

US Tech Market Outlook, 2022

TRENDS REPORT

Another Year Of Strong Tech Budget Growth

Summary

Despite the Omicron variant and the resurgence of COVID-19, ongoing supply chain disruptions, and inflation spikes, the US economy keeps growing. Forecasts for US real GDP growth in 2021 and 2022 have been marked down, but they still show the US economy (adjusted for inflation) growing by over 5% in 2021 and by 3% in 2022. Professional and business services, media and information, financial and insurance services, telecommunications, and government — industries that together capture 63% of US tech spend — are seeing strong tech spend. We expect tech spend on goods, services, and personnel by US business and government to grow by 9% in 2021 and by 7.2% in 2022.

Strong 2021 US Tech Market Growth Will Continue In 2022

At the start of 2021, we had many questions about the US political and economic environments and what they meant for outlook for tech budget spending by US businesses and governments in 2021. Many of these questions had positive resolutions: there was a peaceful transition of power (despite the events of January 6); Congress and President Biden passed fiscal stimulus worth trillions of dollars; effective COVID-19 vaccines arrived; and economic growth came roaring back. As a result, US tech budgets (including staff costs) will grow 7.2% in 2022. The same is true for tech budgets (excluding staff costs), which will also grow 7.2%, significantly faster than the average growth of 4.4% for the years 2019, 2020, and 2021 (see Figure 1; see the downloadable Excel tool for additional data). Software and tech consulting and outsourcing services will see the fastest growth in 2022:

- **Software will see double digit growth.** Software grows at 12% in 2021 and 10% in 2022. Cloud software — both multitenant software-as-a-service (SaaS) and single- instance hosted subscription — will continue to expand its share of the software market. Over the last 18 months, SaaS vendors Salesforce and Shopify grew their revenues by 55% and 225%, respectively. In 2022, leading SaaS vendors Salesforce, ServiceNow, and Workday will grow revenues two- or three-times faster than the software market. More than a third of IBM’s revenues now come from cloud-related services. On-premises licensed software will also expand but more slowly at single-digit growth rates.
- **Tech outsourcing and consulting will both expand by 8%.** Public and private cloud infrastructure services will see the fastest growth in the tech outsourcing market. Hyperscalers like AWS, Google Cloud, and Microsoft Azure saw 40% growth over the last 12 months. Security managed services and data management services will see fast growth. Traditional outsourcing categories for hosting, infrastructure outsourcing, and application management will grow more slowly. Accenture’s US August 2021 fiscal year revenues grew 14% and its consulting and outsourcing businesses grew 13% and 15%, respectively. IT services provider Cognizant, which drives more than 70% of its revenue from the US, saw 10% growth in the first three quarters of 2021. Key projects that drive consulting revenue cover business digital transformation, customer experience, cloud migration, enterprise security adoption, and improved operational efficiency.

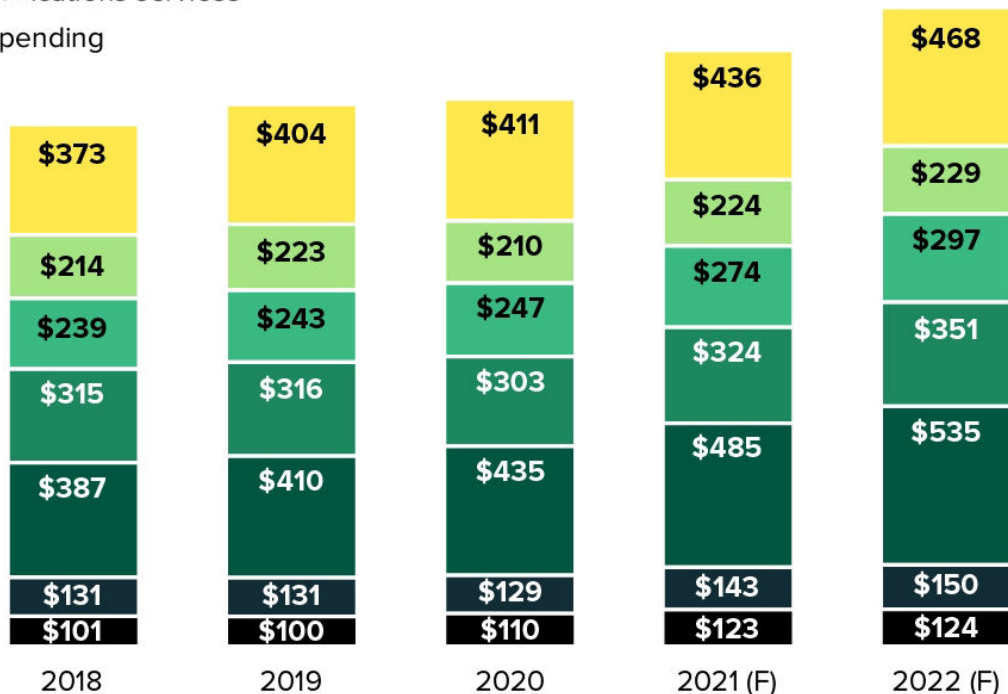
- **Tech staff spending will be up by 7%.** Tech staff employment did not fall in 2020, despite the pandemic. US tech jobs reached 4.8 million in September 2021. A more mobile tech workforce forced tech salaries to fall over the last 12 months; San Francisco and New York salaries declined for the first time in five years as remote work accelerated by the pandemic drove talent to cheaper cities. Skill shortages and tight labor markets forced job vacancies to surge, especially for data scientists, data analysts, and security professionals (see Figure 2). The US Bureau Of Labor Statistics estimates a need for 30% more information security analysts over the next ten years.
- **Communications equipment will slow to 4%.** Business, government, and carrier purchases of network gear saw double-digit growth in 2021. AT&T and Verizon saw their year-on-year CapEx rise 21%. The pandemic revealed major rural and urban gaps in wireless broadband coverage in 2020; the 2021 federal stimulus bill includes investments to support wider 4G and 5G infrastructures. Verizon sees a significant capital shift from a wired to software-based technology network to expand 5G capabilities. 5G is driving Ericsson’s North American sales, which grew 13% in Q3 of 2021.
- **Telecom services, as well as computers and peripheral equipment, will expand slowly.** Telecom services will grow only 2% in 2022 following robust 7% growth in 2021. One in three US businesses will increase telecom spending in the next two years. Growth will come from new services; Verizon is developing services for the \$30 billion B2B US mobile edge computing market across enterprise solutions, private networks, and the edge compute market. Computers and peripheral equipment will see 1% growth in 2022 following the historic, pandemic-induced double digit growth rates of 2020 and 2021. Equipment needs for most work-from-home employees and remote-learning students have largely been met. In 2021, Dell grew commercial PCs by 15%. The continued adoption of cloud infrastructure services will weaken the demand for on-premises servers and storage devices in 2022; the global serverless architecture market could capture a third of the server market by 2027.

