



STATE OF
THE **CIO**

2021 EXECUTIVE SUMMARY

CIOs Take the Reins in the Year of the Pandemic



All eyes turned to technology and IT leadership as companies scrambled to transform operations and customer engagement in a world reshaped by a global pandemic.

CIOs' decades-long struggle for executive recognition was cemented this year as the global pandemic turned all eyes to technology, and IT leadership became the go-to force for driving innovation and continuity of business.

The CIO journey has been long in the making. Over the years, IT leaders have been steadily evolving their role from oversight of back-office operations as part of the middle management bench to balancing those duties with executive action to craft business strategy, lead digital transformation, become more customer-centric, and take ownership of new revenue responsibilities. As businesses around the globe scrambled to recalibrate operations, create new digital touchpoints, and shift to remote work in short order, CIOs took center stage as the key strategist and orchestrator of this year's unprecedented transformational change.

The 2021 State of the CIO, which surveyed 812 IT leaders and 250 line of business (LOB) participants, reflects CIOs' out-size influence during this tumultuous year. Given the numbers of CIOs stepping up to lead the pandemic response, it's no wonder almost half (47%) self-identify as transformational, slightly up over the 46% in the 2020 survey. More than a quarter (28%) of CIO respondents viewed their role as business strategist while a quarter leaned into their functional duties; respondents hailing from the manufacturing and government sectors were more likely to view the CIO role as functional while those in high-tech cast the CIO as business strategist.

The lion's share of respondents to this year's survey defined the CIO role as more digital and innovation focused, cited by 92% of respondents. Eighty-nine percent acknowledged the CIO as the principal champion of digital transformation efforts, contributing more than any of their business counterparts.

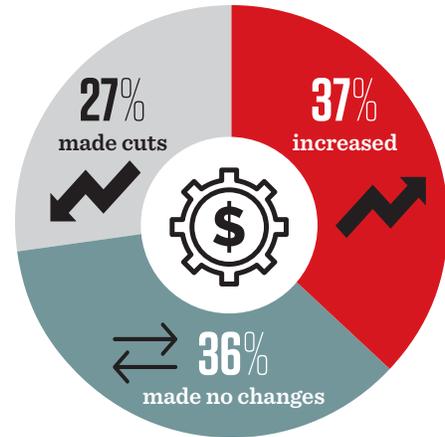
82%



of CIOs say that they have implemented new technologies, IT strategies and/or methodologies due to the pandemic

As technology took center stage during this year of transition, so too did the IT organization and CIOs. Eighty-two percent of respondents confirmed that new technologies, IT strategies, and methodologies were at the heart of their company’s response to the pandemic. Despite severe economic challenges, 2020 IT budgets remained relatively unscathed: Nearly three-quarters (73%) of responding companies either increased or made no changes to their annual IT budgets, which indicates that technology investment was central to companies’ COVID response and recovery roadmap.

HOW DID THE PANDEMIC IMPACT IT BUDGETS?



Customer experience, long a core enterprise priority, became an even greater imperative during the pandemic as companies scrambled to find alternative ways to engage clients, conduct business, and respond to changing requirements as COVID-19 forced business lockdowns and created significant socioeconomic stress. Eighty-one percent of all respondents confirmed they implemented new technology to enable better customer experiences and interactions. Sixty-five percent of responding companies leaned on technology to provide an alternative to face-to-face communications while nearly half (47%) saw an opportunity to adapt products and services to meet new demands. Almost half (45%) also wielded technology to deliver products and services in new ways.

Standing Up Remote Operations

When the pandemic hit, companies scrambled to transition the lion’s share of employees to remote work, not just over the course of months, but in an accelerated timeframe of days or weeks. According to the 2021 State of the CIO research, an overwhelming 81% of CIOs confirmed a ramp up of IT innovation as part of an agile response to setting up employees to work effectively from home.

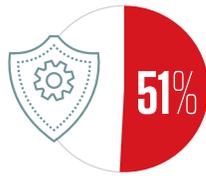
81%



of CIOs say that they’ve increased their focus on IT innovation to accommodate remote work

During the initial part of this key period, CIOs were focused on making systems functional and reliable—innovation efforts came later once everything was operational. More than half (51%) of CIOs stated their top priorities related to remote work included doubling down on improving cybersecurity controls to secure remote work while 35% are implementing remote-first practices, and 33% are spending time reassessing their methods of communication.

