

# IT CAREER PATHS:

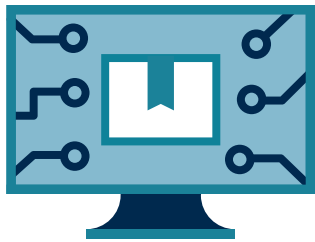
How to Elevate  
Your IT Career

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# Introduction

The IT field is shifting, and for motivated IT professionals, that means one thing: opportunity. [The International Data Corporation \(IDC\)](#) predicts that digital products and services will account for more than half of the global GDP in 2023.



Digital products and services will account for more than half of global GDP in 2023.

That's a big prediction for an already gigantic market, and it also means that the digital economy will change.

[Deloitte's "2020 Technology Industry Outlook"](#) predicts an increasing emphasis on cloud adoption (with hybrid and multicloud systems becoming the norm in the coming years), more use of [edge computing](#) (processing data closer to its source, rather than in a centralized location), and more investments in AI.

As the industry grows and changes, so, too, do IT career paths. The [Bureau of Labor Statistics](#) projects that employment in computer and information technology occupations will grow by 12 percent by 2028, adding 546,200 new jobs. That job growth will be driven by leading-edge technology sectors like cloud computing, big data, and cybersecurity.

With the right education and know-how, IT professionals can break into the industry in roles that are right for them and move up the ladder into management. Here's how you can land the IT job of your dreams.

# Understanding the IT Industry

If you work in the industry, you know that getting a job in IT isn't difficult.



IT is changing fast. [Spiceworks](#) predicted that businesses would triple their adoption of artificial intelligence technologies and double their edge computing capacities by next year. A survey in the same report found that these trends, plus increased security awareness, had inspired 44% of businesses to increase their IT budgets in 2020. And although Spiceworks found IT automation to be the most widely adopted and the most impactful business tech trend, the [Brookings Institution](#) suggested that it may complement and create more job demand than it replaces.

If you work in the industry, you know that getting a job in IT isn't difficult—companies are always looking for help desk agents and technical support. The problem is knowing how to move up from the entry level. It isn't that there aren't better paying and more fulfilling tech jobs available—in fact, there are 17 percent more tech job openings than available workers in the market, [TechRepublic](#) notes. As technology becomes more prevalent, the need for skilled IT professionals becomes even greater; some projections, according to [U.S. Chamber of Commerce Foundation](#), estimate that 5 million positions could go unfilled by 2020, which could sap \$160 billion from the global economy.

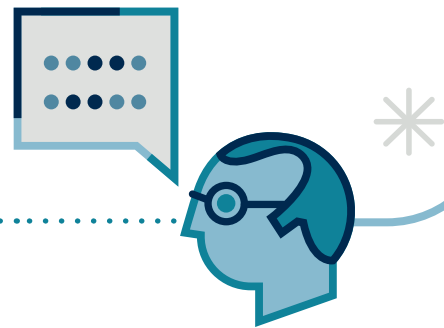
So how can you get one of those better-paying and more fulfilling tech jobs?

# Advancing to the Next Level

The good news is that even if you're starting from the lowest rung of the IT ladder, you've got a head start in your tech career.

"I would say working in the help desk is the best place to start, because you get exposure to all areas of IT," says Ryan Whisler, program chair for the [IT program in Information Technology Management](#) at Western Governors University. "While addressing issues as part of the help desk team, think about what you find most interesting and would be most interested in doing. If, for example, you're intrigued by why some software seems to generate a lot of calls to the help desk and other software generates few support tickets, you might want to ask why this might draw you toward a programming path."

People who like tinkering with operating systems and interconnecting computing devices, Whisler says, might be drawn to network and server support. Others might examine their hobbies—say, building computers, creating apps, or building websites—to see what sort of IT niche appeals to them.



Once you've identified your path, the next step in elevating your career is seeking out advice from mentors.

