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MuleSoft Research

2024 Connectivity Benchmark Report

In collaboration with **Deloitte.** Digital

Content

Executive Summary

The new normal: AI inflection point amplifies the need for a coherent IT strategy.

Eighty-seven percent of IT leaders report that the nature of digital transformation is changing. AI further complexifies the tech landscape, with an estimated **991** apps in the average enterprise. IT budgets increase to meet the surging demand.

AI adoption explodes, integration and security concerns are the biggest barriers.

The AI genie is out of the bottle, with over **three-quarters** of organizations reporting they use multiple AI models. **95%** say difficulty integrating AI with other systems is a top barrier, followed by **79%** reporting security concerns.

IT leaders acknowledge that data silos and systems fragility are holding their companies back.

Almost universal, **98%** of IT leaders report facing challenges regarding digital transformation. Key drivers are the persistence of data silos at **81%** and the fragility of tightly coupled and highly dependent systems at **72%**.

Automation is still a source of contention between IT and the business.

Business users benefit greatly from the automation of their work (saving **1.9** hours per employee per week) and nearly every department requires automation. However, the majority of IT departments still need to determine how to enable this in a secure and governed way. Two thirds (**66%**) of automation projects have IT as the sole gatekeeper.

Virtually every company (99%) runs on APIs, but few have turned them into a strategic lever

APIs remain a powerhouse for productivity and revenue, with an estimated **one-third** of revenue attributed to API-related offerings. However, managing and securing data at scale has become increasingly complex with API sprawl. This sprawl is why **one-quarter** of all APIs go ungoverned.

Foreword

IT teams are experiencing a profound shift in the landscape of digital transformation. As demand grows for seamless customer experiences, AI-driven insights, and automation, the pressure on IT to deliver has intensified. The project load for IT continues to significantly grow year-over-year, while the expectation remains for IT to enable emerging technologies all while keeping the lights on.

This demand is made more difficult as IT leaders grapple with skills gaps, disconnected systems, and compliance concerns. In this evolving digital landscape, it has become more critical than ever for IT leaders to proactively anticipate and address these rising expectations.

As you'll learn in this report, the reasons are compelling for a proactive API strategy and seamless application integration. We see organizations that are leveraging API-led strategies for transformation are driving revenue growth and decreasing operational costs.

Furthermore, lack of integration is the top barrier to adopting emerging technologies. The interoperability of systems is crucial for harnessing the full potential of data, AI, and automation, all while fostering a cohesive and agile technological stack. And this should be the cornerstone of every IT leader's mindset in 2024.

Kurt Anderson
Managing Director & API Transformation Leader
Deloitte Consulting LLP

About the Report

MuleSoft's 9th annual Connectivity Benchmark Report, in collaboration with Vanson Bourne and Deloitte Digital, was produced from a survey of 1,050 IT leaders across the globe.
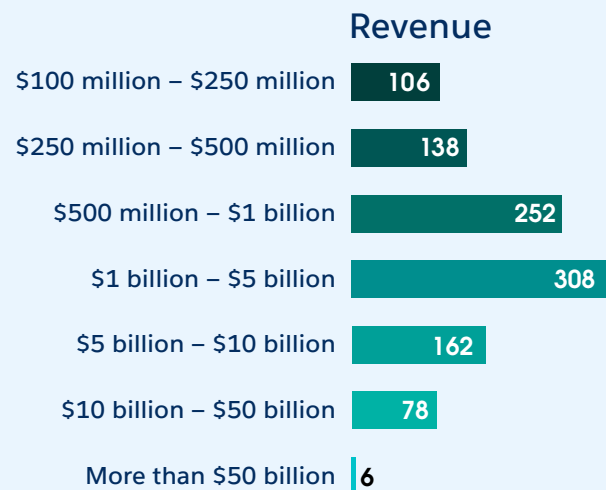
We conducted an online survey between October and November 2023 across the United States, the United Kingdom, France, Germany, the Netherlands, Australia, Singapore, Hong Kong, and Japan. We ensured that only suitable participants responded to the survey using a rigorous, multilevel screening process.

Respondents are all IT leaders with managerial positions or above in an IT department. All respondents work at an enterprise organization in the public or private sector with at least 1,000 employees.
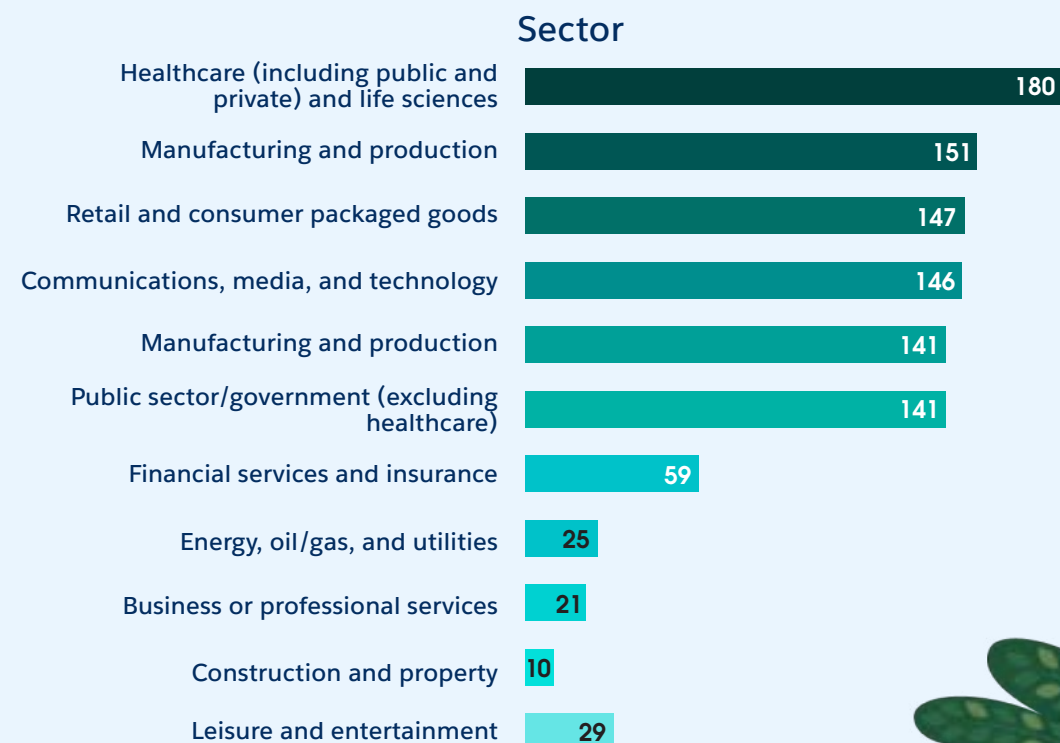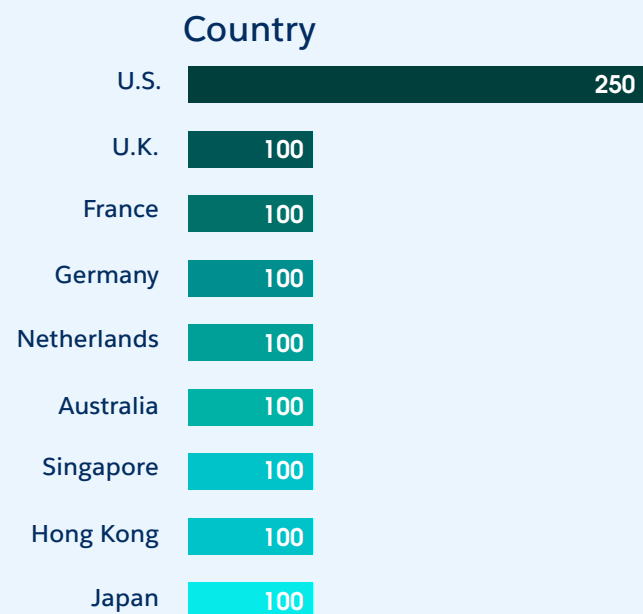
Methodology

1,050 IT decision makers were surveyed in October and November 2023, split in the following ways:

Revenue

Revenue range	Count
$100 million – $250 million	106
$250 million – $500 million	138
$500 million – $1 billion	252
$1 billion – $5 billion	308
$5 billion – $10 billion	162
$10 billion – $50 billion	78
More than $50 billion	6

Position

Position	Count
Owner, co-owner, partner, CEO, MD, most senior level in the organization	115
Board member, CXO, director/SVP, senior manager of unit, function or department	358
Departmental or intermediate management	491
Team or group supervisor	86

Company size

- 525 — 1,000-2,999 employees
- 525 — 3,000 or more employees

Country

Country	Count
U.S.	250
U.K.	100
France	100
Germany	100
Netherlands	100
Australia	100
Singapore	100
Hong Kong	100
Japan	100

Sector

Sector	Count
Healthcare (including public and private) and life sciences	180
Manufacturing and production	151
Retail and consumer packaged goods	147
Communications, media, and technology	146
Manufacturing and production	141
Public sector/government (excluding healthcare)	141
Financial services and insurance	59
Energy, oil/gas, and utilities	25
Business or professional services	21
Construction and property	10
Leisure and entertainment	29

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5

The new normal: AI inflection point amplifies the need for a coherent IT strategy.

Top Insights

01

Organizations rely on IT leaders to guide the implementation of AI and automation. 75% of respondents state that their leadership communicates an upfront strategy.

02

The number of projects asked of IT teams has risen sharply, up 39% from 2023. Budgets increase to accommodate demand, with teams spending $10.5M on IT staff over the past 12 months.

03

AI has created more complexity for integration strategies. Organizations now use an estimated average of 991 applications across their digital estate, with an estimated average lifespan of four years.

Organizations look to IT to pave the way.

In the wake of AI technology advancements, 87% of respondents feel the nature of digital transformation is changing. As a result, the role of the CIO and other IT leaders is becoming more critical than ever.

At the same time, the surging demand for AI and automation means that IT leaders must establish and communicate a clear strategy for execution. Encouragingly, 75% of respondents state that their IT leaders are already doing so.