TOP TECHNOLOGY PRIORITIES FOCUSED ON REMOTE WORK



Improve cybersecurity



Implement remote-first practices



Reassess methods of communication

Roughly a quarter (26%) prioritized business and IT innovation, although that focus was slightly higher at firms with strategic CIOs (34%).

To ensure remote operations were stable, firms steered their efforts to cloud migration and supporting cloud infrastructure (24%), automating manual IT processes (23%), and improving customer experience (21%). Functional CIOs were more apt to put emphasis on improving business continuity and disaster recovery plans, at 23%.

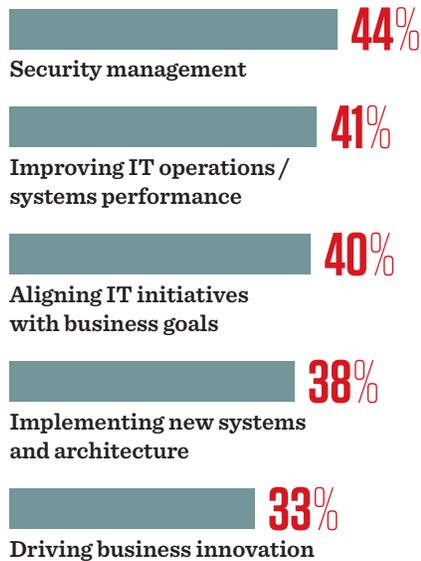
The sudden and widespread shift to remote operations required more than a technology implementation strategy. Employees needed to be acclimated to new systems and new ways of working. To that end, 63% of heads of IT confirmed they increased employee training to bring workers up to speed on their new environment and systems as well as novel business practices. Companies also spent time burnishing their internal communications practices and communications channels as employees set up capabilities to work from home—a practice cited by 79% of respondents.

While transformational duties took precedence, the scale of operational changes brought on by COVID-19 dictated a need to focus on functional tasks, amplifying the pressure on CIOs to balance innovation with day-to-day housekeeping responsibilities. In fact, more than three-quarters (76%) of responding IT leaders said they continue to struggle to strike the right balance between business innovation and operational excellence—a challenge shared regardless of CIO archetype.

Eighty-five percent of responding CIOs confirmed spending time on transformational activities, down slightly from 89% in 2020, and much higher among IT leaders in the manufacturing (93%) and government (90%) spaces. This part of their charter involved such activities as aligning IT initiatives with business goals (40%), implementing new systems and architectures (38%), and cultivating the IT/business partnership (31%). Leading change efforts, cited by 29% of heads of IT, and redesigning business processes, called out by 23%, are also major priorities.

At the same time, CIO respondents are buried by the functional aspects of their jobs, cited by 81% of participants. In this vein, CIOs devote time to security management (44%), improving IT operations/system performance (41%), and cost control/expense management (29%). Financial services CIOs allocated a greater portion of their time to functional activities than their peers in other industry sectors, cited by 88% of those respondents.

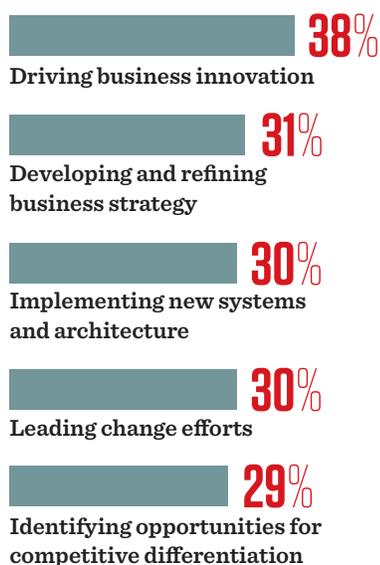
WHICH ACTIVITIES ARE CIOs CURRENTLY FOCUSING ON?



Serving as a business strategist took a back seat in this year of the pandemic, cited by only 67% of CIO respondents and essentially the same as 2020. Yet amid the rush to fortify business operations for digital and remote work, 33% of IT leaders devote time to strategy formulation such as driving business innovation (33%), developing and refining business strategy (28%), and identifying opportunities for competitive differentiation (22%).

Looking ahead over the next three years, CIOs hope to spend their time on more strategic and transformative tasks such as driving business innovation, developing and refining business strategy, leading change efforts, and implementing new systems and architecture. The expectation is that the burden of functional duties will lessen—only 55% anticipate spending time in this capacity over the next three years—potentially due to the rise of automation and other advanced technologies.