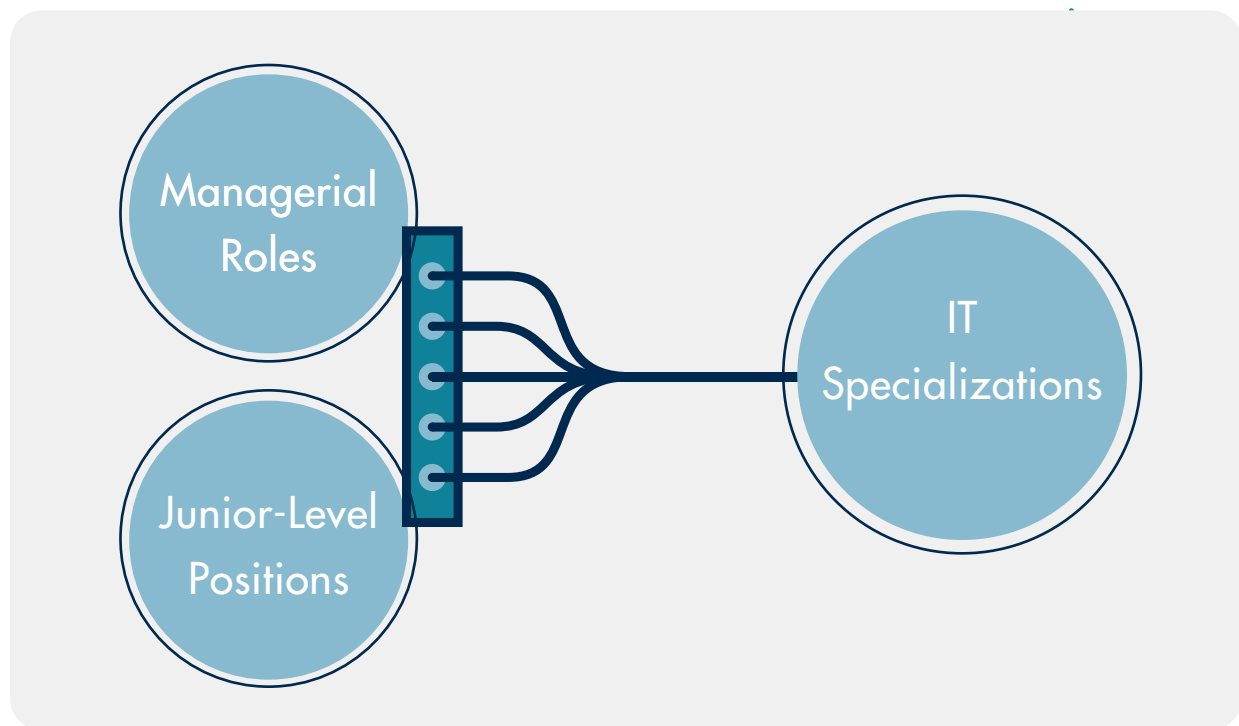
"This may be the most important part," Whisler says. "They should share with their managers and peers what their interests are and solicit advice about the opportunities that exist and how to prepare for them. Often the path you take is influenced by the doors that open, mixed with your passions."

Armed with an idea and some good advice, you can start thinking about the degrees and certifications that can help you build the career you want.

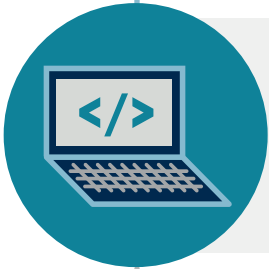
# The Traditional IT Hierarchy

Some IT roles are extremely common and can be found at almost every company. They're the people who keep the computers running, install new software, and patch existing software. Nontechnical professionals might call them the "IT Team."

But IT, like any corporate structure, has a particular hierarchy. Knowing how to navigate it is the key to advancement.



# Junior-Level Positions



## Web and Software Developers

“Developer” is a term that covers a lot of ground. Depending on the context, it could involve software development or database development—or maybe both.



### WHAT DO THEY DO?

Developers generally use their technical skills and creativity to design, build, and maintain applications and programs. Some develop for the web, some develop mobile apps, and some work on more complex or specialized applications.



### HOW MUCH DO THEY MAKE?

Because developers often work as a group, they need to be team players and have good communication skills. They should also be proficient in coding languages such as HTML, C++, Python, and JavaScript. Because they need a unique set of technical and nontechnical skills, developers earn a solid paycheck: according to [PayScale](#), software developers make almost \$71,000 a year, on average.

