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The Essential Tech Stack

The top tools powering modern-day software companies

January 2023

DISCLOSURE

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The Essential Tech Stack

About the Research

As organizations scale, the tools and technology that enable key business processes and facilitate how teams work together become incredibly important.

This study aims to provide an overview of the essential technology stack for software companies and help companies make informed decisions when choosing the tools and platforms needed to support product development, data management and security, go-to-market, and internal operations.

We recognize that there are countless tools and categories; rather than producing a comprehensive overview, this report aims to highlight some of the most essential categories and tools currently used by software companies.

Please feel free to reach out to the ICONIQ Growth Analytics team for more detail on any of the categories or tools. For a detailed examination of the Developer Tech Stack, please access our prior report here.

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The Essential Tech Stack

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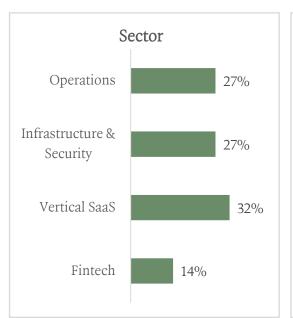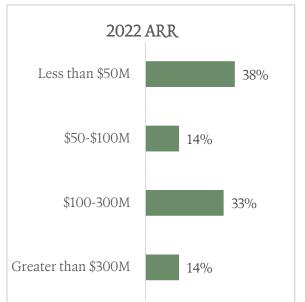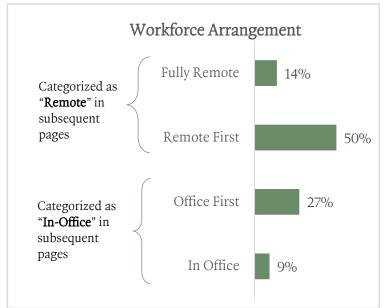
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Methodology

This study summarizes engineering data collected from a survey completed by ICONIQ Growth portfolio companies in September 2022, in addition to proprietary review data from G2

ICONIQ Growth Survey Data

Sector

Operations	27%
Infrastructure & Security	27%
Vertical SaaS	32%
Fintech	14%

2022 ARR

Less than $50M	38%
$50-$100M	14%
$100-300M	33%
Greater than $300M	14%

Workforce Arrangement

Categorized as "**Remote**" in subsequent pages

Fully Remote	14%
Remote First	50%

Categorized as "**In-Office**" in subsequent pages

Office First	27%
In Office	9%

In partnership with

2019-2022 review data from G2, including:

- Star Rating
- Net Promoter Score
- Ease of use and ease of setup scores
- Top product features
- Qualitative feedback from users

Participating Companies

aurora · Benchling · BetterUp · braze · Chime · Collibra · DRATA · FREEWILL

Gem · highradius · HIGHSPOT · Moveworks · netskope · Optibus · QGenda · recharge

Restaurant365 · Sastrify · SQUIRE · Unit21 · virtru

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In Partnership with

G2 is the world's largest and most trusted software marketplace[1]. More than 80 million people annually — including employees at all Fortune 500 companies — use G2 to make smarter software decisions based on authentic peer reviews. Thousands of software and services companies of all sizes partner with G2 to build their reputation, manage their software spend, and grow their business — including Salesforce, HubSpot, Zoom, and Adobe.

To learn more about where you go for software, visit www.g2.com and follow G2 on Twitter and LinkedIn.

G2 Methodology

G2 scores products and vendors based on reviews gathered from their user community, as well as data aggregated from online sources and social networks.

Review Sorting Methodology
G2 puts logic in place to ensure the reviews shown on product pages are the most helpful to buyers. When the page is sorted by default, the sort is calculated with a custom algorithm that includes the following data points.
- Recency of the review
- Amount of feedback provided in the review
- Attribution
- Whether the reviewer is a current user of the solution
- Community engagement with the review

G2 Star Rating Methodology
The G2 Star Rating is calculated by aggregating reviewers' answers to their Likely to Recommend question (1–10 scale) and dividing the average in half.
You will see half stars because the visual is rounded up to the nearest half.

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Executive Summary

Key Categories

▶ R&D continues to be a key differentiator for software companies, with companies spending around 40% of ARR on R&D in 2022 and **9% of ARR on tools and technology**

▶ The essential tech stack for software companies can be bucketed into **4 categories across product development, data/security, go-to-market, and internal operations**

▶ The tech stack varies significantly based on company scale and business priorities, with certain categories not seeing spend or significant investment **until a company reaches critical scale**

  • Certain categories like DevOps, security, application monitoring, and collaboration / communication are **extensive enough to support multiple tools at organizations**, whereas other categories like CRM & engagement, data warehouse, and finance & accounting tend to be **winner-takes-all**
  • **Remote companies require a larger number of tools in categories like DevOps, sales operations, collaboration / communication**, and HR tech compared to in-office companies

▶ As companies scale past $100M, we start to see a significant increase in spend in **certain categories such as CRM, content management, collaboration, and application monitoring**

Top Tools

▶ Enabling **synchronous and asynchronous communication across geographic barriers remains a priority** for companies in 2022, with **project management and collaboration tools topping the list** of most used tools this past year, followed by tools focused on **revenue enablement**

▶ Some common qualities mentioned in reviews that were shared by top tools include **ease of use and implementation, strong integration with supporting products, immediate or near immediate ROI, a strong support team, and continual product enhancements**

2023 Trends

▶ The top categories expected to see **increased spending in 2023 include product development** (BI / analytics, DevOps) **and data / security** (data warehouse, application monitoring)

