

CTO

BUSINESS TECHNOLOGY LEADERSHIP | cio.com

FALL 2019

FROM IDG

NEW ROLES CIOs MUST MASTER

If you think technology leaders' jobs have changed a lot over the past few years, just wait. **Here are five new roles all CIOs must take on in the years ahead.** BY DAN TYNAN

HOW TO CREATE
A CULTURE OF
INNOVATION 4

7 WAYS IT LEADERS
DERAIL THEIR
CAREERS 12

REDESIGNING THE
IT OPERATING
MODEL 25



PROUDLY
SPONSORED BY

skillsoft



Build Your Data Science Team from Within



75% of organizations using AI, enhance their customer satisfaction by more than 10%¹



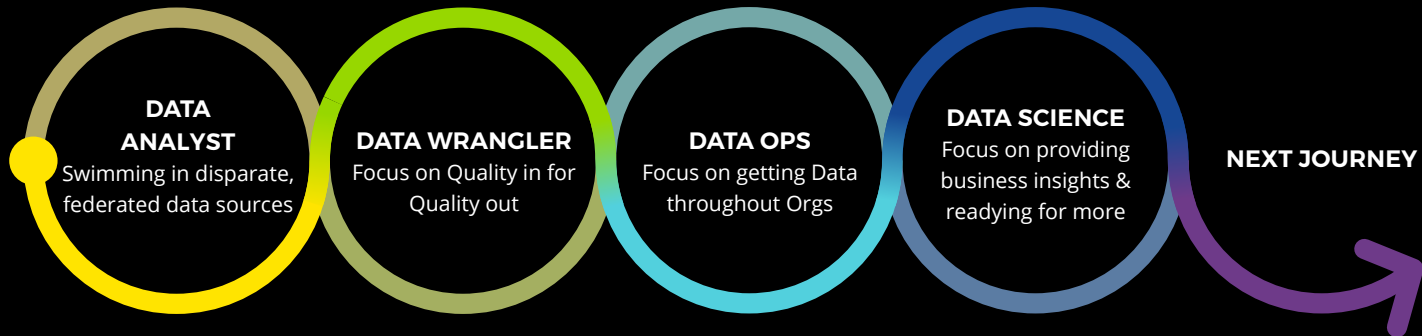
81% of companies admitted they do not understand the data required to inform quality AI²



80% of companies classified their data as inaccessible, untrusted or unanalyzed³

Create a proactive data culture that allows for reimagining and evolving business processes, with a focus on reporting over analytics. Skillsoft Aspire Learning Journeys take roles that commonly exist in organizations today and provide a progressive and prescriptive approach to understanding the roles of tomorrow.

DATA ANALYST TO DATA SCIENTIST



¹ <https://www.infotech.com/research/ss/cio-trend-report-2019/cio-trend-report-2019-become-a-leader-in-the-loop>
² <https://sloanreview.mit.edu/projects/reshaping-business-with-artificial-intelligence>
³ <https://www.kdnuggets.com/2018/07/5-reasons-data-analytics-falling-short.html>



ALSO INSIDE

grow

INNOVATION & BUSINESS VALUE

4 How to create a culture of innovation

8 Ramping up with AI

lead

LEADERSHIP & CAREER GROWTH

12 7 ways IT leaders derail their careers

run

MANAGEMENT & OPERATIONAL EXCELLENCE

22 Boosting the 'clock speed' of IT

25 Redesigning the IT operating model



cover story | IT LEADERSHIP

5 NEW ROLES CIOs MUST MASTER

If you think technology leaders' jobs have changed a lot over the past few years, just wait. Here are five new roles all CIOs must take on in the years ahead. **16**

BY DAN TYNAN

EDITORIAL
EXECUTIVE EDITOR
Amy Bennett
ART DIRECTOR
Terri Haas
SENIOR EDITORS
Peter Sayer, Jason Snyder
SENIOR WRITERS
Clint Boulton, Sharon Florentine
Thor Olavsrud, Sarah White
CIO EVENTS + CIO EXECUTIVE COUNCIL
SVP/GENERAL MANAGER
Adam Dennison
EXECUTIVE DIRECTOR OF CIO PROGRAMS
Maryfran Johnson
INTERNATIONAL DATA GROUP, INC.
CEO
Mohamad Ali
IDG COMMUNICATIONS, INC.
PRESIDENT
Kumaran Ramanathan
U.S. PRESIDENT
Charles Lee
FOUNDER
Patrick J. McGovern
(1937-2014)

FOLLOW US ON ...

Twitter | twitter.com/cio
Facebook | www.facebook.com/cio
LinkedIn | www.linkedin.com/company/cio

CONTACT US

www.cio.com/about/contactus.html

Copyright © 2019 CIO.com. All rights reserved. Reproduction in whole or in part in any form or medium without express written permission of CIO.com is prohibited. CIO and CIO.com and the respective logos are trademarks of International Data Group Inc.

How to create a culture of innovation

Companies are increasingly looking to IT to develop new products and services. Here's how to transform your IT organization into an innovation engine.

BY ESTHER SHEIN

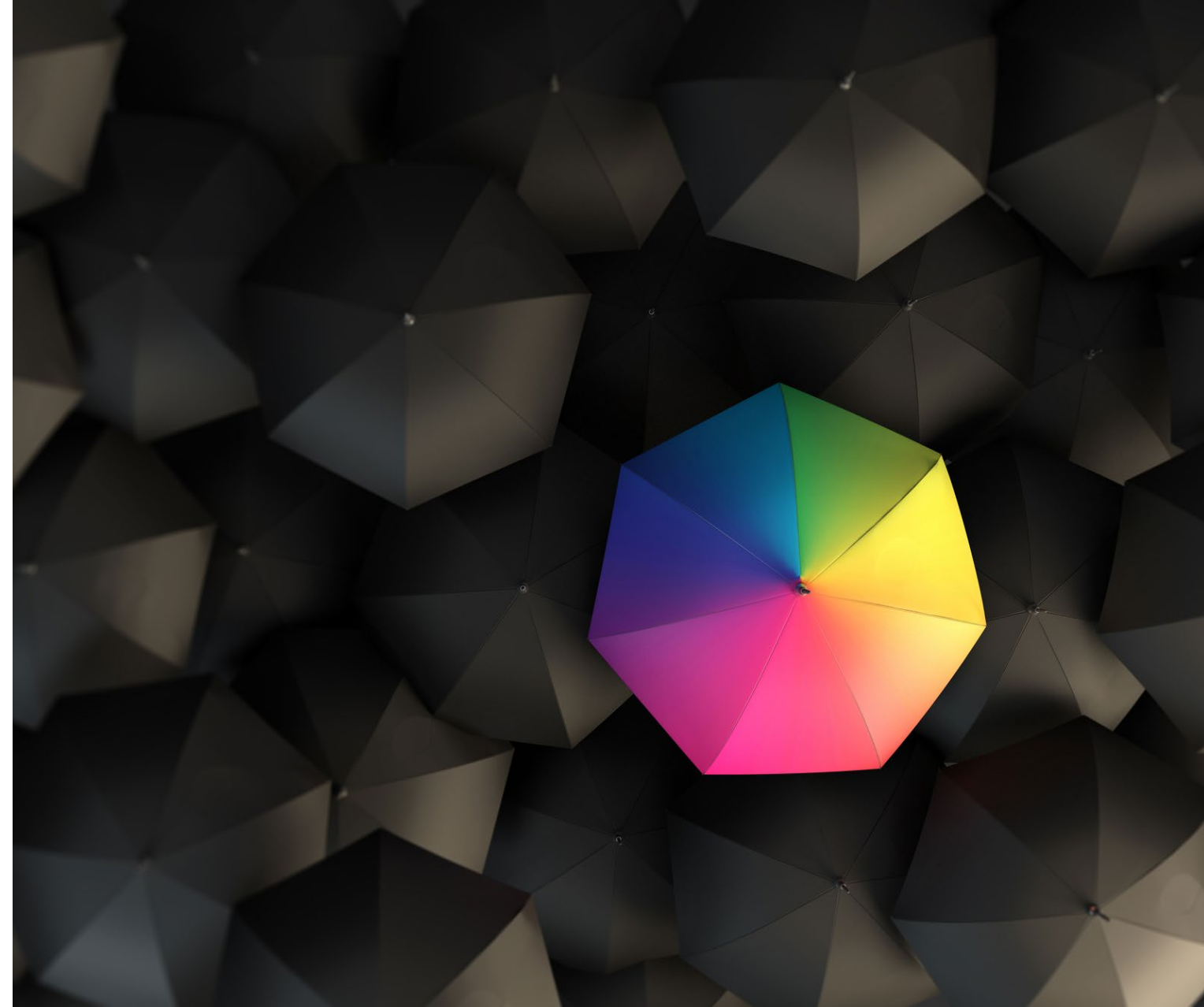
A culture of innovation is not the first description that comes to mind when talking about a 90-year-old domestic manufacturer, but it's something officials at John Matouk & Co. are actively implementing as a key