Figure 1

Forecast: Expect Total US Tech Budget Spending To Rise By 9% In 2021 And 7.2% In 2022

US business and government spending on tech goods and services and CIO staff
(US\$ billions)

- Computers and peripheral equipment
- Communications equipment
- Software
- Tech consulting services
- Tech outsourcing
- Telecommunications services
- CIO staff spending



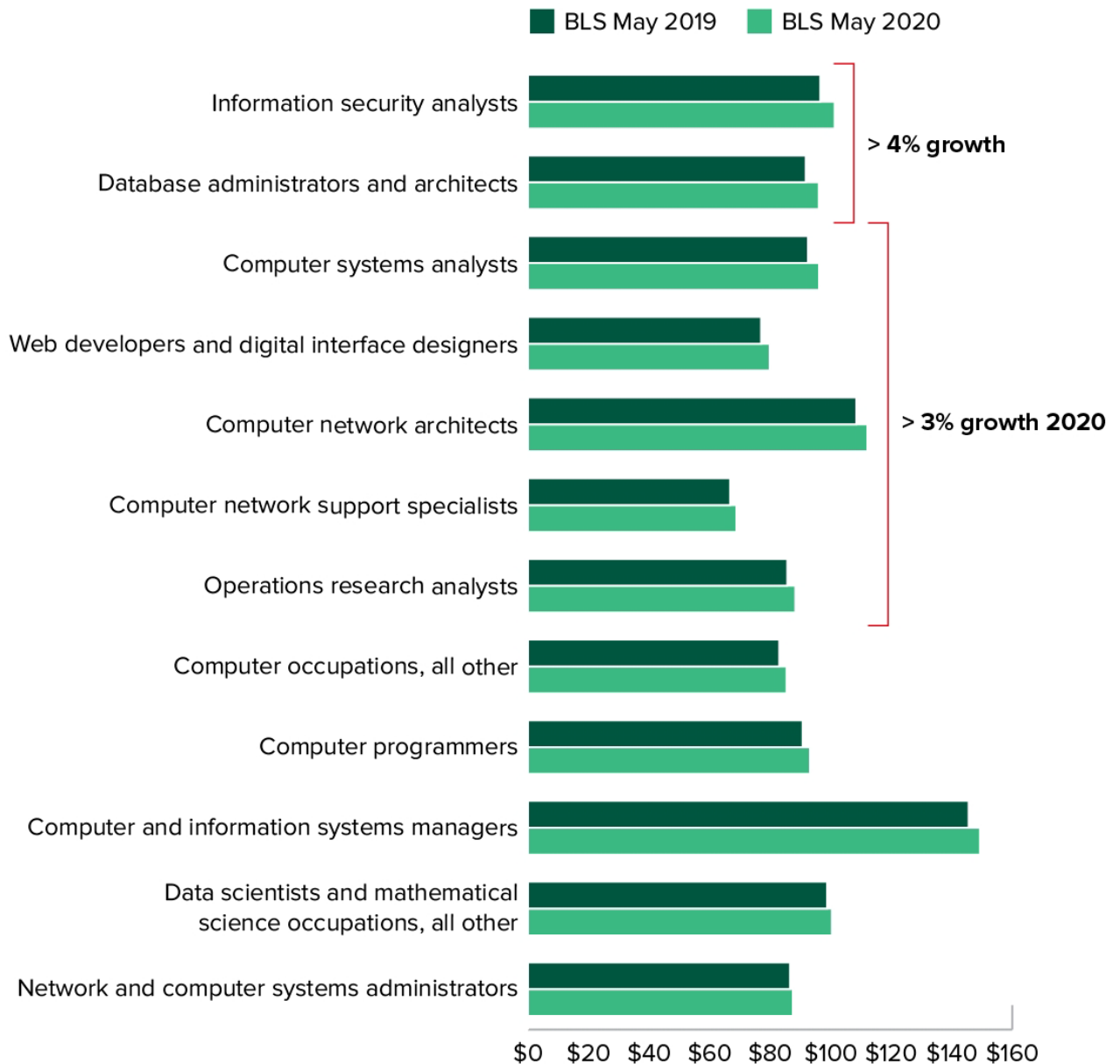
(F) Forecast

Source: US Commerce Department for 2017 to 2020 for business and government purchases of computers and peripherals, communications equipment, and software; US Census Bureau for tech consulting, tech outsourcing, and telecommunications services for 2017 to 2020; US Bureau for Labor Statistics for CIO staff spending for 2017 to 2019; Research for these items in 2021 and 2022. Not forecasting of CIO staff spending beyond 2022