▶ Conversely, tools focused on **HR tech, marketing automation, and content management are expected to see little to no movement** in terms of annual spend

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Tech Stack Overview
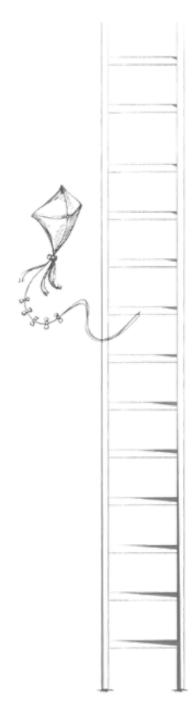
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The Essential Tech Stack

The essential tech stack for software companies can be bucketed into 4 categories across product development, data/security, go-to-market, and internal operations

The Essential Tech Stack for Software Companies

Product Development	Data / Security	Go-to-Market	Internal Operations
Tools to enable software development, verification, code management, and deployment	Tools to monitor performance, store and manage data, and allow teams to discover, triage and fix errors and threats	Tools to accelerate Go-to-Market operations across sales, marketing automation, and customer engagement	Tools to support internal processes across finance and HR and other tools to enable workflow automation and collaboration

Example Tools[1]

GitLab Jira	DATADOG DigitalOcean	ActiveCampaign Apollo.io	BLACKLINE melio
Looker PagerDuty	dynatrace snowflake	people.ai zoominfo	miro UiPath
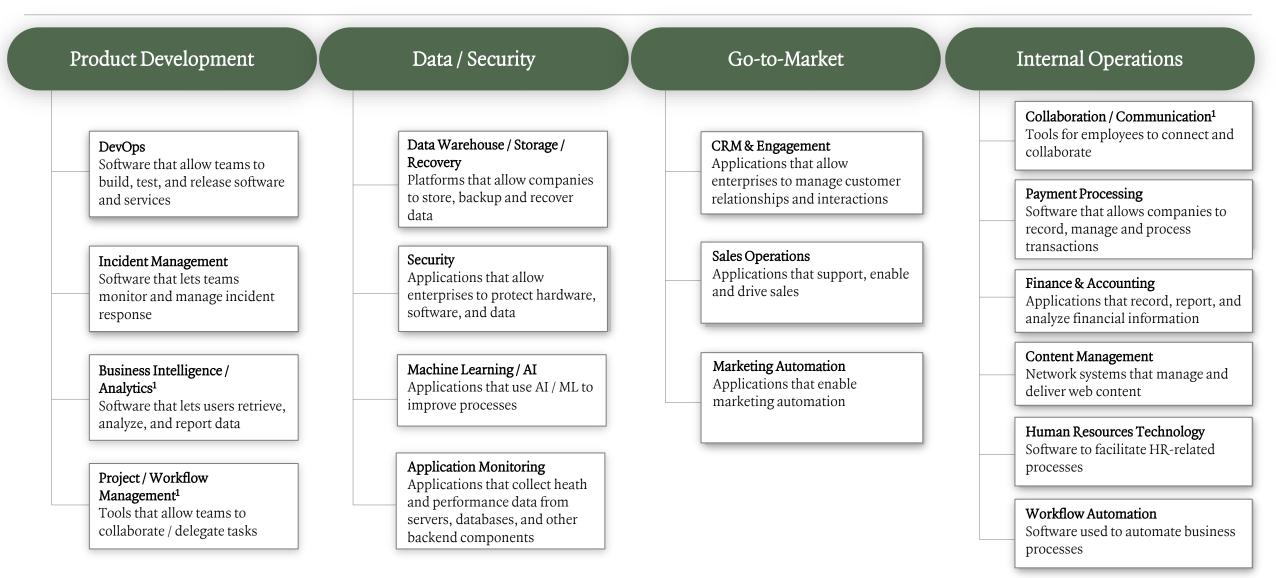
While there are many other categories of tools, the focus of this study will be on the above four categories of tools that we believe are essential for the modern-day software organization

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Key Categories

For each of the categories and sub-categories listed below, we will examine high-level trends and an overview of top tools going into 2023

Product Development

DevOps
Software that allow teams to build, test, and release software and services

Incident Management
Software that lets teams monitor and manage incident response

Business Intelligence / Analytics[1]
Software that lets users retrieve, analyze, and report data

Project / Workflow Management[1]
Tools that allow teams to collaborate / delegate tasks

Data / Security

Data Warehouse / Storage / Recovery
Platforms that allow companies to store, backup and recover data

Security
Applications that allow enterprises to protect hardware, software, and data

Machine Learning / AI
Applications that use AI / ML to improve processes

Application Monitoring
Applications that collect heath and performance data from servers, databases, and other backend components

Go-to-Market

CRM & Engagement
Applications that allow enterprises to manage customer relationships and interactions

Sales Operations
Applications that support, enable and drive sales

Marketing Automation
Applications that enable marketing automation

Internal Operations

Collaboration / Communication[1]
Tools for employees to connect and collaborate

Payment Processing
Software that allows companies to record, manage and process transactions

Finance & Accounting
Applications that record, report, and analyze financial information

Content Management
Network systems that manage and deliver web content

Human Resources Technology
Software to facilitate HR-related processes

Workflow Automation
Software used to automate business processes

Notes: (1) Certain sub-categories like Business Intelligence / Analytics and Collaboration / Communication may not fit squarely into 1 category depending on the product and specific use case.