WHICH ACTIVITIES DO CIOs HOPE TO FOCUS ON IN THE NEXT 3 YEARS?

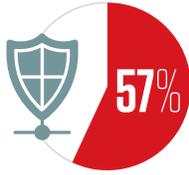


What's Driving IT Investments

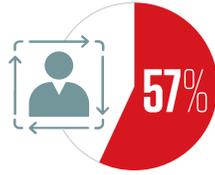
The CEO charter for CIOs this year is to lead digital transformation, cited by 42% of respondents compared to 39% last year. Beyond that, CEOs look to IT leaders to strengthen IT and business collaboration (34%), upgrade IT and data security to boost corporate resiliency (29%), and help firms achieve specific revenue growth goals (27%).

In light of the sweeping changes brought on by the pandemic, it makes sense that transforming existing business processes was the top business initiative driving IT investment this year, cited by 36% of IT leader respondents and higher among strategic CIOs (40%). Compare that to last year's research when increasing operational efficiency registered as the most prominent business initiative, cited by 37% of IT executives. As part of the shift to remote work and expanded digital interactions to maintain resiliency and solvency during the pandemic, increasing cybersecurity protections (34%) and improving customer experience (33%) also ranked as top-tier mandates.

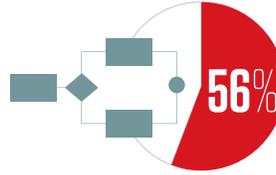
BUSINESS INITIATIVES RISE IN IMPORTANCE DUE TO SOCIO-ECONOMIC PRESSURES



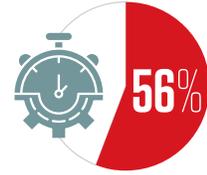
Increase cybersecurity protections



Improve customer experience



Transform existing business processes



Increase operational efficiency

In fact, current socio-economic challenges impacted prioritization of business initiatives in a variety of ways. Improving customer experience (57%), bolstering cybersecurity protections (57%), increasing operational efficiency (56%), and transformation of existing business processes (56%) were among the priorities that increased in priority the most over this past year. Initiatives tuned to improving how employees work also achieved elevated status as a result of this year's economic and other challenges. For example, optimizing the employee digital experience increased in priority for 40% of heads of IT while improving employee experience ranked higher for nearly half (49%). In comparison, many financial-related business objectives did not grow as much in priority, including introducing new digital revenue streams (38%) and increasing topline revenue (41%).

The Disconnect Between LOB and IT Persists

While IT leaders won accolades and clearly had their head in the transformational aspect of the role, the scope of their contribution remains somewhat opaque for some in line of business (LOB). For instance, LOB respondents had a slightly different take on the CEO mandate: Twenty-four percent said the CEO's top three priorities for IT in the coming year are upgrading IT and data security, improving the employee experience (24%) and helping reach specific revenue goals (22%). The charter to lead digital transformation scored low on their perceived list of CEO imperatives for the CIO, second to last at 12%.

IT and LOB were also not entirely in sync when it came to the business initiatives that are expected to drive the most IT investment in the upcoming year. The business ranks were focused on channeling IT investments to increase operational efficiency (32%), improve profitability (26%), and improve employee productivity (24%) while the CIO's top priority was transforming existing business processes, followed by increase cybersecurity protections, and improve the customer experience. Transformation of business processes was the top priority for manufacturing companies while improving cybersecurity ranked high for healthcare and government CIOs; customer experience took top billing in the government and financial services sectors.

There was also misalignment on what technology initiatives should drive investments. LOB earmarked security/risk management (31%), cloud migration (21%), and data/business analytics (19%) as its top three areas of investment this year while for IT leaders, data/business analytics (39%),

TECH INITIATIVES DRIVING 2021 IT INVESTMENTS:

	Heads of IT	LOB
Data/business analytics	#1 39%	#3 19%
Security/risk management	#2 37%	#1 31%
Enterprise applications (cloud-based)	#3 32%	13%
Customer experience technologies	#4 30%	15%
Machine learning/AI	#5 25%	11%
Cloud migrations	23%	#2 21%
Employee experience technologies	12%	#4 18%
Data center/infrastructure	17%	#5 16%

security/risk management (37%), and enterprise applications in the cloud (32%) were most critical. Functional CIOs were inclined towards security/risk management projects (50%) while transformational and strategic CIOs were more likely to greenlight data/business analytics efforts.