75%
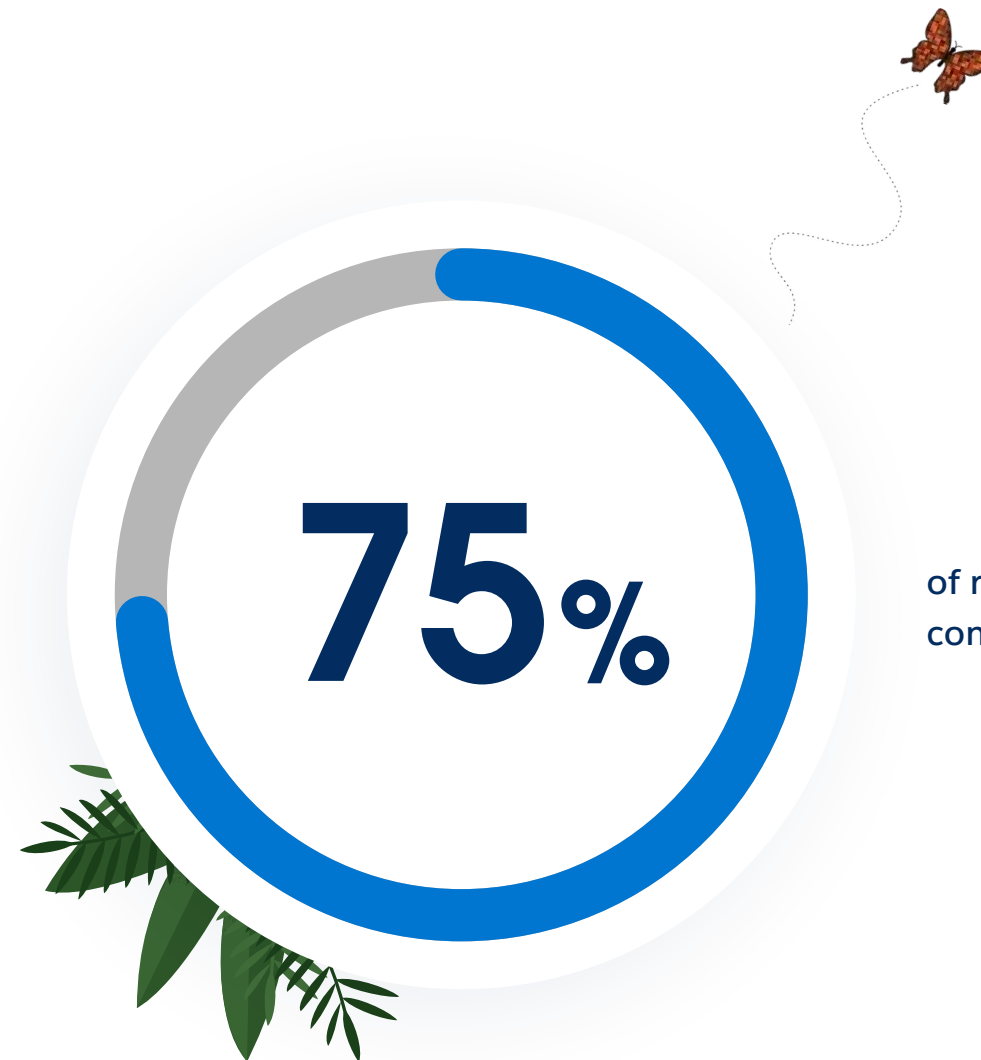
of respondents state their IT leaders communicate an upfront strategy.

Customers expect more, but data silos stand in the way.

New technologies have shifted how customers interact with companies. Customers have come to expect exceptional experiences supported by well-connected data through integrated systems.

Nearly three-quarters (70%) of their experiences are digital, but only 26% of organizations report providing a completely connected user experience across all channels.

70%

of respondents estimate their customer interactions are purely digital.

Based on an estimate from IT leaders, nearly three-quarters (70%) of experiences are digital.

Increased customer engagement is ranked as the No.1 benefit of integrating user experiences.

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AI further tangles API sprawl.

Organizations must balance nearly 1,000 applications to create a cohesive experience for end users.

Adding to the mix, AI has begun to see widespread adoption by the general public – and businesses are looking to drive efficiency through AI.

Forty-nine percent of the general population reports having used generative AI according to a recent survey.* And 86% of IT leaders expect generative AI to play a big role at their organizations in the near future.**

991

the average estimated number of applications across their digital estate.

4 years

The current average estimated lifespan of an application.

* Source: Salesforce Generative AI Snapshot Series, September 2023.
** Source: Salesforce State of IT, July 2023.

IT budgets increase to meet demand.

Headcount and budgets are still growing to meet new demands. IT teams have spent an average of $10.5 million on IT staff over the past 12 months. And over three-quarters (77%) expect their IT staff headcount to increase even further to meet rising project demand – above the 57% in a related 2023 study which shared this outlook.*

The number of projects asked of IT teams has risen by 39% from 2023.

* Source: Salesforce State of IT, July 2023.

Percentage of organizations that anticipate increased IT budget for the coming year.

Year	Percentage
2024	77%
2023	78%
2022	85%
2021	77%
2020	75%
2019	69%
2018	70%

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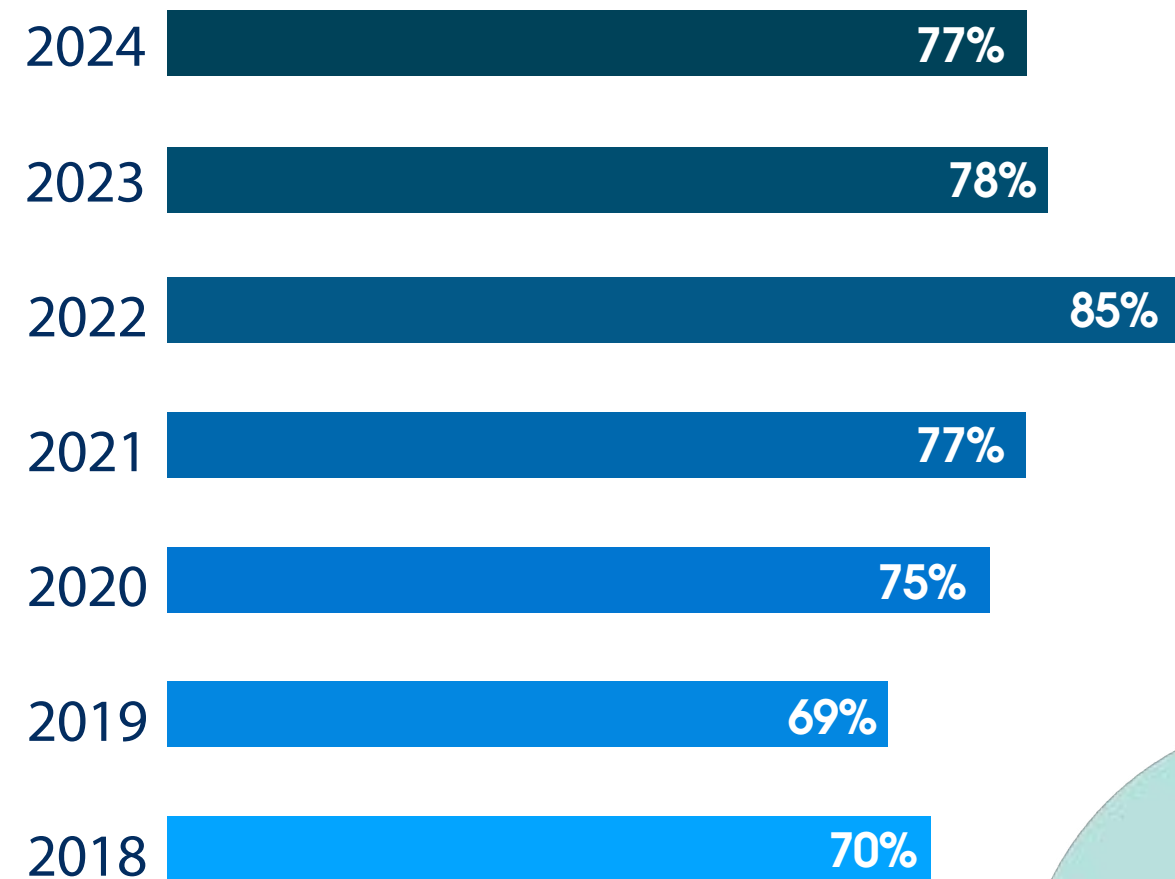
AI adoption explodes, but integration and security concerns are the biggest barriers.

Top Insights

01

Eighty percent of organizations report already using multiple AI models. And the mean number of AI models used by IT organizations is estimated to increase by 69% within the next three years.

02

AI is viewed as a solution to growing backlogs if used correctly: 85% say the application of AI has increased developers' productivity in their organization.

03

Barriers remain. 95% report that integration issues impede AI adoption, 79% have security concerns, and 64% are concerned with ethical AI usage and adoption. Only 2% report there are no significant barriers to utilizing their data for AI.

AI adoption continues to explode.

We're in a technology gold rush – and AI adoption is booming.

A significant minority of organizations are architected for AI success, with only 2% reporting no barriers to using their data for AI use cases. There are a variety of barriers, from data quality to funding to talent, but outdated IT infrastructure leading to data silos and fragmented systems tops the list.
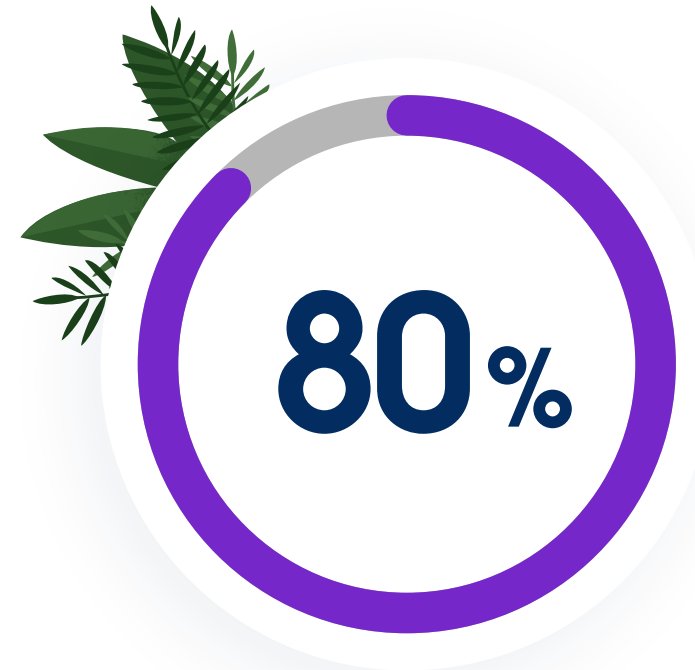
80% of organizations say they are already using multiple AI models.
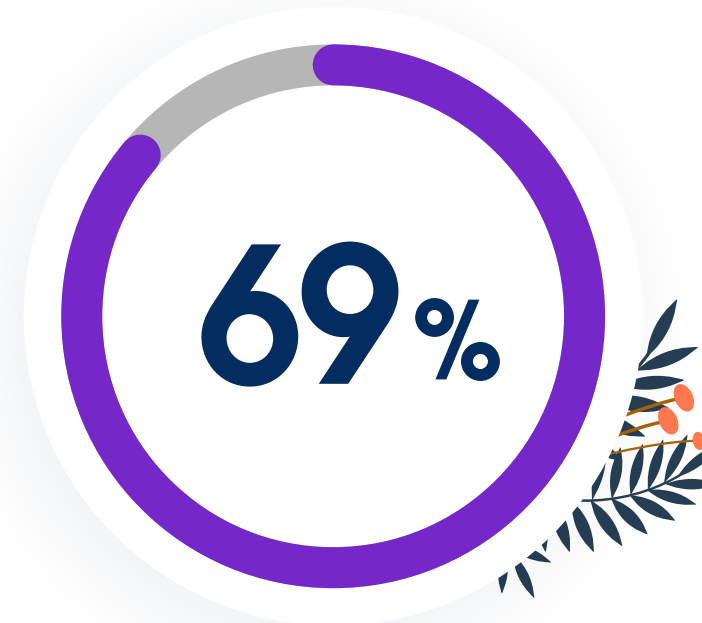
**69%** of organizations expect to increase the number of AI models they use in the next three years.

