Quick Answer: How Do I Become a CTO?

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Initiatives: Digital Innovation and Enablement Function

> CTOs require strong technical skills, along with business acumen, to drive digital transformation and innovation. To achieve credibility and success, CTOs must deliver business value and leverage technology innovation as a critical capability for responding to change and disruption.

Quick Answer

How do I become a CTO?

- Decide what kind of CTO you want to become.

- Build your business and behavioral skills, and grow your technical expertise.

- Gain more experience in technology innovation and software/product engineering.

- Adopt a strategic mindset to leverage technology to respond to disruption.

More Detail

Decide What Kind of CTO You Want to Become

The CTO is usually a senior technology leader role, requiring more than 10 years' experience in the IT industry. The role is broad and complex in its responsibilities. CTOs are required to leverage emerging technologies to drive optimization, transformation and innovation in IT and/or the business.

> **CTOs are expected to stage a tricky balancing act. They must ensure resilient and adaptable business and IT operations, while seeking opportunities to transform. Such resilience and adaptability require composable underlying technology assets and the application of combinatorial innovation to transform and scale.**

So it's no surprise that CTOs seek to gain experience in a variety of disciplines, in addition to business acumen and management. Often, the CTO is the most senior person accountable for technology in the organization.

Some CTOs have experience in R&D and are also responsible for operational technologies. These CTOs tend to be in industrial manufacturing industries such as automotive, aerospace, pharmaceuticals and consumer products. CTOs are also present in startup companies, where they are responsible for technology products, platforms and supporting infrastructure. We don't address these niche groups in this research.

Gartner identified four CTO personas in end-user organizations: [1]

- **Digital Business Leader** — Accountable for the digital business technology strategy and architecting the required digital platforms.

- **Business Enabler** — Accountable for optimizing technology to support the current business operations and business model.

- **IT Innovator** — Accountable for leading technology innovation and transformation in IT.

- **COO of IT** — Accountable for running daily IT operations to support the current business model.

It is common for CTOs to juggle two personas, especially in midsize organizations that don't assign a single technology leader to each set of responsibilities represented by each persona.

Most CTOs are responsible for the following activities:

- Developing the enterprise technology strategy and roadmaps

- Leading technology innovation and using emerging technologies to transform either IT or the business

- Optimizing IT operations and modernizing infrastructure

- Optimizing business operations and improving digital products

- Leading digital business transformation, creating new business models and products

- Implementing AI technologies

- Driving technology sustainability

- Managing the CTO organization, including talent management and external partnerships

With such a complex set of responsibilities, CTOs often find it hard to define the value they bring to the organization. However, it is critical to do so if they are to build credibility in the role. To succeed in the role, CTOs should identify stakeholder expectations, especially the value they get from technology and solutions deployed.

CTOs often are measured on goals ranging from operational efficiency and productivity, to product innovation and improving product quality. The right measures are those that ensure stakeholder value is delivered.

Build a Portfolio of Technical, Business and Interpersonal Skills

CTOs are usually responsible for leveraging innovative technologies to drive digital transformation. This requires broad technical expertise in multiple disciplines, [2] including:

- Architecture

- Data and analytics

- I&O

- Program management

- IT security/risk management

- Software engineering

- Product engineering

- Platform engineering [3]

To be considered for a CTO position, you need to demonstrate expertise in applying technologies to business and customer needs, as well as leading teams in the disciplines listed above. You also will be expected to have led major digital transformation initiatives, such as moving legacy applications and infrastructure to the cloud or leveraging AI technologies to provide a more personalized customer experience.

The role of the CTO continues to focus more on technology innovation. As organizations become more digitally mature, the boundaries between business and IT technologies will blur. Those CTOs who aspire to be digital business leaders and drive business model innovation need to be familiar with a broad range of technologies beyond IT. Depending on the industry, these technologies can include the Internet of Things (IoT), blockchain and immersive technologies.

CTOs fail to gain credibility with the rest of the organization if the technology they deliver does not provide business value and fails to meet employee or customer expectations. Successful CTOs focus on building relationships with key business stakeholders so they can ensure the technologies they deploy address business needs and deliver value.

It's critical for anyone aspiring to become a CTO to also invest in building their business and behavioral skills.

Diplomacy is a key behavioral skill, since new technology deployment and innovation initiatives often hit political roadblocks.

A politically savvy CTO finds allies to help them navigate a politically complex landscape. CTOs are also accountable for the enterprise technology strategy. The first step to ensuring that the technology CTOs invest in will meet employee or customer expectations is to align technology strategy with business strategy.

> **The ability to map technologies to the business vision, strategy and roadmaps is a critical skill for any CTO.**

The second step is to gain knowledge of employee and customer behavior, needs and expectations in relation to their use of technology, digital products, apps and websites that the company provides. Understand how to apply techniques such as customer (or employee) journey mapping and social network analysis. Investigate how a decision intelligence capability that leverages business operational data and employee or customer journey analytics can identify painpoints or opportunities to implement better technology solutions.