Among the pool of CIO respondents, customer experience, including chatbots and mobile apps, clocked in as the next round of priorities (30%) along with machine learning/artificial intelligence (25%), and collaboration tools (23%). Advanced technologies such as the Internet of Things, virtual reality/augmented reality, and blockchain remain priority projects for a much smaller pool of companies.

The Ever-Expanding CIO Role

As in years past, CIOs continue to play a prodigious role, picking up additional

responsibilities and areas of oversight and running the risk of spreading themselves too thin. Ninety-six percent of CIOs confirmed their role has expanded beyond traditional responsibilities, a slight uptick over the 95% in last year’s research.

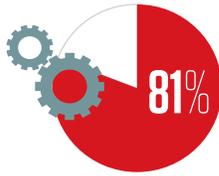
As in 2020, this year’s crop of respondents found themselves juggling additional responsibilities in areas like cybersecurity (57%) and data privacy/compliance (44%); data analysis was a new area of oversight for 47% of CIOs this year, replacing customer experience in the top three rankings. Functional and transformational CIOs were more likely to take on additional cybersecurity, data analysis, and data privacy/compliance tasks while strategic CIOs tended to add business development and marketing and sales responsibilities to their plate. Government CIOs expanded their jurisdiction to cybersecurity (69%), while IT leaders in manufacturing (54%) and retail (52%) took on data analysis responsibilities, and financial services IT leaders embraced customer experience (49%).

96%

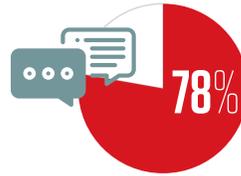


of CIOs say that their role is expanding beyond traditional IT responsibilities

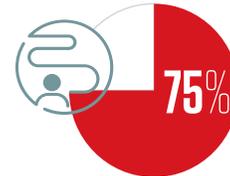
REVENUE-GENERATING ACTIONS GROWING IN IMPORTANCE



Automating business and/or IT practices



Interacting directly with customers



Developing a customer journey

Creating revenue-generating initiatives continues to be part of the CIO agenda, cited by 68% of IT leaders and more prevalent among strategic CIOs (85%) and those in the high tech (81%) and retail (78%) sectors. Thirty-seven percent of IT leaders said they were managing a team tasked with revenue generation while 31% confirmed they were an active member of such a team. As part of the revenue-generation charter, CIOs are helping to create new products and services by spending time automating business or IT processes (56%), creating teams focused on innovation (37%), and interacting directly with customers (36%). A high percentage of LOB respondents (58%) agree that revenue-generation initiatives, including those associated with creating new products and services, are a key part of the CIO mandate.

Across the board, automating business and IT processes is expected to become more important over the next six to 12 months, cited by 81% of respondents, as well as interacting directly with customers (78%) and executive leadership (61%).

CIOs continue to view their role as a strategic advisor (57%) or consultant (22%) as opposed to a risk assessor primarily tasked with evaluating and advising on technology choices, a characterization cited by only 8% of survey respondents. LOB also leans heavily on the CIO for their technology expertise--more than a quarter (28%) of LOB respondents viewed their lead IT executive as a strategic advisor, instrumental to helping them proactively identify business needs and opportunities and making the appropriate technology recommendations. In addition, 25% of LOB respondents rely on the CIO as a consultant, not merely as an implementation partner that handles technology recommendations and vendor selection.

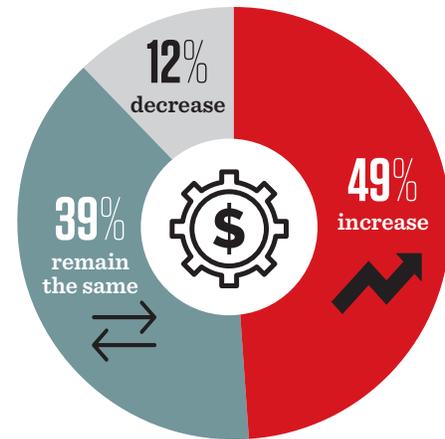
As part of their expansive agenda, CIOs continue to get plenty of face time with the board of directors, cited by 79% of responding IT leaders as central to their job responsibilities, although significantly higher among strategic (84%) and transformational (80%) CIOs. Given a growing set of responsibilities and the pronounced executive role, 88% of IT leaders confirmed they are increasingly relying on a trusted set of advisors to help navigate new technologies, processes, and methodologies—a trend slightly higher among transformational CIOs at 90%.

