PLANNING GUIDE REPORT

Planning Guide 2024: Technology Architecture And Delivery

August 1, 2023

By Chris Gardner, Diego Lo Giudice, David Mooter, Charles Betz, Julie Mohr, Liz Herbert with Stephanie Balaouras, Caroline Bonde, Marissa Fritz

FORRESTER®

Summary

In today's uncertain macroeconomic environment, technology leaders face ongoing challenges assessing and prioritizing which enterprise technologies and methodologies generate the most value. Tech budgets remain under scrutiny even as businesses expect rapid innovation and the integration of generative AI. Tech leaders need practical guidance on where to invest and divest their resources. This data-driven report provides spending benchmarks and additional perspectives to help prioritize and future-proof your technology investments while staying on budget and simultaneously meeting the expectations and needs of the business.

Introduction

Following a year of peak inflation and rightsizing, technology leaders must continue to assume they will face scrutiny of IT spending and pressure to provide business value. That said, the need to invest in traditional (cloud, data center, and software) and formally experimental technologies (generative AI [genAI] and TuringBots) remains as organizations strive for a future fit tech strategy.

2024 Budgets Benchmarks Show An Increase In Spending Despite Economic Uncertainty

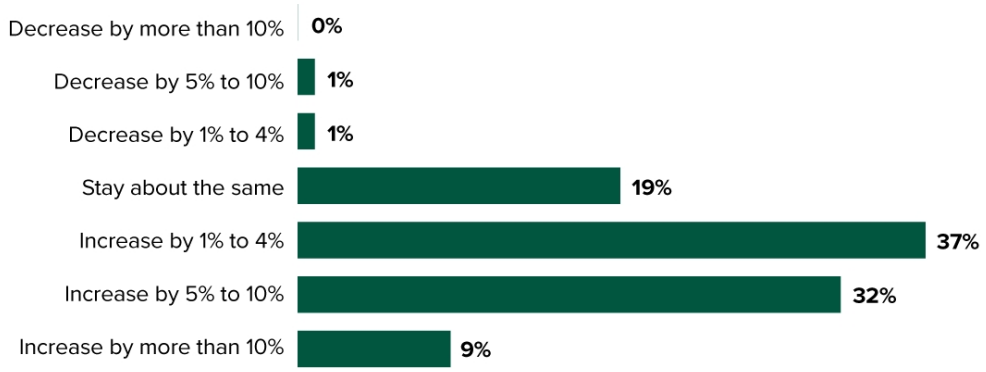
Forrester's budget planning benchmarks provide an essential overview of budgetary priorities for enterprise cloud, data center infrastructure, and software. Our data, collected across different regions and verticals, indicates that:

- **Cloud spending continues to increase to take advantage of future fit tech.** When asked about their organization's plans for the next 12 months, 37% of US technology decision-makers said their cloud infrastructure and development budget would increase by 1% to 4%, 32% said it would increase by 5% to 10%, and 9% said it would increase by more than 10% (see Figure 1). Cloud remains integral to a future fit strategy and is the primary focus of advancements in development and AI.
- **Data center infrastructure also continues to increase, but it's not repatriation.** In the same survey, 33% of US technology decision-makers said their data center infrastructure budget would increase by 1% to 4% in the next 12 months, 30% said it would increase by 5% to 10%, and 8% said it would increase by more than 10% (see Figure 2). This spending is not due to repatriation but to a continued need to "run the shop," as many enterprise IT organizations still run traditional workloads in data centers.
- **Software budgets, whether customizing or composing, are increasing as well.** When asked about their organization's plans for the next 12 months, 36% of US technology decision-makers said their software budget would increase by 1% to 4%, 30% said it would increase by 5% to 10%, and 9% said it would increase by more than 10% (see Figure 3). Software continues to be the expression of the business and the critical foundation that keeps it running. Increased budgetary allocation highlights the continued transition from buy versus build to customize versus compose.