Figure 2

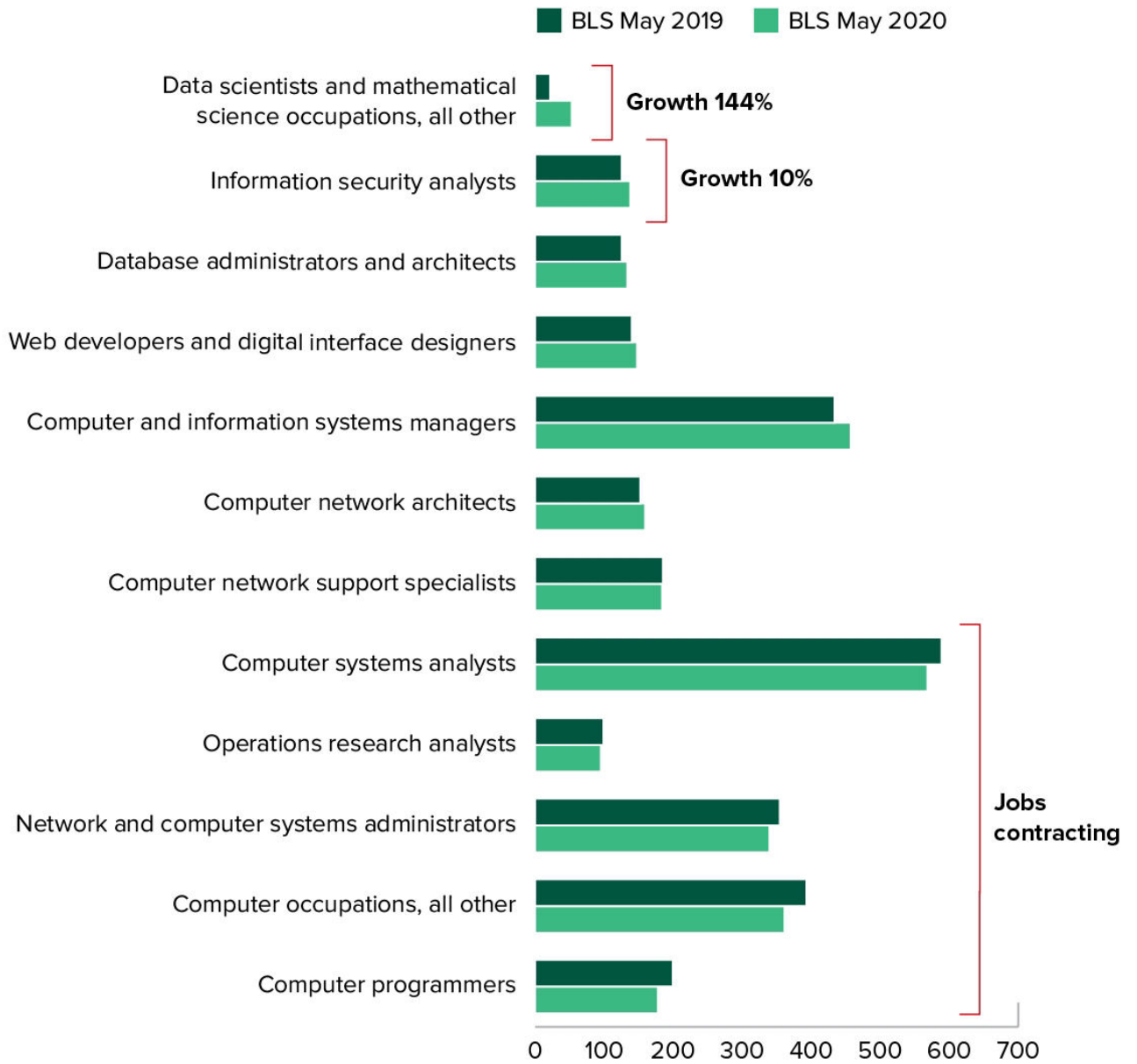
Data Science And Information Security Analysts See Fast Jobs Growth In The US

2020 CIO role salaries (in thousands) ordered from highest to lowest growth



Source: Research based on Bureau of Labor Statistics, Occupational Employment Survey, 2020

2020 CIO role jobs (in thousands) ordered from highest to lowest growth



Source: Research based on Bureau of Labor Statistics, Occupational Employment Survey, 2020

