KPMG

Preparing for the future of IT

Opportunities for CIOs and IT leaders today

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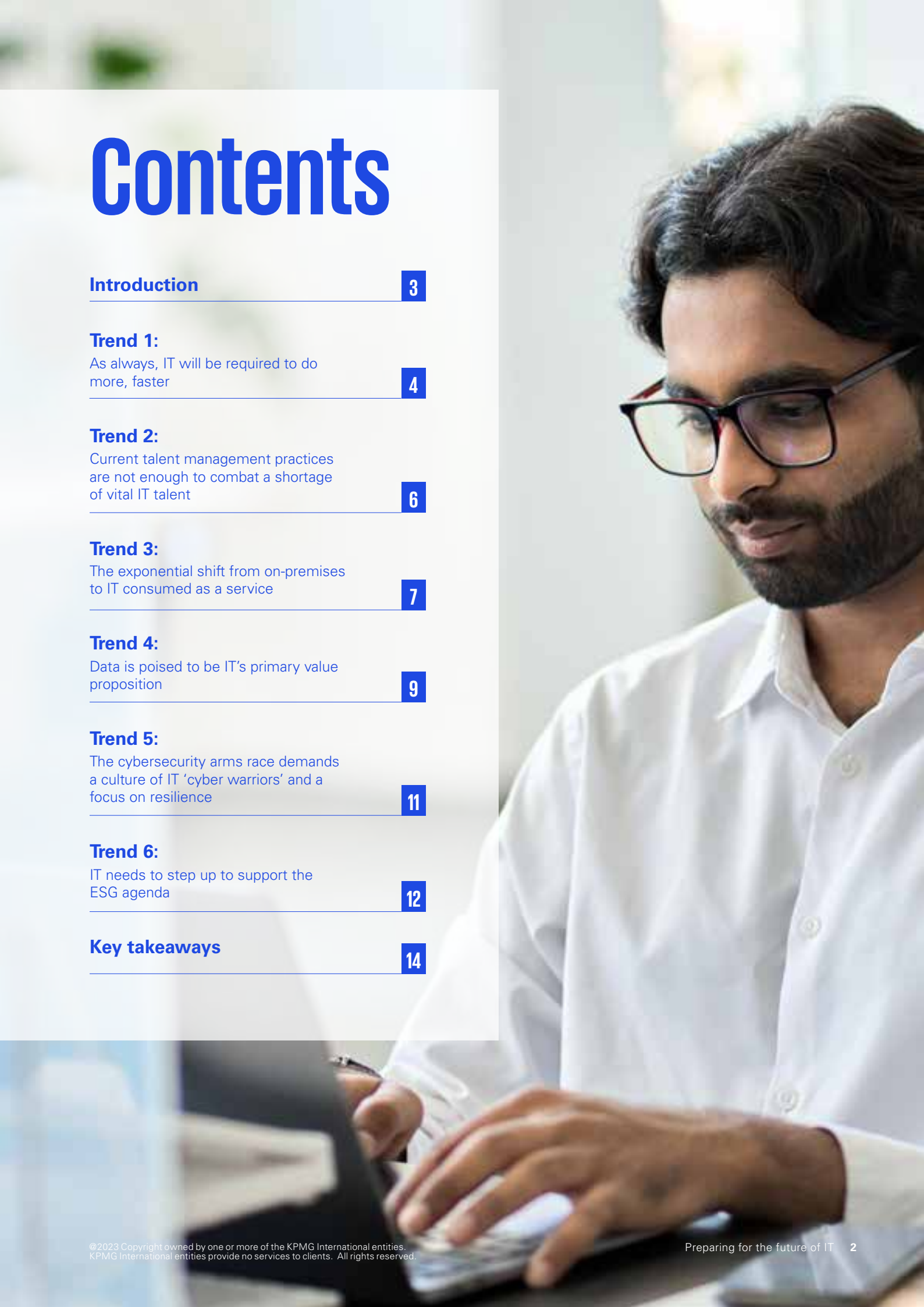


Introduction

The profound impact of the global COVID downturn revealed that IT can make pivotal innovation happen at remarkable scale and unprecedented pace. KPMG's 2022 global tech report found a resilient, forward-looking attitude among global technology professionals. Companies are enthusiastic about disruptive new tools and determined to further embrace ongoing digital transformation to revolutionize the customer experience.

Digital-transformation triumphs are positioning today's businesses to face future uncertainty with a confident spirit. In fact, 99 percent of organizations generated returns from their digital transformation investments[1] — branding customer-centric technology strategies as lifesaving tools in today's business survival kit.

This confidence has led analysts to predict IT budgets will not likely face as much cost cutting in future recessions compared to previous recessions. However, KPMG does not take such claims to mean recessions may be easy for IT. Make no mistake, amid today's increased expectations for technology, IT will be under pressure, perhaps as never before, to do more — both faster and better.

