

What Is a Chief Technology Officer?

Colin Wood | July 29, 2016



Unlike the [chief information officer](#) (CIO), the role of chief technology officer (CTO) does not have a standard definition. Because this role varies so much from one organization to the next, saying the CTO is the person in charge of technology is as specific as one can be without looking at a given organization's structure, mission and history.

Michael Mattmiller in Seattle and Mark Myers in Arkansas, for example, are *called* CTOs, but their roles more closely resemble that of a CIO.

Peter Marx, former CTO of Los Angeles, was more like an innovation chief. Michael DeAngelo, deputy CIO of Washington state, fills a role that probably should be called CTO. So while a general definition is not useful, the role can be better understood through an ontological process.

It is possible to classify CTOs into four categories, as per a 2002 white paper by Tom Berray and Raj Sampath entitled [The Role of the CTO: Four Models for Success](#) (PDF). A CTO may be charged with managing an organization's infrastructure, he may be an idea man, he may be a visionary and operations manager, or he may be an innovation chief. Or, just as often, he may be some combination of the four.

For Boston CIO Jascha Franklin-Hodge, it's of little consequence that there is no standard definition — so long as an organization is putting someone in charge of each of the needed technology functions.

"You need people thinking about operations, you need people thinking about the nuts and bolts, but also the strategic side of that," Franklin-Hodge said. "How do you adapt for changing programs, how do you implement new policies? But then you do need people, in a city at least, who are thinking about technology policy. How do we deal with drones and autonomous vehicles? How do we support whatever kind of technology business environment that we have? How do we think about the digital divide and digital equity and start closing those gaps?"

When Georgia CTO Steve Nichols started in 2002, he said the state didn't even have a job definition for him. That has since been sorted out, evolving several times over the years, but the title stayed the same.

"It can be a deputy role where you're just supporting the CIO in whatever he's doing," Nichols said. "It can be a purely operations role. It could be a deep-thought thinker role where you're just looking at new technologies and that kind of thinking. Each time I got a new boss, there was a different focus. It started out more all of the outward-facing deep-thought stuff. A lot of public speaking, participating as a representative of the agency on panels and that kind of thing. ... It then shifted into more of a deputy role where I started participating more in the running of the agency, and then at some point I was given some operational responsibilities. So now it's really a blend of the three different artifacts."

There's been little effort to standardize the CTO role because there tends to be just one CTO per organization, Nichols said, and if all technology functions are being handled by one person or another, it doesn't matter so much what that person's title is.

"Someone's got to run your operations," he added. "And you've got to have someone who's smart and staying on top of all the new technologies. So at a minimum, you've got to have someone doing those two things."

A classic or traditional CTO, he said, is the person that other people in the organization view as the technology "expert" — the person steering adoption and keeping a lookout for new technology opportunities.

"The CTO's sort of like a chameleon that adapts to the situation," said Utah CTO Dave Fletcher. "There are a variety of state CTOs, but not as many as there are CIOs."

In Utah, Fletcher explained, the CTO's role is to head innovation, look for new adoption opportunities, and oversee enterprise architecture and digital government transformation. In some states and many smaller cities, there's no CTO at all — the CIO will handle those roles or delegate various CTO aspects to underlings.

A common function for the CTO is to make suggestions for new technology avenues that the CIO might consider integrating into the strategic plan and eventually implementing, said Teri Takai, former CIO of Michigan, California and the Department of Defense.

"A chief technology officer may come forward and say, 'I want to move these parts of the organization to the cloud,'" Takai explained. "And it could be the CTO who

shows how they want to run the back end. The chief information officer would take that information and it would be his or her responsibility to look at the relative cost, understand how that was going to impact the organization, look at helping put together a project plan for the timing. The chief information officer's role would be much broader."

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