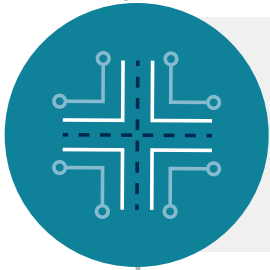


### HOW DO YOU BECOME ONE?

You'll generally need a four-year degree in computer science or IT to land a job as a developer, but some companies are more interested in a developer's experience. Developers are creatives and have often built projects of their own, so with enough experience and a solid portfolio, a new developer might be able to land a high-paying job without an advanced degree.

After working in development for a while, programmers might move to project management; they could also become a software engineer, or they might pursue a specialized field. Many of the areas driving the growth of the IT sector, such as artificial intelligence and cloud computing, need professionals who understand programming languages.

# Junior-Level Positions



## Systems Administrator

Systems administrators—also called sysadmins—manage a company's IT infrastructure.



### WHAT DO THEY DO?

Systems administrators install, configure, and maintain any hardware (e.g., servers or network equipment) and software (e.g., email programs) used by an organization's IT systems and networks. They control access to those systems and networks and make sure they're running smoothly. Systems administrators also add users to networks and assign permissions to various users. They patch servers, run updates, and upgrade tools, too.



### HOW MUCH DO THEY MAKE?

Systems administrators need excellent technical skills with hardware and software, and they need to be able to communicate with their nontechnical peers. In addition, Whisler says, sysadmins need soft skills that allow them to learn and troubleshoot new network issues. They should also be able to coordinate workflows and multitask because they will more than likely be overseeing more than one system or network.

The average system administrator makes \$61,900 a year, according to [PayScale](#). That varies, however, based on experience and location.



# Junior-Level Positions



## HOW DO YOU BECOME ONE?

"Generally, someone works their way up to a systems admin role because their time working in other roles helps them build a skill set and knowledge base that they will need to take on responsibility to maintain a system," Whisler says.

The most important knowledge a sysadmin can have? Knowledge of the platform they are managing.

"If you are managing a Microsoft Exchange email server, then you must have a deep knowledge of that system," Whisler says.

System administrators will likely need a bachelor's degree in a related field, but that often depends on the company. Most organizations, however, require relevant experience and certifications—they'd want someone who works with Microsoft systems to hold a Microsoft Certified Solutions Expert Cloud Platform and Infrastructure certification, for example, or someone who works with Oracle products to have the Oracle Linux System Administrator certification.

So where do systems administrators go from here? They usually become senior system administrators, and sometimes they move into network administration.



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# Managerial Roles

Usually, most junior-level positions graduate up to IT management.



## IT Manager

The IT manager is typically the first step on an administrative track in IT.



### WHAT DO THEY DO?

IT managers supervise their organization's computer infrastructure and oversee the company's IT personnel, and they might also procure software, contact vendors, and assist with the department's budget. IT managers typically monitor company data use, too, and they usually design some of the policies and procedures for company data use. For example, they might decide which devices are granted access to the company network. And if an employee is misusing data or devices, the IT manager will often step in.

The skills an IT manager needs will depend a lot on who they're leading, Whisler says.

"One common thread for all IT managers would be project management skills," he says. "It's important that all IT managers be able to balance responsibilities related to completing projects as well as addressing frequent emergencies, outages, and system performance issues."



### HOW MUCH DO THEY MAKE?

To lead subordinates on IT projects, IT managers need strong managerial and leadership skills on top of strong technical skills. IT managers usually earn close to \$87,600 a year, according to [PayScale](#).

# Managerial Roles



## HOW DO YOU BECOME ONE?

Because IT managers are responsible for a wide range of systems and technologies, companies often look for a candidate with a broad IT background and experience managing people—either as a project manager or as a team lead. Some job postings call for a minimum of 10 years' experience in IT.

This position also requires more education than subordinate roles. IT managers should have at least a bachelor's degree in information technology, computer science, or a similar field. They might also be required to hold specific certifications. If a manager leads a team of programmers, for instance, getting certified in agile development and DevOps is a way to improve career standing. Help desk managers might find IT Support ITIL certification valuable, as it trains you in the fundamentals of the infrastructure library framework.



## Project Manager

Just like the name implies, a project manager manages IT projects, including software development projects and network maintenance initiatives.