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Annual Spend on R&D and Tooling

R&D continues to be a key differentiator for software companies, with companies spending around 40% of their total ARR on R&D in 2022 and 9% of ARR on tools and technology

Legend:
- R&D Spend as a % of ARR
- Tool & Technology Spend as a % of ARR

R&D Spend as a % of ARR
Median

All Respondents

- 2021: 35%
- 2022: 40% / 9%

Tools not asked in 2021 survey

By Work Arrangement

- In-Office: 43% / 7%
- Remote: 40% / 9%

By 2022 ARR or Revenue

- Less than $100M: 45% / 9%
- Greater than $100M: 22% / 7%

By what % are you expecting to increase R&D spend in 2023?

▲ 21%

Y/Y Increase, Median of responses

Software companies expect to increase R&D spend by 21% in 2023. In 2022, companies spent on average 9% of ARR on tools and technology. Remote companies tend to spend slightly more on tooling compared to in-office companies, but less on overall R&D spend (likely driven by lower headcount spend).

More details on R&D spend and headcount can be found in our [2022 Engineering in a Hybrid World](#) report.

How does the tech stack vary across companies?

The tech stack varies significantly based on company scale and needs (often driven by work arrangement), with certain categories not seeing spend or significant investment until a company reaches critical scale

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BY SCALE

Certain categories like **machine learning / AI and workflow automation do not see significant investment** until a company reaches critical scale. As companies scale past $100M in ARR, we also start to see increased spend in **certain categories such as CRM, content management, collaboration, and application monitoring.**

It's also interesting to note that categories like marketing and sales enablement software **necessitate substantial spend regardless of scale.** Earlier stage companies typically spend north of $100K on these tools (ones that have a direct impact on revenue) even pre-$100M in revenue.

BY WORK ARRANGEMENT

Remote companies tend to require a larger number of tools in categories like DevOps, sales operations, and project/workflow management compared to in-office companies.

For example, **sales acceleration and enablement tools like Gong and Highspot are more popular with remote companies** who likely need more visibility into sales performance and training across geographic barriers.

BY TOOL CATEGORY
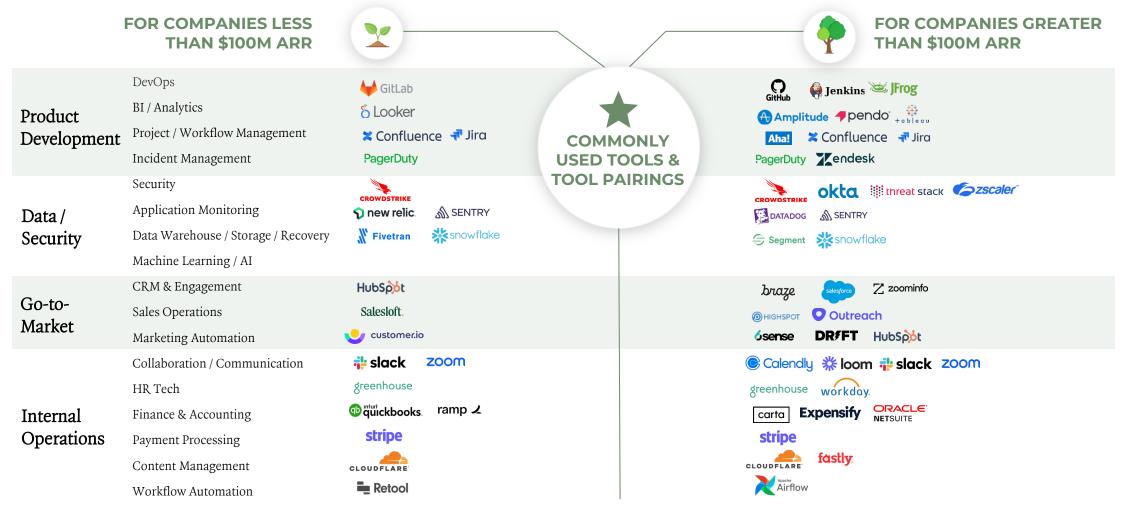
Certain categories like DevOps, security, application monitoring, and collaboration / communication are **extensive enough to support multiple tools at organizations with companies adding new or ancillary tools as they scale,** whereas other **categories like CRM & engagement, data warehouse, and finance & accounting tend to cap at 1-2 tools.**

Given substantial spend in categories like go-to-market and internal operations and budget pressures driven by macroeconomic conditions, it is likely that we will continue to see **tool rationalization and category consolidation in 2023.**

Most Common Tools & Tool Pairings

Certain categories and tools become more applicable as companies scale. Below is an illustrative view of what a full tech stack can look like for software companies

Example companies shown here are based on most commonly used tools and tool pairings indicated by ICONIQ Growth companies via the 2022 portfolio survey. This is an illustrative view and not meant to be a recommendation of tools or prescriptive regarding whether certain tools are only relevant for early vs late-stage companies.

FOR COMPANIES LESS THAN $100M ARR

COMMONLY USED TOOLS & TOOL PAIRINGS

FOR COMPANIES GREATER THAN $100M ARR

Product Development		Less than $100M ARR	Greater than $100M ARR
	DevOps	GitLab	GitHub, Jenkins, JFrog
	BI / Analytics	Looker	Amplitude, pendo, tableau, Aha!
	Project / Workflow Management	Confluence, Jira	Confluence, Jira
	Incident Management	PagerDuty	PagerDuty, Zendesk

Data / Security			
	Security	CROWDSTRIKE	CROWDSTRIKE, okta, threat stack, zscaler
	Application Monitoring	new relic, SENTRY	DATADOG, SENTRY
	Data Warehouse / Storage / Recovery	Fivetran, snowflake	Segment, snowflake
	Machine Learning / AI		

