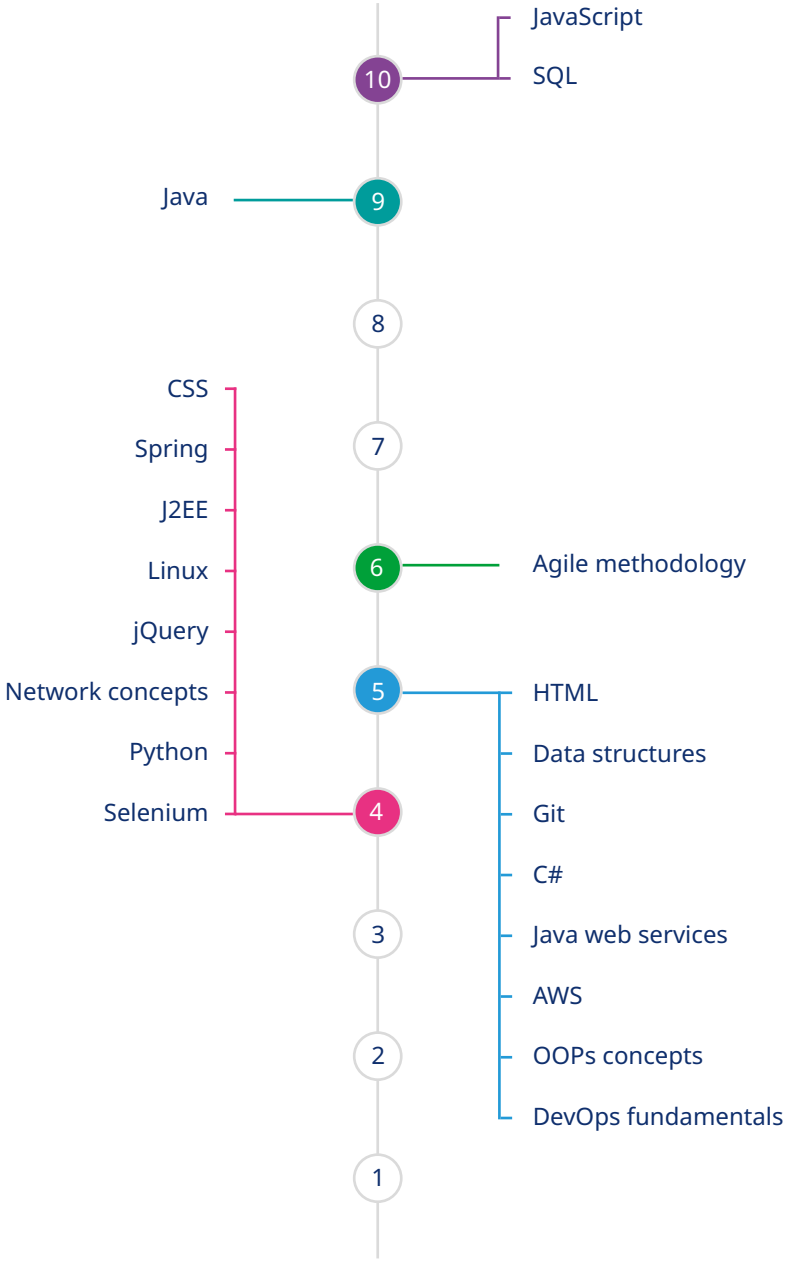
1.1

Hottest technology skills in 2021

This year, Mercer | Mettl's *Hot Skills Index* analysis across sectors resulted in a recurrent set of fundamental skills for programmers.

The skills trend analysis highlights JavaScript as the most prevalent language across industries.

Trailing behind JavaScript, the hottest tech skills are SQL, Java, HTML and Agile Methodology.



Hot Skills Index

An index to measure the demand for tech skills on a scale of ten, based on their share in coding skills assessments.

Hot Skills Index Top skills

1.2

Hottest tech skills: a detailed overview

The king of front-end programming

In the tech landscape, front-end technology forces, such as JavaScript, HTML and CSS, are the backbone of front-end development. Businesses are keen on building increasingly interactive interfaces to elevate the user experience.

Database is the key

SQL follows in popularity as the significant database query language. Since the last decade, robust, large-scale databases and strategic data analysis have become crucial to organizations. As a result, businesses increasingly use SQL, with more data to process and an enhanced focus on data analysis and massive data-based systems, such as e-commerce and shared economy.

Java continues to shine

Java is one of the most widely used back-end programming languages. It has remained consistently in demand over the years. Java helps create complete and robust software, which is why it has ubiquitous applications, from the web to smartphones.

Quality uncompromised

Agile Methodology expertise is also leading the face of change. Agile methodologies encourage and promote enhanced productivity for developers and testers, offering real-time information and a precise prediction of when the project will enter the release phase.

2. Decrypting 2021's Industry Hot Skills Index

Technology skills continue to evolve across industries amid a fast-digitizing business landscape. The desire to stay ahead of the competition among industries is placing a reward on agility and flexibility, with increased focus on automation, real-time operations and innovative business models.

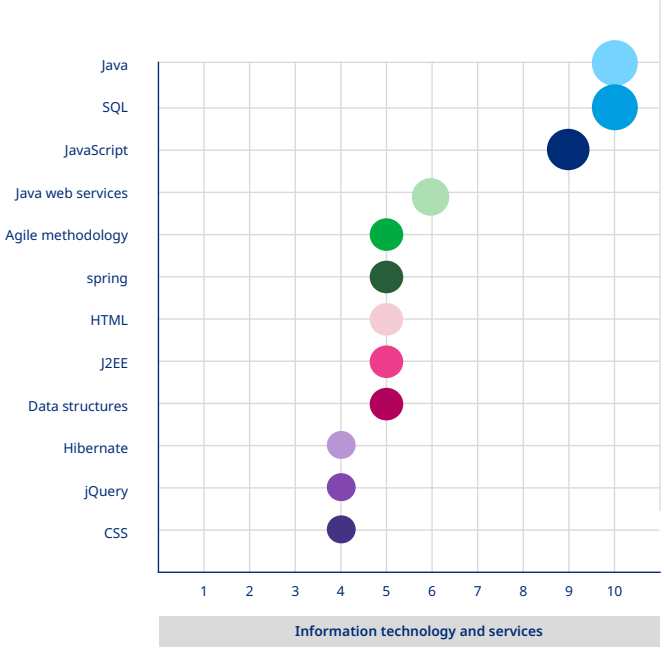
This industry-based trend analysis affirms the top ten hottest (in-demand) tech skills upon which each industry is placing an emphasis.