KPMG's 2022 global tech report revealed how IT is under pressure to continue innovating user experience, enhance the agility of their tools, and reduce tech risk across the organization, all while contributing to business growth. This pressure is compounded by the prevailing challenge to obtain the modern talent needed to meet transformation goals and cybersecurity requirements.

In light of this, KPMG believes technology organizations will need to attract and retain key talent in new ways and innovate at greater scale to deliver features and insights that delight customers and employees. It will be essential to integrate a modern ecosystem of both internally developed and outsourced technologies such as everything-as-a-service (XaaS — the expanding range of cloud-based tools and services). IT leaders taking advantage of a data-centric operating model have the potential to generate the most value from an XaaS ecosystem. This will take an appreciation of the reality that the IT function is best positioned to keep technology manageable and data trustworthy.

Further, we at KPMG believe technology leaders of the future will prioritize resilience. We are seeing cybersecurity breaches rising in frequency and cost so many technology leaders should already know they cannot simply strengthen fortifications on the hope they will provide adequate cybersecurity.

Technology matters. IT will play an active role in achieving enterprise goals for the betterment of the environment and society. The technology of the future must be more purposeful and ethical — and technology leaders must be responsible in how they bring it all together. The future depends on it. As an IT Leader — can you maximize your company's resilience and performance as you navigate the challenging business landscape?

In this report we examine what has changed since our 2022 study and what KPMG professionals are witnessing today as the accelerating drivers of change. We also identify six prevailing trends as a precursor to the **KPMG Future of IT 2023**.

1. IT faces new pressures to do more — faster and better
2. Creative solutions are needed to recruit and retain IT Talent
3. What XaaS acceleration means for IT
4. Data and the opportunity for IT
5. The ever-growing pressure of cyber threats
6. ESG and the role of IT

Read on to discover a critical look at key trends that are likely to shape the IT leader's agenda in the next three to five years.

Trend 01

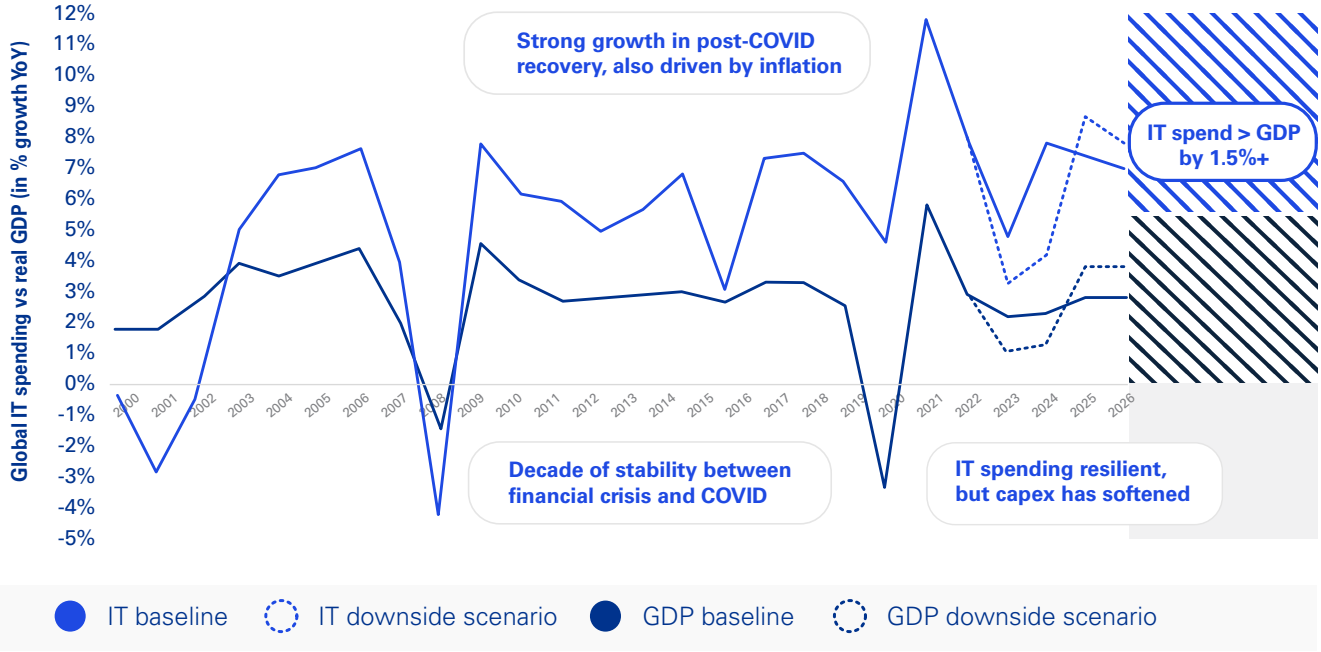
As always, IT will be required to do more, faster and better