IT Budget Breakdown

Despite significant business disruption and the economic fallout from COVID-19, 2020 technology budgets appeared to remain intact. Thirty-seven percent of responding companies increased their annual IT budgets, 36% made no changes, and 27% of firms made IT budget cuts. More than half (53%) of LOB respondents reported increases or no changes to their IT budgets.

Overall, respondents were fairly comfortable with this year's budgetary decisions – 42% of IT leaders expressed confidence that pandemic-response budget recommendations were on target as did 39% of LOB respondents. Heading into 2021, technology spending remains in good shape: Nearly half of CIO respondents (49%) expect IT budgets will increase this year and 39% say they will remain the same. Eighty-eight percent of LOB respondents also expect IT spending to increase or remain constant. Companies with functional CIOs were more likely to have static IT budgets (47%). Of those companies planning to allocate additional dollars to IT investments, the average bump was 15%.

OPTIMISM FOR 2021 IT BUDGET



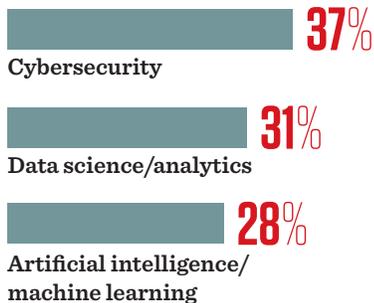
When it comes to technology investments, IT continues to maintain control of the purse strings. Nearly half of IT spending (46%) is directly controlled by IT and respondents expect that share to climb to 53% over the next three years. At the same time, functional areas retain some oversight of IT spending at 90% of firms surveyed, with marketing (34%), operations (30%), and finance/accounting (27%) the most likely groups to self-direct spending. Curiously, the supply chain function didn't ramp up IT spending (16%) even though that was an area that experienced significant disruption due to the global pandemic and subsequent business shut downs.

Given the abrupt switch to remote work and an increasingly active threat landscape, cybersecurity still represents a significant chunk of the IT budget. While down slightly from last year, spending on cybersecurity technology averaged 15.5% of the IT budget in comparison to the 16.19% last year, the research found.

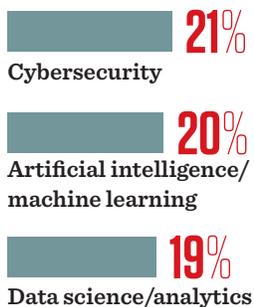
Good IT Talent is Still Hard to Find

Finding talent and the right mix of talent continues to be a hurdle for many IT shops, even in the wake of the pandemic. Given the need to shift gears and accelerate innovation in many areas, the majority of companies surveyed (69%) said they were re-evaluating IT skill sets.

PLANNING TO HIRE IN THESE TECH AREAS



EXPECTING DIFFICULTY TO FILL THESE ROLES

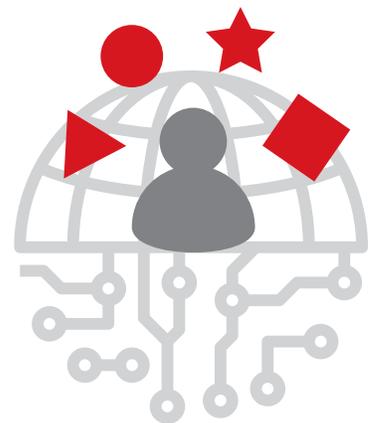


Technology integration and implementation skills were in great demand this year, called out by 47% of heads of IT, and much higher in shops with transformational CIOs (52%). Soft skills in areas like change management (36%) and strategy building, including mapping out a digital business plan, were in hot demand at 34% of responding companies. As ever, risk/security management remained a coveted core competency, cited by 34% of companies, and even higher (45%) among shops with functional CIOs.

Looking ahead over the next six to 12 months, companies have their eye on beefing up an array of technology skills, including cybersecurity (37%), data science/analytics (31%), and AI/machine learning (28%). Given the shift to the cloud and the focus on agile delivery, cloud services/integration competencies (26%) and DevOps/DevSecOps/agile processes also topped the list of most-needed skills for a quarter of responding companies. Companies in the government sector were on the prowl for IT talent with cybersecurity chops (48%) while financial services (40%) and healthcare (45%) were hungry for personnel with data analytics expertise. AI and machine learning competencies are most wanted for companies in the financial services (33%) and retail (38%) sectors.