part of their digital transformation. Matouk's drive to innovate echoes that of many organizations: to stay relevant and compete effectively against more nimble companies, as well as attract and retain talent. While the company prides itself on the quality of its products,

brand experiences and customer relationships, "there's a risk in thinking, 'We've been doing this for almost 100 years and there's an authenticity to our heritage, so people will keep purchasing from us,'" says Stuart Kiely, vice president of digital strategy at Matouk,

which makes fine linens and luxury bedding.

And because he came from a tech background, Kiely knows it's not a good idea to rest on your laurels. "Home textile and luxury linens companies are feeling pressure from digital disruptors and compet-



itors who claim to offer better quality than ours and cut out the middle man and lower costs,” he says.

Why culture change is needed

In today’s highly dynamic business world, a culture of innovation is king. To get there, organizations must move beyond adding digital features to their products and services and instead revamp their business processes — what IDC refers to as DX 2.0, the second phase of digital transformation.

“DX requires a radical rethinking of a business’s strategy and processes, how it interacts with its customers, how it drives operational excellence, how it approaches innovation, and deciding which technologies to use as the foundation,” the firm says.

The need for culture change is driven in equal parts by fear in the C-suite “about how everyone’s going to be disintermediated” and “an appetite for opportunistic

growth,” says James McKeen, co-author of *Driving IT Innovation: A Roadmap for CIOs to Reinvent the Future*, who is also senior vice president and chief technology officer at Empire Life Insurance in Kingston, Ontario.

“The problem has always been: The business says, ‘Show me the money and the business case,’ and IT says, ‘We don’t know the

the business case first with a focus on business optimization and transformation, McKeen says.

Doing so is the first step toward initiating a culture of innovation.

Innovation starts with leadership

If executives and senior leaders lack a mindset to be innovative, it’s likely the rest of the business won’t

helping senior leaders build skill sets to create new things, he says, a process that “doesn’t happen overnight.” But when those leaders begin to see what it takes to be innovative “and really believe it is the path to creating new value, that trickles down to the organization, and the things they invest in go a long way toward bringing the rest of organization on board.”

In today’s highly **dynamic business world**, a culture of **innovation is king**.

business case yet, but we know it’s important and we have to prepare for it,” says Heather Smith, the book’s co-author, who is also a senior research associate at Queen’s University in Kingston, Ontario, and a research associate with the Society for Information Management.

Instead, IT must turn this approach on its head, considering

be open to change.

“When executives aren’t inherently innovative themselves, they’re not going to understand how to be innovative or what will create a culture of innovation because they are low on that learning curve,” says Derek Chin, director of innovation strategy at digital business consultancy Nerdery. Much of Nerdery’s work involves

But it isn’t just senior leadership that can lack that mindset. Often, it’s middle management that doesn’t see the big picture, observes Geoff Woollacott, a senior strategy consultant and principal analyst at Technology Business Research. “They know their task well; they likely are not aware, nor do they care how their task impacts other divisions,” he says.

If that middle management tier doesn't appreciate or comprehend why something needs to be done differently, "then that resistance and noncompliance is sand in the gears of automation."

Grassroots change

McKeen and Smith say implementing a culture of innovation is challenging. You've got the "knee-jerk manager who says, 'OK, we can just mandate that we want you to become innovative,' and that's idiocy," McKeen says.

Instead, the organization must nurture the shift by finding "naturally innovative people" from within and encouraging their ideas, he says. Many times, "these people fly under the radar. So first, to engender a culture of innovation is to not mandate it but go hunting for people naturally gifted in that way," he says. These staff members will then encourage others, starting the company on the path of fostering a culture of innovation.

But most people feel the need for permission to innovate, notes Doug Tedder, principal consultant at Tedder Consulting. "It has to be part of 'business as usual,'" he says, adding that no one is more qualified to identify areas for innovation than people on the front line. "If you want an innovative culture, that culture has to be inclusive."

The innovative mentality

A good way to gauge whether you have a culture of innovation "is when bold ideas are brought to the table, are your people creating an environment of criticism or creation?" says Chin. "Are they shooting down those bold ideas that may be making them feel uncomfortable or are they creating ways of bringing those ideas to market and into the organization?"

Both Chin and McKeen say it's critical to make sure failure is acceptable. It's important to create an atmosphere "where it's OK to fail, because you don't get a success

Instead of **measuring your ROI** on an investment or net profits for a quarter, **focus on progress made**, which might mean measuring whether there was a bump in customer satisfaction.

every time," McKeen says. "You need a culture of experimentation."

"With innovation, recognize that no one's done it before, and if it was a product, it would [already] exist. So you need to be more flexible and patient with ... the development of the ideas," says Chin. "When moving to innovation, it's more about learning, not executing," and business leaders should be measuring on whether progress is being made.

Instead of measuring your ROI on an investment or net profits for a quarter, that might mean measuring whether there was a bump in customer satisfaction, he explains.

Business leaders should also shift their mindset from business first to user first, says Chin. The startups are doing this and are focused on how they can help their users accomplish what they need more quickly for less, he says. But Chin acknowledges that "it can be tough to say, 'I'm going to take a lower margin on something because it's in the best interest of my customers.' But that's where they need to be."

And make sure what you're building is compatible with your foundational roots, he adds. "You can't just copy what Google or Amazon does. You have to find

what works for you.”

Innovation in action

For Matouk’s Kiely, transitioning the company’s core manufacturing and front-office systems to the cloud have helped Matouk “behave like a startup.”

Once you have the right systems framework and the right world view, the third component is allowing employees to make decisions

culture comes “where there is a willingness to try new things and be OK if they don’t work and get scrapped. Unless people feel comfortable taking chances, you won’t have that.”

Kiely says he is passionate about deploying technology that will have a high impact. “Whether or not it’s at a sexy Silicon Valley startup or a 90-year-old textile manufacturer is less important than how much you can be cre-

“If you want an **innovative** culture, that culture has to be **inclusive**.”

— **DOUG TEDDER**, PRINCIPAL CONSULTANT, TEDDER CONSULTING

that are more creative and competitive, he says

But it helps to have a small IT department, he adds, and an atmosphere where people can iterate, put something in production, fine-tune it and keep it moving through processes quickly. Like his counterparts, Kiely says an innovative

ative and put solutions in place where you’re going to see an impact,” he adds.