> **The next step is to have the right set of behavioral skills to help you interpret and manage other people's expectations. These skills include communication, influence, negotiation, diplomacy and emotional dexterity.**

Those CTOs with a broad business network also possess the ability to tap into how CTOs in adjacent industries are applying technologies such as cloud, AI, IoT, blockchain and metaverse. This can save them time as they can learn from others' mistakes. Seek to grow your network and learn how key emerging technologies are being leveraged in other industries. Start by joining Gartner's Peer Community and attending Gartner events as well as other external conferences.

Gain More Experience in Technology Innovation and Software, Product and Platform Engineering

Leading technology innovation is one of the most common responsibilities for CTOs. Given today's environment of volatility, uncertainty, complexity and ambiguity (VUCA), delivering technology innovation is becoming a critical capability for responding to change and perpetual disruption.

There are three actions you can take to gain more experience in technology innovation prior to becoming a CTO:

1. Get involved in trendspotting.

2. Get involved in technology innovation.

3. Build expertise in software, product and platform engineering.

Get involved in trendspotting, or start some trendspotting activities in your organization if none currently exist. You can start by tracking the evolution of emerging technologies like AI, blockchain and metaverse using Gartner's Hype Cycles.

Nontechnological trends covered in Gartner's TAPESTRY framework are also important because they impact strategic planning, innovation and technology investment decisions. Use this methodology to explore political, economic, social/cultural, trust/ethics, regulation and environmental trends to determine how they might affect your organization.

Look for opportunities to get involved in technology innovation. Run a hackathon or technology innovation workshop that explores potential use cases for applying emerging technologies in IT. Extend this to build relationships with business units and identify ways to ensure that technology meets business needs.

Build expertise in software, product and platform engineering. Many CTOs have worked as software engineers and led software engineering teams. Sometimes CTOs spend time working for a software vendor or technology service providers to gain expertise of developing digital products and platforms implementing different innovative technologies for various clients. [4] Recently, we've seen CTOs set up teams focused on building cloud or platforms, platforms serving product teams, or platform engineering teams improving developer experience.

Adopt a More Strategic Mindset to Leverage Technology Innovation to Respond to Disruption

Strategy experience is crucial to success. Those CTOs who've had a highly technical background may struggle to be more strategic in the role, if they retain a tactical mindset. This is another reason why trendspotting is important — it helps paint a broader picture of how both the technology market and your industry are evolving. This can ensure the organization maintains competitive advantage by leveraging current technological and nontechnological trends, or mitigating the risks posed by competitors or new market entrants using emerging technologies to capture a bigger market share.

This is why it's so important for CTOs to build effective partnerships with other CxOs. It helps them to keep in touch with how their peers are interpreting the implications of the organization's business strategy and each CxO is adapting their own function's strategy to align with it. CTOs have the opportunity to help their peers exploit the potential of strategic technologies like industry cloud platforms or generative AI to help other CxOs achieve their strategic goals.

As companies become increasingly digitalized, the technology strategy is the business strategy. However, business strategy is often unclear or poorly communicated and/or documented, which can lead to suboptimal technology investment decisions. CTOs skilled in peer networking and relationship building are better positioned to help people interpret the business strategy and determine what technology is required to deliver it.

> Successful CTOs build effective partnerships with CIOs, CISOs, CDAOs, CEOs, CFOs and COOs. This ensures CTOs have enterprise credibility and, consequently, they are more likely to succeed.

Evidence

Additional research contribution and review was provided by Mohit Rane and Mujtaba Shamim from Gartner's Secondary Research Service team.

[1] How Chief Technology Officers Can Deliver Value by Using Our Four Personas

[2] Gartner analyzed 361 public CTO profiles on LinkedIn. We looked at the roles the individuals held before moving into their current CTO positions. CTOs often have a broad range of experience in multiple disciplines throughout their career, so we first counted how many references there were to a background in IT, strategy, operations, engineering or R&D. Next, we examined how often more specific disciplines, relating to IT, strategy or engineering, were mentioned in LinkedIn profiles.

Our analysis showed that the most frequently mentioned disciplines were:

- IT: architecture, I&O, data and analytics, program management and IT security/risk management

- Strategy: business and/or technology strategy

- Engineering: software engineering, product engineering and platform engineering

[3] Top Strategic Technology Trends for 2024: Platform Engineering

[4] Our analysis found that 31% of CTOs had previously worked for a technology vendor. This included telecommunications companies, software and hardware providers, and technology service providers, such as IBM. This aligns with the origins of the CTO role, with the telecommunications industry one of the industries in which CTOs emerged. They worked on the products that telcos sell to clients in companies such as BT and Vodafone.

Recommended by the Author

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How Chief Technology Officers Can Deliver Value by Using Our Four Personas

Tool: Chief Technology Officer Sample Job Description

Quick Answer: What Interpersonal Skills Do I Need to Become a Successful CTO?

The Chief Technology Officer's First 100 Days

Getting Started With Trendspotting

A CTO's Guide to Build the Right Executive Partnerships

Building CTO Credibility: An Interview With the CTO for the Hospital for Special Surgery

Make Your Strategy More Adaptive for an Uncertain Environment

Case Study: Innovation Ecosystems for Digital Business Transformation (Land O'Lakes)