The CIO Of 2025:

Driving Fundamental Enterprise Change

Over the next five years, chief information officers (CIOs) will lead their companies toward fundamentally new ways of doing business.

Already leaders in corporate strategy and innovation, the CIOs of 2025 will be much more heavily invested in business outcomes, with direct responsibility for generating revenue. They will work closely with other leaders to understand how business units make their money and where competitive pressures exist, using their expertise to build solutions specifically aimed at improving topline results.

They will also be rolling out fast-moving technologies, like artificial intelligence (AI) and machine learning (ML), and managing the immense cultural changes that accompany them.

To ensure the future success of their businesses, CIOs will need to keep a tight hand on the wheel, steering their companies toward their strategic visions and making sure to miss no opportunities in a time of intense competition from nimble startups.

They will also need to transform themselves, learning to become better leaders as they embed themselves into strategic decision making across a broader span of the enterprise.

These are some of the key findings from a Forbes Insights survey of more than 650 CIOs, which was conducted in partnership with VMware. The survey covered a broad range of industries, including financial services, healthcare, government, manufacturing, retail and telecommunications. CIOs were from organizations with annual revenue of $1 billion or more, with 16% from firms with $10 billion or more in revenue.

This brief explores this research in more detail. It highlights the key opportunities enterprise CIOs will have in the next few years and the challenges they must confront as they steer their companies toward success—accelerating business and generating revenue, as well as ensuring their own personal evolution in the process.

Gaining Strategic Influence

"The CIO's primary job is to make sure the company's technology strategy serves its business strategy."

—CIO of a $5 billion+ manufacturing company, Asia-Pacific

Today's CIOs already hold positions of significant responsibility, and in five years' time, 66% expect to be key decision makers for corporate strategy. Their influence will continue to rise as they become not only technology implementers but also architects of new business models, introducing ideas for business lines and directing changes that will transform enterprises.

In five years, 66% of CIOs expect to be key decision makers for corporate strategy.

By 2025, CIOs will also play a greater leadership role in the C-suite. Fifty-nine percent expect to hold a seat on their company's board of directors. Numbers are highest in healthcare (64%) and retail (62%), two industries that are rapidly developing profitable new ways to use customer data.

"Seventy percent of the world's consumers want to take more control of their health, and technology can put that power in their hands. A company's board needs the expertise of the CIO to unleash this potential to serve consumers and drive business growth," explains Shivani Saini,

CIO of Asia-Pacific consumer healthcare for GlaxoSmithKline.

Over half of CIOs also expect to head a profit center by 2025. Numbers are highest in the manufacturing sector (64%), where AI and robotics are already used extensively, making it easier to create new products that contribute to the bottom line.

As CIOs gain expertise solving business problems and developing profitable new services across the enterprise, they're ideal candidates for the top position—CEO. Nearly half (49%) said they expect to become CEO by 2025, a number that's fairly consistent across industries.

49%
of today's CIOs expect to become CEOs by 2025.

Gaining Strategic Influence

When asked where in the company they expect their authority to increase, 60% of CIOs said they would have much greater influence over product design and development (Figure 1), a reflection of the growing strategic importance of apps, which have become central to the customer experience.

As CIOs harness the power of AI and ML to develop more capable apps and decrease the time to market for new products and services, they will need to grow the skills of their existing teams and find additional top-notch talent. Half expect to play a greater role in human resources over the next few years, which shows CIOs understand that people are the key to harnessing technology to ultimately create the next generation of apps.

CIOs will also forge closer relationships with COOs and CMOs, enabling them to use customer data in ways they never thought possible. Over half expect to play a greater strategic role in sales and marketing.

In addition, as laws safeguarding personal information increase, CIOs will be called upon to increase data security and provide better disclosures and more options for customers. Over 60% expect to play a greater role in regulatory compliance.