In the final analysis, McKeen says, “We have to be innovative about being innovative.” ♦

Esther Shein is a frequent contributor to CIO.

SECURITY Smart™

NEWSLETTER

SAFEGUARDING YOUR SECURITY AND PRIVACY AT WORK AND AT HOME

From the editors of CSO, Security Smart is a quarterly newsletter ready for distribution to your employees—saving you precious time on employee education! The compelling content combines personal and organization safety tips, making it applicable to many facets of employees’ lives.

Security Smart has an easy-to-read design and clear, engaging and entertaining articles so you are assured that your intended audience of employees—your organization’s most valuable assets—will read and retain the information. Sign up today to start having this newsletter distributed as a key tool in raising security awareness within your organization.

- **Most security breaches happen due to human error**
- **4 out of every 5 data breaches caused by human error are unintentional**
- **4 out of every 5 security events caused by insiders have a negative impact on their enterprise organization (including loss of confidential information, critical system disruptions, reputational harm, lost customers and more)**



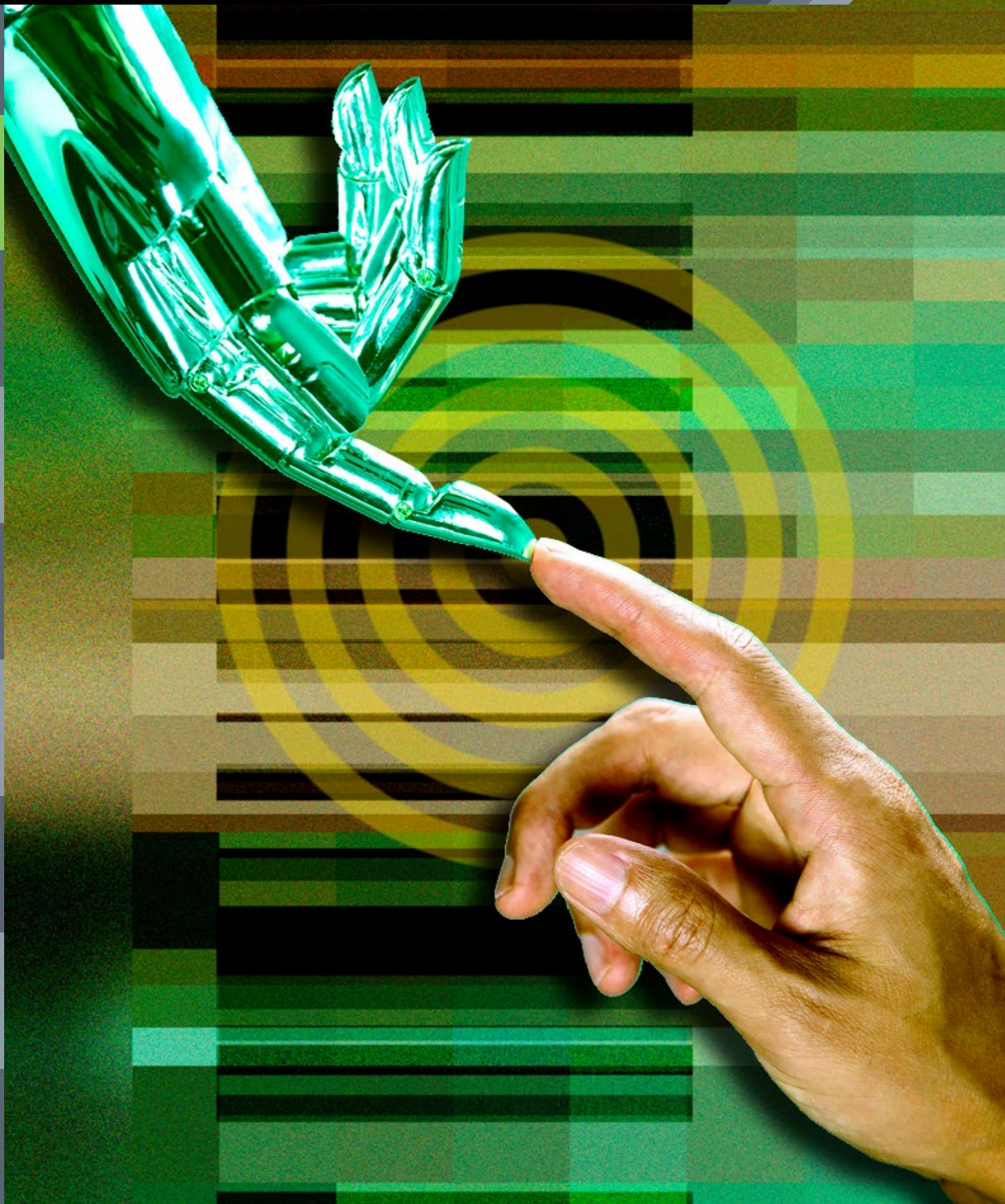
Subscribe today!

To view a sample issue of the newsletter, learn about the delivery options and to subscribe visit:

WWW.SECURITYSMART.COM

CSO
FROM IDG

Security Smart is published by CSO, an IDG Communications, Inc. brand | ©2019 CSO



Ramping up with AI

Start small, mind the data, measure results. Getting these basics right will increase your chances of AI success.

BY MARTHA ROUNDS

Artificial intelligence offers significant potential for driving business value, but not every organization is equipped to make good on the promise of AI.

“AI is a journey that requires both a business transformation and an IT transformation,” says Serge Findling, vice president of research at IDC.

To reduce risk and increase your chances of suc-

cess, CIOs with successful AI projects under their belts advise being methodical in your approach, starting with these three steps.

1 Get the data right

Data is at the core of any successful AI strategy. Inaccurate or unreliable data will derail your AI initiative. Moreover, many organizations don't have enough data to effectively train advanced systems, or the data isn't in a location or form that can be fed into AI projects.

"There's no silver bullet. You have to spend the time doing your homework on the data," says Rajeev Ronanki, chief digital officer of Anthem, an Indianapolis-based health insurer. This includes collecting and aggregating data sets and making sure they're complete, deep and rich enough to feed the algorithms and aren't biased.

"You have to continually curate the data to make sure that it's not leading you down the wrong path," Ronanki explains. "For

example, if we're seeking health-related insights and only have data for a particular demographic or geographic area, it might lead us to false positives if we try to extrapolate and apply it more broadly."

Similarly, TGI Fridays took pains to ensure the right data was driving its first AI effort, says Sherif Mityas, the restaurant chain's chief experience officer. The company suc-

run stores. That included moving systems into the cloud and creating a single data lake. On top of that is a tool that "stitches it all together" for each customer, Mityas says.

"The key to making AI work is to ensure that the data connection is solid, is accurate, but focused. You can fill your data lake with lots of unnecessary data that's not going to help make the outcome better.

one spot and the insights that it provides are pretty extraordinary."

2 Start small

Ronanki says the way to get started with AI is to focus on business value, identify pain points that haven't been addressed by conventional technologies, and then pick a few small, high-value targets. Mityas agrees.

"It is a lot of effort. There's no sugarcoating that, but once you get it right, the benefits of getting the **right data in one spot** and the insights that it provides are **pretty extraordinary.**"

—**SHERIF MITYAS**, CHIEF EXPERIENCE OFFICER, TGI FRIDAYS

cessfully launched AI projects for personalized marketing messages and in-app offers based on past purchases and encounters, as well as conversational bots for social and voice-activated channels and digital assistants to help managers

Through trial and error, you may find some data elements that didn't help, so you eliminate those from the AI feed," Mityas says. "It is a lot of effort. There's no sugarcoating that, but once you get it right, the benefits of getting the right data in

"There's no reward here to eat the elephant in one bite, so get a great, small use case that you can measure and show a great result," advises Mityas. "That will build momentum, not just with your board and your executive team

but also with the organization overall. And you need momentum here, because the organization has to change.”