IT's key learning from the COVID downturn is that tight collaboration to develop innovative solutions and pivot to rapidly changing priorities earned IT a 'place at the table' that it may not have enjoyed previously. Businesses endured extreme pressure almost overnight to realign capabilities and enable new workplace models amid the unprecedented conditions of the pandemic. And emerging from the pandemic's profound disruption, the specter of a recession and global economic uncertainty remains. IT budgets will likely be affected to a lower degree compared to previous recessions. But beware — this is not to say a recession will be easier for IT. In today's dynamic reality, IT will remain under pressure to do more, both faster and better.

KPMG's global tech report 2022 showed a substantial increase in digital capabilities over the early stages of the pandemic and, by 2022, digital leadership was deemed table stakes by executives we surveyed.[2] In 2022, despite the severe economic uncertainty, 84 percent of IT leaders planned to sustain or increase technology spending.[3]

As illustrated in the graph below (Figure 1), KPMG predicts that IT spending growth will remain at least 1.5 percent above GDP growth through the next economic downturn as leaders recognize IT's critical value to doing business.

Figure 1: IT spending vs real GDP (YoY annual growth)[4]



Note: Using constant currency, (as of July 2022); IT spending excludes telecom spending and business services

Source: IDC Worldwide Black Book (April 2023) growth in constant currency; excludes telecom spending and business services

IT spending relative to GDP showed a sharp decline during the dot.com recession of the early 2000s and the financial crisis of 2008. In 2020, however, the growth of IT investment decreased as GDP fell quickly, but IT spending continued to grow in response to a severe business contraction. IT was part of the solution.

KPMG's 2022 CEO Survey, undertaken at a time when economic uncertainty was beginning to surface, showed digital transformation would continue even in the face of recession. Most CEOs (72 percent) said they are pursuing an aggressive digital strategy. However, 70 percent cite the need to shift investment to digital opportunities more quickly. While IT is a critical contributor to an organization's strategy to navigate a recession, IT will need to demonstrate an ability to pivot to an organization's digital transformation priorities. The pandemic proved to business leaders that IT can be a source of meaningful and rapid innovation. This innovation is rooted in collaboration that is sharply focused on identifying and solving critical business challenges. Whatever the economic climate ahead is, IT teams will be busy pivoting to a new value proposition and operating model in response to the changing tech landscape. Accelerating the adoption of methods that increase IT efficiency and deliver business outcomes faster will be critical, as IT's value proposition is deeply tied to its future ability to drive innovation in collaboration with business and vendor partners.

Trend
02

Current talent management practices are not enough to combat shortage of vital IT talent

The labor shortage of IT professionals is not a new challenge. Most organizations have struggled with this for some time and the extraordinary demand for IT professionals during the pandemic, coupled with the 'great resignation,' only heightened the labor challenge. Latest estimates suggest that 30–70 percent of data, security and development job postings are still going unfilled.[5]

Looking forward, the shift to a technology ecosystem that is primarily 'as a service' will likely compound the IT labor crisis amid the need for appropriate new digital skills. Not only are organizations struggling to recruit talent, but they are also struggling to retain the talent they have. Gartner reports that IT workers have a 19.5 percent lower intent to stay with their company, as compared to non-IT employees.[6] A large part of solving the labor shortage involves creating a truly modern working environment. Interestingly, a shift to modern technology and ways of working is not just important to the business, it is critical to attracting top IT talent that today prefers an innovative, future-ready workplace.

Organizations can combat this challenge by upskilling their workforce. However, according to KPMG analysis, while overall IT spending is expected to increase year over year, many organizations plan to reduce the proportion of IT budget spent on training and education.[7] This strategy will not be sustainable for IT organizations that are already struggling to recruit talent — it will only dig them into a bigger skills deficit. IT organizations should expect to prioritize and invest in strategic recruiting models, upskilling their workforce, and cultivating an environment that retains talent if they hope to reduce their growing skills gap and remain competitive.

Trend
03

The exponential shift from on-premises to IT consumed as a service

Cloud technology has rapidly evolved in recent years — from being an emerging technology to the preferred mechanism that businesses have embraced to consume software, platform, and infrastructure services. The re-platforming from on-prem to various forms of public cloud solutions will be substantially complete in the next three to five years. This was clearly revealed in KPMG's Global Tech Report 2022, with 88 percent of respondents reporting that they are well along, or have completed, their cloud-migration journey. The largely infrastructure-focused cloud migration progress was only part of the story, however. The 2023 KPMG Cloud Transformation Survey suggests new software is primarily being consumed 'as-a-service.'[8]

KPMG sees a widening gap as the market share for public cloud software applications, mainly SaaS, overtakes those hosted on-premises.