2.1

Information and technology

IT/ITeS companies develop and maintain software applications for their clients. Thus, IT companies require a range of skills in their workforce, ranging from back-end skills, such as Java, to front-end skills, such as JavaScript.

The industry also values Agile Methodology to churn large-scale software efficiently and structurally.



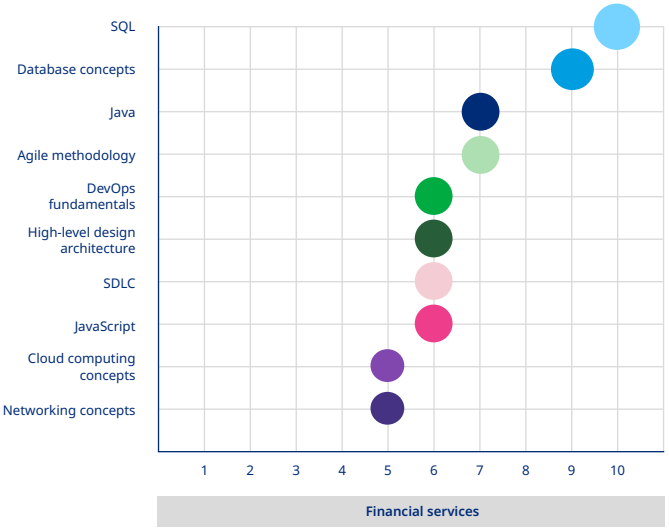
2.2

Financial services

The finance sector maintains massive tracts of highly confidential customer data. Hence, security is paramount. Finance leaders are leaning toward SQL, Database Concepts, Java, Cloud and DevOps skills to create robust and secure software.

The top ten skills unambiguously demonstrate that data management and data analysis skills are most prominent in developing better insights into customer behavior and identifying potential risks.

Cloud solutions are on the rise as they help financial companies keep up with their customers' needs.



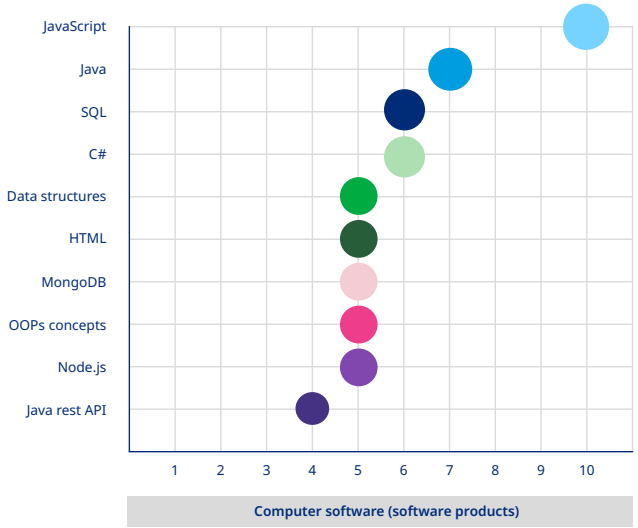
2.3

Software products

The software products industry creates innovative and modern products that offer outstanding customer experiences.

Innovative products across the web, SaaS and mobile dominate its landscape.

Hence, it mandates fundamental skills such as JavaScript and DS and new-age skills like Node.js and MongoDB.

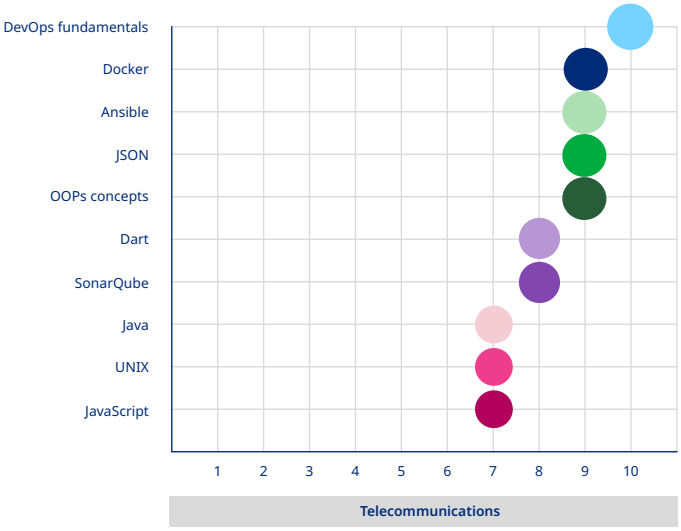


2.4

Telecommunications

The telecom sector acquires and analyzes vast chunks of customer data. Additionally, the industry mandates integrating technologically advanced electronic systems for business operations.

Hence, DevOps and its various tools and frameworks are ideal skills to build in this industry.



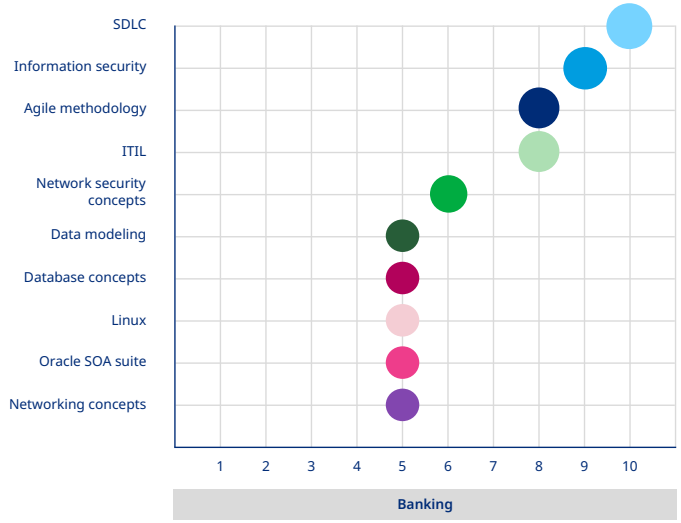
2.5

Banking

The banking sector also maintains vast chunks of highly confidential customer data. Hence, security is a critical prerequisite for industry players.