Choosing the right opportunities is key, says IDC’s Findling. “Some AI technology can be

Opportunities that promise high monetary value may receive the most attention, but they have to be balanced with the effort needed, the speed to deliver, and their potential for reuse and learning in future cases.”

business outcomes (improving efficiency, driving growth and improving the customer experience); the mix of in-house resources versus external resources; and data quality.

Though the stakes are high, the potential rewards can outweigh

“Opportunities that promise high monetary value may receive the most attention, but they have to be balanced with the effort needed, the speed to deliver, and their potential for reuse and learning in future cases.”

— **SERGE FINDLING**, VICE PRESIDENT OF RESEARCH, IDC

operationalized in a few months; using AI to improve legacy environments is typically a longer battle,” he says. “It’s crucial to assess multiple factors for each opportunity. For example, the expected value can be monetary — cost saving and/or revenue generating — or time, quality or learning.

3 Measure results Mityas notes that being able to measure results is the top priority for early AI projects. “You want to look at something that has very tangible metrics attached to it,” he says, the kind of metrics that CEOs notice.

To this end, Ronanki suggests looking at three types of metrics:

the risks — especially if AI can be leveraged to build, enhance and expand the business in measurable ways. ♦

Martha Rounds is research director for IDC’s IT Executive Programs. Contributing author Mitch Betts provided support for this article.

EXECUTIVE VIEWPOINT



Mark Onisk

Chief Content Officer,
Skillsoft

skillsoft tech&dev
www.skillsoft.com

What Smart Companies Are Doing to Keep Top Talent

Enterprise Strategy Group recently reported that more than a third of business and IT leaders face a “problematic shortage” of skills in data analytics, artificial intelligence, IT architecture, and cybersecurity. For many organizations, the only solution is to train their own people in these critical areas. We asked Mark Onisk, Chief Content Officer at Skillsoft, how the best companies are doing this.

Q. How do the skills needs of today’s workforce differ from the past?

A. Traditionally, a technology stack was a de facto career path. Today, you need to be skilled in all sorts of areas. Classroom learning has its place, but learning opportunities should be part of the normal flow of work rather than a “one time event.”

Q. What characterizes firms that hire and retain the best talent?

A. They hire for aptitude and cultural fit because ultimately those are more durable than technical skills. They want people who are motivated to reinvent themselves every two years. They also don’t put the onus of skills development entirely on the employee. They make learning part of the workday and embed learning opportunities within the toolsets and platforms that people use.

Q. How can a company anticipate future skills demands?

A. The cliché that “change is the only thing that’s constant” is a fundamental truth. You need an agile structure that’s in tune with customers and market directions. The worst thing is to align to a particular technology stack or rigid strategy without the analytics and instrumentation to respond agilely. The best organizations continuously gather and analyze data, take action, measure impact, and course-correct.

Q. What reward structures work best with younger employees?

A. They want to know there’s a career path for them and that their employer will invest in their personal and professional development. Yes, there’s a risk that junior employees may leave when they develop skills and add to their credentials, but the greater risk for the business is not having the needed skills and capabilities in place. Leaders need to think of themselves as “servant leaders” who succeed by helping others achieve their own goals.

Q. How can a company make skills development a process rather than a one-time, classroom event?

This is partly a philosophical discussion. It’s interesting that people make time to binge-watch streaming entertainment but choose to micro-learn skills that will fundamentally improve their lives. It should be the other way around. The key is embedding learning opportunities (videos, books, mentoring, labs, etc.) in the platforms that learners use every day. These are where the teachable moments occur and learners will take advantage.

*Learn how to keep your team ahead of the curve with **Skillsoft Aspire**.*



7 ways IT leaders derail their careers

Falling off track is easy when a mistake turns a career superstar into a bit player

BY JOHN EDWARDS

The moment typically arrives without warning: An IT career that showed every sign of success — steady promotions, salary increases, a better office — suddenly slams to a halt. You're fired, demoted or involuntarily plateaued. What happened?

It's impossible to rebuild a broken career without first

understanding how it was derailed. The "Success Express" frequently slips off the rails due to a mistake, oversight, offense or miscalculation made in total innocence or ignorance. Often, the victims don't even realize that they have made a career-crippling move.

Here's a look at seven ways leaders inadvertently derail their careers

and how you can avoid making the same common mistakes.

1 Not looking beyond IT

IT leaders who don't bother to thoroughly understand their industry sector and the business world at large generally fail to gain respect and career traction. "While it's essential to fully understand the technologies needed to support

a business's goals, an IT leader's true value lies in the ability to help grow the business's top line, as well as help manage the bottom line," says Harry Moseley, CIO of Zoom Video Communications, a cloud-based conferencing service provider. When IT leaders are unfamiliar with key industry and business pain points, they often find themselves unable to execute

and deliver an IT strategy that supports the enterprise and its goals.

Moseley notes that it's essential for IT leaders to become familiar with their industry's terminology, processes and practices, as well as key trends and the competitive landscape. "Today's CIOs are expected to understand the art of the possible," he explains. "When they limit their scope to technology alone, they simply cannot do so."

2 Failing to acquire critical non-IT skills

While IT, by nature, is a highly task-oriented profession, climbing up the career ladder requires many non-tech skills, such as planning, budgeting and collaboration. "If a leader fails to expand his or her skill set, he or she will eventually fall prey to the Peter Principle and be promoted to their level of perceived incompetence," says Jeff Atkinson, CIO of INAP, a data center and cloud solutions provider.

Past successes achieved in a

"You enhance your value as a strategic adviser when your market sensing is informed by regular exchanges of ideas with other diverse business leaders."

—CHRIS SOTOMAYOR, SENIOR CONSULTANT, POINT ROAD GROUP

lower-level IT role do not necessarily ensure future victories at enterprise leadership posts. In fact, ill-informed decisions made at a higher level can be career-devastating, ruinous to the point that the blunder could bar future advancement. "Many IT leaders feel that their technical expertise is enough for the job, or they will expand their skills only with regard to technology and fail to learn about other areas ... that will help them lead and not just manage," Atkinson observes.

3 Neglecting business relationships

Without forming strong relationships with fellow business

leaders, inside and outside the organization, an IT leader will be less attuned to the shifting priorities, challenges and developments that impact products and markets. "You enhance your value as a strategic adviser when your market sensing is informed by regular exchanges of ideas with other diverse business leaders," advises Chris Sotomayor, a senior consultant at Point Road Group, a personal branding and career consulting firm. Strong professional relationships and network feedback position an IT leader to influence change proactively. "Otherwise, you risk being perceived as out of touch and too insular," he notes.

Networking is a fundamental pillar of career development. "Professional associations, conferences, alumni meetings, user groups — especially those with diverse participants — are great venues to start making new connections and building relationships," Sotomayor says.

Failing to maintain strong, ongoing relationships with business leaders outside of one's organization increases the risk when seeking a new career opportunity. "With an ever-growing number of reorganizations and mergers, it's foolhardy not to regularly network and keep abreast of external job openings," Sotomayor explains. "If you wait to network until you need

a new job, you'll only prolong your job hunt, making it harder."

4 Becoming pigeonholed as a technical specialist

While essential through the lower levels of career advancement, routine technical skills must eventually be delegated or outsourced. "The best way for an IT director or manager to never become a CIO is to become a technical specialist in a specific domain and never let it go," warns David Glazer, CIO practice lead at Info-Tech Research Group, a technology research and advisory firm.