This trend has clear implications for IT's value proposition. Today's IT develops and maintains software, supports software users, provides services and operates secure and resilient hardware. Several of these contributions will likely be 'outsourced' to cloud providers in the near term. IT will still develop software, but it will likely do so in a cloud-native technology stack or by leveraging low-code development platforms.

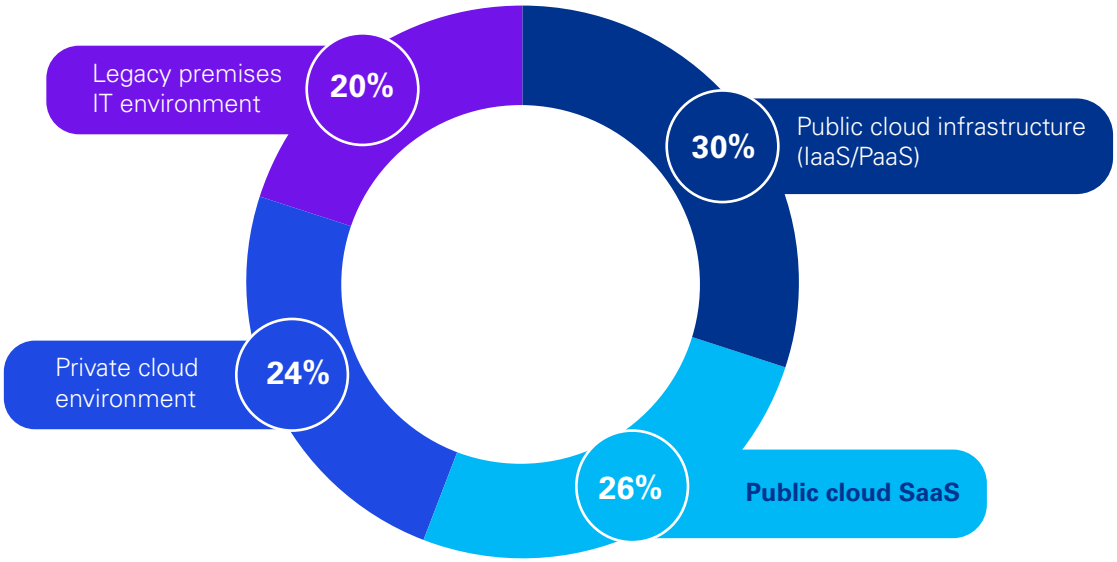
Most enterprise software vendors are encouraging their customers to shift to as-a-service versions of their software. Even ERP vendors, including Oracle and SAP, make it clear in their recent financial filings that the shift to SaaS-based software has become a key strategic imperative. The 'supply-side' case for cloud services is compelling for software vendors and hyperscalers like AWS, Azure, GCP, Alibaba Cloud, and IBM/Kyndryl Cloud.

It's no mystery why so many companies are selling their products as-a-service. Subscription-based models generate higher shareholder returns and encourage the continued pursuit of efficient operations, such as maintaining a customer base that is operating on current technology.

KPMG estimates the demand for as-a-service public cloud will overtake demand for traditional IT in the next three to five years and, as a result, we believe public cloud could generate twice as much revenue as traditional IT workloads. See the chart below (Figure 2).

Figure 2[9]

Question: 36 months from now, approximately what percentage of all your organization´s business applications will be run in the following ways?



Companies are moving more data and systems to public cloud and are increasing the sensitivity of the data involved.

The shift to the public cloud creates real questions for the most fundamental responsibilities of IT leaders. How can I ensure I'm providing the right technology to enable my business if I'm locked into long term vendor relationships? How can I manage the risks associated with a perimeter-less technology estate and solutions for which I have no control? How do I manage the costs across 100s or 1000s of SaaS solutions and my public cloud consumption? The shift to public cloud can come with enormous benefits, but will challenge the most basic aspects of IT management.

As more software is available exclusively in SaaS models, IT will likely shift to an application support model requiring an ongoing commitment to integration, orchestration and data management. Instead of bearing responsibility for building and maintaining most applications, IT will become increasingly responsible for brokering, integrating, and orchestrating cloud-based as-a-service systems.

Similar to the shift from mainframe to client server technology, the transition to XaaS is likely to include profound changes for IT leaders as new solutions emerge and operational requirements transform. The transition to an XaaS ecosystem opens up a world of possibilities — and new challenges — for technology leaders.

Modernizing technology toward cloud capabilities can increase organizational efficiency and costs, improve cyber posture and jump-start data maturity. This will require operating model shifts to enable solution architects, data architects and subject matter experts to optimize user experiences and maintain excellent service. To manage this diverse as-a-service tech ecosystem, organizations will need enhanced financial management practices and tools to optimize complex costing of tools and services.

