PLURALSIGHT

2024

Tech Forecast

The top tech trends, tools, and skills to know in 2024

Our 2024 tech trends and predictions

In 2023, generative AI exploded onto the scene. And while its momentum is only growing, it isn't the only tech trend to look out for in 2024.
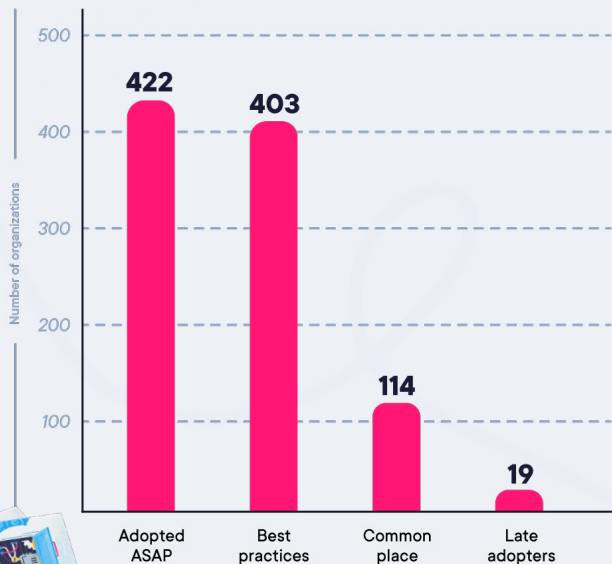
Navigating the constantly changing tech landscape requires an acrobat's precision. If you don't want to fall behind, you need to strike a balance between managing existing challenges and learning the latest trends.

We spoke to the experts and surveyed over 3,000 executives and technologists to uncover the top tech trends, tools, and skills you need to know to get ahead.
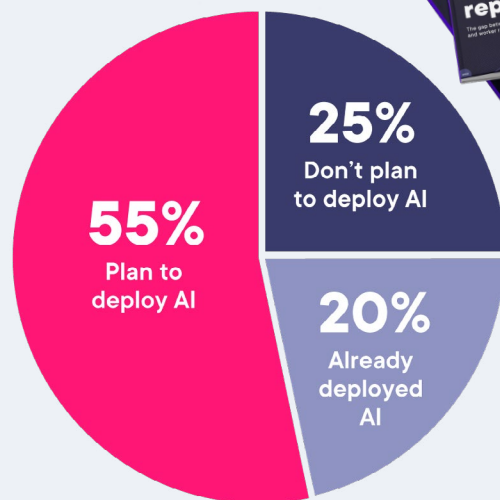
Organizations will continue to adopt cloud and AI technologies but struggle to drive value

Our 2023 State of Cloud report found that 70% of organizations have more than half of their infrastructure in the cloud. And according to our AI skills report, 20% of organizations have formally deployed AI-related technologies and tools, and 55% plan to soon.

Orgs rapidly adopting cloud technologies

Number of organizations

- Adopted ASAP: 422
- Best practices: 403
- Common place: 114
- Late adopters: 19

Are organizations deploying AI technologies?

- 55% Plan to deploy AI
- 25% Don't plan to deploy AI
- 20% Already deployed AI

AI skills report

Despite the prevalence of these technologies, more than 70% of organizations struggle to drive customer value with the cloud. And the same will be true for AI if organizations implement it without proper planning. To succeed in 2024, organizations will need tech, business, and upskilling strategies driven by customer needs.

> "Have a strategic plan that is focused on customer outcomes. The strategic plan should be the 'North Star' for technical decisions (like which cloud platform to use). A key part of that strategic plan should include a comprehensive plan for upskilling the organization."

Drew Firment
Chief Cloud Strategist

Organizations will start thinking about sustainability

The GPU-intensive workloads of cloud, AI, and ML services have added to environmental and cost concerns. To become more lean and improve sustainability, organizations will begin to focus on frugal architecture and building cost-effective AWS, Azure, and GCP cloud architectures.