Industries That Cut Budgets In 2020 Will See Strong Growth In 2022

Across all industries, tech budget spending grew faster in 2021 than 2020. Growth rates will slow in 2022, but average growth will stay stronger than before the pandemic (see Figure 3). US GDP averaged 5% growth in the first three quarters of 2021 — faster than the 2019 pre-pandemic growth rates. Real GDP in 2021 and 2022 will grow by over 5% in 2021 and by 3% in 2022. The disappointing 2% growth rate in Q3 2021 reflects the continued economic impact of the COVID-19 pandemic: a resurgence of COVID-19 forces new restrictions and delays establishment reopening. Industry tech budget is driven by the recovery from pandemic budget cuts and by increased demand for technology services in software, professional and business services, media and information, and health. Trends for technology spend in 2021 and 2022 include:

- **Fastest growth is from primary production, oil and gas and utilities.** Utility and oil and gas companies expand their tech spending by 12% in 2021 and 9% in 2022, counterbalancing technology budget cuts in 2020. The digital transformation of the oil and gas industry, which helps reduce operation and maintenance costs and reduce unplanned outages and downtime, is worth \$1.6 trillion. R&D spending as a percentage of CapEx for the top 15 oil and gas companies in US is increasing; with an improved CapEx outlook in 2021 and 2022, tech spending will rise. In August, the Senate passed a \$1 trillion bipartisan infrastructure bill that includes \$550 billion in new funding for transportation, broadband, and utilities. The pandemic forces utility companies to invest more in grid stability and load shifting to better distribute energy resources.
- **Strong growth professional media and financial services.** Banks will see the equity of their investments return to pre-Covid levels following a drop in 2020 and 2021. More than 40% of US tech spending comes from professional and business services, financial services, and insurance (see Figure 4). These industries have increased their share of US tech spend from 37% in 2018 to 41% in 2021. Across all industries, professional and business services spend the most on tech capturing a fifth of US market.

- **Bounce-back growth from retail, wholesale, leisure, and transportation.** These industries will see the largest bounce back from the pandemic downturn. Retail executives plan to increase their e-commerce capabilities in contactless payments and in-store technology. Walmart will upgrade its legacy systems and improve customer-facing technology to make more efficient use of the cloud and simplify customer and associate experiences. Costco increases technology spending in 2021 to improve its digital platforms and its vertically integrated logistical delivery system, adapting to e-commerce trends. Although Covid increases consumer caution on leisure, vaccine success helps the leisure industry rebound and, in the long term, leisure and tourism activities will generate jobs and grow gross output, which will facilitate technology investment.
- **Sustained growth from healthcare.** Healthcare providers will expand their tech budgets by 9% in 2022 on top of the 10% growth in 2021. The essential nature of healthcare systems during the pandemic insulated them from tech spend slowdowns. Technology investment in virtual health, remote monitoring, and hospital-at-home are spending priorities. Technology helps reduce the \$265 billion costs associated with US healthcare administrative complexity. Telehealth use quadrupled in 2020. Total venture capital investment in digital health in 2021 will likely double its pre-pandemic size. Healthcare companies invest more in technology; UnitedHealth Group, which posted historic incomes in 2020, expects its planned \$13 billion acquisition of data analytics firm Change Healthcare to close in Q1 2022. Cigna's data science joint venture investment with nib Group to reduce hospital readmissions is already reducing costs.
- **Governments.** Governments grew tech budgets by 6% in 2021 and will continue to grow by 5% in 2022. The US government drives 12% of tech spend in the US (see Figure 5). US President Biden proposes IT spending worth \$58.4 billion at civilian agencies in 2022. The federal government looks to accelerate its adoption of cloud technologies; the current proposed budget includes an increase of \$500 million to the technology modernization fund, building on the \$1 billion added earlier in 2021 as part of the second stimulus package. Against this backdrop, IT software, cybersecurity, cloud computing, and AI markets are poised for strong growth.