As backlogs grow, IT leaders look to AI and efficiency to further close the gap.

IT leaders focus on efficiency and utilizing new solutions to combat increased project requests. Most (83%) say the application of AI has increased developers' productivity in their organization.

While AI itself isn't new, generative AI has quickly emerged as a new solution to support IT teams. It represents a new modality in human and computer interactions and opens up exciting use cases and markets.

** Source: Salesforce State of Commerce, January 2024

86%
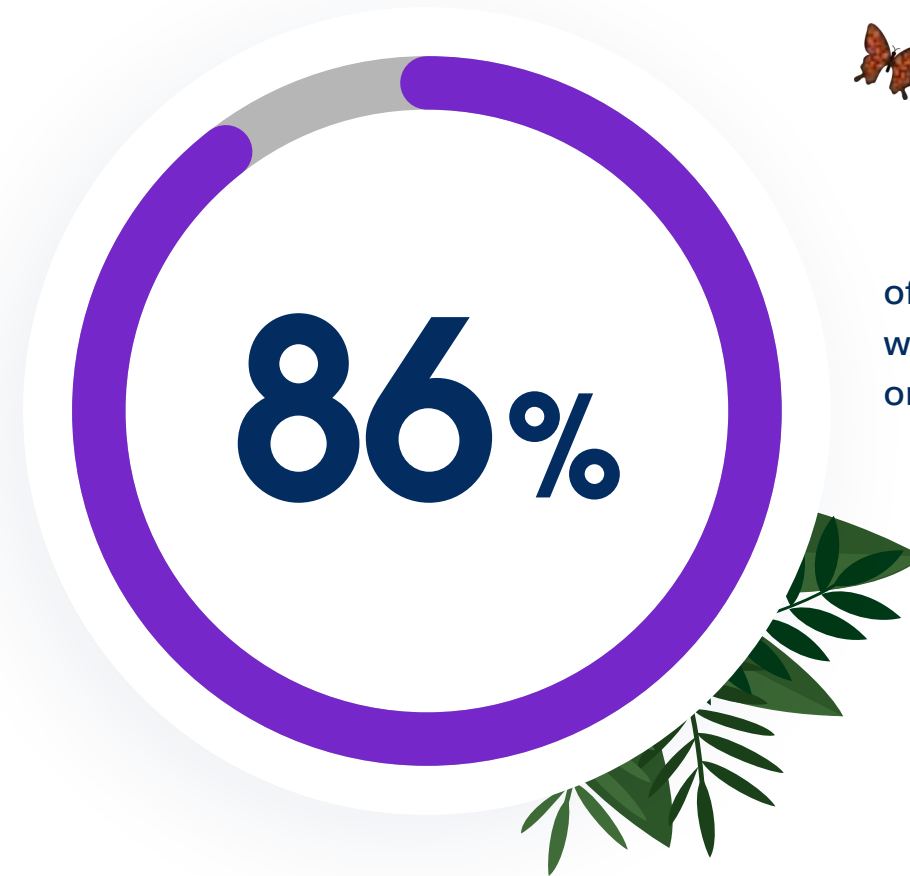
of IT leaders believe that generative AI will have a prominent role role at their organizations in the near future.*

Communications are king – for now. AI Use Cases Abound in Customer-Facing Roles across Commerce, Marketing, Sales, and Service.**

16

IT leaders balance AI adoption as ethical concerns and blockers persist.

While AI adoption is growing rapidly, a recent report shows that 64% of IT leaders are concerned with ethical AI usage and adoption. *

These concerns are varied, with over three-quarters of respondents considering security a risk.

* Source: Salesforce State of IT: , July 2023.

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IT Leaders Who Cite the Following Concerns Around Generative AI*

Security risks   **79%**

Bias   **73%**

Carbon footprint   **71%**

62% of IT leaders are concerned about the impact AI will have on their careers.*

AI success is dependent on integration.

While most of IT leaders report that AI increases productivity, it is dependent on integrated data. Nearly half of IT teams plan on adopting an AI solution in the coming year, but only 28% of apps are connected.

Sixty-two percent feel their organization is ill-equipped to fully harmonize their data systems to leverage AI technologies.

Challenges integrating AI with existing systems was the most frequently cited concern related to leveraging generative AI within an organization. Among all concerns, integration, security, and privacy were seen as the top three barriers to adoption.

* Source: Internal Salesforce Generative AI Feedback Survey.

95%
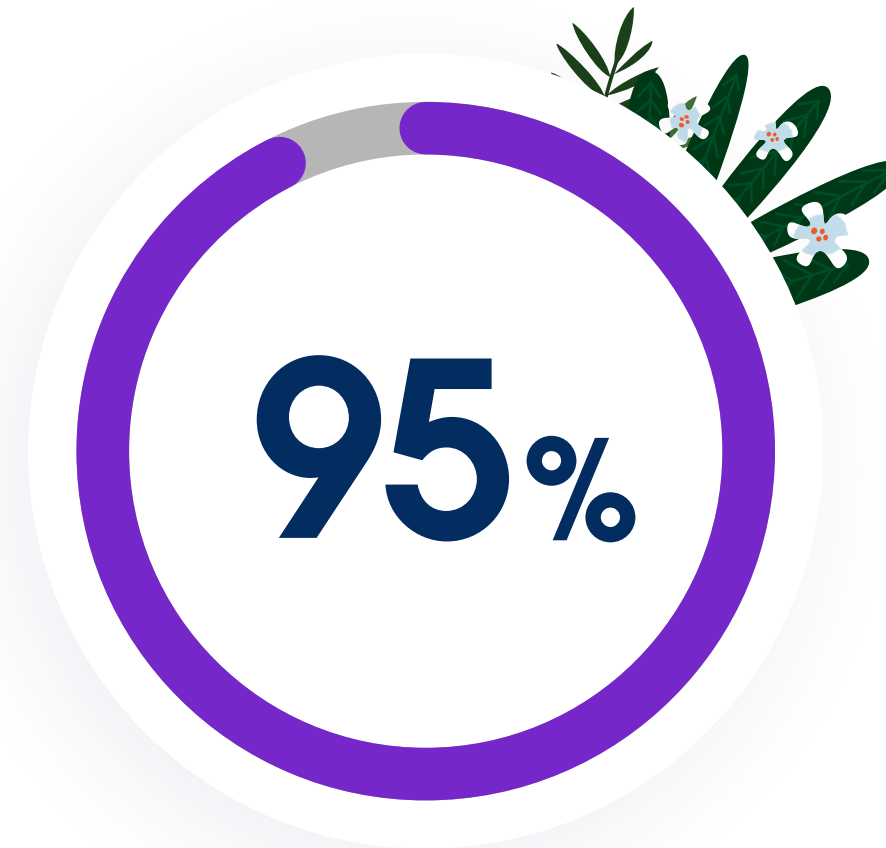
report that integration issues impede their AI adoption.*

Data silos and systems fragility are holding **companies back.**

Top Insights

01

Eighty-one percent of respondents report that data silos are hindering their digital transformation efforts. Seventy-two percent feel their current IT infrastructure makes their systems overly dependent on one another.

02

IT teams struggle to integrate efficiently: 98% report facing challenges regarding digital transformation. Skill gaps and compliance concerns top the list of challenges.

03

The inability to connect data-derived insights into user experiences is the most commonly cited integration challenge for 75% of organizations.

Integration is at the heart of the digital estate.

Integration remains a top priority for implementing a digital transformation strategy while new technologies emerge and create further challenges.

With only 28% of applications being integrated/connected, IT teams must focus on increasing productivity to close this gap.