FIGURE 1

Top Areas Where CIOs' Influence Will Grow

Expect Influence To Grow Substantially

61%
REGULATORY COMPLIANCE

60%
PRODUCT DESIGN AND DEVELOPMENT

55%
SALES

55%
MARKETING

50%
HUMAN RESOURCES

Harnessing The Power Of Cutting-Edge Technology

"Today's tool for achieving results is technology."

—Government CIO, Americas

Over the next five years, CIOs will embrace a variety of cutting-edge, data-driven technologies. Over a quarter of CIOs overall—and 34% of those in manufacturing—chose AI above all other technologies as the most critical for staying competitive, growing the business and taking advantage of new opportunities. Forward-thinking CIOs are not just implementing AI piecemeal but also finding ways to use it throughout the enterprise.

More than a quarter of CIOs said AI is their top priority.

"We are working on AI across the entire spectrum of the company, from robotic process automation (RPA) for back-office processes to customer-facing chatbots that provide a human-like conversational experience," says Shankar Arumugavelu, senior vice president and global CIO of Verizon Wireless.
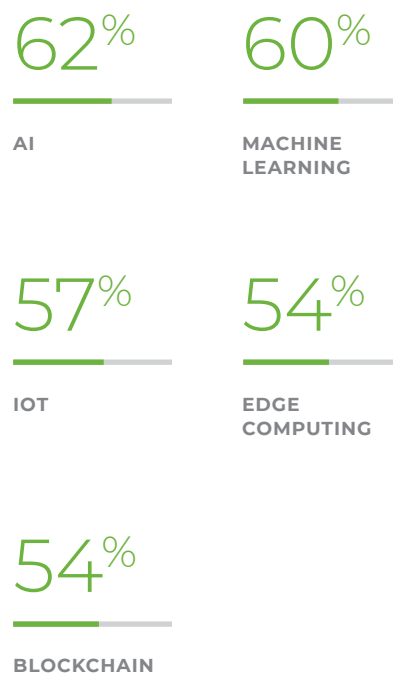
Other high technology priorities include IoT applications and ML—two technologies that run in tandem with AI—as well as edge computing and blockchain.

Though AI applications are still in their infancy, CIOs see them as the key to the future. Sixty percent believe that by 2025 AI and machine learning will be very important or critical to their business. Over half said the same of IoT, edge computing and blockchain (Figure 2).

FIGURE 2

Top 5 Critical Future Technologies

Very Important Or Critical In 5 Years

62%
AI

60%
MACHINE LEARNING

57%
IOT

54%
EDGE COMPUTING

54%
BLOCKCHAIN

Harnessing The Power Of Cutting-Edge Technology

To implement and scale these emerging technologies, CIOs will need to hire hard-to-find experts to fill their teams. As AI and its applications continue to evolve at a rapid pace, many CIOs will face a steep learning curve themselves.

They may also face internal resistance. AI, ML and RPA will relieve employees of repetitive work and free them up for higher-level tasks, but some may be unprepared for increased levels of responsibility or for the prospect of interacting with robots or working according to automated processes. Others may fear reduced hours or job loss. CIOs understand this. As the survey shows, CIOs see gaining employee buy-in and collaboration as the most critical factor for successful technology implementation.

Second in importance is finding vendors who offer a quality solution, strong support and an effective deployment strategy, pointing to a growing role for vendors as enterprise technology becomes more complex. Indeed, basic vendor relationships could transform into deeper strategic relationships with those vendors. For ML, AI and IoT applications, after all, there are no out-of-the-box solutions—products must be closely tailored to the specific problems a business

is trying to solve. That means they need to be developed by experts who understand both the capabilities and the limitations of the technologies—as well as have a clear understanding of the business outcomes that serve the organization's needs.

"We look to vendors to provide training as we make large-scale changes," says Suzette Kent,

who, as federal chief information officer for the U.S. government, oversees technology policy and development for all federal agencies. "Vendors understand how to build algorithms and do data inspection and modeling when we're implementing RPA and AI. They are critical not only for providing a suite of products and services, but for supporting learning during the transition."