Trend 04

Data is poised to be IT's primary value proposition

Most companies have initiated the shift to XaaS — the point at which most applications are consumed in SaaS form — and are jump-starting data maturity. This too is reflected in the data. IT's focus will shift from application development and operations to delivering insights that create real value.

Data maturity is also closely correlated with business performance. Those organizations reporting that they are leaders in data and analytics are at least three times more likely to report an increase in revenue, and about two times more likely to report an increase in profit, compared to organizations that are laggards in this space.[10] The value associated with data maturity is fueling greater investment as organizations seek to capitalize on this trend, seeing investments in data management and data platforms on the rise. Achieving data maturity is proving to be a challenge, however.

Regulatory and compliance requirements create new challenges and many organizations experience challenges in moving from 'use case' success to comprehensive, enterprise-wide data management and analytical capabilities.

In summary, IT's role will likely evolve IT resourcing from its historical focus on application development and operations to data management that enables the power and advantages of advanced analytics and emerging AI solutions.

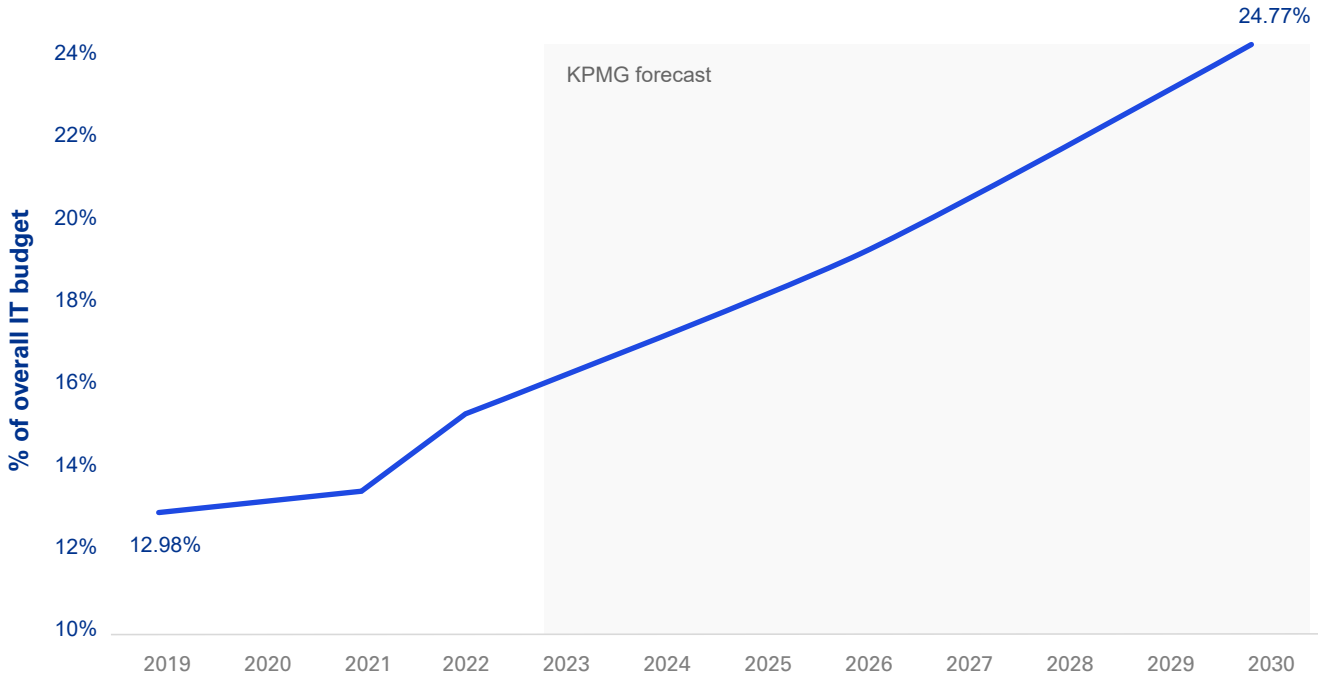
Investments into data-focused tech and developing a data-driven culture are expected to keep growing as businesses work to advance their data maturity and analytics capabilities. As illustrated in Figure 3 below, KPMG analysis suggests nearly 20 percent of IT budgets will focus on the enterprise data agenda by 2026.

At the same time, however, it's important to note that the journey to data maturity remains difficult to navigate, with many businesses struggling to unlock the full value of data. The KPMG Global Tech Report 2022 shows nearly half (46 percent) of businesses are behind schedule on their data and analytics strategy.