Figure 1

Anticipated Cloud Budget Changes Over The Next 12 Months

"Which of the following describes any planned/anticipated change in your organization's technology budget for the following domains in the next 12 months?"
Cloud infrastructure and development services

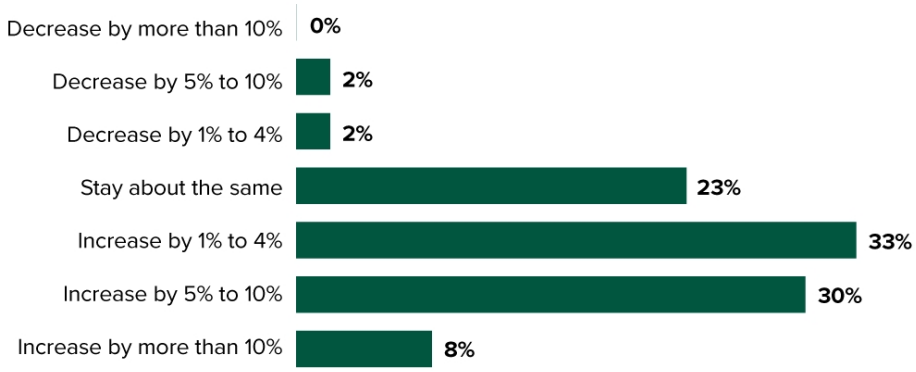


Note: "Don't know" responses are omitted. Percentages do not total 100 because of rounding.
Base: 206 US technology decision-makers
Source: Forrester's Budget Planning Survey, 2023

Figure 2

Anticipated Data Center Infrastructure Budget Changes Over The Next 12 Months

"Which of the following describes any planned/anticipated change in your organization's technology budget for the following domains in the next 12 months?"
Data center infrastructure

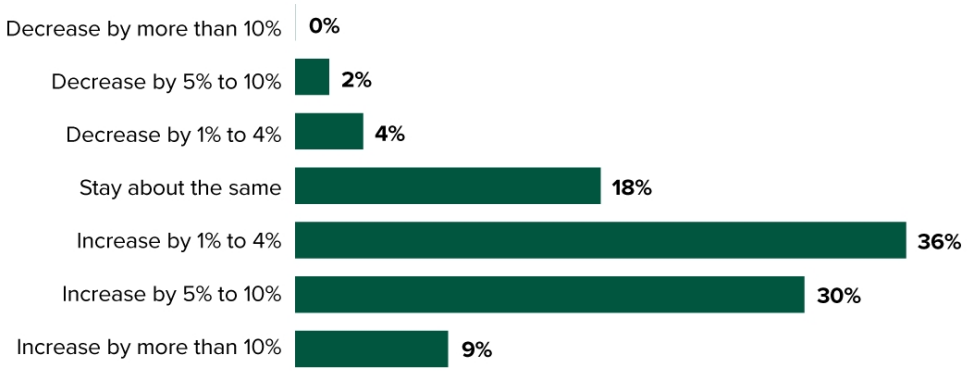


Note: "Don't know" responses are omitted. Percentages do not total 100 because of rounding.
Base: 206 US technology decision-makers
Source: Forrester's Budget Planning Survey, 2023

Figure 3

Anticipated Software Budget Changes Over The Next 12 Months

"Which of the following describes any planned/anticipated change in your organization's technology budget for the following domains in the next 12 months?"
Software



Note: "Don't know" responses are omitted. Percentages do not total 100 because of rounding.
Base: 206 US technology decision-makers
Source: Forrester's Budget Planning Survey, 2023

Increase And Defend Investment In AI-Enabled Technologies, Low-Code, And VSM

While generative AI continues to (rightfully) have the lion's share of attention, other AI-enabled technologies require investment in 2024. TuringBots, previously an experimental technology, have moved to the forefront of software development. Automation and autoremediation take AI to the next level by resolving issues in real time. Value stream management (VSM) tools identify and distill value from the software delivery lifecycle, and both business and tech leaders are continually replacing core applications with low-code. We recommend that tech leaders increase or defend investments in:

- **GenAI for productivity, knowledge management, and content creation.** GenAI refers to the collective AI-based approaches and tools for generating novel content in the form of natural language, code, images, audio, video, etc., from massive data. The launch of ChatGPT created a tsunami of high-tech investment

and enterprise interest. The promise is real. GenAI will enable employees to boost creativity, productivity, and knowledge and deliver new and highly personalized customer experiences. There are still many challenges — the issues of coherent nonsense, finding the optimal application architectures, and proving the highest ROI use cases — but the potential is immense. Tech leaders must explore, experiment, and prototype use cases immediately with a focus on knowledge retrieval, content transformation, and enhancing core differentiators.