Banking leaders are leaning toward information security and network security skills to create robust and secure software.

The banking sector seeks to foster innovation through agile methodology, data modeling and database concepts.

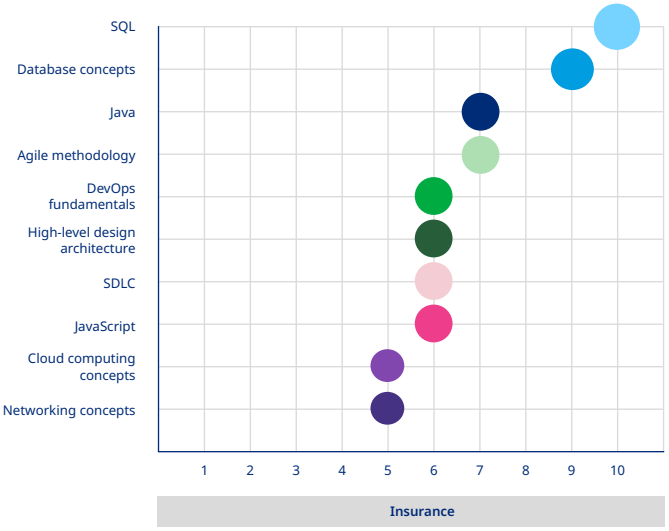


2.6

Insurance

C# and .NET frameworks are used in Insurance Information Systems to manage the details of policies, plans, taxes and buyers, etc.

Therefore, the insurance industry requires expertise in C#, .NET frameworks and WinForms to support data security, operational excellence, besides building a highly customer-centric experience. Also, .NET frameworks, including C#, are considered more secure than Java-based systems.

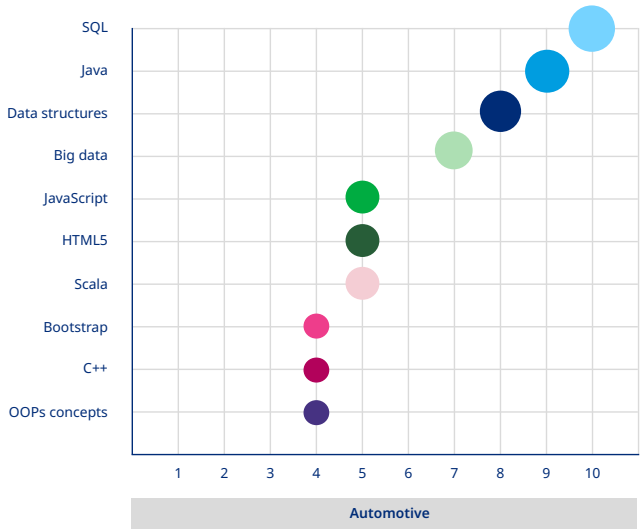


2.7

Automotive

The automotive industry intends to create better and digitized customer and partner interactions.

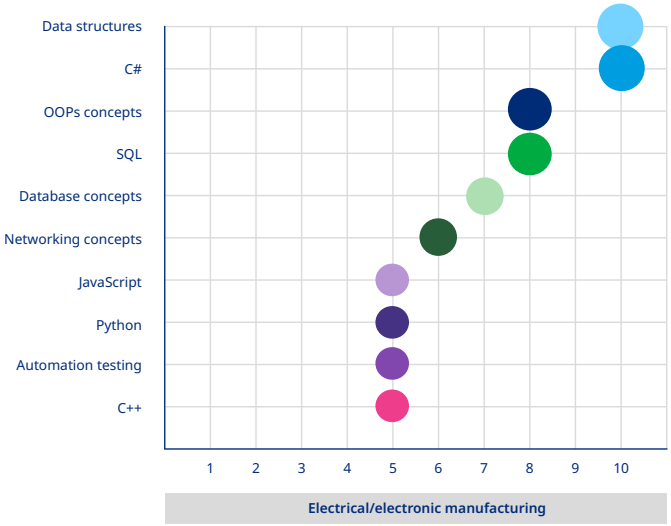
Also, the industry churns and analyses significant volumes of data to ascertain buying behavior patterns. Hence, it requires multiple skills such as SQL, Java, JS and programming fundamentals.



2.8

Electrical/electronic manufacturing

C# is used in information systems of the electronics manufacturing industry as it is a complete language in terms of back-end and front-end capabilities. Besides, the industry values programming fundamentals, such as DS, OOPs, etc. Database and SQL are used to churn and analyze data.



2.9

Healthcare

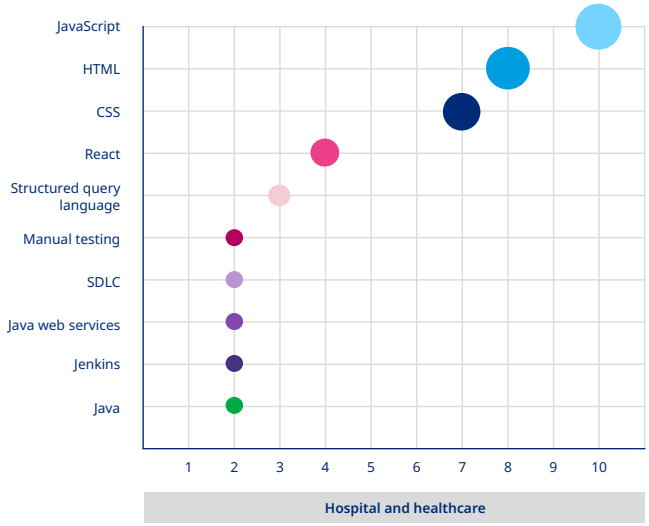
Healthcare has been digitally transforming at speed and scale to ensure digitally accessible services to all.

The hospital and healthcare industry demands JavaScript, HTML and CSS expertise to create interactive and digital healthcare systems.