Newer technology areas like robotic process automation (RPA), Internet of Things (IoT), and Blockchain fell much lower on the list of in-demand skills despite companies' focus on digital innovation.

While CIOs may find some relief via an ability to source from larger talent pools due to the economic downturn, most anticipate some skill sets will remain in high demand and short supply. In particular, cybersecurity talent is expected to remain hard to source, according to 21% of respondents, as is AI/machine learning (20%) due to the limited number of people trained in the advanced technologies. IT personnel versed in data science/analytics (19%) and DevOps/DevSecOps/agile processes (12%) are also likely to remain elusive, respondents said.



A Focus on Diversity and Inclusion

In the wake of this summer's protests over the killing of George Floyd and the subsequent turmoil over racial inequality, companies in every sector took a hard look at their diversity & inclusion (D&I) practices, and IT organizations were no exception. Nearly three quarters (72%) of companies surveyed confirmed they put a renewed emphasis on D&I considerations as part of the IT hiring process. When it comes to the creation of revenue-generating activities, 71% of CIOs said that creating more diverse and inclusive technology teams has increased in importance over the past 6-12 months. A significantly smaller number, 39%, said the current socio-economic pressures increased their organization's prioritization of establishing and supporting a more diverse and IT culture to enhance and broaden innovation initiatives. Even so, more than three quarters (77%) saw a clear connection between the rate of innovation and the diversity of a technology team—a sentiment echoed more strongly at financial services and high-tech companies (both at 80%).

Even without major changes, a significant portion of the companies surveyed felt their existing IT teams represented a mix of genders, cited by 77% of respondents, and ethnic and racial groups (73%). Representation of people with physical disabilities was less pronounced, at only 59% of companies surveyed.

There is no doubt the CIO leadership role crystallized this year as IT leaders took the reins to orchestrate changes that would keep business going in a world brought to its knees by a global pandemic. Yet as their growing clout translates into increased responsibility and oversight, CIOs will need to become even more adept at the ever-present balancing act or risk the consequences of unmet expectations.

72%



of IT leaders say that they are making diversity & inclusion a priority during the IT hiring process



ABOUT THE 2021 STATE OF THE CIO

CIO's 20th annual State of the CIO survey was conducted with the objective of understanding how the role of the CIO continues to evolve in today's business climate and to help define the CIO agenda for 2021. This definitive benchmarking survey outlines the tech and business initiatives IT leaders expect to focus on in the coming year, as well as insight into the CIO role when it comes to the pandemic and diversity and inclusion in the workplace. The survey was fielded via email invitations to IDG B2B brand visitors (CIO, Computerworld, CSO, InfoWorld and Network World). The survey has 812 heads of IT respondents—51% of which are from enterprise organizations (1,000+ employees). The top represented industries are high tech (14%), manufacturing (12%), financial services (12%), government/non-profits/education (11%), retail, wholesale & distribution (11%), healthcare (10%), services (legal, consulting, real estate) (10%). Key job titles we see are— CIO (29%), director/managing director (21%), CIO and EVP/SVP/VP (12%). We also survey 250 line of business respondents to make sure we obtain the opinions of CIOs business counterparts whose main functions are admin/corp. mgmt. (28%), operations (25%), finance/accounting (16%), sales (11%), human resources (6%), engineering/R&D (8%), marketing (2%).

EXAMINING THE MARKETPLACE

Delivering the right message, at the right time, and to the right people is no easy task. However, it's an important one as 73% of tech decision-makers say that if a vendor does not supply them with educational content during the research stage, it negatively impacts their impression. To help tech marketers craft content specific to their customers' needs, we can explore our buyer's journey research by technology products. **If you are interested in seeing these results by different tech buyers, for example cloud, data & analytics, or security, contact us to receive an in-depth, personalized briefing. [idg.com/contact-us](https://www.idg.com/contact-us)**



Research is a valuable tool in understanding and connecting with customers and prospects. Our research portfolio explores our audiences' perspectives and challenges around specific technologies — from analytics and cloud, to IoT and security — examines the changing roles within the IT purchase process, and arms tech marketers with the information they need to identify opportunities.

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Want to know more about what content drives IT decision-makers and fuels their engagement during the IT purchase process? IDG's Customer Journey poster infographic provides insight into the entire technology purchase process — who's involved in each stage, how to increase trust, etc. — while highlighting the sources these decision-makers rely on.

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