- **TuringBots to build software faster, better, and cheaper.** TuringBots — AI that helps development teams increase productivity across the end-to-end software development lifecycle — are maturing fast. Adoption in areas like coding, testing, and deployment is happening in real time. TuringBots collaborate with development team members as well as other business and IT stakeholders, reducing friction, connecting different stages of the lifecycle, and creating shortcuts to build applications and products faster. They can automate many use cases, such as optimizing product plans and workflows, generating code from prompts and comments, and creating tests from requirements. Technology leaders should invest in TuringBots to build and deliver higher-quality custom software that differentiates the business and propels it forward.
- **VSM to deliver concrete outcomes.** VSM solutions help teams deliver more value by first collecting and measuring the performance of the end-to-end software delivery process via quantifiable metrics such as change lead time and release cadence. Next, VSM systems join with agile planning and strategic portfolio tools to provide the meta-connection between them, thereby linking business objectives and key results (OKRs) with agile work items. Development leaders can use VSM solutions to show how engineering efforts lead to greater value via faster time to market, improved user experiences, or savings from retiring tech debt. Business leaders gain greater insight into the agile process, uncover the true cost of goods, and better balance priorities such as innovation, maintenance, and retiring tech debt. Everyone benefits from the quantifiable insights, which is why enterprises need to invest today.
- **Low-code to accelerate citizen development of software the business needs today.** Software is the expression of the business. Enterprises are increasingly turning to low-code platforms to keep pace with their evolving business needs rather than using traditional, slower-to-implement high-code languages like C, C++, and Java. Low-code platforms enable faster prototyping and iteration, leading to some of the purest forms of agile development. With the right governance model, tech leaders can also provide the guardrails needed for citizen development. Low-code isn't just for simple apps; businesses are increasingly using it in place of their

core systems. Consider investing in low-code platforms to augment high-coding, especially if you want to develop important applications quickly and with pixel-perfect accuracy.

- **AIOps and autoremediation to identify and solve infrastructure operations issues.** The volume of infrastructure operations (cloud, data center, etc.) telemetry data and the pace of its generation are unmanageable without some level of AIOps and AI-driven automation. Whether for noise reduction, event detection, data correlation, causal analysis, or incident remediation, AIOps and autoremediation are critical aspects of a proactive operational posture. They can automatically execute predefined scripts and actions that resolve operational situations without any active human involvement. By detecting degrading patterns in real time, AIOps can fix infrastructure issues immediately and even address them before users are aware of degraded performance or, worse, an outage.
- **Event-driven architecture (EDA) to extend and enhance API competency.** EDA's unique decoupling capability allows it to implement resilient microservices and empower business domains to iterate rapidly with real-time data while remaining decoupled from each other. More interestingly, as organizations mature to a business-oriented API strategy, they find that REST isn't a good fit for every business scenario. The asynchronous event pattern fills that gap and acts as a complementary tool to REST in a mature API strategy. AsyncAPI can extend an API developer portal to event streams. Instead of starting every scenario with REST, choose the pattern that works best for each business scenario: synchronous REST or asynchronous events.
- **AI-based cloud enterprise applications to promote continuous innovation.** Application modernization continues as leading technology buyers ferret out old, hard-to-upgrade legacy on-premises apps and replace them with software-as-a-service (SaaS) and cloud-based ones that deliver a continuous stream of AI. The top enterprise software vendors — such as Microsoft, Oracle, Salesforce, and SAP — boast double-digit growth in major categories of cloud applications, and all have invested significantly to make their applications synonymous with AI. While some categories, such as human capital management (HCM) and CRM, are already largely SaaS, leading technology buyers are modernizing laggard categories — such as finance and operations, supply chain, and industry process apps — with modern, cloud-based, AI-driven apps that fuel a new level of business automation and speed.

Decrease Or Avoid Investment In Legacy Methodologies And Technologies

Despite overall increases in tech spending, Forrester believes tech leaders should deprioritize certain areas. These include technology mainstays like hybrid apps and the enterprise service bus (ESB), as well as methodologies such as ITIL and single-solution siloed delivery. We recommend that tech leaders decrease or avoid investments in:

- **ITIL training, given its decline in relevance and thought leadership.** The ITIL standard has been a training mainstay for decades, standardizing terminology and basic process models for IT and digital organizations. However, since 2013, it has slowly declined under pressure from agile and DevOps practices. ITIL as a framework still made some sense for immature organizations. However, PeopleCert (the current owner of ITIL) is changing its business model, and vendors intimately associated with ITIL for many years, such as Pink Elephant and ITSM Academy, have now discontinued or terminated their relationships. As a framework, ITIL is clearly in decline, and Forrester doesn't expect further updates or significant thought leadership. Forward-looking digital organizations should look elsewhere for training.
- **Standalone robotic process automation (RPA) software.** The proliferation of robotic software during the past few years showcased the benefits of task automation but also exposed its limitations for enterprises. In their quest to scale, many experienced users are looking to replace their RPA standalone products with automation platforms that provide additional automation technologies, such as digital process automation (DPA), intelligent document processing (IDP), data and application integration, low-/no-code app development, and process intelligence. RPA software vendors are shifting their offerings from standalone products to an assembly of automation technologies (including RPA). This enables users to move from task to process automation, an important leap toward supporting organizations' automation fabrics.
- **An ESB that creates a monolithic bottleneck.** The on-premises ESB has two big problems: 1) Using one bus to connect and couple everything might have worked 20 years ago when app portfolios were small, but it's a bad practice in today's world of massive portfolios and growing SaaS sprawl; this also turns the central enterprise integration team into a bottleneck every time a project has integration requirements. 2) Organizations pivoting to cloud must also invest in integration platform as a service (iPaaS). Cloud-native architecture solves the first issue because it's more conducive to smaller, lightweight integration services that each

do one thing well than a monolithic bus that services the whole enterprise. Focus your integration strategy on building business domain capabilities exposed via APIs rather than point-to-point app connections.

- **Hybrid apps that bridge the gap between SaaS and on-premises.** Enterprises have a mosaic of platforms and point products across multiple deployment models to meet the needs of any single business function. Hybrid apps unite "best of" capabilities to balance demands across security, strength of capability, and cost. However, as platforms develop, there's an increasing overlap in capabilities. Employees grow tired of navigating many interfaces and workflows across platforms. The commute to and from the platform drives up costs, latency, and vulnerabilities. Furthermore, there are gaps in the security and resilience posture where apps fit together, and responsibility is ambiguous, especially when bridging SaaS, public cloud, and on-premises. Enterprises should consolidate these stacks to cut costs, improve the experience, and mature their SaaS governance practice.
- **Single-solution, siloed delivery for project planning.** As organizations continue scaling agile to the enterprise, they quickly recognize the need for a consolidated view of all the work that product teams perform to manage dependencies and resource capacity. This is often executed via multiple project management planning solutions that require manual data aggregation to see the big picture. Integration is usually the next step to connect these tools, but the process becomes complex and brittle without an experienced integration team or an integration platform to manage new features issued by the individual tools. Technology leaders should consider investing instead in collaborative work management (CWM) platforms that contain planning and delivery capabilities paired with built-in integration support for single-solution requirements.
- **Non-agile paradigms like waterfall.** Forrester's Q4 2021 Global State Of Agile At Scale Survey shows that waterfall has been in decline for many years, but it will probably never go away. However, 59% of organizations are still in their agile transformation program; some have been on this journey for more than five years. Scaling agile isn't easy; it requires persistent work and commitment from the executive level down to individual developers on scrum teams. You'll need concerted efforts to build and maintain software architectures; move agile infrastructures to cloud; create dynamic, flat, and fluid team topologies; and more. Refrain from investing in and developing new products with old non-agile approaches, like pure waterfall and shared centralized development services; instead, spend those resources on agile transformation.
- **Monolithic and non-composable data architectures.** Data mesh shifts data strategy from a single data platform to a decentralized environment. Federating

and coordinating the decentralization and centralization of data involves prioritizing composability and interoperability principles in order to select the right tool for the job. Monolithic data architectures and their corresponding solutions constrain flexibility and lack an elastic cost model. Data fabrics, metadata-driven platforms, cloud-native, and containerization overcome vendor lock-in while allowing for cost optimization. Technology leaders should refrain from further investing in traditional data management tools and platforms that inhibit the development of use case and contextual data models, slow down the buying or building of innovative capabilities, lack microservice and containerized capabilities, or inhibit cost optimization.