Figure 3

US Tech Budget Spending Growth Will Be Slower In 2022 Than 2021

US tech budget spending growth will be slower in 2022 than 2021

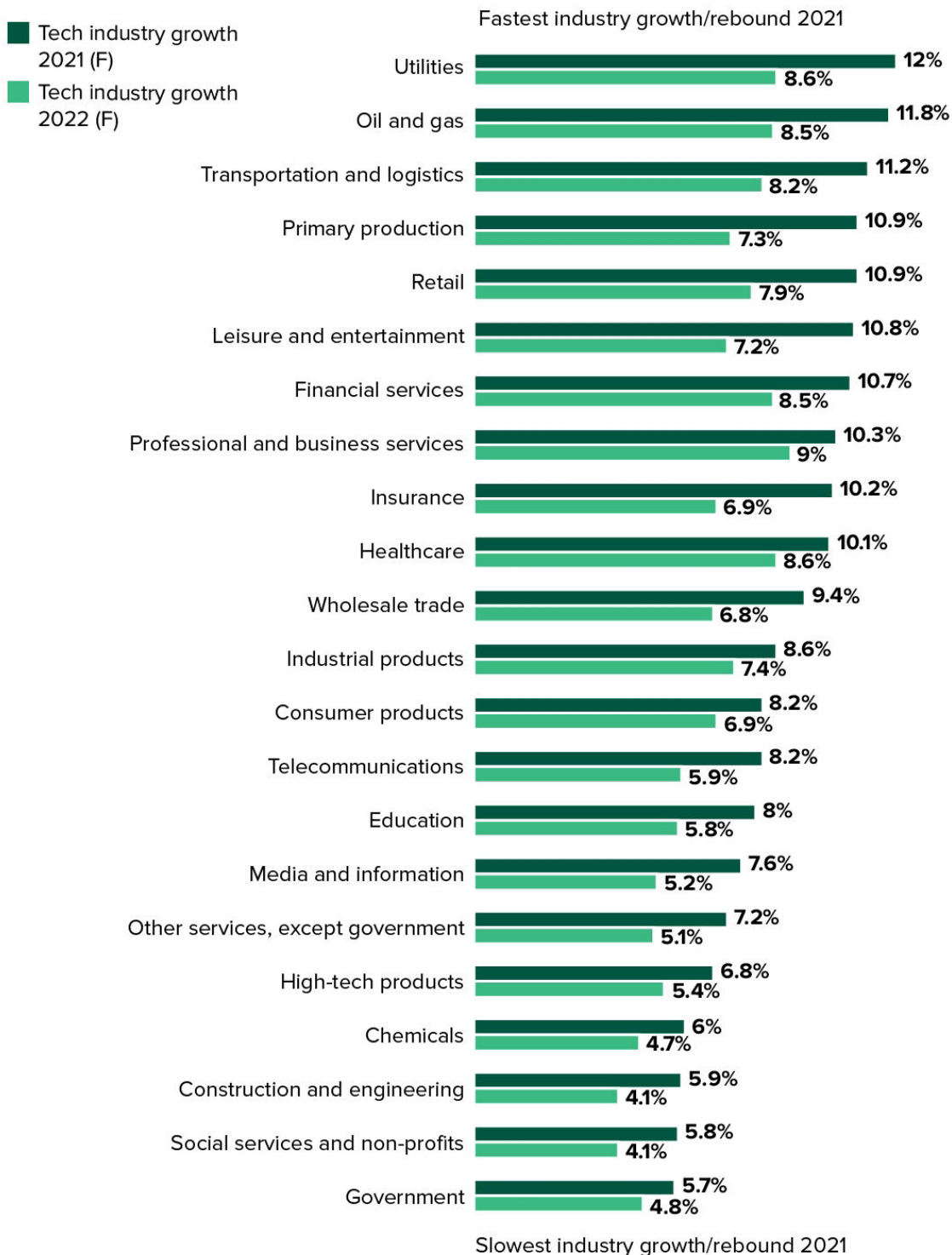


Figure 4

Over 40% Of Spend Comes From Professional, Business, Financial, And Insurance Services