This deficiency will prevent AI from meaningfully improving employee or customer experiences for most organizations for the foreseeable future.
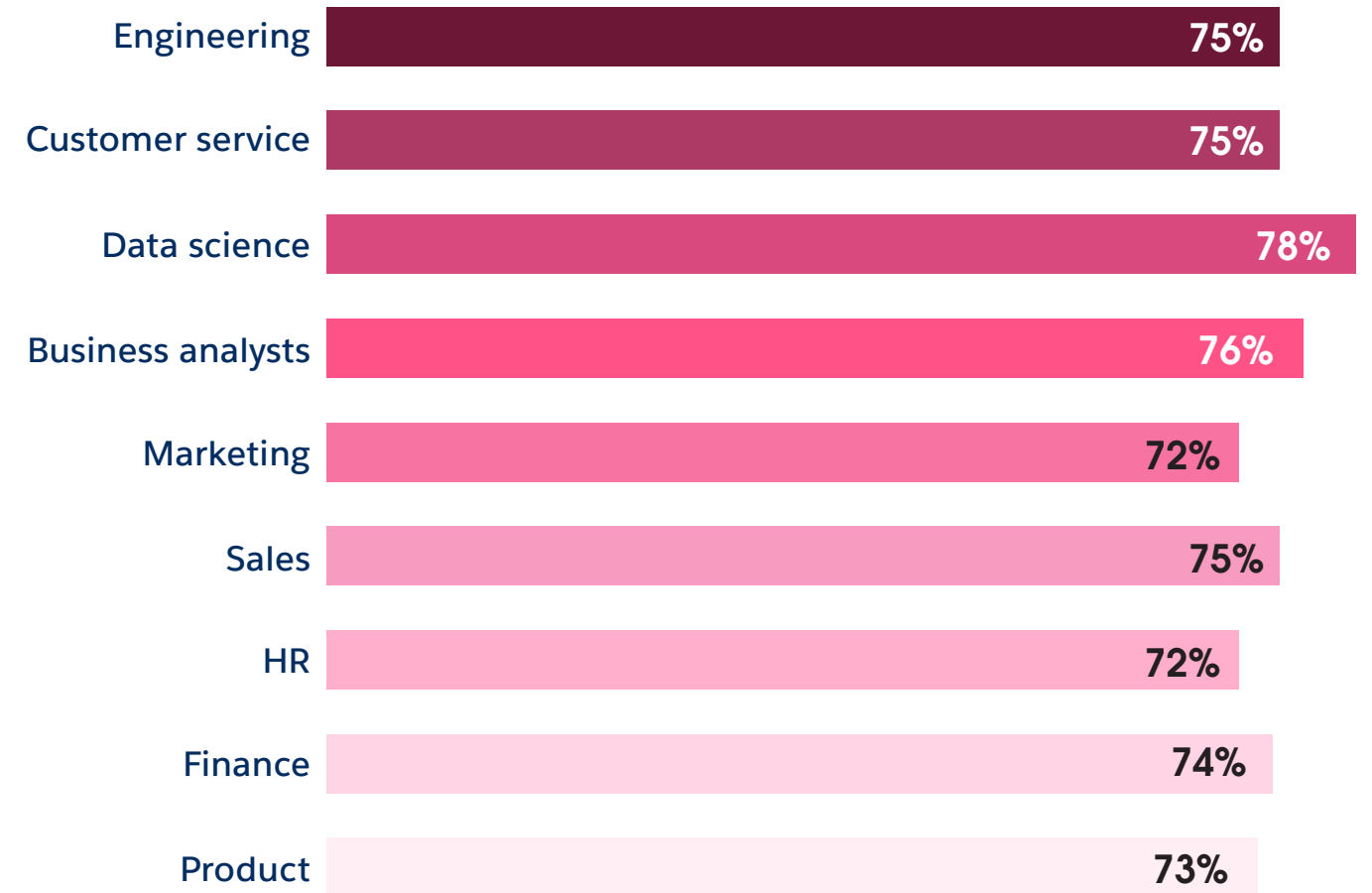
81%

of IT leaders report that data silos are hindering their digital transformation efforts.

Nearly all teams demand integration.

Organizations that have adopted an integration strategy have reported a vast array of benefits. From customer experience, greater return on investment (via greater cost savings or more revenue generated), and automation implementation, integration positively impacts the organization.

Departments That Require Integration, According to IT Leaders

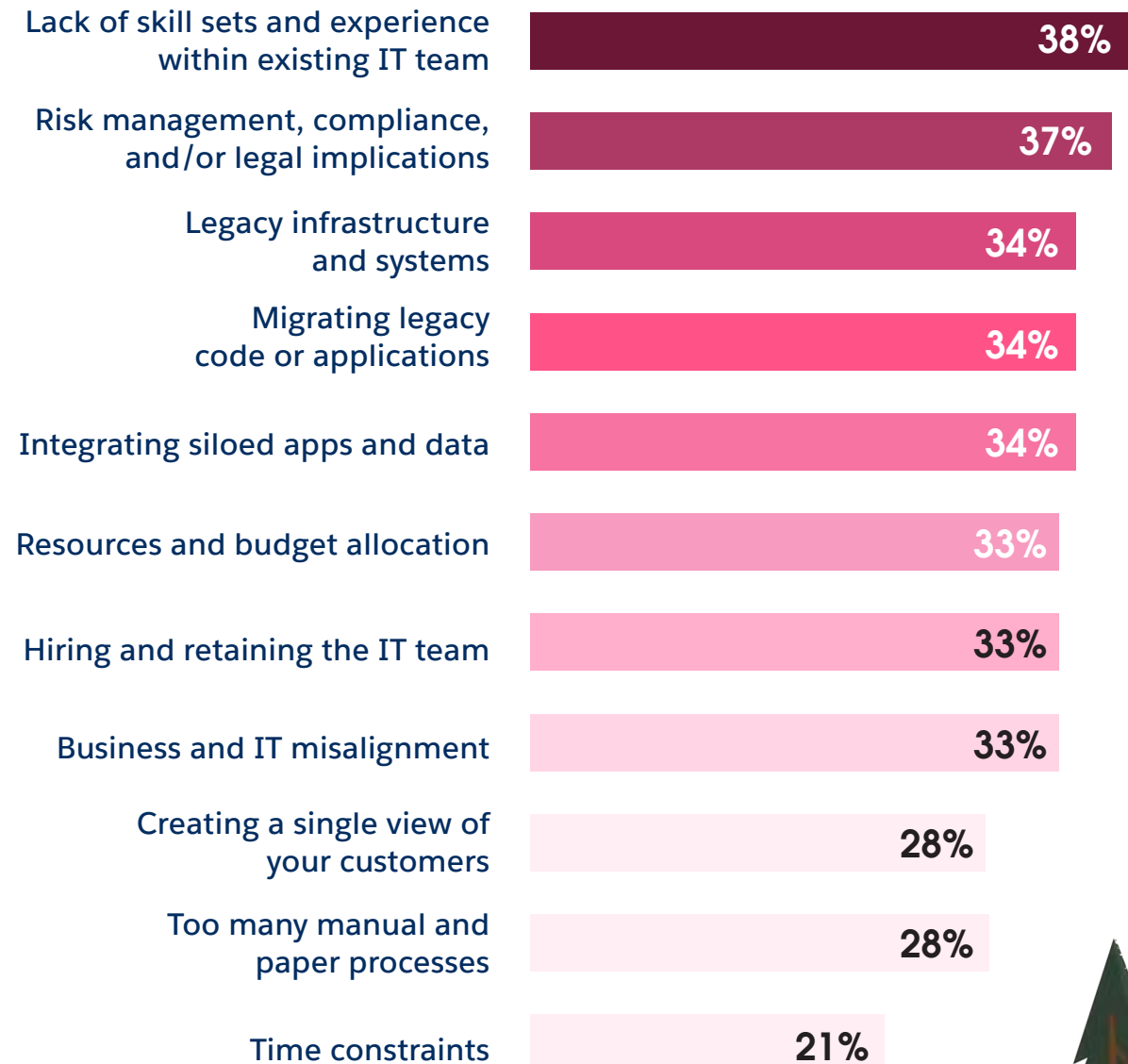| Department	%
Engineering	75%
Customer service	75%
Data science	78%
Business analysts	76%
Marketing	72%
Sales	75%
HR	72%
Finance	74%
Product	73%

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Skill gaps, compliance concerns, and legacy infrastructure threaten integration.

Nearly all organizations (98%) report facing challenges when it comes to digital transformation.

IT teams are struggling to integrate efficiently as well. Seventy-two percent of respondents feel their current IT infrastructure makes our systems overly dependent on one another. It is estimated that IT teams spend 37% of their time designing, building, and testing new custom integrations.
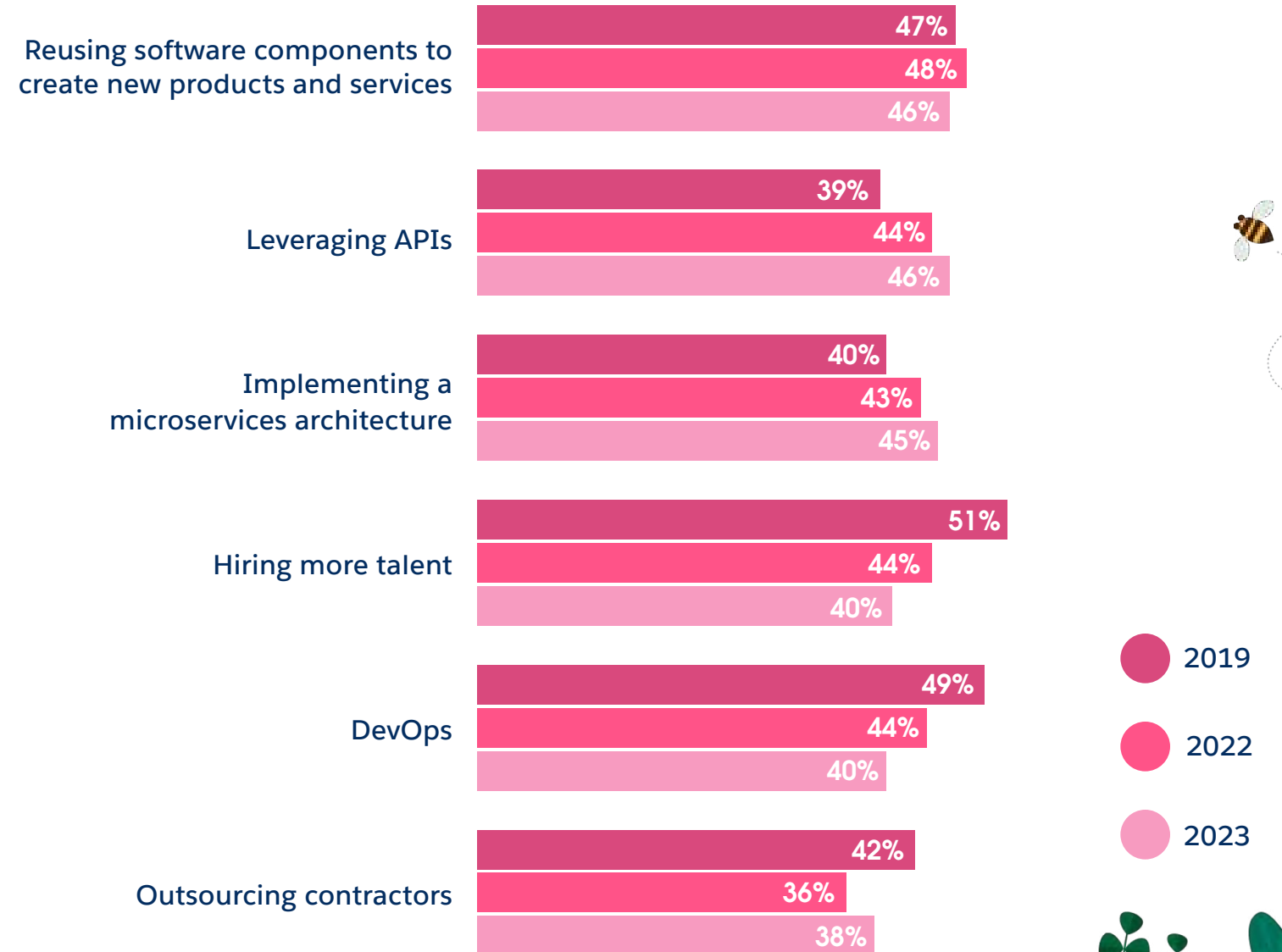
IT Leaders Who Cite the Following As Challenges to Digital Transformation

Challenge	Percentage
Lack of skill sets and experience within existing IT team	38%
Risk management, compliance, and/or legal implications	37%
Legacy infrastructure and systems	34%
Migrating legacy code or applications	34%
Integrating siloed apps and data	34%
Resources and budget allocation	33%
Hiring and retaining the IT team	33%
Business and IT misalignment	33%
Creating a single view of your customers	28%
Too many manual and paper processes	28%
Time constraints	21%

IT leaders adopt a new approach to efficiency.