## WHAT DO THEY DO?

Because they organize projects, project managers oversee teams' execution of their plans. They also coordinate with different departments to implement a production schedule. Ultimately, it's a project manager's responsibility to complete projects on time and under budget.

This role differs from other IT management roles, because unlike IT managers, who might get distracted by day-to-day operational issues or IT outages or other service issues, project managers spend most of their time directly managing the work of a project.

# Managerial Roles

"It's difficult as an IT manager to go about your day without being involved in discussing a project," Whisler says. "That said, you may or may not be the one directly managing and tracking the budget and timelines. This is where the project manager shines, as they are very focused on managing the project and ideally is not distracted by the non-project surprises that are handled by the IT manager."



## HOW MUCH DO THEY MAKE?

Because they're running a team, project managers need excellent people skills, and they should have some familiarity with the software lifecycle. They'll likely need to be familiar with methodologies such as Agile and DevOps, and, because they're responsible for budgets, they should have some experience with finance.

Project managers typically make just over \$87,600 a year, [PayScale](#) notes, although experienced project managers can make six-figure salaries.



## HOW DO YOU BECOME ONE?

While some project managers land the job right away—usually by being close to a project until it falls into their lap—others might work for a few years as a developer and pursue certification before taking a project manager position.

To stay competitive, however, even accidental project managers need a bachelor's degree—potentially even a master's degree—in a computer science field, and they'll need certifications like the [Certified Associate in Project Management](#) (CAPM) certification and the [Project Management Professional](#) (PMP) certification from the [Project Management Institute](#). The CAPM requires a little less than a year of job experience, while the PMP requires between two and four years on the job.

Where might you go from here? While some project managers become senior project managers, some go on to become leaders or directors of their departments.

# What's Next?



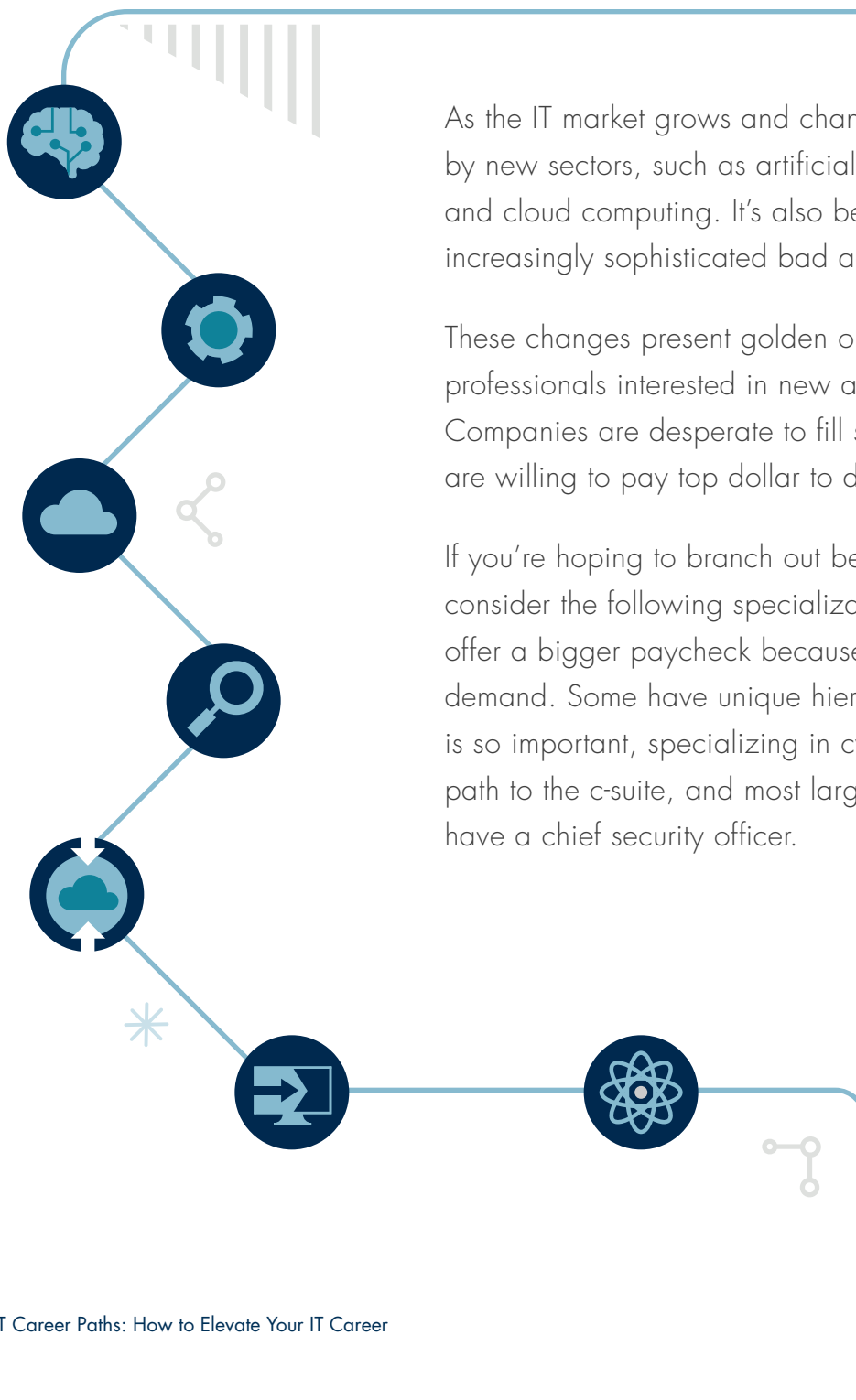
Senior IT staffers usually command salaries north of \$176,000 a year.