Industry share of tech spend 2021

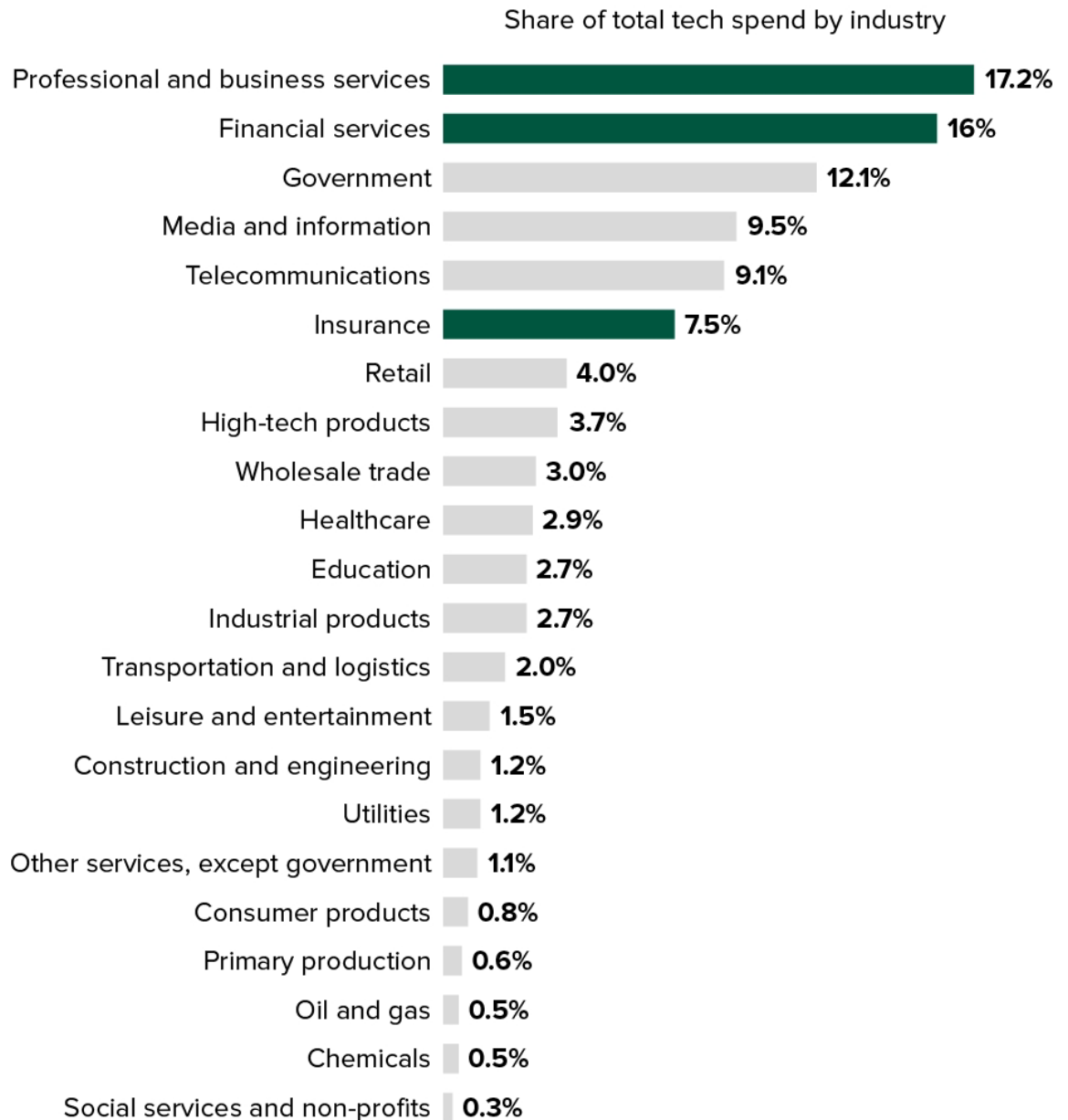
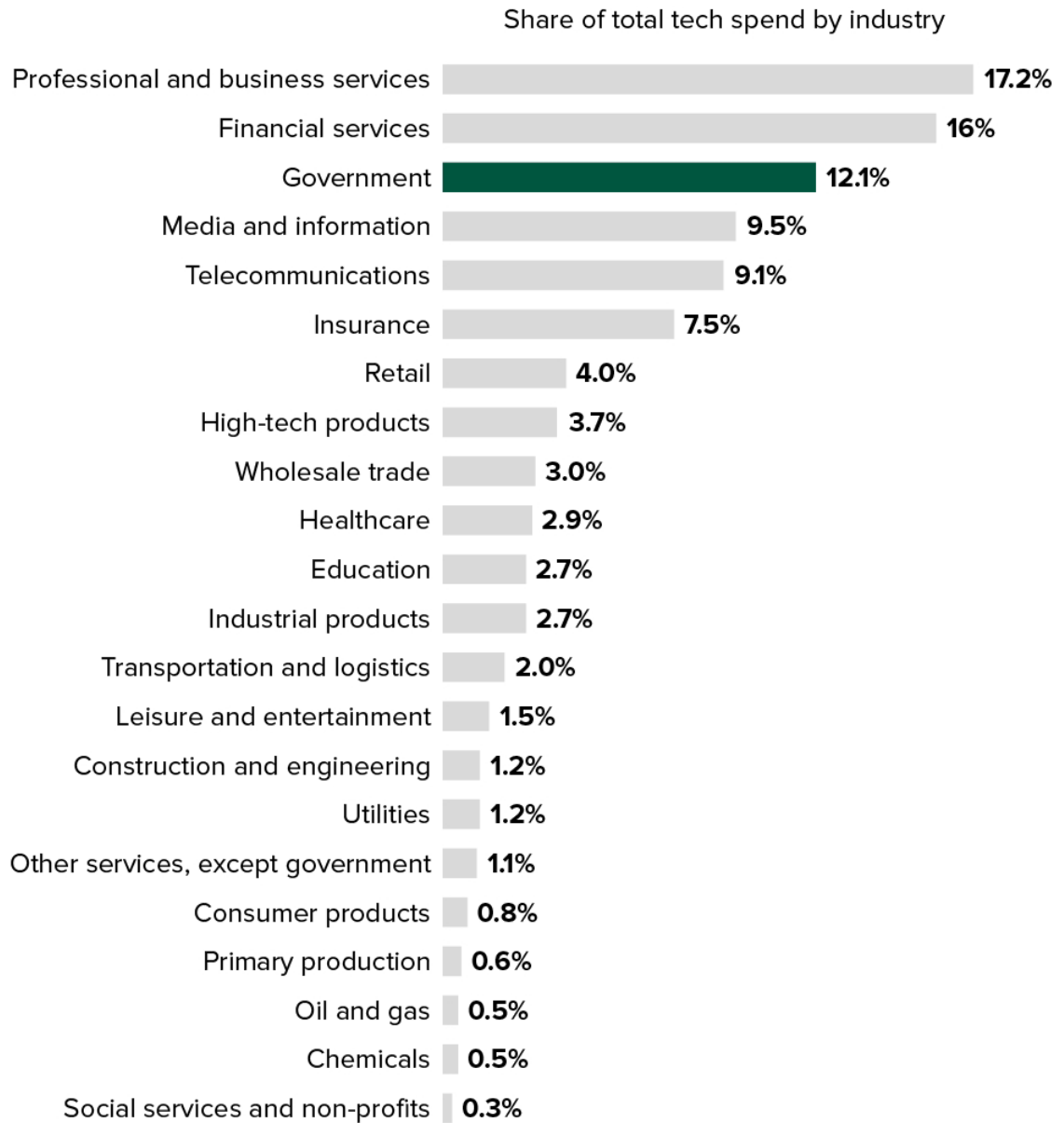


Figure 5

Twelve Percent Of US Tech Spend Comes From The Government

Industry share of tech spend 2021



New Challenges In IT Service Transparency And Sustainability Emerge

In the US, 68% percent of technology spend, excluding staff costs, comes from intangible assets in software and services. Companies rely heavily on consulting and outsourcing services to help them choose the best technology solutions for their business. Technology vendors will need to be even more transparent on the technology choices their clients face notably around cloud services and will need to adapt their offer to become more sustainable. Technology concerns for 2022 and 2023 include:

- **Fear of customer lock-in within your cloud services.** Barclay's CIO survey shows tech spend on public cloud in 2021 is more than triple pre-pandemic levels. Although cloud services reduce systems integrator and contractor spend from licensed software, other costs remain. The switching costs between cloud providers, which maximize subscriptions by offering flexible consumption-based services, is challenging to manage. Cloud providers use attractive contract terms, free-tier offerings, and egress fees to win new customers, making it harder for clients to move between cloud platforms. AWS and Microsoft Azure have consolidated the cloud computing market in the US; their dominance erodes competition and increases market scrutiny from Congress. Switching costs could further rise as more mission-critical workloads migrate to the cloud. Today, mission-critical workloads represent a smaller portion of cloud workloads; most companies use the cloud for lower priced storage/compute and other low-level processes.
- **Complexity of multicloud environments.** Multicloud businesses environments are popular; according to the Business Infrastructure Survey, 2021, almost a third of North American infrastructure business decision-makers at organizations using cloud use multicloud container platforms (see Figure 6). Multicloud allows businesses to use different cloud providers for different tasks and specializations; one cloud provider could be more advanced at AI and machine learning; another might be better at hosting a test environment. Businesses may also deploy redundant workloads in two or more clouds to handle more application traffic and enhance resilience. Over half of CIOs find that having more workloads running across multiple cloud services, often in complex deployments across hybrid cloud environments, can be a recipe for creeping costs, according to CIO.com. Regulated sectors, like

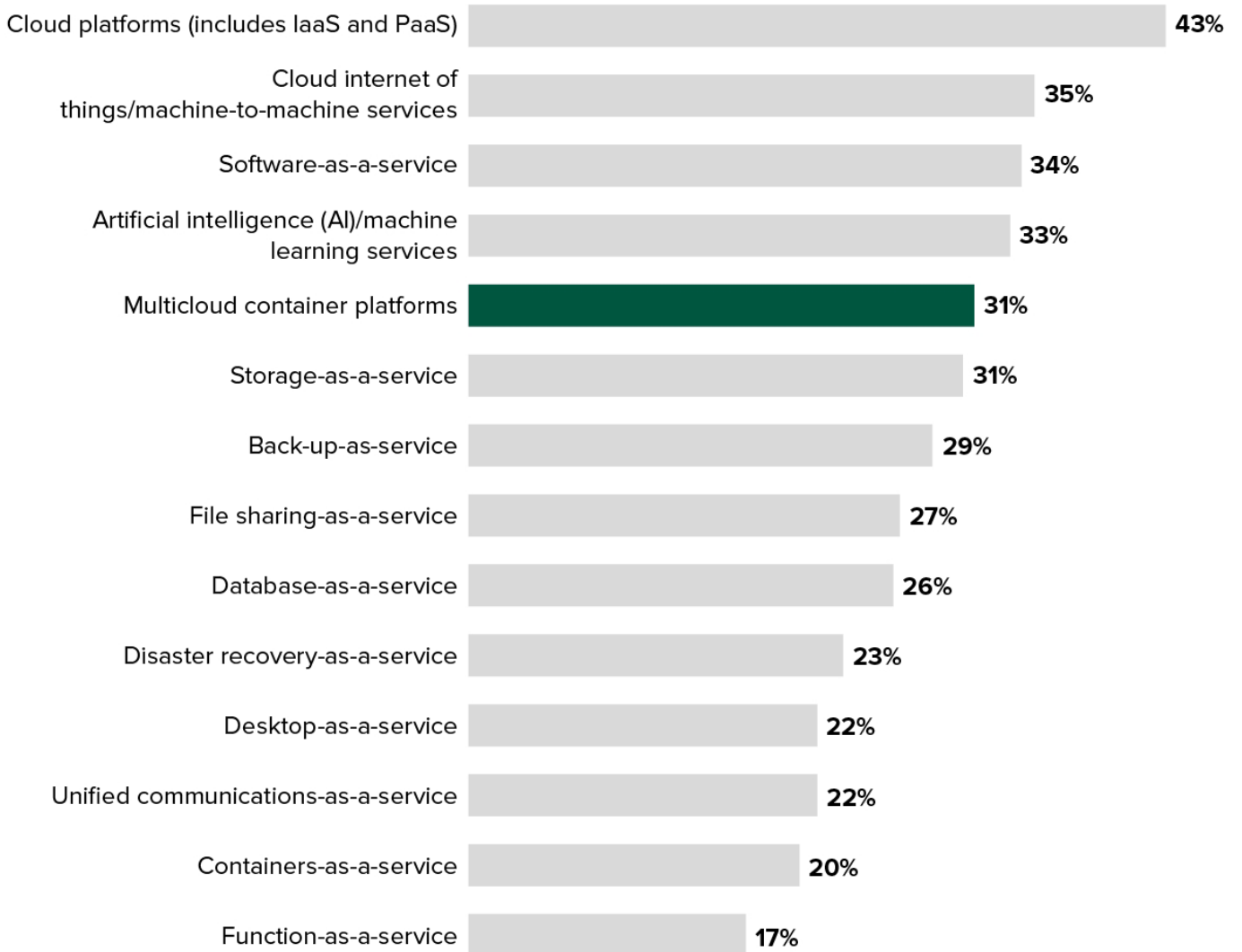
financial services and government that capture 29% of US tech spend, have started moving development/test workloads over to the cloud; this is a result of increasing pressure on banks to lower costs and to adopt the compliance, regulatory, and security features on Azure and AWS.