Since 2018, IT teams have faced an average 36% increase each year in the number of expected projects. IT leaders have shifted their strategy over the years to drive maximum efficiency. As time progresses, teams focus less on headcount and DevOps and more on agile and reusable solutions like APIs and microservices architecture.
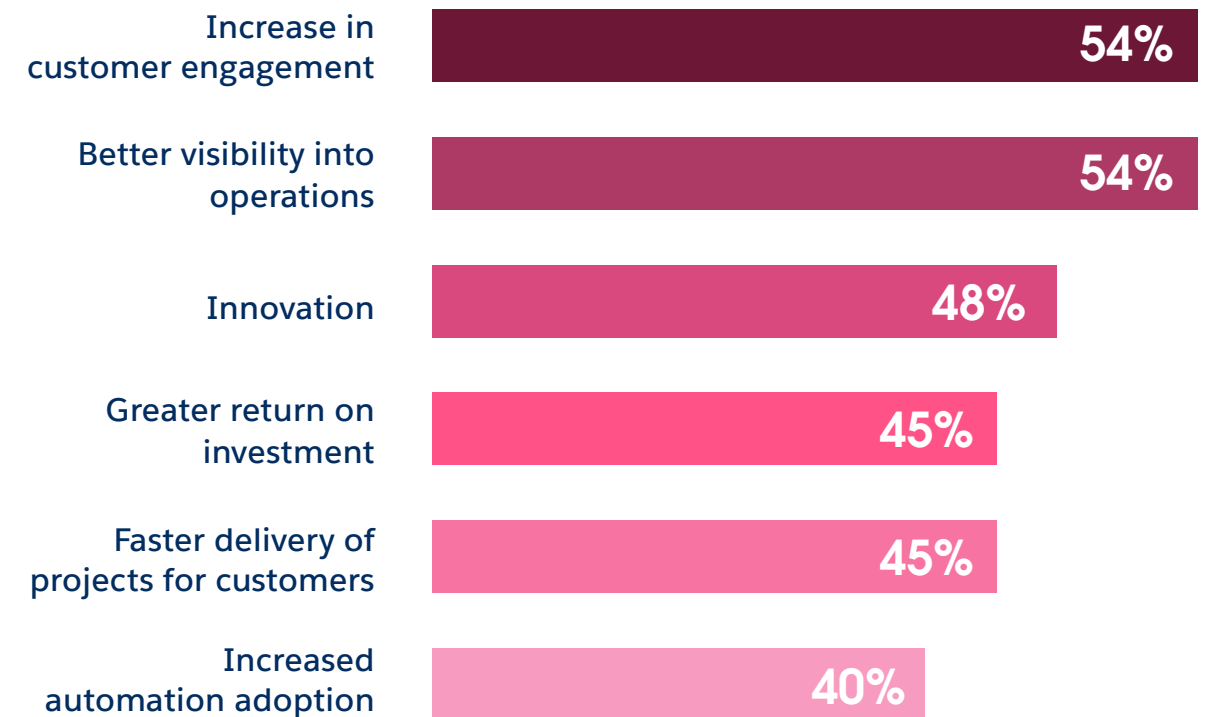
IT Organizations Using the Following Tactics to Improve Efficiency of Application Development Processes

Reusing software components to create new products and services
- 47%
- 48%
- 46%

Leveraging APIs
- 39%
- 44%
- 46%

Implementing a microservices architecture
- 40%
- 43%
- 45%

Hiring more talent
- 51%
- 44%
- 40%

DevOps
- 49%
- 44%
- 40%

Outsourcing contractors
- 42%
- 36%
- 38%

- 2019
- 2022
- 2023

Integration benefits aren't just internal.

Organizations that have adopted an integration strategy have reported a vast array of benefits. From customer experience, more significant ROI, and automation implementation, integration positively impacts the organization.

Benefits Realized From User Experience Integration

Benefit	Percentage
Increase in customer engagement	54%
Better visibility into operations	54%
Innovation	48%
Greater return on investment	45%
Faster delivery of projects for customers	45%
Increased automation adoption	40%

Automation is still a source of contention between IT and the business.

Top Insights

01

Robotic Process Automation (RPA) adoption remains steady year-over-year, with 31% of respondents having adopted an RPA solution.

02

Nearly every department in organizations require automation, however IT is often still the gatekeeper: an average of 66% of automations are still governed by IT.

03

Automation use cases are varied and help nearly every team across the business.
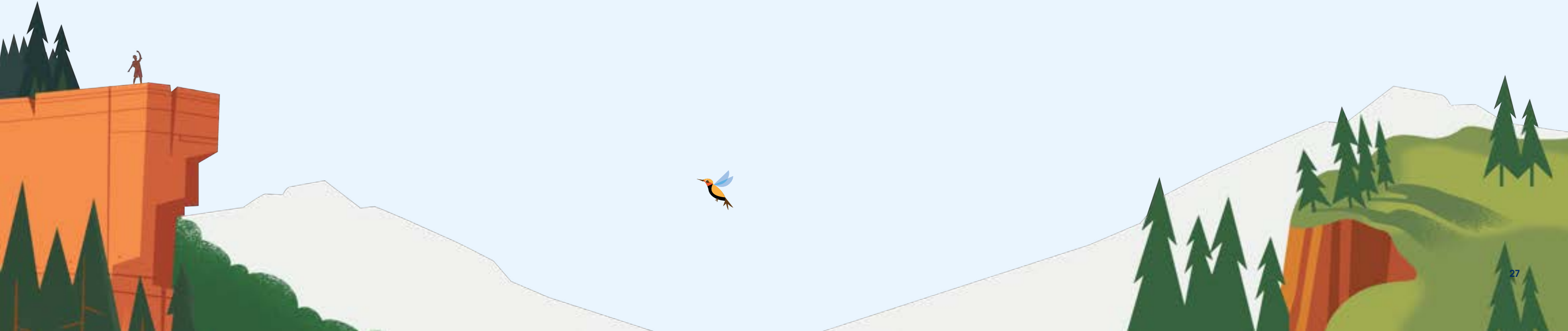
Business teams are ready to self-serve.

IT relies on automation solutions to drive efficiency, provide business users autonomy, and reduce the workload on IT teams.

RPA growth remains steady at 31% of teams opting for the solution. This is a substantial rise from 13% in 2021.

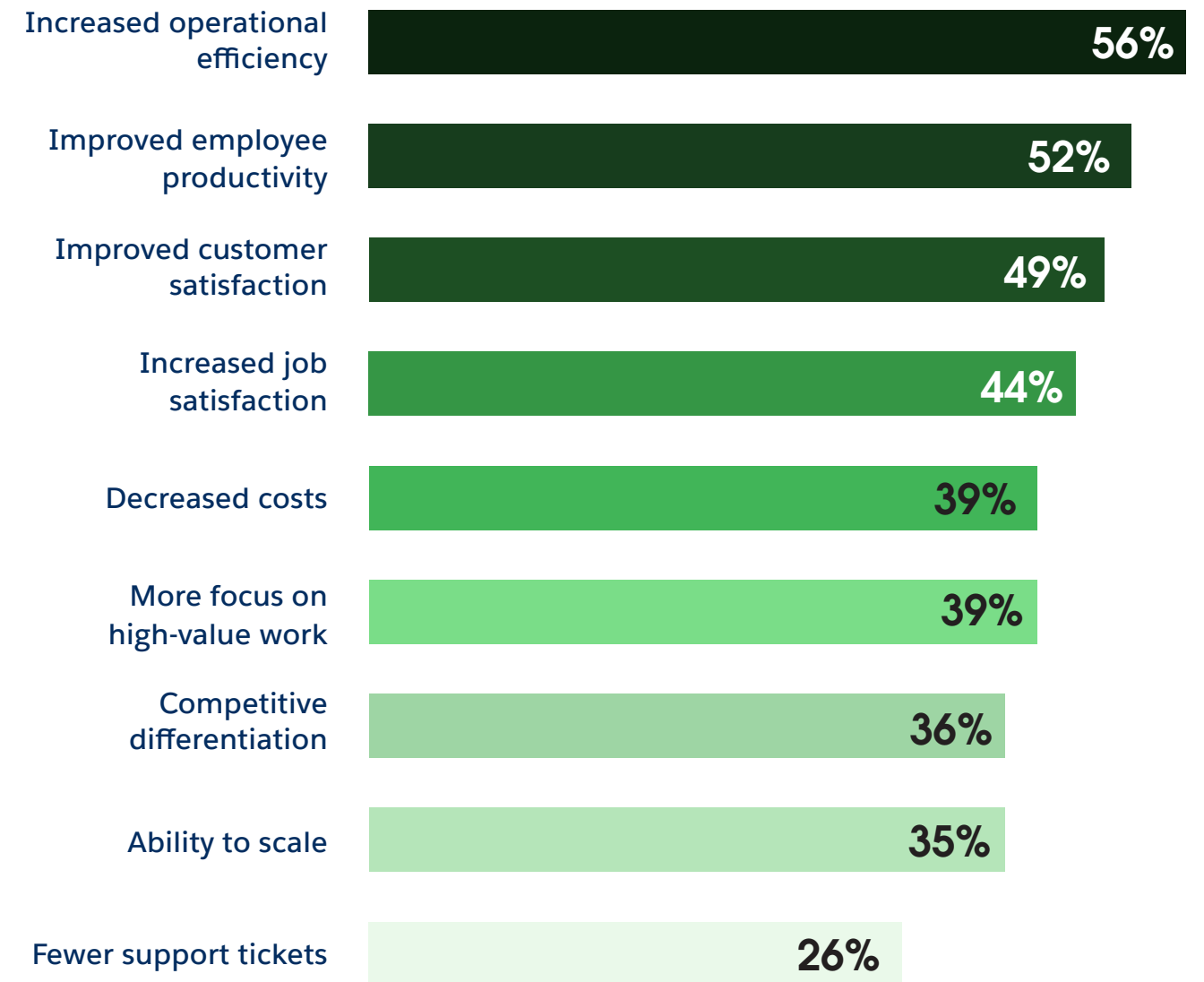**Percentage of organizations investing in Robotic Process Automation**

13% — 2021

31% — 2022

33% — 2023

31% — 2024

Automation builds on integration to benefit the whole organization.