Additionally,

66% **of healthcare executives say they will be in the cloud within the next year**

96% **within three years**

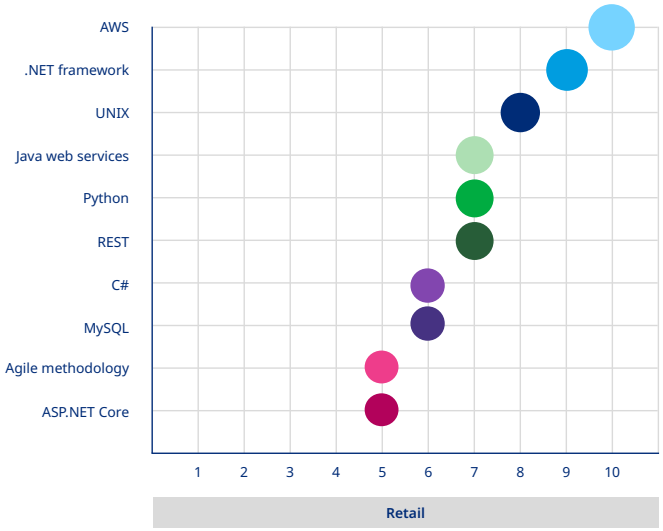


2.10

Retail

The transformation of the retail industry depends on its ability to leverage technology.

The retail industry widely uses technology, from e-commerce-based delivery models to analyzing customer data for stock alignment. Hence, the sector requires DB skills such as AWS, operating system skills, and data analysis skills, such as Python.

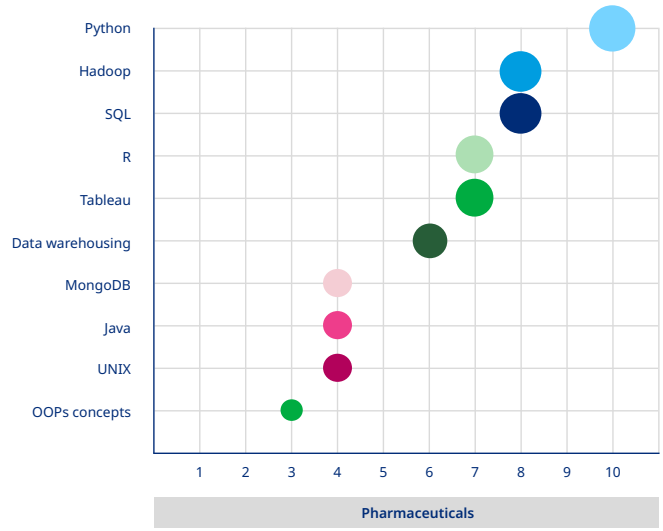


2.11

Pharmaceuticals

Technological advances are shaping the pharmaceutical industry, especially how it uses data.

Thus, Python developers are the most in-demand in this industry. Due to the use of real-world data to collect accurate patient experiences, the pharma industry requires Hadoop and R developers.