Figure 3[11]

Spend on data & analytics technology and staff

In % of overall IT budget, YoY (as of October 2022)



Trend
05

Today's cybersecurity arms race demands IT 'cyber warriors' and a focus on resilience

As the enterprise technology landscape modernizes, cyber threats and data breaches remain a critical concern. Cybersecurity remains a top priority for Boards of Directors and senior leadership, as evidenced by the ongoing trend of increased investment in this area. The top three areas for cybersecurity investment over the next two years are application security, data protection, and education, awareness, and culture within the organization.

Global spending on cybersecurity has grown 10.8 percent per year, on average, since 2017, increasing in aggregate from US$102 billion to US$168 billion in 2022.[12] We suspect the increase is due in part to soaring cyber threats and data breaches, as well as the increasing cost of a cyber breach and the reputational harm it can cause.[13]

Clearly, the increase in cybersecurity spending is not leading to better cybersecurity outcomes. And the overall cost of a breach is not related to its direct impact alone — indirect costs to restore services take a heavy toll if an organization is not prepared for such events. Despite some investments in technology resilience, 54 percent of cyber leaders still recognized a need for strong growth and improvement in this space, and 17 percent felt their organizations were not cyber resilient.[14] Those investing in and implementing resilience capabilities are seeing important benefits.

However, many organizations are realizing that prevention of data breaches strictly through technology investments is not possible.

This is not to say cybersecurity technology and staffing increases aren't important elements of the solution — they just are not enough to protect the organization from the threat of its own workforce. Threats that target employees are consistently evolving and becoming harder to detect. IT leaders need to respond by improving and investing further in cyber-resilience and cyber-literacy programs. Successful IT leaders will foster a culture of dedicated 'cyber warriors' — prioritizing cyber literacy and continuous education on modern cybersecurity. Global headlines continue to illustrate the soaring frequency, scope, and cost of cyber events, making a bold new approach to cybersecurity pivotal and inevitable.

Trend 06

IT needs to step up to support the ESG agenda

The drive to execute on the ESG agenda has become a primary concern for the boardroom and the investor community. While IT is key to social and governance improvements, it can also offer major efficiencies to help enterprises reach emission-reduction goals. A key example is the number of companies setting near-term carbon emission targets for 2030 with the Science Based Targets Initiative.

As environmental corporate responsibility gains momentum based on Board direction or investor and consumer preferences, IT has focused its support of net-zero emissions goals on leveraging effective reporting technologies. The market for these greenhouse gas (GHG) emissions-reporting solutions is expected to increase by a remarkable 235 percent between 2020 and 2027, reaching an estimated US$2.3 billion valuation.[15]

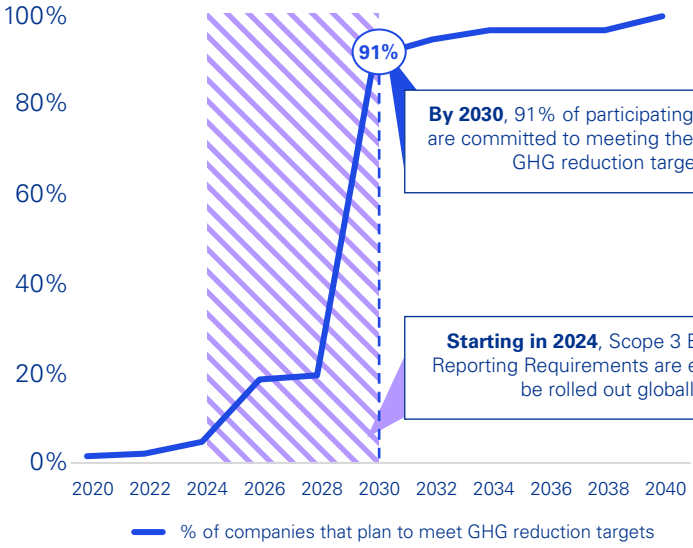
IT's role in contributing to carbon footprints will likely become increasingly front-and-center and will drive contributions to the broader organization's emission-reduction targets. IT can be a significant contributor to an organization's carbon footprint, especially considering Scope 3 emissions. Scope 3 encompasses emissions that are not produced by the company itself but by those that it's indirectly responsible for across the value chain. An example of this is when organizations buy, use, and dispose of products from suppliers.

While organizations are not currently required to report on Scope 3 emissions, the SEC, EFRAG and ISSB have all proposed standards that would begin requiring reporting on Scope 3 emissions as early as 2024.[16] Some of the leading IT emitters — data centers and servers, for example — are obvious sources of carbon-footprint challenges. But end-user devices and other often-overlooked aspects of IT, such as cloud computing and emissions during technology manufacturing, are also important contributors.