Director of IT, vice president of technology, chief information officer, and chief technology officer are four executive senior roles with control of a company's IT organization. They're about as high as you can go in a traditional IT hierarchy. And while these jobs involve managing people, their greater duties involve devising and directing an organization's IT strategies and working with other executives to drive productivity. Senior IT staffers usually command salaries north of \$176,000 a year, according to [PayScale](#).

If you have your sights set on a corner office, you'll certainly need a bachelor's degree in computer science or a related field. You'll also likely need at least a master's degree or some other advanced degree, which will help you develop the technical and leadership skills needed to guide an organization's enterprise technology goals. [Chron](#) notes that while a master's degree isn't usually required for an executive-level job, having one can give you a leg up, as many employers look for higher education when reviewing résumés.



# IT Specializations



As the IT market grows and changes, it's being driven by new sectors, such as artificial intelligence, big data, and cloud computing. It's also being threatened by increasingly sophisticated bad actors.

These changes present golden opportunities for IT professionals interested in new and expanding areas. Companies are desperate to fill specialized roles and are willing to pay top dollar to do it.

If you're hoping to branch out beyond the basic IT roles, consider the following specializations. Many of them offer a bigger paycheck because they're in greater demand. Some have unique hierarchies: because security is so important, specializing in cybersecurity has its own path to the c-suite, and most large organizations now have a chief security officer.

# IT Specializations

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## Specialized Software Developer

To keep up with the rapidly shifting IT landscape, companies are continually looking for IT professionals who can help them build products for emerging fields.

Developers are in an excellent position to specialize because they understand programming languages and the development process. In many cases, all a developer has to do in order to specialize is learn a specific programming language and be curious about new technology.

The following specialized development roles are in demand right now. Here are a few tips on getting into each one.



## ARTIFICIAL INTELLIGENCE

Because organizations are working hard to harness the capabilities of artificial intelligence, Whisler thinks that AI might be the best bet for developers who want to advance their careers quickly. "I feel like it has the most long-term potential and opportunity," he says. "AI would provide you with a more differentiated skillset." Developers interested in working with AI can pull down about \$92,500, on average, according to [Salary.com](https://www.salary.com), but they'll need to know several programming languages, such as Python, Java, C++, and C#. They'll probably need a master's in computer science, too.

# IT Specializations



## CLOUD COMPUTING

Because organizations are moving their operations to the cloud, IT professionals who are able to create cloud-based software are in high demand. Moving to cloud computing means a bigger payday: cloud developers usually make about \$77,000, according to [Glassdoor](#), and cloud engineers make upwards of \$90,000, [PayScale](#) reported. To move into cloud computing, developers should bone up on programming languages—such as Java, AngularJS, C++, Scala, and Python—and be familiar with Amazon Web Services, SQL, Kubernetes, Spark, Apache Hadoop, Apache Kafka, Red Sift, DevOps, Docker, and Linux. A bachelor's degree in cloud and systems administration can teach you the ins and outs of cloud architecture and development.