>60%

of CIOs believe AI and machine learning will be very important or critical to their business in five years.

A New Topline Focus

"Digital technologies have the potential to unlock billions to trillions in value for organizations."

—CIO of a $2 billion+ telecom, Europe

CIOs are going beyond harnessing new technology within the enterprise. As their role evolves, one of their most important responsibilities will be creating new sources of revenue. Many see technology as the key driver of business growth.

"Business equals technology," says David Gledhill, CIO and group head of technology and operations for DBS Bank, a global bank based in Singapore. **"My job is not just providing information technology but delivering on business outcomes and customer satisfaction."**

Already, more than half of CIOs—and 60% in manufacturing—are responsible for at least some revenue-generating initiatives. By 2020, that figure will rise to 89%, with the highest increases in the retail and financial services sectors.

89%
of CIOs expect to have revenue-generating responsibilities

A New Topline Focus

CIOs are the drivers of the enterprise shift toward subscription-based business models. As companies compete and spend money on technology to make these services possible, the pressure on CIOs to develop profitable new lines of business is likely to increase. By 2025, revenue generation could become part of their job description.

How will CIOs achieve these revenue-generating goals? A majority plan to use customer data, either by packaging and selling it or using it to develop internal or external apps. Many new revenue applications involve marketing and sales, and some CIOs said they expect to join sales and business development staff in client meetings (Figure 3).

How Will CIOs Make Money In The Next Five Years?

Revenue Initiative, CIOs to Implement

PACKAGING AND SELLING DATA TO A THIRD PARTY   **20%**

DIRECTLY MANAGING CUSTOMER DATA   **18%**

PROVIDING IT SERVICES TO THIRD PARTIES   **17%**

JOINING SALES AND BUSINESS DEVELOPMENT STAFF FOR CLIENT MEETINGS   **16%**

SELLING INTERNALLY DEVELOPED APPS TO THIRD PARTIES   **15%**

MANAGING CUSTOMER RELATIONSHIPS THROUGH THE USE OF CUSTOMER DATA   **13%**

Radical Change Needed To Fight
The Cybersecurity Battle

CIOs have worried about cyberattacks for years, and many organizations have strengthened their defenses with new tools and better training in online safety. Others have built security operations centers and upped the budgets and responsibilities of their chief information security officers to limit risk.

It's not enough, according to the survey's CIOs, who believe the proliferation of data and the sophistication of cybercriminals are outpacing organizations' ability to keep up. When asked whether cybercrime would lead to a shutdown of the internet, 35% said it was likely or very likely to happen. Eighty-four percent said they believe the internet needs to be significantly overhauled and restructured to control cyber risk.

84%
of enterprise CIOs believe the internet needs an overhaul to control cyber risk.

Driving Corporate Social Responsibility

As scandals about the misuse of customer data have erupted in recent years, public perceptions of technology have changed. Instead of viewing it as a benign force helping people to connect, some now see it as a sinister vehicle of manipulation.

Not surprisingly, nearly 70% of CIOs agreed that they have a responsibility to avoid technology that creates social harm. But they also believe they can do much more to help society. An equal number of CIOs said they have a responsibility to use technology for the greater social good.