3. 2021's #Trending tech job roles: The In-demand Score

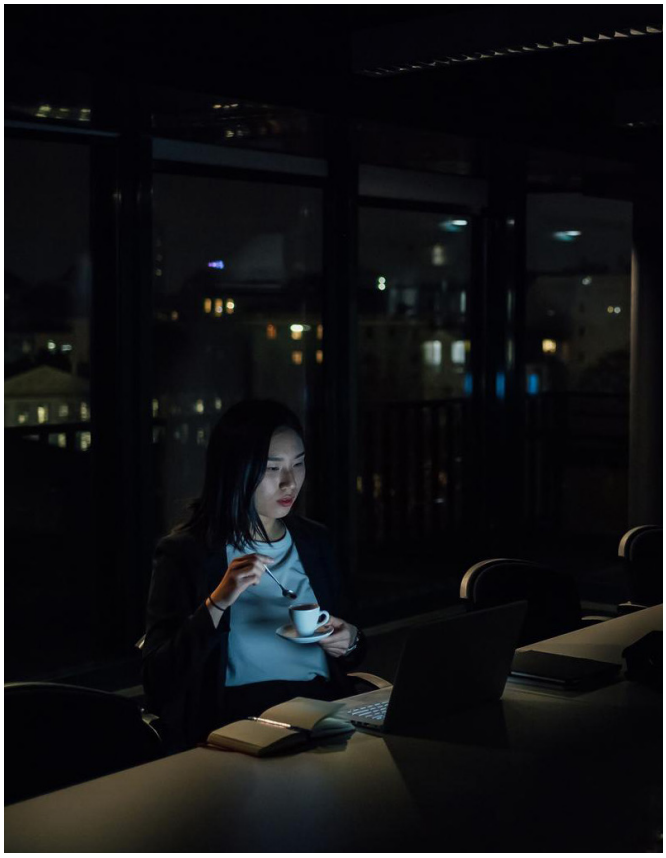
3.1

Decoding 2021's In-demand Score for tech job roles

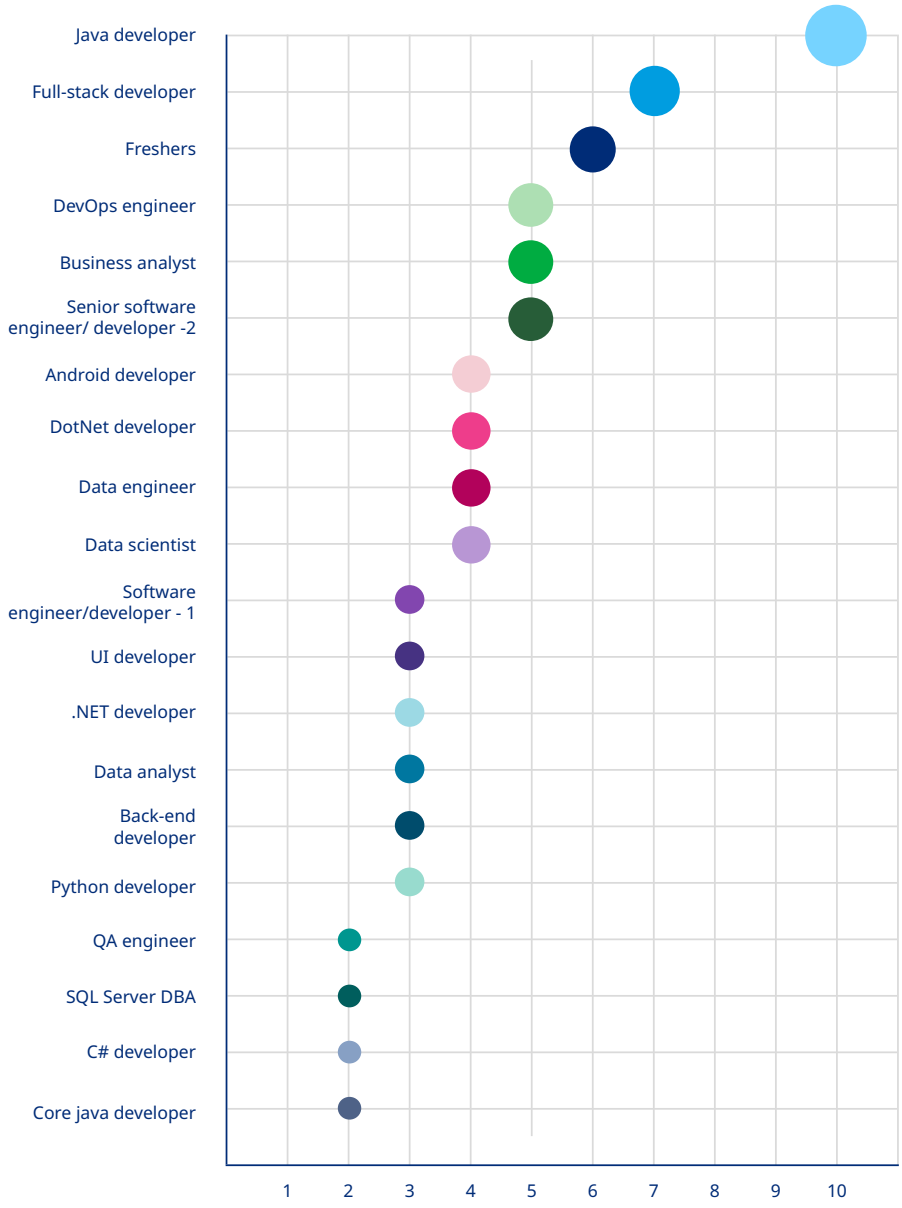
According to Mercer | Mettl's assessment data, Java Developer is the most in-demand role in technology.

It is followed by full-stack developers as businesses seek more comprehensive tech talent. This trend indicates that future developers will be expected to acquire knowledge of all layers of an application.

Next up, we see the increasing demand for fresh talent or tech graduates across industries. A quick increase in the demand for cloud computing services has pushed the job role of DevOps engineers up the charts. Businesses now seek to migrate their data on cloud-based platforms to ensure continuity amid unforeseen circumstances. Also, business analysts remain in the top 5 most assessed job roles as improving business structures and implementing systematic, data-backed solutions are business-critical.



Finally, .NET developers are in-demand for developing window-based robust applications and rich web applications to ensure the dominance of Windows in the operating ecosystem.



In-demand score

An index to measure the demand for tech roles on a scale of ten, based on their share in coding skills assessments.

↕ Job profiles

⟷ In-demand score

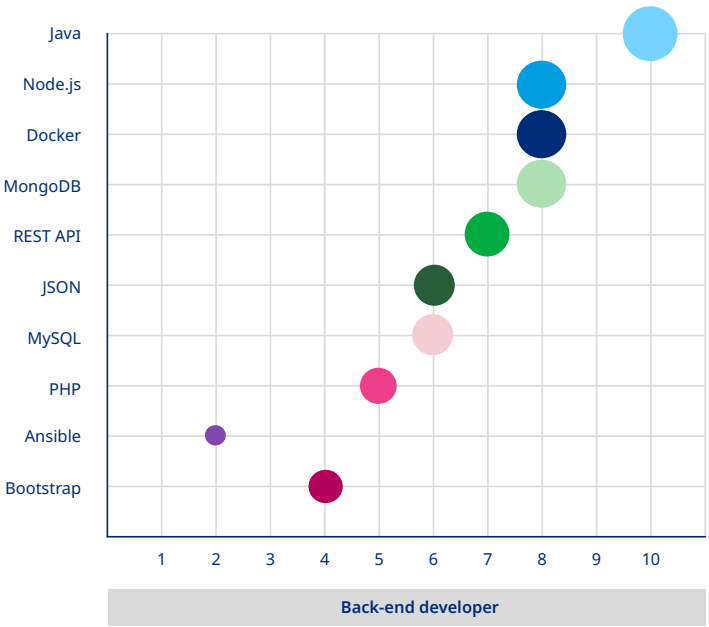
3.2

Examining the Hot Skills Index for 2021's tech job roles

As organizations race to adapt to technology, attracting the best tech talent becomes critical for their success and business continuity. Therefore, learning about the hottest tech skills, in-demand job roles, and a precise skills path for each position assumes primacy.

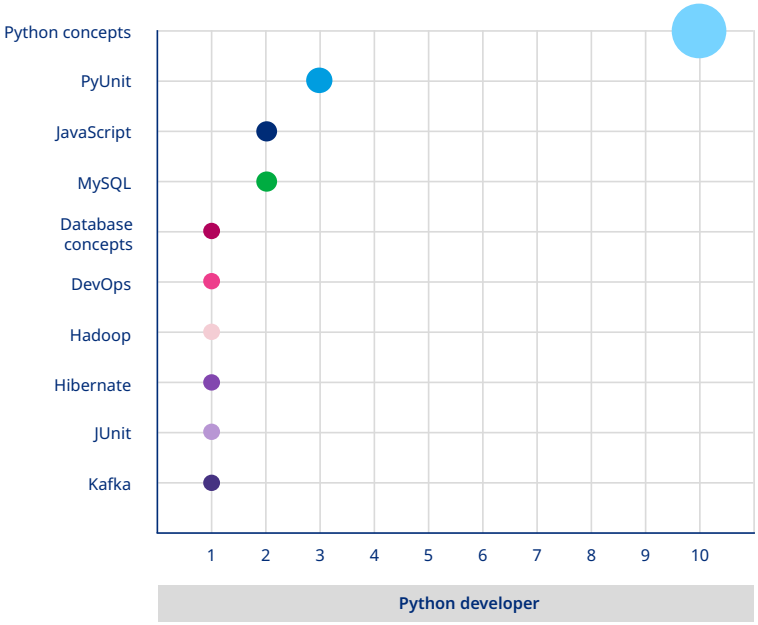
Back-end developer

The Hot Tech Skills Index indicates that back-end developers are expected to be experts in Java, Node.js and various frameworks, as organizations are keen on building dynamic, robust and real-time web applications.