Figure 4[17]

Target timeline of when GHG reductions are expected to be met

SBTi: Proportion of companies planning to meet their short term GHG reduction target commitments between 2020 and 2040 (n=1169)



By 2030, 91% of participating companies are committed to meeting their near term GHG reduction targets

Starting in 2024, Scope 3 Emissions Reporting Requirements are expected to be rolled out globally

"**Targets** are clearly-defined pathways for companies and financial institutions to reduce greenhouse gas (GHG) emissions, which have been validated by the SBTi" — SBTi

Key Global Regulations

SEC — Scope 3 required for all SEC registrants if deemed material to investors or included in company emissions targets
EFRAG — Scope 3 reporting required for listed and private EU companies, as well as non-EU companies with significant EU operations
ISSB — Scope 3 reporting required for countries that plan to adopt ISSB requirements, e.g. UK, Nigeria, Japan

Meeting net-zero targets will require IT to operationalize the environmental goals of their ESG agenda. Almost 92 percent of large global companies (as shown in Figure 4 above) are aiming to achieve their interim net-zero targets by the end of this decade.[18] This will substantially influence asset management practices, contracting, energy conservation and more. Managing the IT carbon footprint will require new operating approaches and decision-making. To achieve net zero, organizations will likely need to eliminate or offset IT-related emissions within the next five to 10 years.

KPMG estimates 68 percent of N100 companies have made public commitments to reducing emissions, and that represents a tipping point for IT.[19] Businesses making these statements should incorporate IT to lower their overall carbon footprint. Based on these current trends, ESG is starting to become more integrated operationally — rather than being viewed as just a mandatory reporting requirement.

KPMG professionals work to understand trends that have the potential to impact IT in the near term also revealed trends that represent real headwinds as it pivots to a new value proposition. IT will not just be responsible for reporting on ESG — it will play an essential role in reaching ESG goals, like those for reducing GHG emissions. As noted, as the IT function evolves, it will need to maintain a responsible new role across an array of tech-related service and product areas to raise its performance on the environmental front.

Key takeaways

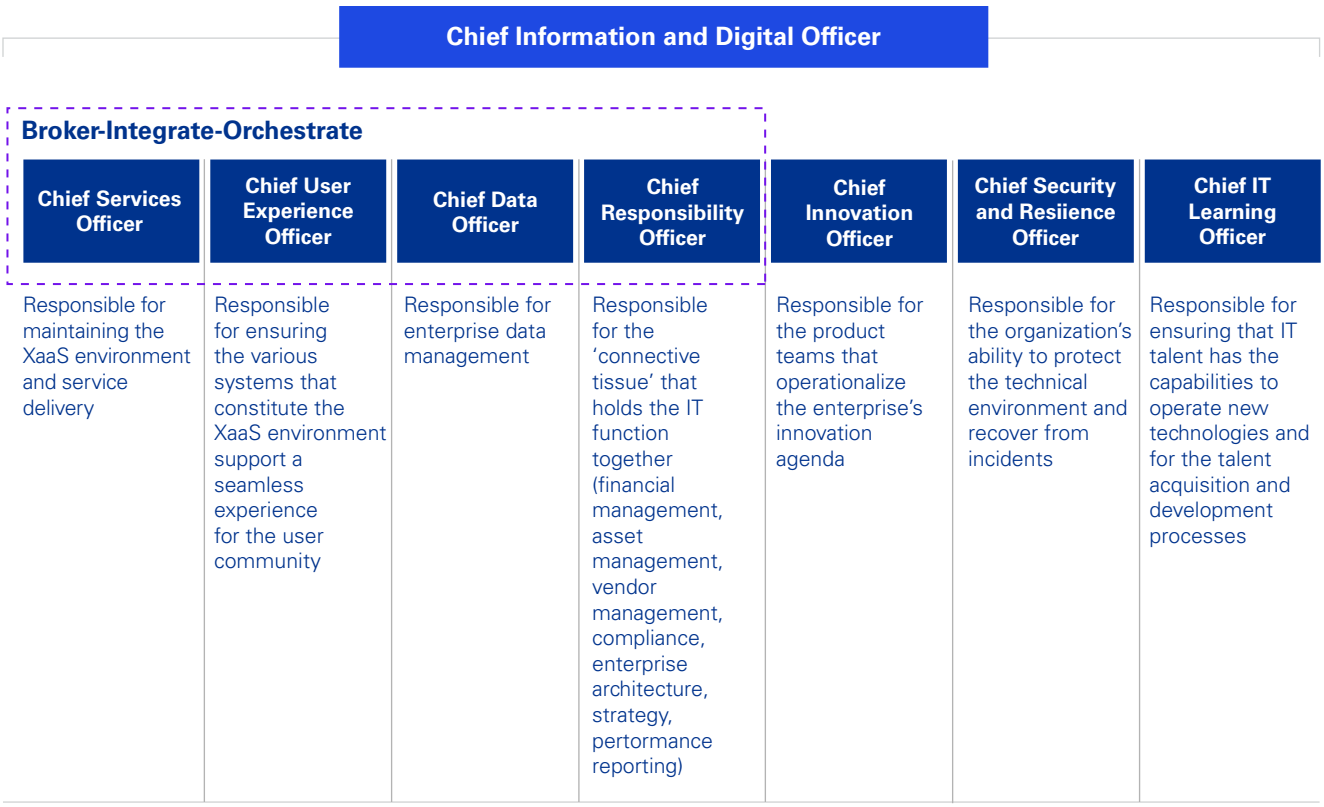
IT today....	IT it the future....
Facilitator of business requests	Innovation partner
Application development– and operations– centric	Cloud-based development- and application support-centric
Application-based architecture	Data- and cyber-based architecture
Skills-based hiring	Intrinsic-based hiring and ongoing capability-building
Green reporting	Green operations
Agile by experimentation	Agile at scale
Cybersecurity addressed through technology	Cultural focus on cybersecurity