Automation continues to demonstrate its value by, among other things, driving operational efficiency (reported by 56% of automation users) and productivity (reported by 52% of automation users).

A recent report states that automation solutions saved each employee an estimated average of 1.9 hours per week.*

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IT Leaders Reporting the Following Benefits From Automation **

Benefit	%
Increased operational efficiency	56%
Improved employee productivity	52%
Improved customer satisfaction	49%
Increased job satisfaction	44%
Decreased costs	39%
More focus on high-value work	39%
Competitive differentiation	36%
Ability to scale	35%
Fewer support tickets	26%

Teams across the business demand automation.

While IT teams are primarily responsible for managing automation solutions, nearly all teams across the business require automation.

Departments That Require Integration, According to IT Leaders

Department	Percentage
Engineering	59%
Customer service	69%
Data science	60%
Business analysts	55%
Marketing	60%
Sales	53%
HR	58%
Finance	59%
Product	60%
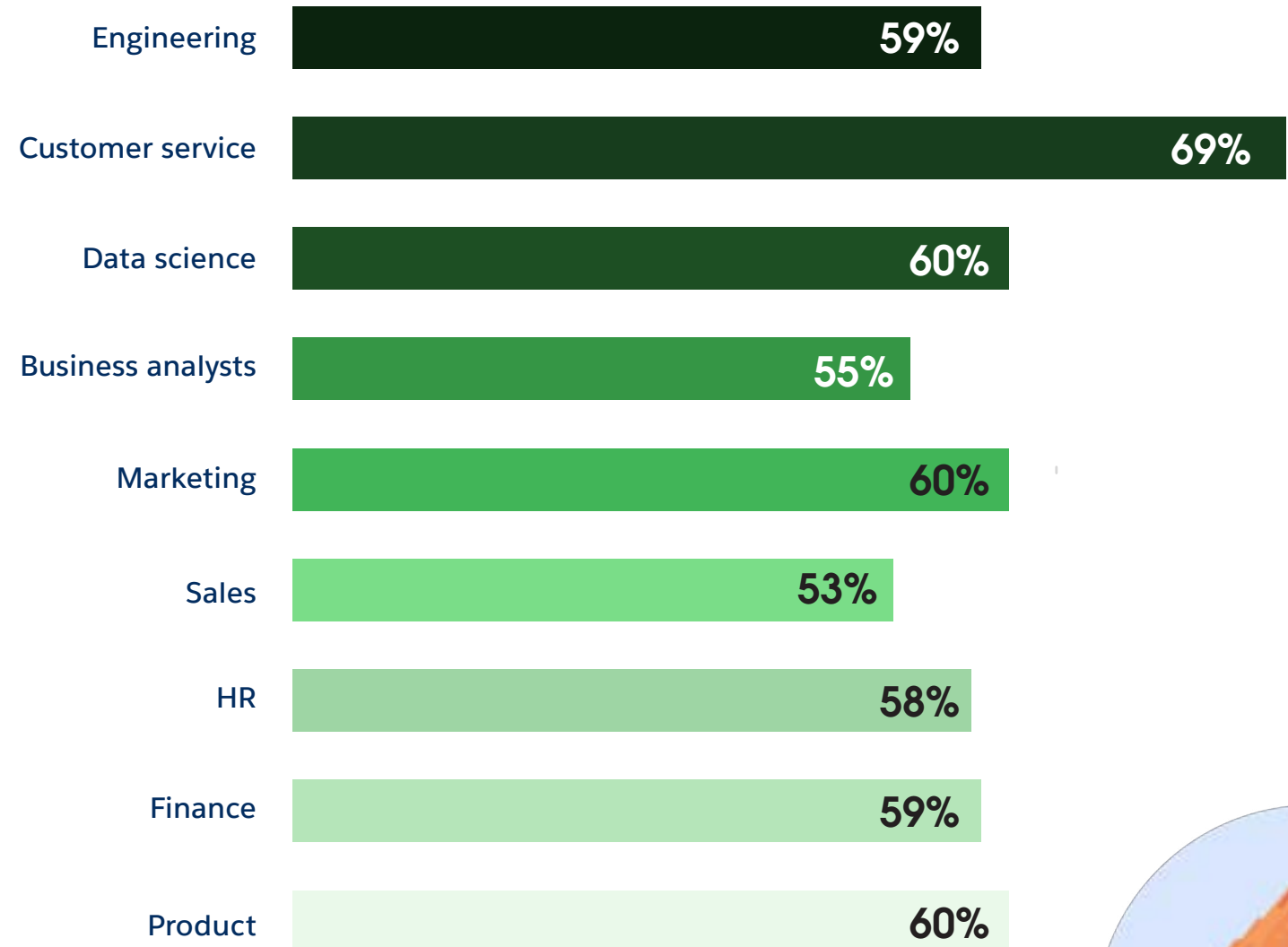
IT struggles with automation backlog.

While automations are needed and used across the business, IT is still largely responsible for governing and maintaining them. Around 2/3 of IT developers implement and govern automations for business users.

However, only 22% of IT leaders feel their strategy to enable nontechnical business users to integrate apps and data sources powered by APIs easily is up to date.

66%
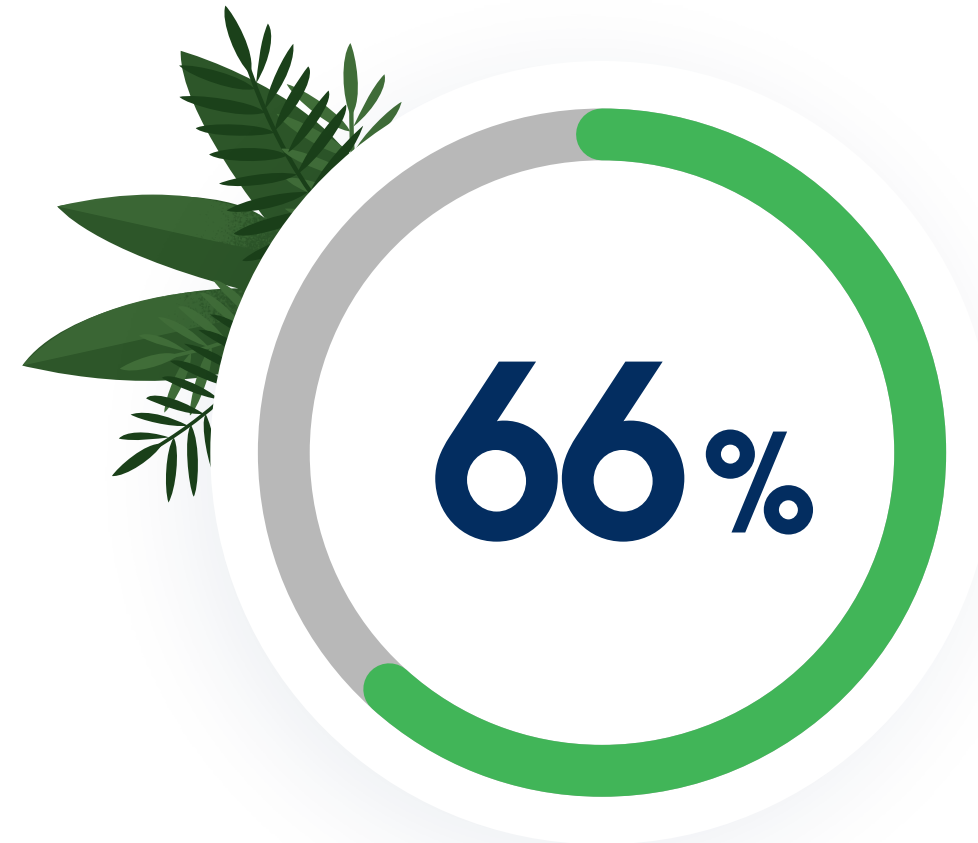
of automations are managed centrally by IT.

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9

Virtually every company runs on APIs, but few have turned them into a strategic lever

Top Insights

01

API-related offerings take credit for a large portion of revenue. An estimated average of 33% of organizations' revenue comes from API and API-related offerings.

02

APIs have contributed to increased revenue for 39% of respondents – and decreased operational costs for 35%.

03

APIs serve a variety of purposes in the business, with the majority (54%) of IT leaders using APIs to build integrations.

APIs are everywhere, and a major revenue driver.

Nearly all organizations have adopted APIs, with 99% using them. There are various reasons for their use, but one of the top benefits is the impact on revenue.

APIs account for more than one-third of revenue and this remains steady over the past three years.