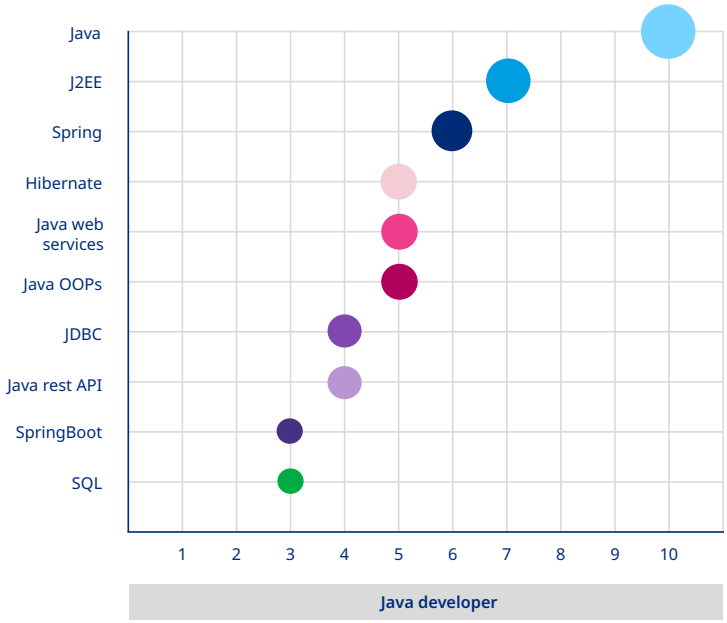
Python developer

Excellent command over Python concepts and frameworks has become a top priority for Python developers. Businesses rely on methods to write efficient and easy to manage code, and newer roles such as data scientists are learning Python to hone their data analysis skills.



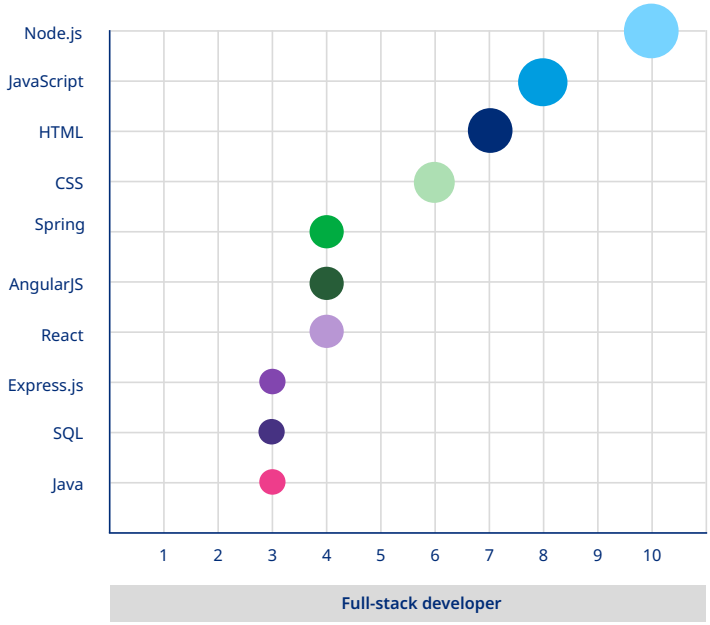
Java developer

Java language is the most in-demand skill proficiency for Java developers. It is one of the most used and leading programming languages that can seamlessly move from one system environment to another. Java frameworks, such as Spring and Hibernate, are gaining unprecedented traction.



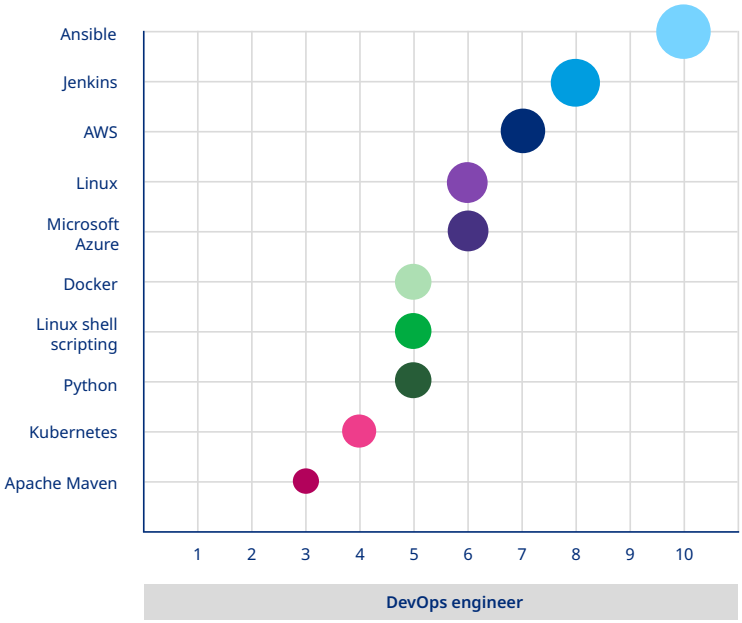
Full-stack developer

These highly-regarded professionals are expected to be specialists with diverse knowledge and skillsets, such as skills in back-end (Node.JS, Java), front-end (JavaScript, HTML, CSS) and database (SQL, MongoDB).



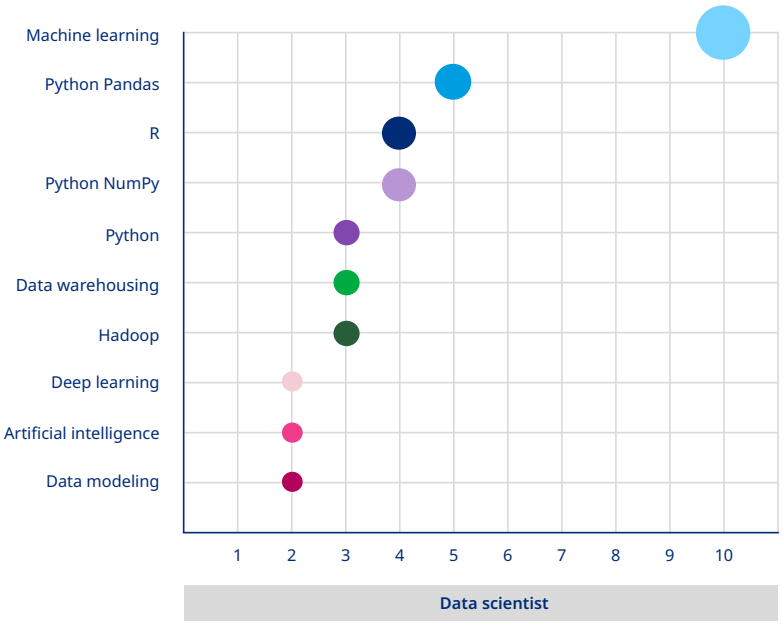
DevOps engineer

Digital transformation is making giant strides, making businesses lean toward automation of operations and cloud-based platforms, resulting in demand for expertise in Ansible, Jenkins and AWS.