To execute on IT's future value proposition, there will be meaningfully different operational requirements for IT leaders to identify and implement. We've developed an illustrative future IT organization model that seeks to highlight the differences between most contemporary IT functions and the IT function of the future that can capitalize on the trends we've discussed.

- In the business' effort to out-innovate their competitors in the market, they will call upon IT to participate in delivering innovative outcomes at rapid speed. IT must carve out capacity that can align to the business by serving as a single point-of-entry and operating at a different pace than the rest of the function. A Chief Innovation Officer role can lead this subset of high performance product teams whose primary focus is on keeping pace with front-office innovation and customer demands.
- The shift to XaaS will bring with it a growing complexity to manage changes from user demands and vendor updates across dozens or hundreds of enterprise XaaS products and platforms. Couple that with the challenge to rapidly resolve incidents and problems on all technology, and it becomes quite difficult to maintain control over this dynamic environment. A Chief Services Officer role should strive to deliver a positive user experience through oversight of XaaS support teams and a robust IT Service Management capability.
- The increased focus on data analytics — precipitated by the clear value proposition of data analytics and the jumpstart of data maturity offered by the shift to XaaS — warrants a Chief Data Officer role that can create accountability for the governance, expected benefits, and growth of investment in enterprise data.
- During a time of major transformation, such as we are in now, it is often easy for the Chief Information and Digital Officer (CIDO) to overlook operational performance in favor of delivering exciting, business-facing outcomes. Without close monitoring and management of IT's other commitments to product value & growth, budget compliance, risk mitigation and ESG contributions, the leader can quickly fall behind. A Chief Responsibility Officer role can ensure IT continues to deliver on its core social, ethical and operational promises while still driving business transformation.
- The persistent labor shortage and the rapidly evolving need for new and emerging digital skills demand a different approach to attracting, retaining, and developing talent. Creating an ecosystem that attracts and retains in-demand, and often fickle, talent requires an agile shift in developing new job architecture and training paths. As such, we envision a role within IT called the Chief IT Learning Officer that orchestrates this talent transformation end-to-end.
- The arms race for cyber has proven to be unwinnable despite increasing investments. Although it is paramount to keep pace with the latest advancements in cyber methodologies and technology, newer, bolder ways of approaching the problem are being called for, such as advancing the cyber literacy agenda and further embedding resiliency across the IT & business technology estate. A Chief Security & Resiliency Officer role can help the rest of IT as well as the business understand the need for cyber investment and resiliency and coordinate the response to the growing threats

These are a few examples of how of new operational requirements have the potential to drive transformation in your future IT organization. We envision:

Illustrative Future of IT operating model roles



Recessionary pressures, labor shortages, and cybersecurity risks will provide additional challenges to organizations as they navigate this modernization. How can you ensure that you have sufficient capabilities (engineers, architects, cyber specialists) needed to make this shift? How are you assessing the dynamics of the threat landscape that is substantially complicated by XaaS architecture and data-centric operations? And as recessionary pressures weigh on the business, are you prepared to pivot to high priority innovations to navigate the challenging journey to success?

IT leaders should start today to effectively prepare for this future — to develop the capabilities their organization needs, embrace a new value proposition, and take innovative approaches to boldly solve challenges for customers in innovative new ways.

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In a hyper-connected world, IT needs to deliver on the promise of the connected enterprise. The future of IT is about removing friction and adding new capabilities to enable a front, middle, and back office that is laser focused on a profitable, customer-centric, digitally enabled business.

Explore how KPMG professionals can help IT evolve its operating model, culture, technology, skills, relationships, and ways of working to deliver value in a digital world.

For more information visit The future of IT website or contact your KPMG professional today.

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