Go-to-Market			
	CRM & Engagement	HubSpot	braze, salesforce, zoominfo
	Sales Operations	Salesloft	HIGHSPOT, Outreach
	Marketing Automation	customer.io	6sense, DRIFT, HubSpot

Internal Operations			
	Collaboration / Communication	slack, zoom	Calendly, loom, slack, zoom
	HR Tech	greenhouse	greenhouse, workday
	Finance & Accounting	quickbooks, ramp	carta, Expensify, ORACLE NETSUITE
	Payment Processing	stripe	stripe
	Content Management	CLOUDFLARE	CLOUDFLARE, fastly
	Workflow Automation	Retool	Apache Airflow

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Spend by Category| Pre-$100M ARR

For earlier stage companies, go-to-market tools tend to see the most investment in terms of absolute dollars; based on preliminary forecasts for 2023, the top categories expected to see increased spending include BI/analytics, incident management, marketing automation, and internal operations

2022 Spend & Expected 2023 Adjustment
Median % change vs 2022 spend by category for companies less than $100M ARR

	Category	2022 Spend	Median 2023 Adjustment
Product Development	Business Intelligence / Analytics	$100K	~20%
	DevOps	$100K	~10%
	Project / Workflow Management	$50K	~10%
	Incident Management	$50K	~30%
Data / Security	Data Warehouse / Storage / Recovery	$100K	~10%
	Application Monitoring	$70K	~10%
	Security	$20K	~10%
	Machine Learning / AI	Insufficient N	Insufficient N
Go-to-Market	CRM & Engagement	$300K	~0%
	Sales Operations	$200K	~(20%)
	Marketing Automation	$200K	~20%
Internal Operations	Payment Processing	$100K	~0%
	Content Management	Insufficient N	~0%
	Collaboration/Communication	$100K	~20%
	HR Tech	$150K	~0%
	Finance & Accounting	$50K	~20%
	Workflow Automation	$20K	~30%

Go-to-market categories like CRM and sales enablement software tend to require **substantial spend regardless of scale**. Earlier stage companies are spending north of $100K on these tools (ones that have a direct impact on revenue) even pre-$100M in revenue. However, tools in these categories are also more susceptible to churn and/or fluctuations in spend as companies are still figuring out what systems and processes work best.
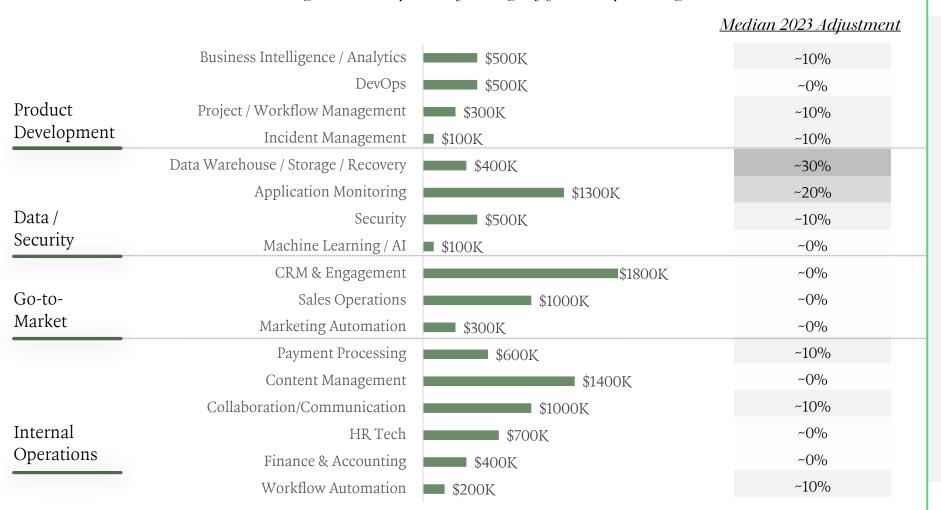
Based on preliminary forecasts for 2023 tool spend, the top categories expected to see increased spending include BI / analytics, incident management, marketing automation, collaboration, and workflow automation.

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Spend by Category| Post $100M ARR

Later stage companies expect to increase spend in data warehouse and application monitoring platforms in 2023

2022 Spend & Expected 2023 Adjustment

Median % change vs 2022 spend by category for companies greater than $100M ARR

Category		2022 Spend	Median 2023 Adjustment
Product Development	Business Intelligence / Analytics	$500K	~10%
	DevOps	$500K	~0%
	Project / Workflow Management	$300K	~10%
	Incident Management	$100K	~10%
Data / Security	Data Warehouse / Storage / Recovery	$400K	~30%
	Application Monitoring	$1300K	~20%
	Security	$500K	~10%
	Machine Learning / AI	$100K	~0%
Go-to-Market	CRM & Engagement	$1800K	~0%
	Sales Operations	$1000K	~0%
	Marketing Automation	$300K	~0%
Internal Operations	Payment Processing	$600K	~10%
	Content Management	$1400K	~0%
	Collaboration/Communication	$1000K	~10%
	HR Tech	$700K	~0%
	Finance & Accounting	$400K	~0%
	Workflow Automation	$200K	~10%

As companies scale past $100M, we start to see a significant increase in spend in **certain categories such as CRM, content management, collaboration, and application monitoring**.

Based on preliminary expectations for 2023, later stage companies plan to **increase spend across data warehouse and application monitoring** platforms. Conversely, tools focused on **go-to-market, HR tech, content management, and finance & accounting are expected to see little to no movement**.