- **Greater need for more sustainable technology services.** According to the Business Priorities And Journey Survey, 2021, embracing corporate social responsibility/sustainability practices are a top priority for the next 12 months according to 28% of US tech purchase influencers (see Figure 7). Technology investment needs to become greener; most emissions related to modern mobile and data-centre equipment comes during manufacture. As cloud computing grows, decisions about where to run applications, locally or remotely, will need to consider the carbon footprint alongside performance and the device battery life. In the energy sector, the US's investment in clean energy lags other countries; China generates a higher share of its energy from renewables than the US. Biden proposes quadrupling clean energy research, development, and demonstration over the next four years. Oil and gas companies are helping reduce CO2 emissions; Royal Dutch Shell plans to cut absolute carbon emissions in half by 2030, with ExxonMobile promising to cut methane emissions from drilling. However, no explicit targets have yet been set on the fuel supplied to customers.
- **More transparent software spends.** Software will capture a quarter of US tech spend in 2022; yet, calculating enterprise software return on investment remains a challenge. A fifth of software license spend is thought wasted or underutilized. Less than half of company SaaS applications are regularly used by employees. Digital adoption platforms (DAP), which accelerate enterprise digital transformation initiatives and help employees make better use of their enterprise's software assets, see fast growth. WalkMe, one of the leaders of this nascent market, grew more than 40% in 2020. DAPs help enterprises reduce employee training and support costs, improve customer engagement, and provide CIOs with critical insight into software tech stack use.

Figure 6

Multicloud Investment Is A Priority In The US

**“Which of the following cloud services does your organization use?”
(North America)**



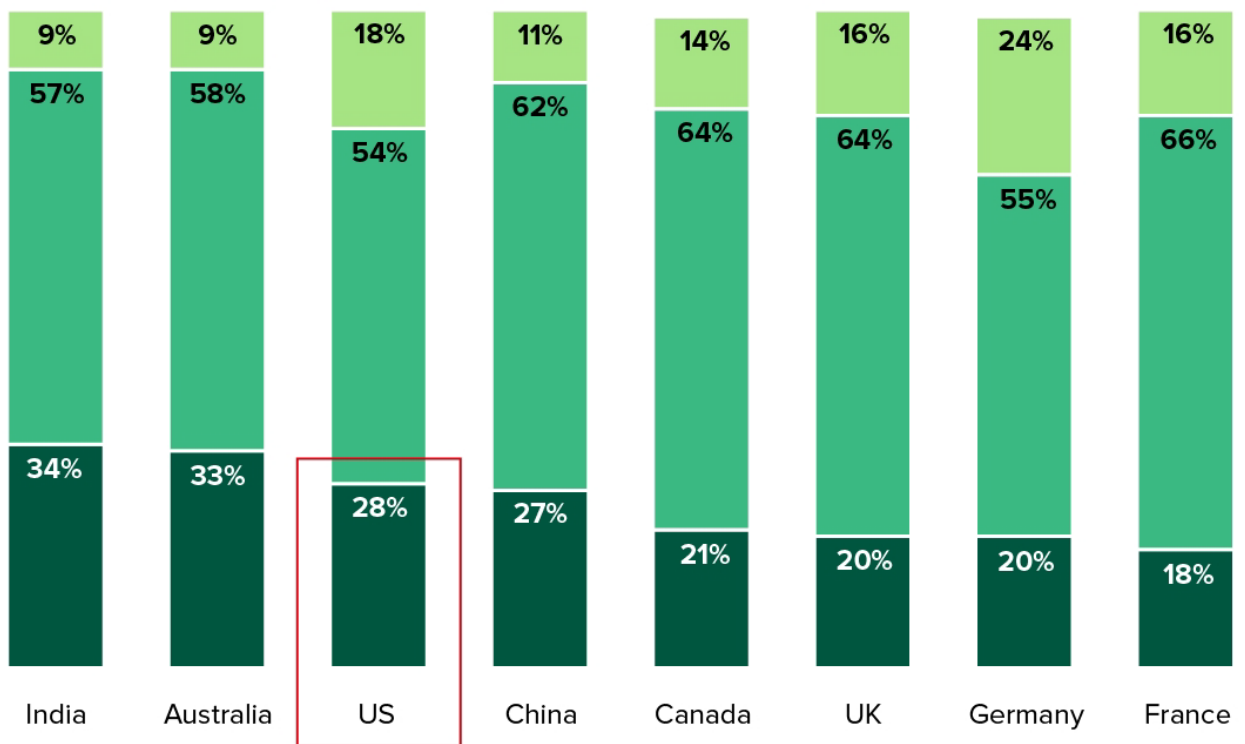
Base: 455 North American infrastructure business decision-makers whose organizations are adopting cloud platform(s)

Figure 7

Tech Sustainability Becomes An Investment Priority In The US

“Which of the following initiatives are likely to be your organization’s top business priorities over the next 12 months? Embrace corporate social responsibility practices” (High + critical priority respondents)

- Not on our agenda + low priority
- Moderate priority
- High priority + critical priority



Base: Purchase influencers (past 12 months/next 12 months)