> "While AI and machine learning are likely to advance, there will be a refocus on building the fundamentals correctly (e.g. frugal architecture) to avoid runaway spend and disappointing ROIs."

Drew Firment
Chief Cloud Strategist

> "As businesses begin to scale their own use of AI models, they'll be forced to reckon with the cost of training large amounts of data as well."

Dr. Cat Hicks
VP of Research Insights,
Developer/Flow

AI will accelerate existing security threats and introduce new risks

In 2024, more threat actors will use criminal deep fakes to gain access to systems. Organizations will need to create processes to detect deep fakes, authenticate them, and use digital watermarks that identify deep fakes they create. People will need to shift their mindset and understand they can't trust everything they see.

AI also enables threat actors to create more sophisticated malware and gain initial access more effectively. Defenders will need to learn these post-initial access attacks and understand how they work. If teams learn how to use AI from a defensive perspective, they can stop threat actors from using AI-assisted attacks.

> "We can't base our defenses on the current technology in a space that is advancing at the pace we see in AI."
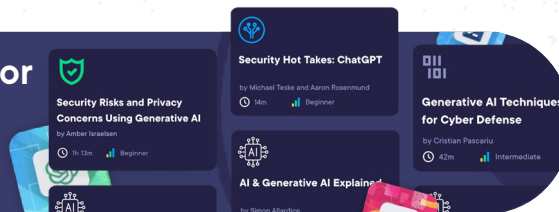
Aaron Rosenmund
Senior Director of Content Strategy and Curriculum

Explore generative AI for security professionals

[View learning path]

Security Risks and Privacy Concerns Using Generative AI
by Amber Israelsen
1h 13m · Beginner

Security Hot Takes: ChatGPT
by Michael Teske and Aaron Rosenmund
14m · Beginner

Generative AI Techniques for Cyber Defense
by Cristian Pascariu
42m · Intermediate

AI & Generative AI Explained
by Simon Allardice

Cloud security will remain a top challenge

Cloud security has been the number one challenge leaders face and their biggest skills gap for the past two years. Despite this, less than half of leaders say they've established comprehensive cloud security practices. Organizations will need cloud-specific policies, organization-wide security experience, and hands-on experience in Azure, GCP, and AWS to overcome this challenge in 2024.

> "The most common cloud security faults with data breaches include unrestricted outbound access, neglected cloud infrastructure, and disabled logging—issues that can be remediated with increased investment in cloud security training for both developers and operations."
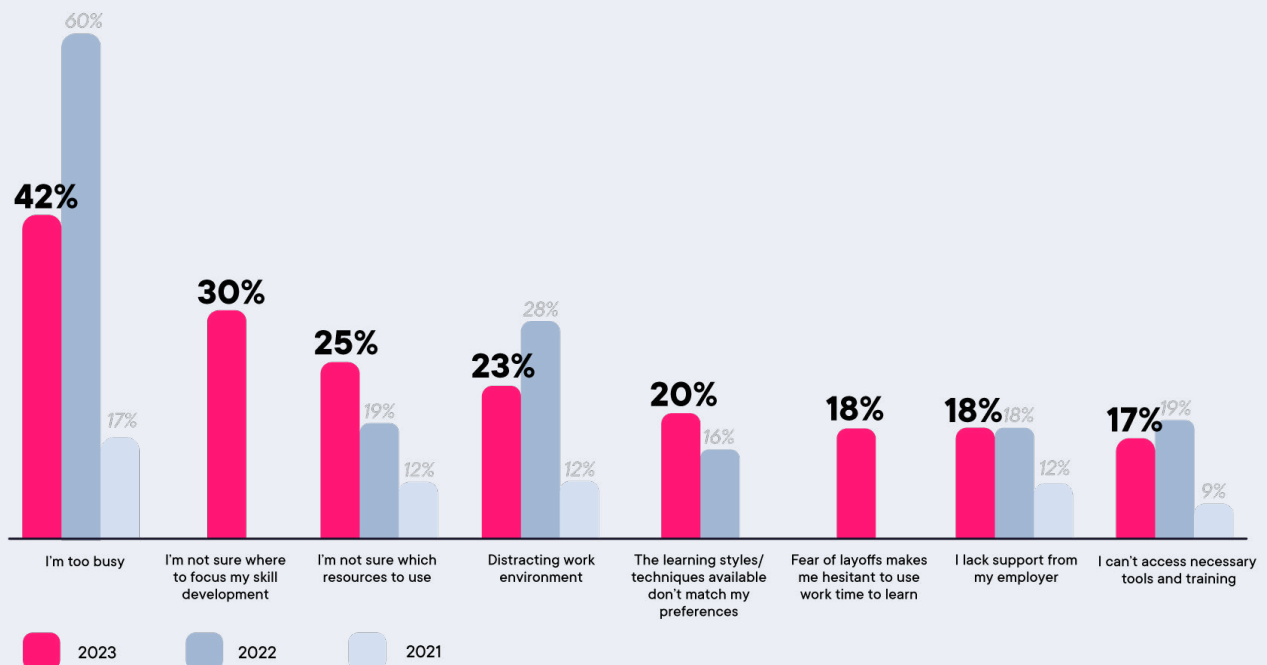
Drew Firment
Chief Cloud Strategist