## EDGE COMPUTING

Edge computing is changing the way that cloud computing works by bringing processing power and storage closer to the end user rather than in a central location. Because it's a new discipline, edge computing is in need of developers, and [Paysa](#) reports that edge computing specialists make nearly \$124,000 a year, on average. You'll typically need a bachelor's degree in IT or computer science and knowledge of open-source technologies, such as Docker, Linux, and Horizon, to become an edge computing specialist.



# IT Specializations



## Data Specialist

Thanks to big data, data analysts, data scientists, and other data workers are in high demand. [LinkedIn](#) reports a shortage of more than 150,000 data workers across all industries, and [TechRepublic](#) recently called data scientist the most promising job of the year.

While data science is extremely marketable and in high demand, getting into the field requires more education than many IT roles. Most jobs require at least a bachelor's degree in a data-related discipline; some require a master's degree. Data workers—even those who come from a technical background and have excellent skills in databases and SQL—will need a degree in data science. Common data jobs include:



### DATA ANALYST

Data analysts make sense of big data. They use data to answer queries and manage databases and other database tools. They should know how to use tools, platforms, and languages such as SQL, SharePoint, Tableau, and Microsoft Excel. (Excel might seem like a basic program next to SQL, but spreadsheets are an important tool for analysts.) The average data analyst makes about \$60,000 a year, according to [PayScale](#).



### DATA SCIENTIST

Data scientists analyze data, too, but they also design the algorithms and the data modeling processes that generate data. According to [PayScale](#), the average data scientist's salary is around \$96,000.

# IT Specializations



## Cybersecurity Professional

Because of rising cyberattacks, hacks, and data breaches, cybersecurity professionals are in record demand. According to a report from [IBM and the Ponemon Institute](#), the average cost of a data breach is \$3.92 million, so companies are desperate to ensure that their data is safe.

Despite these risks, there's a [cybersecurity talent gap](#): the [Bureau of Labor Statistics](#) projects that information security analyst jobs will grow by 32 percent by 2028, but [CyberSeek](#) reports a critically low supply of qualified cybersecurity workers to take those jobs.

If you already work in IT, you probably have some of the skills you need—such as coding proficiency and basic protection knowledge—to get into cybersecurity. In fact, Whisler says, cybersecurity might be a natural jump for developers, who already have to ensure that their code can't be hacked.

"It wouldn't matter what you are coding—cybersecurity and writing secure code is vital, as it doesn't matter how well it works if it has vulnerabilities," he says.

To specialize in cybersecurity, take stock of your existing skills. Do you know how to test and encrypt software and perform a risk assessment? If so, you're well-positioned to jump from a traditional IT job into security. If not, look into [a degree program in cybersecurity](#) to boost your skills. Growing cybersecurity roles include:

# IT Specializations



## **CYBERSECURITY ANALYST**

Cybersecurity analysts scan IT networks for vulnerabilities and defend against attacks—and offer fixes after one occurs.



## **CYBERSECURITY ENGINEER**

Cybersecurity engineers design and implement solutions to defend a network against attacks. They evaluate current security measures and develop processes and tools to protect data and resources.



## **PENETRATION TESTER**

Penetration testers assess a company's systems and networks to make sure that they're secure—sometimes by running tests and sometimes by attempting a hack themselves.



Jumping to cybersecurity can increase your earning power: the average cybersecurity analyst makes \$75,754, according to [PayScale](#), but specialized cybersecurity roles tend to be higher up the pay scale.

# Elevating Your IT Career

IT is a field filled with opportunity, especially if you're ambitious and interested in learning new things.

Earning a degree can help you move up the ladder quickly—especially if you're moving from a more general position into a specialized or administrative role. Coupled with on-the-job experience, education can help position IT pros for continued success in the field of their choice.

With the right degree, you can leverage your IT experience and move into a new and exciting role. There are many degrees that can help you advance your career.

**Check them out and see what a degree can do for your IT career.**