Average estimation of public and private API use

29% Only Public APIs

29% Only Private APIs
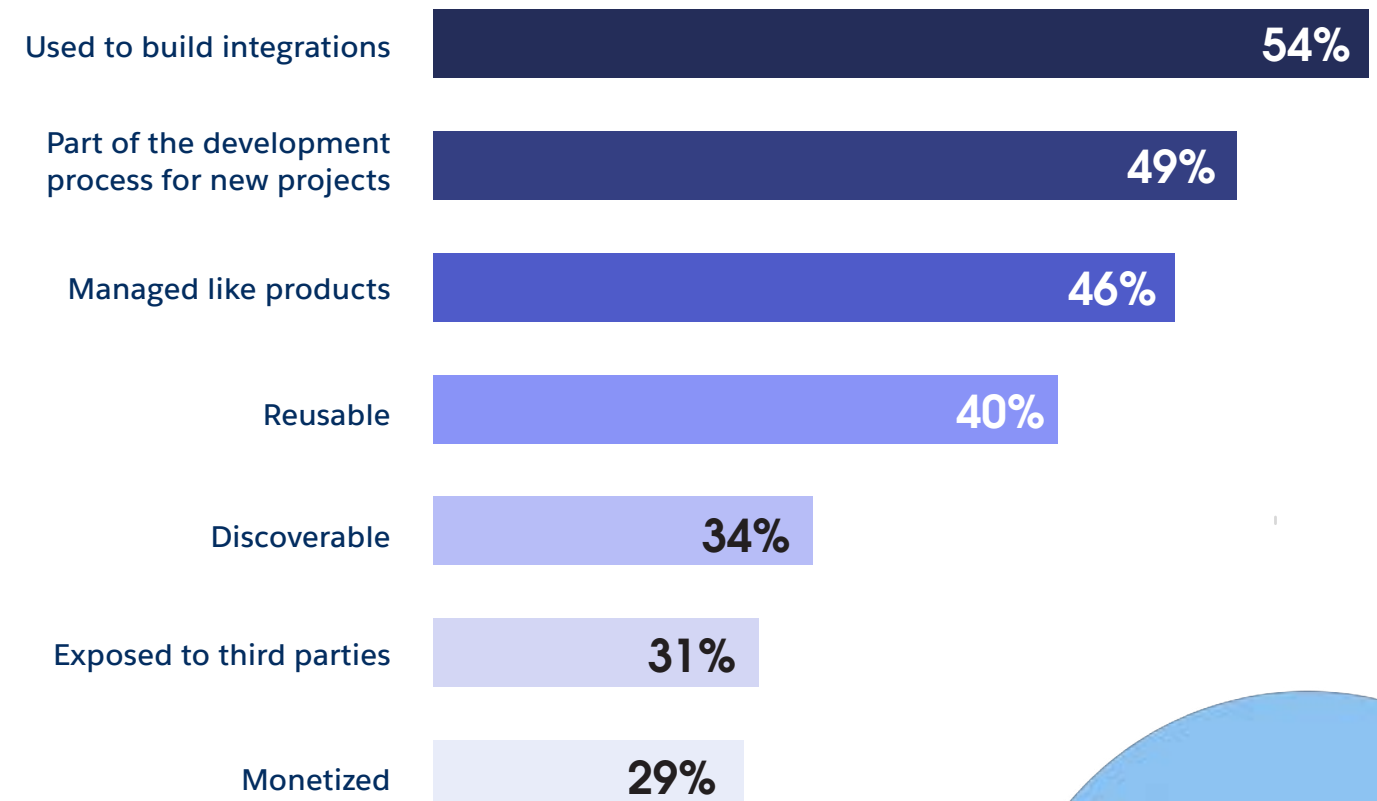
50% Both Public and Private APIs
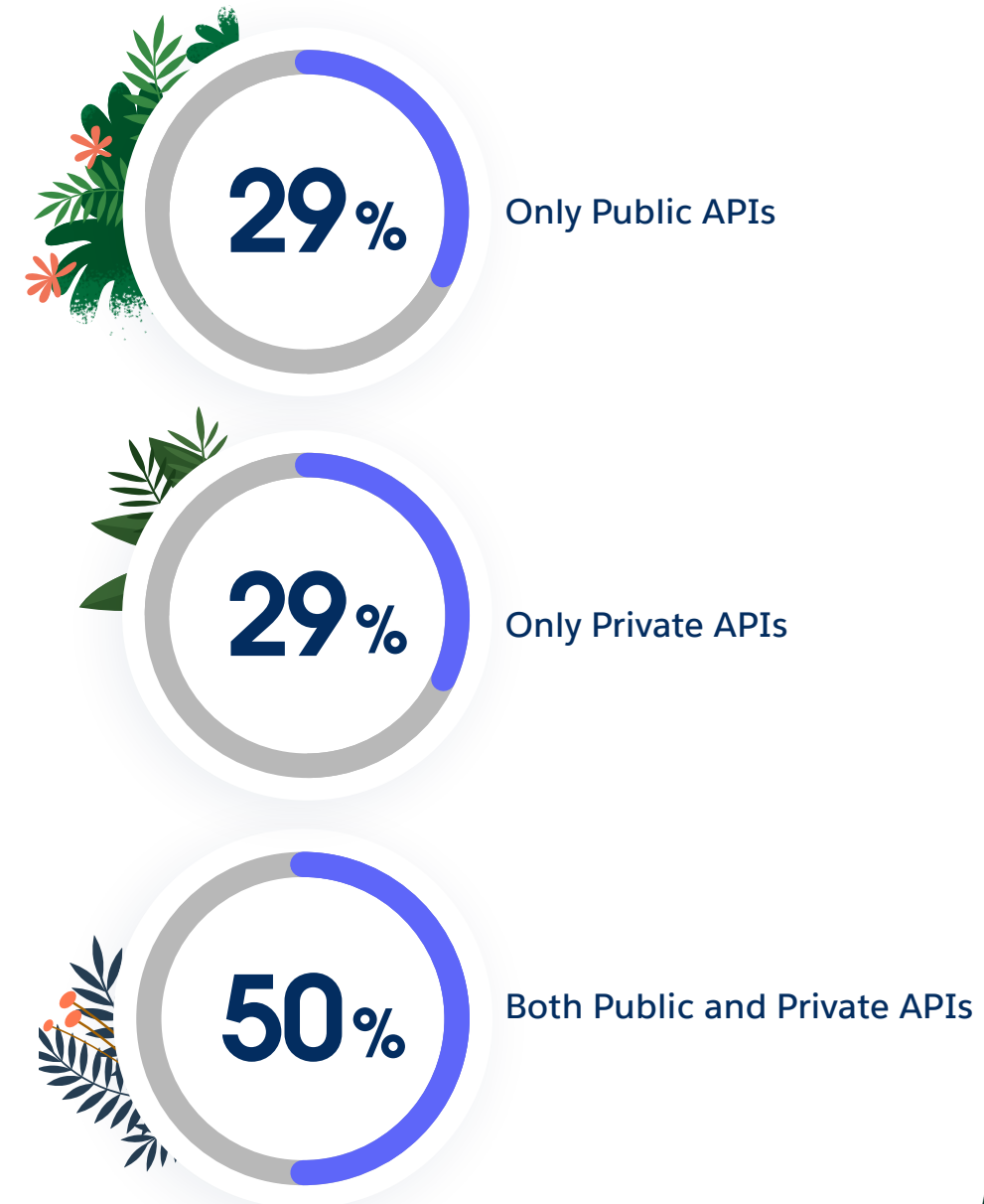
APIs power integrations and new project development.

APIs prove to be valuable at driving efficiency in a number of areas, with building integrations as the reported top benefit.

It is estimated that less than half (40%) of internal software assets and components are available for developers to reuse. This is up from 2018, where 37% reported reusable APIs.

IT leaders report their APIs have the following characteristics

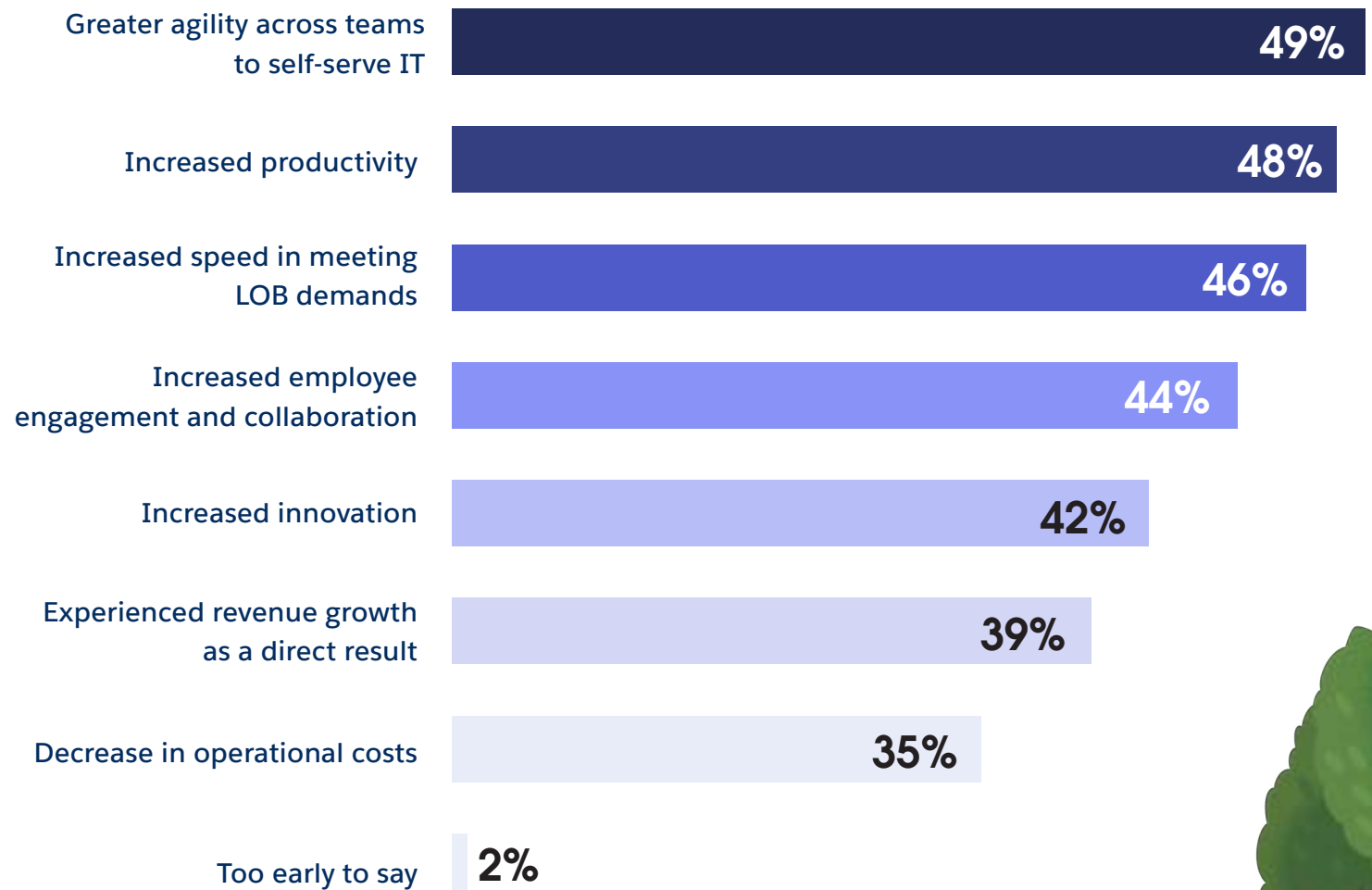|	
Used to build integrations	54%
Part of the development process for new projects	49%
Managed like products	46%
Reusable	40%
Discoverable	34%
Exposed to third parties	31%
Monetized	29%

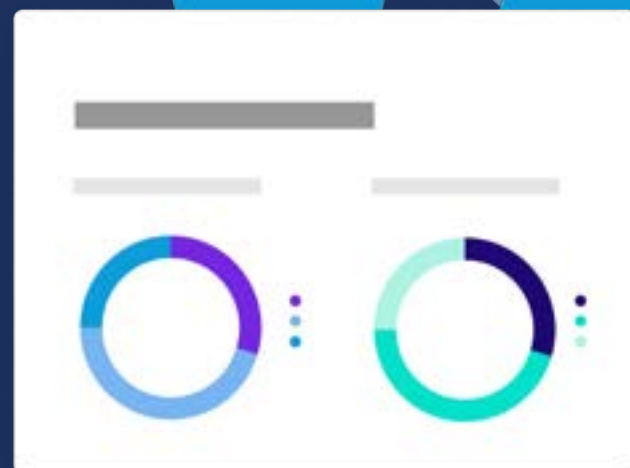# APIs increase productivity and lower operational costs.