While there has been a lot of public interest and excitement around AI, **median change in expected spend for AI tools is also expected to remain low**. One hypothesis is that companies surveyed do not yet need significant investment in AI capabilities for their stage or business use case.

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Fastest Growing Tools in 2022

Based off G2 review data, revenue enablement and collaboration tools dominated 2022 fueled by strong adoption from PLG motions and remote working tailwinds

FASTEST GROWING TOOLS IN 2022

Based on review data from G2, we identified 40 tools that grew exceptionally well in 2022 based on the below factors:

Market Reach	User Experience

Market Reach
- *Virality*: Number of page views in 2022
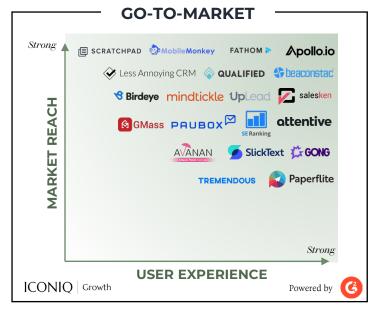- *Adoption*: Number of reviews in 2022
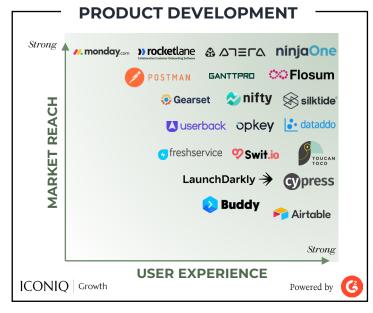
User Experience
- *Net Promoter Score* ("How likely are you to recommend this tool to a friend?")
- *G2 Star Rating* (A score of 1-5 based on user satisfaction)
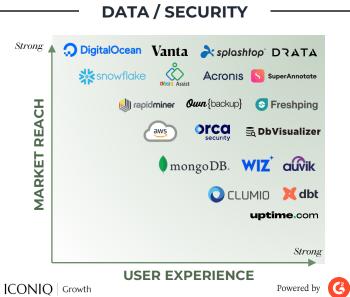- *Ease of Setup*
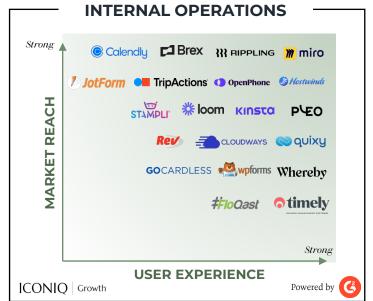- *Ease of Use*

Key Takeaways
- Market reach does not necessarily translate to strong user experience; there are many tools which have gained broad market reach with relatively low NPS scores
  - This is most likely driven by the law of large numbers where scores have adjusted closer to the average as the number of users and reviews have increased
- Notably, many of the fastest growing tools are product-led growth companies which require strong user experiences to enable bottom-up growth
- Revenue enablement and collaboration tools also dominate the list of fast-growing tools

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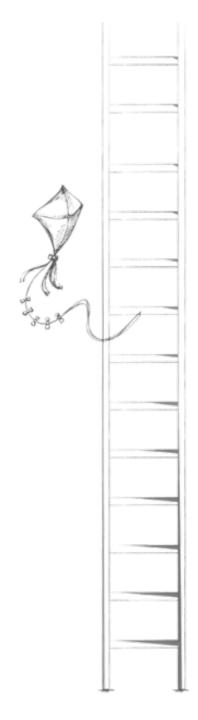
Fastest Growing Tools in 2022: By Category

PRODUCT DEVELOPMENT

Strong

MARKET REACH

monday.com · rocketlane · ATERA · ninjaOne

POSTMAN · GANTTPRO · Flosum

Gearset · nifty · silktide

userback · opkey · dataddo

freshservice · Swit.io · TOUCAN TOCO

LaunchDarkly · cypress

Buddy · Airtable

Strong

USER EXPERIENCE

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GO-TO-MARKET

Strong

MARKET REACH

SCRATCHPAD · MobileMonkey · FATHOM · Apollo.io

Less Annoying CRM · QUALIFIED · beaconstac

Birdeye · mindtickle · UpLead · salesken

GMass · PAUBOX · SE Ranking · attentive

AVANAN · SlickText · GONG

TREMENDOUS · Paperflite

Strong

USER EXPERIENCE

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DATA / SECURITY

Strong

MARKET REACH

DigitalOcean · Vanta · splashtop · DRATA

snowflake · Zoho Assist · Acronis · SuperAnnotate

rapidminer · Own{backup} · Freshping

aws · orca security · DbVisualizer

mongoDB · WIZ · auvik

CLUMIO · dbt

uptime.com

Strong

USER EXPERIENCE

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INTERNAL OPERATIONS

Strong

MARKET REACH

Calendly · Brex · RIPPLING · miro

JotForm · TripActions · OpenPhone · Hostwinds

STAMPLI · loom · KINSTA · PLEO

Rev · CLOUDWAYS · quixy

GOCARDLESS · wpforms · Whereby

FloQast · timely

Strong

USER EXPERIENCE

ICONIQ | Growth   Powered by G2

Based on the same factors, the top 20 fastest growing tools within each category are shown here.