For decades, IT leaders have griped about not having a seat at the table. "The issue with being overly technical is that you have nothing relevant to say at the table once you get there," Glazer says. "Once you're labeled as *only* a technician, you're relegated to operational tasks and execution, which inhibits career growth and ascension to the C-suite."

Glazer suggests gradually training or hiring qualified individuals to handle the technical responsibilities being incrementally relinquished. It's also helpful to find a current or past IT leader to provide coaching advice or mentorship. "Have them hold you to task on your new strategy," Glazer advises.

5 Failing to embrace change

Enterprises are constantly evolving their direction, goals and IT needs. "Failure to accept and embrace these changes can spell doom for IT leaders," cautions Joe Bailey, operations director at My Trading Skills, an online securities trading education service. Not keeping pace with business and IT evolution is a major career mistake, particularly for individuals with a resume stretching back a decade or more. "Change is good, and for you to remain a leader in IT, you need to roll with the changes as they come," he says.

"Today's CIOs are expected to understand **the art of the possible.**"

—HARRY MOSELEY
CIO, ZOOM VIDEO
COMMUNICATIONS

It's important to recognize that rapid change impacts business and technical functions and practices as well as specific technologies. "People who started in project management 20 years ago and like a waterfall-style project plan and pace now realize that's not what they signed up for," observes Michael Cantor, CIO of Park Place Technologies, a data center maintenance company. "It's hard to get out of that niche, and the individual mindset may also make it tough to transition to something else."

Yet a willingness to accept all forms of change is essential for long-term IT leadership success.

"Learning how to understand and accept changes occurring, as pertains to your specific niche within the IT world, can help you remain at the top," Bailey notes.

6 Falling victim to burnout

Many newly minted IT leaders fail to maintain a healthy work-life balance and therefore run headfirst into burnout after only a few months on the job.

The best way to prevent a counterproductive flame-out is to establish defined workload boundaries and timelines. "Leaders should set 'off' times during evenings, weekends and vacations and honor these windows except for true emergencies," suggests Scott Gibson, senior vice president of human resources for Sungard Availability Services.

While it's tempting for new leaders to want to impress their team and management colleagues with displays of energy and resourcefulness, such over-the-top efforts

typically lead to an opposite outcome. Setting limits that promote strong long-term performance is a far more intelligent and productive way to make a lasting impression. “The leader just needs the courage to establish the rules of engagement knowing that, in the long run, they will be more engaged during the ‘on’ times,” Gibson says.

IT leaders must also learn to delegate less critical tasks to their team. “Without this support structure, leaders feel a constant pressure to be the only person to make decisions, which is a recipe for disaster in the long term,” Gibson notes.

7 Disregarding customer service responsibilities

Many novice leaders, focused on key technical and business issues, find it easy to forget or ignore their job’s customer service aspect. “If an IT leader never puts himself or herself into their customers’ shoes to empathize with their needs, they’re going to be short-term lead-

“No one wants to work with someone who’s going to **hide behind process** and not work on a personal level.”

—**MICHAEL CANTOR**, CIO,
PARK PLACE TECHNOLOGIES

ers everywhere they go,” Cantor says. It’s important to get beyond the ticket interface. “Visit end users, work with them and understand what inhibits their work every day,” he advises.

Neglecting customer service often leads to short-term employment, Cantor says. “No one wants to work with someone who’s going to hide behind process and not work on a personal level.” ♦

John Edwards is a frequent contributor to CIO.

CIO LEADERSHIP LIVE

Catch the Conversation!

WATCH, LISTEN AND LEARN as CIOs from around the country talk one-on-one about business strategy, tech innovation, IT leadership, digital transformation and more with host **Maryfran Johnson**, executive director of CIO Programs at IDG.

- **WATCH** episodes live-streamed to Twitter @CIOonline and YouTube IDG TECH(talk)
- **LISTEN** to the podcast on iTunes, Google Play, SoundCloud or Stitcher
- **VIEW** all previous episodes at <http://idg.me/2ojHxRU>
- **JOIN** the conversation #CIOonlinelive

NOW PLAYING:



Klara Jelinkova
CIO
Rice University



Sanjay Shringarpure
CIO
E. & J. Gallo Winery



Jack Clare
CIO and Chief
Strategy Officer
Dunkin' Brands



James Rinaldi
CIO & Director for
Information Technology,
NASA's Jet Propulsion
Laboratory

If you think technology leaders' jobs have changed a lot over the past few years, just wait. Here are five new roles all CIOs must take on in the years ahead.

NEW ROLES CIOs MUST MASTER

IT'S MORE THAN AN UNDERSTATEMENT to say the role of technology leaders has changed over the past few years.

The widespread adoption of cloud computing and process automation has reduced the demands for IT departments to keep the lights on. Large-scale capital expenditures on infrastructure are being replaced by increased operating expenses on services. Meanwhile, the pressure to take an active leadership role in the business's digital transformation is greater than ever.

BY DAN TYNAN

“If you looked at CIOs 10 years ago, they spent an inordinate amount of time in the lower parts of the stack and in the data center,” says Archana Rao, CIO for Atlassian, the maker of collaboration tools Trello and Jira. “The emergence of cloud and business process automation have shifted us away from old-school operational CIOs and into business enablers.”

In a few years, we’ll see the emergence of “*The Bionic CIO*,” predicts Jay Venkat, senior partner and managing director for Boston Consulting Group (BCG).

“They’ll transcend what’s traditionally been called information technology and teach the business how to become more digitally enabled,” he says. “They’ll need to understand not only technology but also its impact on the workforce. And if they want to become *The Bionic CIO*, they’ll have to upskill themselves.”

WHAT WILL THE CIO JOB LOOK LIKE IN FIVE YEARS? Technology leaders will need to be equally adept at five new roles.



Chief **innovation** officer

In the age of digital transformation, tech leaders really have just two options: become the agent of that transformation or be reduced to a caretaker role. That’s why the “I” in CIO really needs to stand for “innovation,” says Renee Lahti, CIO for Hitachi Vantara, a

data storage systems provider.

“I’ve actually tried to change my title to chief innovation officer,” says Lahti. “If we don’t do that, we’ll end up seeing chief data officers or CTOs usurp the creative aspects of our roles, and we’ll be left making sure the lights are blinking in the data centers and answering the ‘I forgot my password’ service desk questions.”

Today’s CIOs are a lot like chief financial officers



“Traditional **technologists aren’t always the best business leaders.”**

—KEN PIDDINGTON, CIO, U.S. SILICA

used to be 30 or 40 years ago, says Angela Yochem, chief digital and technology officer at Novant Health, a large healthcare provider based in the Southeast.

“A few decades ago, the CFO went from minding some investments and ensuring SEC requirements were met to someone who legitimately makes a ton of money for the company,” she says. “Once the CEO and the shareholders figured out that CFOs could be big money makers, they started sitting at the right hand of the CEO. I think it’s reasonable to expect a similar evolution to happen in the role of the senior-most technology person.”

But many CIOs who rose through the ranks due to their technical acumen are going to have a hard time making the transition, says Ken Pid-

dington, now CIO U.S. Silica, a provider of industrial silica products.

“Traditional technologists aren’t always the best business leaders,” he admits. “They like to stay inside their comfort zone behind the firewall. But the real opportunity for us and our organizations is to step outside that firewall and drive change. We need to be able to change who we are in order to fit the situation our organizations are in.”



Chief **inclusion** officer

A key agenda item for future CIOs will be to focus more time and effort on diversifying their workforce. That’s true today, and it will be even more true tomorrow. Having a diverse staff enhances the decision-making process and leads to better outcomes, says Rao.