IT leaders report that APIs allow them to drive agility and promote self-service (49%), increase productivity (48%), and even benefit business teams and help meet their demands (46%).

Over one-third of organizations report that APIs have contributed to increased revenue (39%) and decreased operational costs (35%).
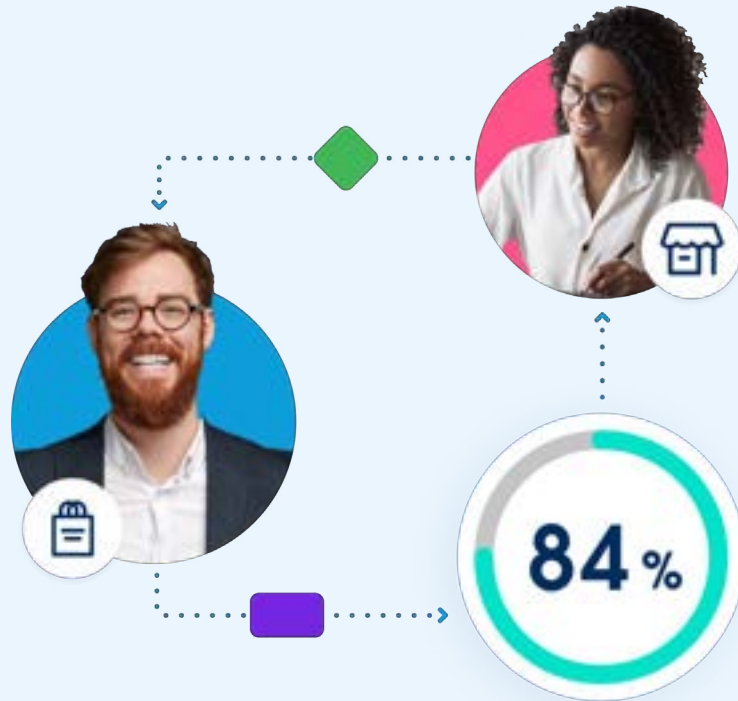
Business results realized from leveraging APIs

Greater agility across teams to self-serve IT	49%
Increased productivity	48%
Increased speed in meeting LOB demands	46%
Increased employee engagement and collaboration	44%
Increased innovation	42%
Experienced revenue growth as a direct result	39%
Decrease in operational costs	35%
Too early to say	2%

Industry Cuts

Retail and Consumer Goods

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1,022 average number of applications used in organizations in the retail and customer goods organizations.

77% of IT leaders report that integration challenges slowing/hindering digital transformation initiatives.

43% of internal software assets and components are available for developers to reuse.

84% of respondents say data silos create business challenges in their organization.

Biggest challenges to digital transformation within retail and consumer goods organizations.

01 Migrating legacy code or applications

02 Lack of skill sets and experience within existing IT team

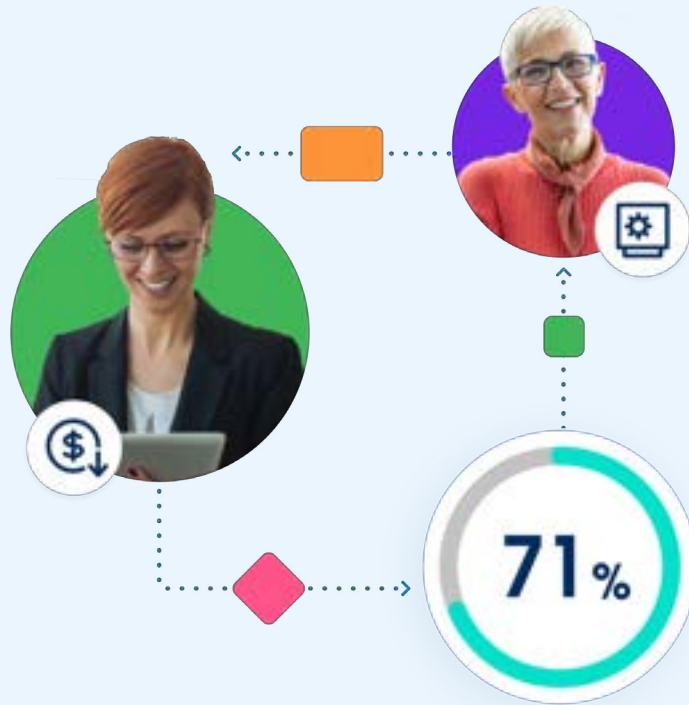**03** Risk management, compliance, and/or legal implications

Top benefits of leveraging APIs.

→ Greater agility across teams to self-serve IT

→ Increased productivity

→ Increased speed in meeting LOB demands

Top benefits realized since integrating user experiences.

→ Increase in customer engagement

→ Better visibility into operations

→ Innovation

Biggest challenges to integrate end-user experiences.

→ Security and governance challenges

→ Inability to keep up with ever-growing processes, tools, and systems

→ Outdated IT infrastructure

Top barriers prevent your organization from utilizing data across the entire business for AI use cases.

→ Outdated IT architecture or infrastructure (data silos/ disconnected systems)

→ Cybersecurity concerns

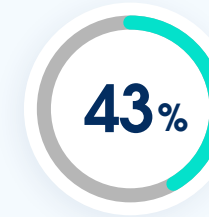→ A lack of talent or specialist skills

Financial Sector

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1,069 average number of applications are used in organizations in the financial sector.

74% of IT leaders say integration challenges slowing/hindering digital transformation in their organization.

43% of internal software assets and components are available for developers to reuse.

Biggest challenges to digital transformation within financial sector organizations.

01 Lack of skill sets and experience within existing IT team

02 Risk management, compliance, and/or legal implications

03 Legacy infrastructure and systems

71% of respondents say are data silos creating business challenges.

Top benefits seen by financial sector organizations from leveraging APIs.

→ Increased productivity

→ Greater agility across teams to self-serve IT
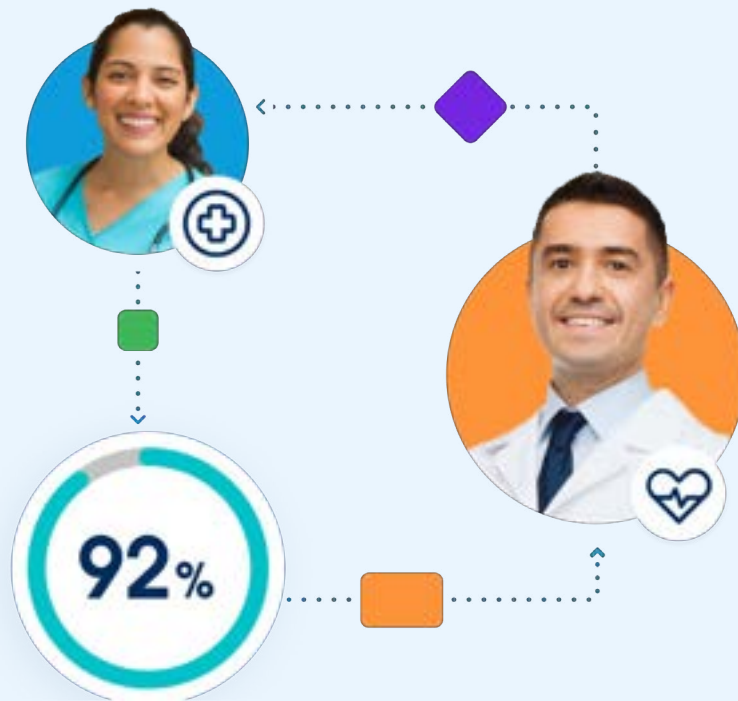
→ Increased innovation

Top difficulties for integrating end-user experiences.

→ Security and governance challenges

→ Inability to keep up with ever-growing processes, tools, and systems

→ Outdated IT infrastructure

Top benefits realized since integrating user experiences.

→ Increase in customer engagement

→ Faster delivery of projects to customers

→ Increased automation adoption

The biggest barriers that prevent financial sector organizations from utilizing data across the entire business for AI use cases.

→ It is too costly/ lack of funding

→ Cybersecurity concerns

→ A lack of talent or specialist skills

Health and Life Sciences

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991 average number of applications used in organizations in healthcare organizations.

88% say integration challenges slowing/ hindering digital transformation initiatives in healthcare.

43% of internal software assets and components are available for developers to reuse.

92%

92% of respondents say data silos create business challenges.

Biggest challenges to digital transformation within health and life sciences organizations.

01 Lack of skill sets and experience within existing IT team

02 Risk management, compliance, and/or legal implications

03 Hiring and retaining the IT team

Top benefits of healthcare organizaitons realized from leveraging APIs.

→ Increased speed in meeting LOB demands

→ Increased employee engagement and collaboration

→ Increased innovation

The biggest difficulties for healthcare organizations face when integrating end-user experiences.

→ Security and governance challenges

→ Inability to keep up with ever-growing processes, tools, and systems

→ Existing custom-coded point-to-point integrations

Top benefits realized since integrating user experiences.

→ Increase in patient engagement

→ Innovation

→ Faster delivery of projects to customers

The biggest barriers that prevent healthcare organizations from utilizing data across the entire business for AI use cases.

→ Outdated IT architecture or infrastructure (data silos/ disconnected systems)

→ Cybersecurity concerns

→ A lack of talent or specialist skills

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