AI will change the way people learn new skills

Our 2023 State of Upskilling report found that lack of time and direction were the biggest barriers to upskilling for technologists.

Technologist barriers to upskilling

	I'm too busy	I'm not sure where to focus my skill development	I'm not sure which resources to use	Distracting work environment	The learning styles/ techniques available don't match my preferences	Fear of layoffs makes me hesitant to use work time to learn	I lack support from my employer	I can't access necessary tools and training
2023	42%	30%	25%	23%	20%	18%	18%	17%
2022	60%		19%	28%	16%		18%	19%
2021	17%		12%	12%			12%	9%

These challenges, combined with AI, will change the learning landscape, and organizations will need the right resources to create effective upskilling programs for their teams.

- **Personalization:** Generative AI will create custom learning paths based on someone's existing skills or their career goals.
- **Bite-sized learning:** Technologists will prefer bite-sized content over long-form, traditional learning.
- **Chatbots:** People will turn to chatbots for answers instead of search engines.

AI plus will be the next tech boom

In 2024, AI will expand into other domains and lead to more niche AI skill sets. However, to make the most of AI—or any technology—orgs and individuals will need to prioritize upskilling.

> "In 2024, I see the next big skills movement being what I call 'AI plus.' AI plus cloud, AI plus security, AI plus data science. All of these existing foundational tech skills can be enhanced and streamlined through effective applications of AI."

Aaron Skonnard
CEO and Co-founder

Learn how to develop an AI strategy for your org

View course

Developing an Artificial Intelligence Strategy for Your Organization

by Jamie Maguire

Our recommendations: How to tackle the trends

Whether you're an org leader or an individual learner, you need a plan to tackle these trends and succeed in 2024 and beyond. Here are our recommendations.

Invest in learning new skills

If you want to innovate with the latest tech, you need the skills to use it. Our biggest recommendation for 2024? Commit to learning new skills and strengthening existing ones.

Pursue AI skills

Our 2023 AI skills report found that 81% of IT professionals are confident they can integrate AI into their roles right now, and 96% say staying up-to-date on AI skills is the best way to ensure their job security. But only 12% have significant AI experience.

Organizations and individuals alike will need to boost their AI skills and gain hands-on experience. For non-technical people, this means experimenting with generative AI tools like ChatGPT, Bard, Bing, and Claude, learning prompt engineering, and using critical thinking to analyze outputs for relevance and accuracy.

Engineers should do the same, plus understand how to use these tools' underlying APIs. Developers also need to get experience with AI augmentation tools, whether that's GitHub Copilot, Tabnine, or one of the generative AI chatbots. And as developers use AI to automate code production, they'll need the skills to evaluate code quality and test other options.

> "Using AI as a supplemental tool in software development is just going to be part of the landscape now. If your organization doesn't allow it, then do it on your own home machine."