“When I’m recruiting for a new

“When I’m recruiting for a new team or looking across my organization, I’m really looking for a **mix of talent** that’s going to drive diversity of thought.” **—ARCHANA RAO**, CIO, ATLISSIAN

team or looking across my organization, I’m really looking for a mix of talent that’s going to drive diversity of thought,” says Rao. “If everyone I hire has the same background as me, come from the same companies or are the same gender, we’re going to come at a problem the same way. I’m looking for people that come at problems from different angles.”

So far, the tech industry’s record for diversity in hiring is pretty abysmal. According to the National Center for Women & Information Technology, only one in four technology-related jobs is held by a woman, and just 20 per-

cent of Fortune 500 companies have female CIOs. The picture looks even worse when measuring race and ethnicity. A March 2017 Business Insider analysis of the diversity reports from top technology companies found that 80 to 95 percent of tech personnel are white or Asian.

However, the situation is slowly improving. According to a 2019 report by Redthread Research and Mercer, the use of diversity and inclusion technology — recruiting, development and retention tools that help identify candidates from underrepresented populations — is on the rise.



There are also bottom-line arguments for diversity a CFO or CEO can get behind. During a 2017 keynote, CompTIA CEO Todd Thibodeaux noted that a 1 percent increase in diversity hiring correlates to a 3 percent annual increase in revenue — which could generate a boost of some \$400 billion industry-wide.

But the primary reason is that a diverse workforce will enable CIOs to do their jobs better, says Lahti.

“You get those wicked problems solved more thoroughly with a very diverse workforce,” she says. “And it’s not just things like whether they’re LGBTQ+.

It's about where they're located in the world, their background, their beliefs, the color of their hair — anything that can help us solve those problems better. As technology leaders, we need to be front and center on that."



Chief (artificial) intelligence officer

Machine learning and artificial intelligence may be buzzwords the C-suite loves to throw around, but most still expect IT to make the artificial intelligence (AI) magic happen.

According to a May 2019 survey by CompTIA, 60 percent of large organizations expect their existing IT staff to provide resources for the company's AI projects, while just under half also expect to add AI-savvy hires. Less than 10 percent say their AI projects will be han-

dled primarily by business teams.

The main thing future CIOs will need to understand is the art of the possible, says Piddington.

"I won't need to know the specifics of how to use platform A, B or C, or how to aggregate data in a particular way," he says. "But I've got to know all the foundational components. I need to understand what's possible with the technology so I can build the right team, help them engage with their peers



and deliver value to the organization through analytics."

When it comes to things like machine learning and AI, CIOs shouldn't be the smartest people in the room, agrees Lahti. But

they'll need to know enough to take advantage of AIOps and DataOps, have a deep understanding of issues surrounding algorithmic bias and ethics, and make strategic decisions based on data.

"CIOs will no longer just look in the rear-view mirror to see if they can remember something that happened in the past that can help with a current issue," she says. "They'll have the ability to manage

"When it comes to things like machine learning and AI, CIOs **shouldn't be the smartest people** in the room."

—RENÉE LAHTI, CIO, HITACHI VANTARA

with predictive analytics."

But they need to start preparing now, says BCG's Venkat.

"The IT organization will have to support different kinds of AI algorithms and curate data in

a completely different way," he says. "They need to start thinking about what data they need to collect today, so that in five years, the AI algorithms can actually be productive."

60%
of large organizations expect their existing IT staff to provide resources for the company's AI projects.

SOURCE: MAY 2019 SURVEY BY COMPTIA

“Our ability to **evangelize technology** and tell a story that embeds the business strategy is extremely important.”

—RON GUERRIER, CIO AND SECRETARY OF INNOVATION AND TECHNOLOGY, STATE OF ILLINOIS



Chief **inspiration** officer

Today's CIOs need to identify the technologies that will drive their organizations forward and explain to the CFO and CEO why they're necessary. Tomorrow's tech leaders will need to articulate a vision for the entire company that motivates and inspires.

The ability to inspire is directly related to the ability to tell stories, says Lahti. It will increasingly be up to the CIO to connect the dots between the technology and what



is possible to achieve with it.

For example, she adds, researchers in Australia are using Hitachi VSP storage arrays to store petabytes of brain scan data, which they're analyzing as part of an effort to reverse the effects of Alzheimer's.

“Those kinds of stories can help explain to the people in your organization what technology is making possible and inspire them to be focused on a particular goal,” she says.

Chief storyteller

The problem is that many CIOs who've come up through the technology ranks do not possess superior storytelling skills.

“You don't just wake up and know how to tell a story like that,” she says. “You want to be inspiring, and you don't want to sound like a geek. For the last 10 years, CIOs have tried to get away from geekspeak, and with things like machine learning and AI back on the table, it will be a challenge to

avoid going back down that path.”

Ron Guerrier, who was a top technology executive at Toyota for many years and is now CIO and secretary of innovation and technology for the state of Illinois, says technology leaders need to develop the same ability to influence decisions as external consultants enjoy.

“Can you stand shoulder to shoulder with them and tell the same story in a 5-page deck instead of a 50-page one?” he asks. “Our ability to evangelize technology and tell a story that embeds the business strategy is extremely important.”

How do you get there? Practice, practice, practice, says Guerrier.

“When I was at Toyota, I sponsored Toastmasters,” he says. “It sounds weird that the technology guy was sponsoring Toastmasters, but it was intentional. I was like, ‘We all know you guys can’t talk past a technology discussion. Let’s give you a forum where you can practice.’”

“Moving forward, we need to be **more aggressive** and perhaps **less judicious**.”

—DAVID CHAVEZ, VP OF INNOVATION AND ARCHITECTURE, AVAYA INNOVATION INCUBATOR



Chief **instructional** officer

The need for technologists to develop better people skills is a long-standing cliché. But in five years, excellent interpersonal skills will be table stakes — not just for networking with peers in the C-suite but also for building stronger relationships with their staff.

“Developing empathy is really the key,” says Randy Gross, CIO for CompTIA. “It’s about looking at things from other people’s perspective. If you understand where they’re going to have success, you can under-

stand how to educate them. That’s much better than being the ‘IT guy’ who rains down policy after policy without understanding the impact they have on everyone else.”

And as tech leaders’ portfolios grow and they take on higher-level responsibilities, they’ll need to lean heavily on staff. That also means taking a more active role in helping them develop new skills.

“I think most CIOs are in the mindset of doing continuous education for themselves,” says David Chavez, vice president of innovation and architecture at Avaya Innovation Incubator. “And based on the rate technology is changing, they need to invite their staff to do something similar.”

But what your staff gains in

knowledge it could lose in productivity, he warns. You don’t want your people spending so much time training that there’s not enough left to get their work done. But if you don’t train them well enough, they won’t be able to do their jobs effectively. While tech leaders need to find the right balance, they should probably put a heavier emphasis on skills, he adds.

“Most of us feel like we need to be measured and judicious in how we develop our team,” says Chavez. “Moving forward, we need to be more aggressive and perhaps less judicious.” ♦

Dan Tynan is a frequent contributor to CIO.

Boosting the 'clock speed' of IT

John Trainor, CIO at rent-to-own retailer Aaron's, has embraced a product approach to IT service delivery and is supporting the effort with an SD-WAN, machine learning and other modern technologies.

BY CLINT BOULTON

As retail IT organizations go, Aaron's is punching above its weight. With an IT staff of 250, the Atlanta-based retailer, which makes furniture, consumer electronics and appliances available for sale or lease to own, doesn't have the thousands of technologists employed by retailers such as Walmart or Target.

But it does have what it hopes to be a recipe for business success: a digital strategy designed

to bolster the user experience for both employees and customers. To bring the strategy to fruition, CIO John Trainor is embracing agile development, design thinking and other modern practices as he helps his staff evolve from delivering IT as a series of projects to building products that generate “value streams” with tangible business benefits.