Some common qualities mentioned in reviews that were shared by top tools include:

- Ease of use and implementation
- Strong integration with supporting products
- Immediate or near immediate ROI
- Strong support team
- Continual product enhancements

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Category Overview

Category Overview: **DevOps**

Top Tools & Key Metrics

Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
GitHub	67%	7.5	~$70K	4.7	"Defacto standard, but code review functionality is lacking" "End-to-end automated CI/CD and code collaboration platform"
GitLab	28%	8.5	~$70K	4.5	"Full suite for devops and high quality deployment experience" "Easy to use and flexible project management and code maintenance tool"
Jenkins	28%	6.3	Open source	4.4	"Best open-source CI/CD pipeline tool" "A bit outdated and not very intuitive"

Key Takeaways

- Github is the most used player in the DevOps / code management space with high usage; however, GitLab comes close due to synergies with other parts of the DevOps lifecycle and higher user satisfaction

- Pricing structure & contract flexibility for DevOps tools are important decision points for smaller companies

- Most companies expect to increase Github or Gitlab spend going into 2023

Emerging Leaders[1]

Flosum   Gearset

LaunchDarkly →   POSTMAN

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Category Overview: **Incident Management**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses
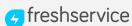
	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
PagerDuty	61%	8.4	~$80K	4.5	"Masterclass incident management platform" "Easiest and most reliable incident management tool we've come across"
Zendesk	39%	8.0	~$250K	4.4	"Great tool but very expensive" "Great platform for all support needs; would be nice if more customization was possible"
Opsgenie	17%	6.5	N/A	4.3	"Reliable centralized source for incident alerting" "Set up can be a little confusing and requires some time to fine tune"

Key Takeaways

- PagerDuty leads the category as the top incident management platform with strong reviews on G2 and wide adoption

- Most companies are expecting to increase spend for PagerDuty and Zendesk going into 2023

Emerging Leaders[1]

ATERA   **freshservice**

ninjaOne   **userback**

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Category Overview: **BI / Analytics**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
Looker	44%	7.8	~$190K	4.4	"Ensures we have strong data governance, but lacks more advanced visualization capabilities and not very flexible or well suited for ad-hoc analysis that requires unmodeled data"
tableau	28%	6.3	~$150K	4.4	"Powerful tool for data visualization and analysis and easy to set up" "It's as expensive as it can get. Although the breadth of features is unmatchable, you end up not using most of them anyways, so you are paying for things your team will never use"
Amplitude	22%	6.5	~$270K	4.5	"The Data module has solved a huge workflow pain point in managing the quality of data being tracked. The Analytics module makes doing a lot of basic analyses super fast and approachable to people who aren't full-time analysts. It's event-based analysis architecture is limiting at times, forcing us to go outside the tool and query the data in Snowflake."

Key Takeaways

- Based on G2 reviews, users found Tableau and Looker equally easy to use. However, Tableau Desktop is easier to set up, while reviewers preferred administration and ease of doing business with Looker overall

- Most companies are expecting their BI / analytics tool spend to stay the same in 2023

Emerging Leaders[1]

dataddo

data iku

Qlik

TOUCAN TOCO

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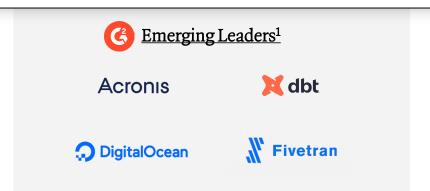# Category Overview: **Project / Workflow Management**
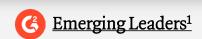
Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
Jira	89%	8.3	~$70K	4.2	"Best scrum/requirements collaboration tool on the market, but could use more functionality around road mapping" "Seamlessly integrates with other solutions but requires some time to set up and tailor for teams"
Confluence	56%	6.3	~$150K	4.1	"The go to tool for documenting product ideas and development flow" "Can be complicated and harder to use for non-engineering teams"
Aha!	11%	7.0	~$40K	4.3	"Aha! Roadmaps provides a wide range of functionalities that enables the Product Managers and Engineering team to collaborate seamlessly and build/enhance Products." "Flexible product, good integrations, excellent customer support"

Key Takeaways

- Atlassian maintains its dominance across software companies with its full suite of project management tools across Jira, Confluence, and Trello

- Other popular project management tools include Aha!, Airtable, and Smartsheet

- Most companies are expecting their project / workflow management spend to stay the same in 2023

Emerging Leaders[1]

Airtable

monday.com

nifty

rocketlane
Collaborative Customer Onboarding Software

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Category Overview: **Data Warehouse / Storage / Recovery**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
snowflake	61%	8.0	~$1.2M	4.6	"Great data warehouse for general usage; limited data visualization tools" "All you need for a database but usage-based pricing can get very costly"
Segment	22%	7.5	~$540K	4.6	"Exceptional product with amazing support and intuitive UI" "Perfect tool for combining user data across platforms and sources"
splunk>	17%	6.5	~$270K	4.3	"Awesome SIEM tool for small and medium organizations; license cost for Enterprise is prohibitive" "A must have tool to better monitor your environment and troubleshoot issues"

Key Takeaways

- Snowflake is the defacto data warehousing tool with strong usage and user satisfaction; however, according to users costs can quickly become expensive given its usage-based pricing

- Most companies are expecting to increase data warehouse spend in 2023

Emerging Leaders[1]

Acronis   dbt

DigitalOcean   Fivetran

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Category Overview: **Security**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
CROWDSTRIKE	33%	7.5	~$70K	4.7	"An essential security program and excellent value for the money" "Great program requiring minimal manual intervention and operation time"
paloalto NETWORKS	17%	8.5	~$60K	4.5	"Reliable, high performance firewall solution" "Best network security appliance I've ever used"
okta	17%	9.0	~$700K	4.4	"Best SSO tool for business login security" "Best SSO provider we've used with excellent support and communications"

Key Takeaways

- Crowdstrike leads the security category with around 33% of companies using it to manage endpoint protection, followed by Palo Alto Networks (17% of users) and Okta (17% of users)