Data scientist

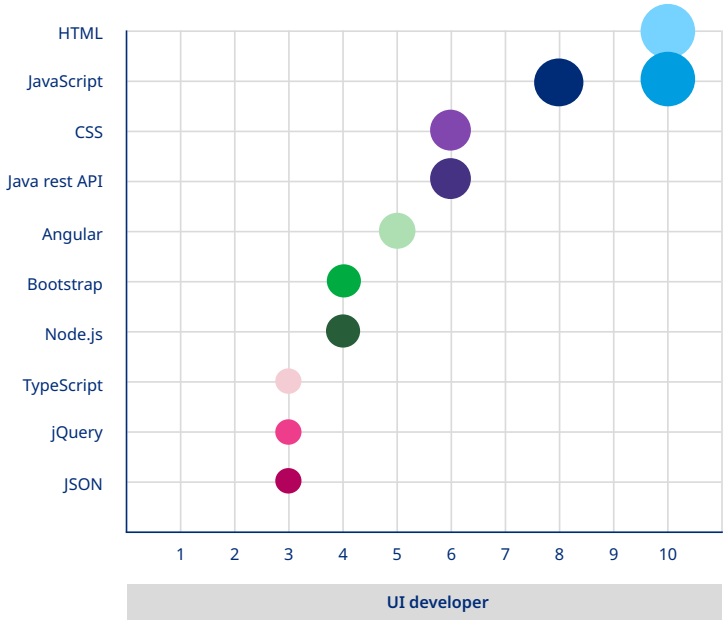
Data is one of the most valuable assets for businesses across all sectors. Therefore, data scientists must demonstrate established proficiency in Machine Learning, Python, R and Data Warehousing.



UI developer

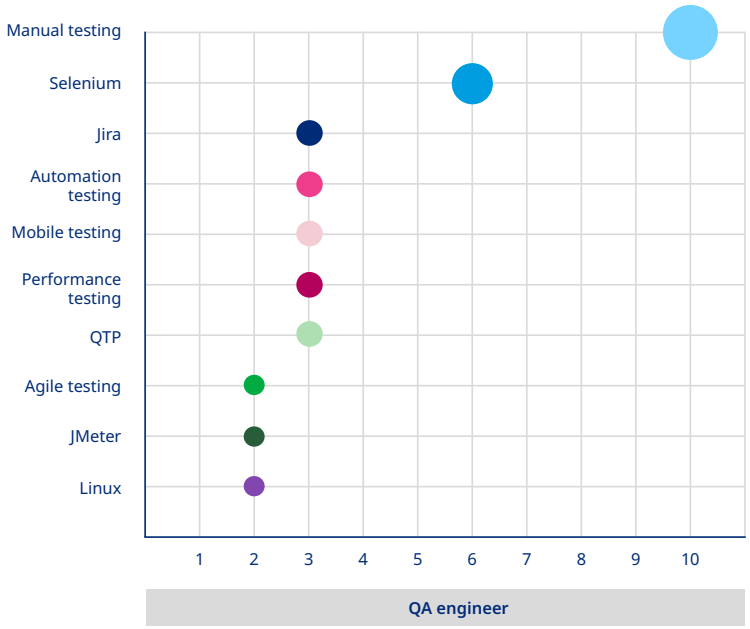
App-based or web-based businesses are centered on customer and user experience. Therefore, UI/UX has a huge demand in the future, and companies are perpetually improving the consumer experience.

Thus, UI developers are expected to exhibit proficiency in HTML, JavaScript, CSS and their frameworks.



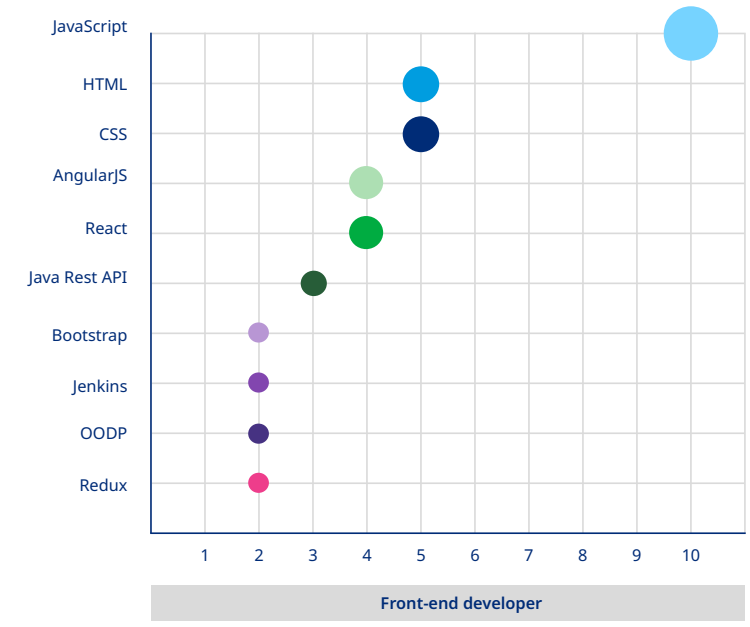
QA engineer

UX has become the most important aspect for companies as it massively impacts customer acquisition and, more so, retention. Therefore, most software application development companies hire QA engineers to amplify their software testing. Thus, businesses are increasingly stressing the need for Software Testing, Selenium Jira, and Automation Testing, among other skills.



Front-end developer

A surge in web-based and app-based businesses has driven the demand for front-end developers. As a result, a strong command over coding languages, such as HTML, CSS, and JavaScript, and their frameworks, has become the foremost priority for implementing web designs.