Simon Allardice
Creative Director
and Principal Author

Build AI skills for any role

Developing Generative AI Applications with Python and Open AI

by Xavier Morera

OpenAI: Prompt Engineering for IT Administrators

by Tim Warner

43m · Beginner

The Data Sessions: Generating High-Quality Data with Prompt Engineering for Data Scientists

by Dan Anderegg

The Data Sessions: Prompt Engineering for Marketing Professionals

by Dan Appleman

Boost data skills

To use and build with AI/ML effectively, teams need data skills, including how to:

- Clean and transform data
- Recognize when data is flawed, biased, missing, or incomplete
- Select an algorithm, train and evaluate models, and visualize data

Looking for more specifics?

- Get familiar with SQL and NoSQL database design
- Learn big data analytics tools like Apache Spark, Databricks, and Tableau
- Explore libraries like TensorFlow and PyTorch that are used for building and training machine learning models

Learn Python—and other programming languages

As tech changes, software development does, too. This year, technologists should focus on strengthening their programming language skills. The top language experts recommend learning (if you haven't already)? Python.

> "Python is easy to start learning, there's no annoying curly brackets to worry about, and it can be used for lots of different use cases including backend web development, automation, data science, and AI/ML."

Faye Ellis
Principal Training Architect

According to search data and Skill IQs from our Pluralsight Skills platform, Python is also one of the most popular programming languages, among Java, JavaScript, and C#. Just remember: The language you learn isn't as important as what you do with it.
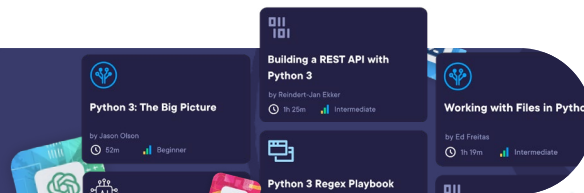
> "For me, it's much less about the language, and more about your ability to recognize what options are available to you in the platform and language you're already comfortable with."

Simon Allardice
Creative Director
and Principal Author

Build and boost your Python skills

(View learning path)

Python 3: The Big Picture
by Jason Olson
52m · Beginner

Building a REST API with Python 3
by Reindert-Jan Ekker
1h 25m · Intermediate

Python 3 Regex Playbook

Working with Files in Python
by Ed Freitas
1h 19m · Intermediate

Build up foundational technical and soft skills

No tech exists in a silo. Cybersecurity and AI, for example, are built on other skills and domains. Prioritize learning foundational skills (and earning the certifications to prove it) to adapt to the latest trends, learn new skills, and use emerging tools faster than everyone else.

- Cloud computing concepts, services, and architectures
- Data science and data analytics
- Proficiency in at least one programming language
- Cybersecurity, DevOps, and DevSecOps best practices
- Technical writing for communication and prompt engineering

The soft skills that set you apart from machines will also become increasingly important.

- Agility and change management
- Complex problem solving
- Creativity
- Critical thinking and observation
- Empathy
- Lifelong learning

"With AI becoming more prevalent, we will value humans who act like humans."

Amber Israelsen
Pluralsight Author

Develop the soft skills you need to succeed in today's workplace.

View learning path

Developing Soft Skills for Today's Workplace

43m · Beginner

Move towards cloud and AI maturity with proactive strategies

In 2024, organizations will need a strategy to mature in cloud and AI and drive lasting value with them.

- Define business goals and problems you want to solve with the technology
- Establish clear metrics for success and understand your infrastructure constraints
- [For AI] Prepare your data, identify the right model for your use case, and, if needed, train it
- Invest in upskilling and create a learning culture
- Establish governance and oversight for responsible tech use
- Start with small projects, gather feedback, and iterate as you go

Conclusion: Learning unlocks lasting success

In a time when AI is changing the way we do, well, everything, it's learning and human intelligence that will allow us to build faster and smarter with emerging technologies.

Build the skills you and your teams need to thrive in 2024 and beyond.

Learn more at Pluralsight