- Most companies expect security spend to stay the same in 2023

Emerging Leaders[1]

DRATA

orca security

Vanta

WIZ

25

ICONIQ | Growth

Category Overview: **Machine Learning / AI**
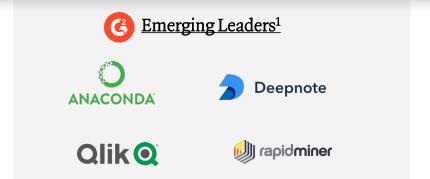
Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
aws	11%	8.3	N/A	4.6	"Easy ML model training, testing and deployment" "Quite expensive and will need more run time for large projects"
DOMINO	6%	N/A	~$150K	4.5	"A great data science tool; very easy to run and train models through Domino" "Powerful ML ops platform; all the crucial data science tools and packages are present"
Google Cloud	6%	8.0	N/A	4.3	"All possible AI services are provided via GCP AI" "Scalable and flexible platform for ML workflows"

Key Takeaways

- The proportion of companies using machine learning / AI tools remains small, with most turning to out-of-the-box solutions from cloud providers like AWS and Google Cloud

- Most companies expect ML/AI spend to stay the same in 2023

Emerging Leaders[1]

ANACONDA

Deepnote

Qlik

rapidminer

ICONIQ | Growth

Category Overview: **Application Monitoring**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
SENTRY	56%	8.4	~$20K	4.4	"Tracks down unexpected errors with ease; a lot is plug and play and there's not much to dislike" "Application monitoring done right; rate limits and pricing are painful to navigate at times"
DATADOG	50%	8.0	~$780K	4.3	"Awesome utility; team keeps cranking amazingly useful features at high velocity" "Consolidated view of logs and metrics from across the infrastructure and application stack"
new relic	17%	8.0	N/A	4.3	"Best full observability tool in the market" "Subscription model can be a little pricy and constant changes to UI can make it challenging"

Key Takeaways

- Sentry and Datadog are two of the most popular application monitoring tools with strong adoption and user satisfaction

- Most companies are expecting to increase application monitoring spend in 2023

Emerging Leaders[1]

dynatrace   **Freshping**

LogicMonitor   **splunk>**

ICONIQ | Growth

Category Overview: **CRM & Engagement**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
salesforce	67%	6.5	~$800K	4.3	"Reporting metrics into a consolidated view is great, but data can be iffy based on other APIs" "#1 CRM tool to manage sales funnel; daunting backend and implementation required"
HubSpot	22%	5.5	~$30K	4.4	"Robust sales management tool and reliable tool for communication" "Powerful all-in-one CRM and marketing solution. Contracts can become costly as you scale up"
braze	16%	N/A	~$350K	4.5	"Wide range of marketing automation tools; would be great if Braze provided more flexibility in terms of analytics" "A user-friendly platform for both strategists and operational marketers"

Key Takeaways

- Salesforce remains the dominant CRM tool used by the majority of companies followed by HubSpot; however, user satisfaction for CRM tools appear to be on the lower end compared to other tools mostly driven by frustration with pricing and implementation complexity

- Most companies expect to increase Salesforce spend in 2023; conversely, HubSpot spend is expected to decrease

Emerging Leaders[1]

Birdeye   :copper

Less Annoying CRM   zoominfo

ICONIQ | Growth

Category Overview: Sales Operations

Top Tools & Key Metrics

Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
HIGHSPOT	22%	6.5	~$120K	4.7	"My favorite enablement platform. Highly intuitive for both user and administrator" "Evolving product with great capabilities. A game changer for our onboarding programs"
Outreach	16%	7.3	~$130K	4.3	"Excellent tool for sales automation; tight integration with CRMs like Salesforce" "Great sales lead management platform; UI can be a little frustrating"
Clari	16%	8.0	~$210K	4.7	"Great app for pipeline visibility and management for tools" "Mission critical, easy to use software for sales leadership and reps"

Key Takeaways

- The sales operations space remains relatively fragmented with many tools spending different use cases like coaching, outreach automation, or pipeline visibility, all with relatively strong user satisfaction

- Popular tools include Highspot, Outreach, Clari, People.ai, Seismic, and Gong

- Most companies expect sales enablement spend to stay the same in 2023

Emerging Leaders[1]

Apollo.io   FATHOM

GONG   people.ai

ICONIQ | Growth

Category Overview: **Marketing Automation**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
Marketo An Adobe Company	22%	7.0	~$100K	4.1	"Seamless and robust product for integrated marketing automation" "All-in-one marketing automation platform with great user experience"
HubSpot	22%	5.5	~$30K	4.4	"Simple and intuitive, without sacrificing any sophistication" "Easy to use marketing automation tool for growing businesses"
6sense	11%	8.5	~$120K	4.4	"Great account-based marketing tool with excellent insight into tracking intent data" "Actionable account insights that help increase personalization and move deals through the pipe"

Key Takeaways

- Marketo and Hubspot lead the pack among marketing automation tools, followed by 6sense and Pardot

- Most companies expect marketing automation tool spend to stay the same or decrease in 2023

Emerging Leaders[1]

LeanData

MobileMonkey

QUALIFIED

SE Ranking

30

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Category Overview: **Collaboration / Communication**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
slack	78%	8.0	~$230K	4.5	"A must-have communication tool for any team" "Best internal communication tool and great third party integrations"
zoom	72%	7.1	~$250K	4.5	"Great business communication platform but pricy" "An invaluable tool allowing us to grow the business beyond geographic limits"
Google Workspace	39%	8.6	~$160K	4.6	"Best collaboration tool for teams" "Simple and powerful suite for productivity and collaboration"