The philosophy of managing IT as a product has taken hold in many enterprises, which are creating new digital products to disrupt competitors or stave off disruption. Projects tend to be siloed by business unit, where they compete with other company projects for IT resources, according to Gartner. Conversely, product-centric models leverage quick, agile iterations to achieve quicker business outcomes and better customer experiences. Such collaborations lend themselves well to tighter alignment between the business and IT.

Fifty-five percent of busi-

nesses said they were migrating from project to product delivery, according to Gartner’s 2019 CIO Agenda report. Trainor has embraced the product model, but to do that he had to change the culture of the company’s IT department, which supports more than 10,000 store associates working in 1,600 locations spanning 47 U.S. states and Canada.

Modernizing IT paves way for product management

Keeping the lights on is table stakes; Trainor says his remit is making the “clock speed of IT faster.”

“Fundamentally, it starts with people and culture,” Trainor tells CIO.com. “We had to change the way Aaron’s viewed the role of technology.” That entailed modernizing IT systems, which Trainor says empower staff to deliver IT that supports innovation.

The IT staff started laying a digital foundation with an

SD-WAN and cloud software intended to centralize IT. The software-defined WAN, provided by CloudGenix, delivers

that fast clock speed,” Trainor says, adding that fixes and other tweaks are pushed out to all 1,600-plus locations.

“We need to have updates regularly to have that fast clock speed,” with fixes and other tweaks pushed out to all 1,600-plus locations.

– **JOHN TRAINOR**, CIO, AARON’S

real-time visibility into the company’s inventory, supply chain and customer data. Moreover, the SD-WAN enables Aaron’s to gain more visibility into how the network is performing, quickly troubleshoot performance problems and roll out new software.

For example, Aaron’s installed a new point-of-sale system in 27 minutes, a process that would have taken hours with the company’s previous network. “We need to have updates regularly to have

Trainor also implemented Microsoft Office 365 and runs core applications in Azure IaaS (infrastructure as a service), a move to the cloud that he says helps Aaron’s become more nimble. These foundational moves, delivered in agile and DevOps modalities with a full complement of change management processes, set the stage for the business-facing digital tools Aaron’s plans to launch, Trainor says. “If you don’t start early, you can’t have the cycle time you need.”

Agile workspaces, wheels included

As he was modernizing Aaron's core IT operations, Trainor changed the way his IT team worked to reflect a more modern workspace. In a sign of solidarity, the team sits together; you can't tell who works in store operations, in e-commerce or in other areas of the

ago set up a user experience (UX) team staffed with five people who focus relentlessly on improving how technology works for store employees and customers. They look at how staff consume the SD-WAN and cloud solutions, including Office 365, Azure and Salesforce.com Commerce Engine, as well as how the technologies

ing process, which previously took 45 minutes and included several paper documents, has been reduced to 13 minutes and is all digital. Trainor declined to say how Aaron's built it or what technologies were used but noted his team is improving the algorithms regularly to more safely approve more customers.

rather than feature outputs.

"We find that going from project to product allows us to focus on business outcomes rather than IT outputs," Trainor says. "A project that starts and stops on time and under budget with all required features specified but that does not move the needle on the actual business metrics is a bad project. A product team that is empowered to identify and act on business opportunities is so much more valuable."

For Trainor, the product management mindset reflects a shift in how he approaches his role. In the digital-centric era, where speed and agility are paramount, tech leaders can no longer be "coal-shoveling CIOs" managing Exchange servers and other keep-the-lights-on tasks. "I don't think about that anymore," Trainor says. "I think, 'How do I create business value?'" ♦

Clint Boulton is a senior writer at CIO.

In a sign of solidarity, the team sits together; you can't tell who works in store operations, in e-commerce or in other areas of the business.

business. "I want them thinking they are part of the business, not a separate entity," Trainor explains. Moreover, there is a fluidity to the dynamic. The employees' desks and chairs are on wheels "because we need nimbleness as we reconfigure teams."

Recognizing that success depends a lot on what end users get out of IT, Trainor three years

ago set up a user experience (UX) team staffed with five people who focus relentlessly on improving how technology works for store employees and customers. They look at how staff consume the SD-WAN and cloud solutions, including Office 365, Azure and Salesforce.com Commerce Engine, as well as how the technologies

ago set up a user experience (UX) team staffed with five people who focus relentlessly on improving how technology works for store employees and customers. They look at how staff consume the SD-WAN and cloud solutions, including Office 365, Azure and Salesforce.com Commerce Engine, as well as how the technologies

Another key product is Aaron's automated payments functionality. Trainor says his team is obsessed with making the tool as frictionless as possible to boost the number of customers that use it. The payments team has the authority to evolve the product in ways that help increase adoption. True to the product ethos, Trainor evaluates the team on business outcomes


Redesigning the IT operating model

The traditional IT operating model is dead. Here are five prerequisites you need to launch a redesign.

BY KHALID KARK

Tech-driven innovation and disruption have blurred the lines between business and IT. Recognizing this, forward-thinking technology leaders are already scrapping the traditional IT operating model to encompass the breadth of technology-related responsibilities, capabilities and business value expected of the new IT.

But before you follow suit and rush into a redesign, consider the following five fundamen-



THINK
OUTSIDE
THE BOX

tal prerequisites to overhauling your IT operations.

1 Joint business-technology strategy

A clearly articulated and well-understood business strategy is essential to any operational redesign. Even when corporate strategy is articulated and understood, technology's role may be ambiguous. That's because technology has traditionally been viewed as a supporting service, and some business leaders may still see IT as a back-office function.

By having a single, combined business-technology strategy, technology leaders can ensure that technology has a hand in shaping strategy and that it is a CEO- and board-level priority, critical to the organization's mission and vision.

2 Clarity on business value proposition

A unique value proposition both differentiates an organization in

the marketplace and acts as a fulcrum for optimizing and aligning investments and resources.

For example, a value proposition focusing on cost and efficiency is likely to result in an IT operating model that emphasizes technologies and processes that drive down costs, generate efficiencies, enable automation and optimize resources. A value proposition focusing on customer experience is likely to spur an IT operating model that emphasizes speed to market, agility, flexibility and digitization of products and services.

3 Updated technology investment governance

Deloitte's most recent global CIO survey found that only 37 percent of technology leaders have a well-defined investment process and business case template for technology investments. Even those with established funding models often struggle with future investment priorities. There are three

Forward-thinking technology leaders are already **scrapping the traditional IT operating model** to encompass the breadth of technology-related responsibilities, capabilities and business value expected of the new IT.

major shifts that are changing how technology investments should be made today, and each requires improved engagement with CFOs and finance teams:

- The shift from project to product orientation, which has introduced the need for iterative funding, evolving value proposition and flexible timelines
- The move to cloud and managed services, which has changed funding from a capital expense to an operational expense, with critical implications on the organization's financials
- Large investments in major

technologies — artificial intelligence, for example—that require venture capital-like business cases and governance guardrails that differ considerably from traditional project-based funding

Redesigning the operating model without adjusting for these shifts in technology investment models can create major obstacles and bottlenecks.