Indeed, many CIOs see their role in improving society as a vital component of their own success. When asked about the single greatest cultural or professional change IT professionals need to make to become successful, one of the top answers was "Make technology play a role for [the] public good."
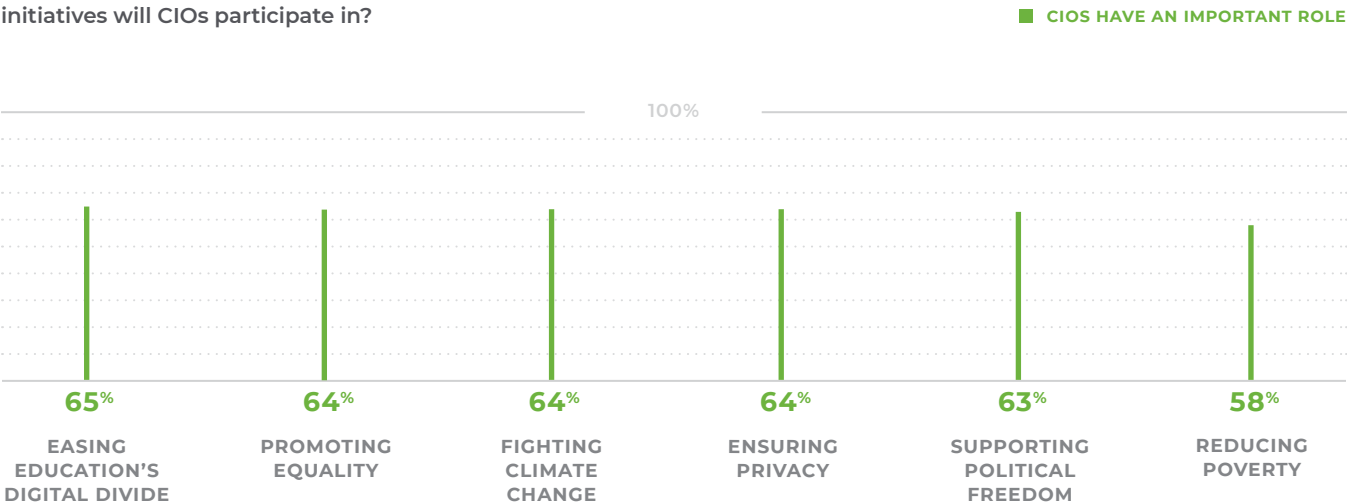
CIOs believe they can help their companies fight climate change and ease the digital divide in education, as well as promote equality and fight poverty (Figure 4).

"With technology, we can do things at scale which we've only been able to do manually for a select percentage of our customer base," Gledhill says. "Wealth management advice was once for the supremely wealthy, but now we're able to touch a much wider portion of the population."

FIGURE 4

Making The World A Better Place

What corporate social responsibility (CSR) initiatives will CIOs participate in?

■ CIOS HAVE AN IMPORTANT ROLE

65%	64%	64%	64%	63%	58%
EASING EDUCATION'S DIGITAL DIVIDE	PROMOTING EQUALITY	FIGHTING CLIMATE CHANGE	ENSURING PRIVACY	SUPPORTING POLITICAL FREEDOM	REDUCING POVERTY

Nearly 70%

of CIOs feel a responsibility to use technology for the greater social good.

The CIO Of 2025

The Forbes Insights survey shows that over the next five years, CIOs will be key leaders in evolving their organizations. They will shoulder more strategic responsibilities across a broader span of the business and find ways to generate profits with new products and services. They will need to search for the right solutions and the right talent as they implement rapidly evolving technologies, including AI, ML and IoT, and they will need to enlist the support of both corporate stakeholders and employees to manage and scale them successfully.

On top of all that, the CIOs of 2025 will be seeking radical new solutions to cybersecurity problems that have plagued their organizations for years.

Though they are faced with many challenges, CIOs are not pessimistic. They expect to use their role not only to transform their companies but also to engage in issues they are passionate about, including improving the environment, fighting for social justice and improving technology education for all.

CIOs know they can't fulfill all these new responsibilities by themselves. But by forming strong partnerships with corporate leaders, employees and their own communities, they can use technology to build better companies and a better world.

Methodology

Forbes Insights and VMware surveyed 652 CIOs across the globe about the future of their role in April 2019. Some 31% of respondents were from North America, 39% from Europe and 30% from the Asia-Pacific region, including Japan. These CIOs represented a wide range of industries, including financial services, government, healthcare, manufacturing, retail and telecommunications. All CIOs were from organizations with annual revenue of $1 billion or more, with 16% from firms with $10 billion or more in revenue.

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