Skills trend analysis 2019 to 2021

This trend analysis is based on the Hotness Index Score of major front-end and back-end skills from 2019-2021.

Data suggests that skills that have grown between 2019-21 are expected to grow in 2022, too, unless impacted by environmental factors.

Front-end skills

The table below indicates that JS, HTML and CSS continue to lead the charts. However, Angular and jQuery have continually claimed the fourth and fifth rank, respectively.

React and Bootstrap have shown more than 50% increase in their Hotness Score, starting from 2020 and have claimed the sixth and eighth position, respectively.

Skills	2019	2020	2021
JavaScript	1	1	1
HTML	2	2	3
CSS	3	3	2
AngularJS	4	4	4
jQuery	5	5	5
React	6	6	6
JSON	7	7	7
Bootstrap	8	8	8
TypeScript	10	10	10
XML	9	10	9

Back-end skills

REST APIs, Spring and Hibernate have shown a significant increase in their rank since the beginning of 2020. Python has seen the highest jump and has claimed the second position in 2021.

The table below affirms that Java, C# and .NET frameworks continue to lead the charts.

Skills	2019	2020	2021
Java	1	1	1
.NET Framework	2	2	3
Java Web Services	3	5	8
C#	4	6	4
REST APIs	5	3	5
Python	6	4	2
Spring	7	7	6
J2EE	8	8	9
Hibernate	9	9	7
C/C++	10	10	10
Node.js	11	11	11
PHP	12	12	12

Technology hiring makeover

Technology and related hiring are intertwined; as the former evolves, so does the latter. It is now shaping into a comprehensive model, embracing diversity, remote work and gig tech workforces.

For many organizations, the most important lesson of the last two years has been that a genuinely transformative change is necessary. Businesses are continuing to harness a newfound openness to flexibility, agility and innovative thinking, as the focus now shifts from merely attempting to survive in a changing world to thrive in it.

This changed outlook further pushes the tech world to open its doors to a new set of drivers of digital transformation.

Diversity in technology

Enterprises are encouraging diversity hiring in their tech teams to build more equitable and inclusive workplaces. The technology sector is leading the way in building workplaces with strong equity values -this trend is expected to continue in 2022 and beyond.

Universalizing remote work

The COVID-19 pandemic lingers, causing considerable uncertainties, and is likely to remain in some form or the other for the foreseeable future. However, companies and employees have made the most of remote working opportunities, thanks to augmented IT infrastructure in the past three years. Thus, many organizations have recalibrated their approach, adopting a cloud-based mechanism to ensure business continuity using a remote workforce. This trend is expected to continue in 2022 and beyond as more organizations take the WFH route.

Fifty-one percent of all knowledge workers worldwide are expected to be working remotely by the end of 2021, up from 27% of knowledge workers in 2019. By 2024, at least 40% of all remote access usage will be served predominantly by zero trust network access (ZTNA), up from less than 5% at the end of 2020. While most of these organizations will not completely retire all their client-facing VPN services, ZTNA will become the primary replacement technology.

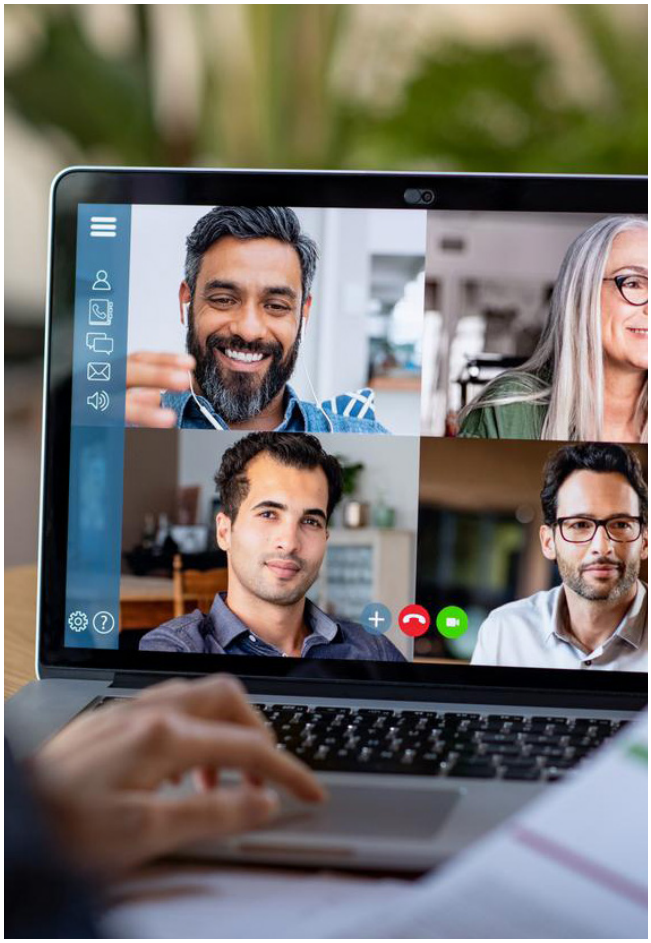
- Gartner, Inc.

Workforce on-call:

The pandemic has reduced companies' budgets, leading to extensive hiring of temporary staff and workplaces. Industry experts suggest that the trend of hiring the gig workforce will continue.

> **A report by BetterPlace, a blue-collar lifecycle management firm, suggests that the gig workforce in 2021 has likely increased by 175% compared to 2020.**

This changed outlook further pushes the tech world to open its doors to a new set of drivers of digital transformation.



Conclusion

reimagining the **future**

Technology has firmly embedded itself into the foundation of the global economy.

Technology companies catalyze technology-related changes across sectors and industries. Ground-breaking innovations are altering business models, connecting people with services, requiring entire industries to reimagine their futures.

Now, the pieces are in place to drive tech-fueled innovations and advancement, unlike anything we have seen before. Mercer | Mettl's **Hot Skills Index** and **In-demand Scores** outline the tech trends that will likely transform businesses in 2022 and beyond.

About us

At Mercer | Mettl, our mission is to enable organizations to make better people decisions across two key areas: acquisition and development. Since our inception in 2010, we have partnered with more than 4,000 corporates, 31 sector skills councils/government departments and 15+ educational institutions across more than 90 countries.

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