4 Cohesive strategy for technology work, workforce and workplace

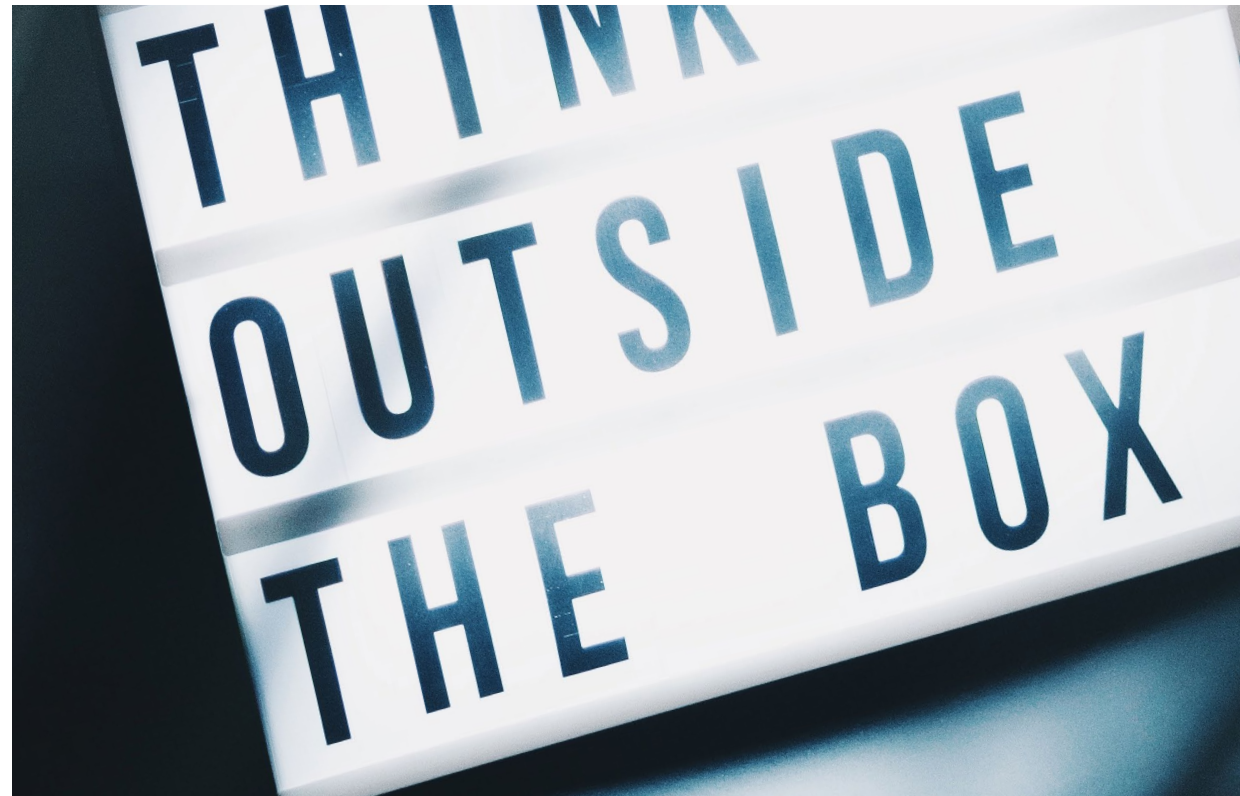
All components of the three-legged stool of work, workforce and work-

place should be managed cohesively to maximize value, but each should be addressed in turn. Leaders who first address the workforce component may become frustrated by the lack of meaningful progress.

Start by establishing the work outcomes for technology. With a clearly articulated joint business-technology strategy and clarity on value proposition, it can be easier to identify which work outcomes are strategic — and then make decisions about automation, outsourcing or elimination of work. The workplace should encourage organizational and process changes by enabling leadership, culture and collaboration, and physical workspaces should support the work and workforce.

5 A solid technology foundation

The fundamental responsibility of technology leaders is to deliver a reliable, scalable, secure and resilient technology environment.



An IT operating model redesign should facilitate:

- A flexible technology architecture that can deliver current and future business capabilities
- The ability to harness data from inside and outside the organization to deliver business value and insights
- Consistent and reliable engineering, application and infrastructure services that can be integrated

to support the shift from project- to product-based delivery

- A secure and resilient environment that can protect systems, data, insights and intellectual property and ensure regulatory compliance

This can become exponentially complex in technology environments where a constant flow of information and delivery of services spans multiple organizations. Understanding core capa-

Only
37%
of technology leaders have a well-defined investment process and business case template for technology investments.

bilities and leveraging partners and vendors to deliver them can be essential to success. ♦

Khalid Kark is managing director with the U.S. CIO Program at Deloitte LLP. *This publication contains general information only, and Deloitte is not, by means of this publication, rendering accounting, business, financial, investment, legal, tax, or other professional advice or services.*



Three Strategies for Winning the War for Tech Talent

Traditional learning solutions cannot keep pace with rapidly evolving market conditions, transformational business models and radically different expectations of a modern workforce raised in the digital era. Download the eBook to learn how continuous learning can help your organization compete for tech talent.

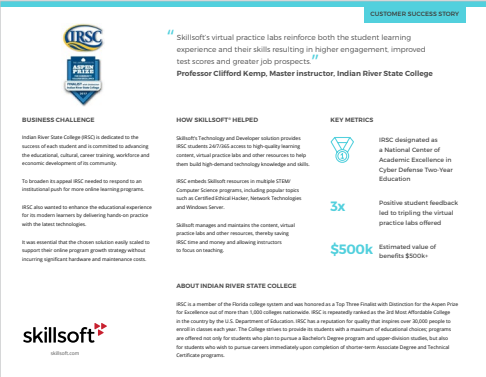
🖱️ [DOWNLOAD HERE](#)



Keep Your Team Ahead of the Curve

Accelerate skill development by building on current knowledge. As our understanding of technology evolves, so do the job roles that utilize those technologies. Stay ahead of the curve with Skillsoft Aspire’s prescribed paths from current to future job roles

🖱️ [VIEW HERE](#)



Case Study- Indian River State College

Discover how Indian River State College provides 24/7/365 access to high-quality learning content and virtual practice labs without incurring significant hardware and maintenance costs.

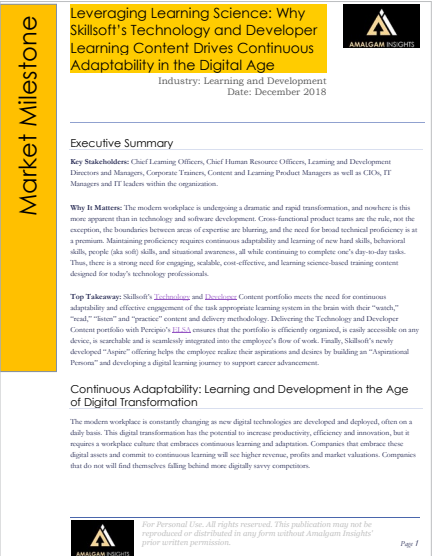
🖱️ [DOWNLOAD HERE](#)



Delivering on Data Science and AI for Competitive Edge

CIOs are citing data analytics as a top priority, making data science professionals in high demand for businesses in every industry. Download this white paper and explore the rise of data science roles, the need for organizations to innovate through machine learning, and effective methods to attract and develop top talent poised to take on these complex roles.

🖱️ [DOWNLOAD HERE](#)



Why Skillsoft’s Technology and Developer Learning Content Drives Continuous Adaptability

To be successful, technology and developer professionals must maintain broad technical proficiency—a feat that requires continuous adaptability and the learning of new hard skills, behavioral skills and situational awareness. Gain access to the research report today and discover how to overcome learning challenges with learning science.

🖱️ [DOWNLOAD HERE](#)

CTO

BUSINESS TECHNOLOGY LEADERSHIP | cio.com

FALL 2019

FROM IDG

NEW ROLES CIOs MUST MASTER

If you think technology leaders' jobs have changed a lot over the past few years, just wait. **Here are five new roles all CIOs must take on in the years ahead.** BY DAN TYNAN

HOW TO CREATE
A CULTURE OF
INNOVATION 4

7 WAYS IT LEADERS
DERAIL THEIR
CAREERS 12

REDESIGNING THE
IT OPERATING
MODEL 25