Experiment With Platform Product Management, Data Spaces, And Workplace Assistants

If the economic outlook worsens, tech leaders will feel tempted to dial back investments in cloud, data center infrastructure, and software. They may also feel inclined to abandon experimental projects. Some caution is necessary, but totally eliminating experiments is a mistake; evidence shows that today's experiments become tomorrow's differentiation. While there is a constant influx of emerging technologies and practices, Forrester sees growing and promising value in these areas:

- **Training to support a transition to platform product management.** IT organizations that face a perpetual gap between desired outcomes and actual delivery are experimenting with platform teams. IT should treat internal teams as customers and adopt an outcomes-based focus on value delivery to bring product management to internal platforms. The early results of organizations adopting this methodology show that persistent, autonomous, and rightsized teams can achieve agility and continuous innovation at scale. Investing in product management training for your operational teams is an early critical success factor; otherwise, organizations are simply changing the name of existing teams (platform whitewashing) without helping their people develop the skills to drive transformation.
- **Data spaces to enable secure data exchange among businesses.** Gaia-X defines data space as "a data relationship among trusted partners who adhere to the same high-level standards and guidelines in relation to data storage and sharing within one or many vertical ecosystems." Organizations store their own data and transfer it only via semantic interoperability as necessary. A variety of tech players are in the game: Service providers like Atos deliver the technical part of data spaces; OMEGA-X is one example that aims to promote data sharing among

energy operators. SAP is creating a data ecosystem for life sciences in collaboration with Pfizer. This activity is important, as the value of the data economy will reach €829 billion by 2025 in the European Union alone, up from €301 billion in 2018. And the global volume of data will grow 530% from 33 zettabytes to 175 zettabytes.

- **Autonomous workplace assistants (AWAs) to accelerate productivity and innovation.** AWAs are intelligent agents with cognitive or physical automation that can make decisions; act without approval; and perform a service based on environment, context, user input, and learning in support of workplace goals. They can be scheduled, triggered by an event, or directed by a human. They act as employees' assistants or copilots, capable of meeting many needs via the narrow conversation and resolution paths that are typical to many jobs. A health agent AWA, for example, can transcribe a doctor's notes, populate patient medical records, and orchestrate sign-off; a loan originator AWA can gather client data, prepare documents, compute credit scores, fund accounts, and manage client communication. With the rapid progression of genAI, enterprises should experiment with creative AWA use cases.
- **Emerging private 5G networks in key industry use cases.** 5G connections power IoT use cases, applications, and edge computing solutions. In some verticals (e.g., manufacturing, media and entertainment, healthcare, and financial services), firms are deploying private 5G networks to address potential data communication disturbances or security threat concerns from public 5G networks. In manufacturing, private 5G has enabled factory-floor automation; augmented reality/virtual reality (AR/VR); and HD video applications for remote inspection and surveillance, quality assurance, monitoring, predictive maintenance, and employee safety solutions. Target a small deployment first to serve as a testing ground and validate the use case. Understand the ROI and how to measure it before committing enterprise budget and internal resources to private 5G.

Supplemental Material

Survey Methodologies

Forrester's Q4 2021 Global State Of Agile At Scale Survey was fielded to 152 professionals with knowledge of their firm's agile practices. For quality assurance, we screened respondents to ensure that they met minimum standards in terms of content knowledge. Forrester fielded the survey in October and November 2021.

Additional Contributors

The authors would like to thank the following Forrester analysts for their contributions to this report: Carlos Casanova, Christopher Condo, Octavio Garcia Granados, Craig Le Clair, Sudha Maheshwari, Dario Maisto, Lauren Nelson, Michele Pelino, Bernhard Schaffrik, Renee Taylor-Huot, and Margo Visitacion.

FORRESTER®

We help business and technology leaders use customer obsession to accelerate growth.

FORRESTER.COM

Obsessed With Customer Obsession

At Forrester, customer obsession is at the core of everything we do. We're on your side and by your side to help you become more customer obsessed.

Research

Accelerate your impact on the market with a proven path to growth.

- Customer and market dynamics
- Curated tools and frameworks
- Objective advice
- Hands-on guidance

Learn more.

Consulting

Implement modern strategies that align and empower teams.

- In-depth strategic projects
- Webinars, speeches, and workshops
- Custom content

Learn more.

Events

Develop fresh perspectives, draw inspiration from leaders, and network with peers.

- Thought leadership, frameworks, and models
- One-on-ones with peers and analysts
- In-person and virtual experiences

Learn more.

FOLLOW FORRESTER

Contact Us

Contact Forrester at www.forrester.com/contactus. For information on hard-copy or electronic reprints, please contact your Account Team or reprints@forrester.com. We offer quantity discounts and special pricing for academic and nonprofit institutions.

Forrester Research, Inc., 60 Acorn Park Drive, Cambridge, MA 02140 USA
Tel: +1 617-613-6000 | Fax: +1 617-613-5000 | forrester.com