Key Takeaways

- Slack and Zoom are the most popular collaboration tools used by most companies; other mentioned tools include Calendly, Loom, and Miro

- Most companies expect collaboration / communication spend to stay the same

Emerging Leaders[1]

Calendly   loom

miro   OpenPhone

31

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Category Overview: Payment Processing

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

|	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
stripe	28%	7.6	~$180K	4.3	"Easiest way to get paid online and great reporting" "Stripe has simplified and streamlined our SaaS subscription model"
PLAID	11%	N/A	N/A	4.1	"Secure and convenient transactions" "Simple to use, robust when you need it. Support system can be convoluted"
adyen	11%	N/A	N/A	3.4	"Simple and easy to use. Great connector with a full set of features" "Reliable for payments, room for improvement for fraud tools"

Key Takeaways
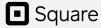
- Payment processing tools were used by a small proportion of survey respondents, with Stripe being the leading processing tool

- Most companies expect payment processing spend to stay the same in 2023

Emerging Leaders[1]

GOCARDLESS

melio

ProfitWell

Square

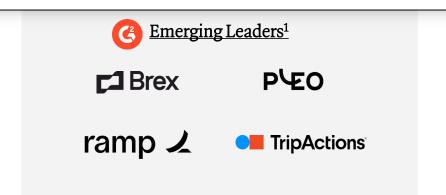ICONIQ | Growth

Category Overview: Finance & Accounting

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
ORACLE NETSUITE	33%	7.5	~$260K	4.4	"Truly all-encompassing; replaces headcount and services" "Robust ERP for all team/needs, with flexibility to customize into a bespoke powerhouse system"
Expensify	22%	6.5	~$80K	4.4	"Frictionless expense management software" "Best expense tool for reimbursements and employee expense management"
carta	16%	8.0	~$40K	4.3	"Makes equity management simple and straight-forward" "Great UX, resources, and overall experience"

Key Takeaways

- Oracle Netsuite is the most popular accounting tool for larger organizations, with many companies transitioning from Quickbooks to Netsuite at scale

- Expensify and Carta are other popular tools for expense management and equity management, respectively

- Most companies expect finance and accounting spend to stay the same in 2023

Emerging Leaders[1]

Brex

PLEO

ramp

TripActions

33

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Category Overview: **Content Management**

Top Tools & Key Metrics

Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
aws	44%	8.8	N/A	4.6	"Outstanding in terms of hosting; a feature and services rich cloud platform" "AWS is a one-stop destination for most of the cloud requirements"
CLOUDFLARE	22%	9.0	~$400K	4.6	"Best CDN and website protection tool" "Where performance and reliability meet cost effectiveness"
fastly	11%	N/A	N/A	4.8	"Great CDN for extensive technical customizations" "Has exceeded our expectations for performance and DevOps friendliness"

Key Takeaways

- Most companies rely on AWS for content management (i.e. hosting); Cloudflare is another popular option that includes DDoS protection and website security

- Most companies expect AWS spend to increase in 2023 and Cloudflare spend to stay the same

Emerging Leaders[1]

CLOUDWAYS

Hostwinds

Kinsta

SANITY

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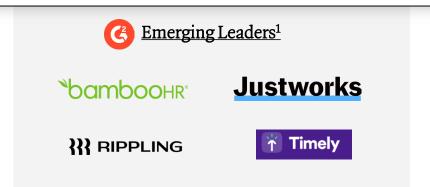
Category Overview: HR Tech

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage % of Respondents	Avg Rating Out of 10	Annual Spend Average	G2 Score Out of 5	Select Commentary Select G2 Reviews
workday	39%	7.0	~$270K	4.8	"All-in-one business self-service tool" "Universal platform for employee profile management"
Lattice	28%	7.4	~$40K	4.7	"The tool our leadership and managers needed" "A solid solution for organizing performance, gauging employee sentiment, and 1:1s"
greenhouse	28%	6.5	~$60K	4.4	"Intuitive and great integrations; reporting helps me better at my job" "Excellent functionality, continuously improving"

Key Takeaways

- The HR tech category also includes multiple use cases across employee management (Workday), performance management (Lattice), and recruiting (Greenhouse)

- Most tools see relatively strong adoption and engagement but one common painpoint is lack of end-to-end visibility and integration of employee experience into one tool

- Most companies expect HR tech spend to stay the same in 2023

G2 Emerging Leaders[1]

bambooHR

Justworks

RIPPLING

Timely

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Category Overview: **Workflow Automation**

Top Tools & Key Metrics
Top 3 tools shown based off survey from ICONIQ Growth portfolio survey responses

	Usage *% of Respondents*	Avg Rating *Out of 10*	Annual Spend *Average*	G2 Score *Out of 5*	Select Commentary *Select G2 Reviews*
Retool	16%	N/A	~$100K	4.7	"Excellent tool for quick prototyping and productivity. Easy to use and highly customizable" "Codeless internal dashboards; best tool for getting an app out quickly"
workato	11%	N/A	~$100K	4.7	"Creating solutions, automations and integrations is easy and fast" "A great low-code automation platform; however, introducing to non-technical people can still be overwhelming"
Apache Airflow	11%	N/A	N/A	4.3	"Awesome pipelining tool with a great user interface" "Best workflow orchestration tool with all kinds of processors"

Key Takeaways

- Workflow automation tools are less widely adopted across survey respondents, but popular tools include Retool, Workato and Airflow

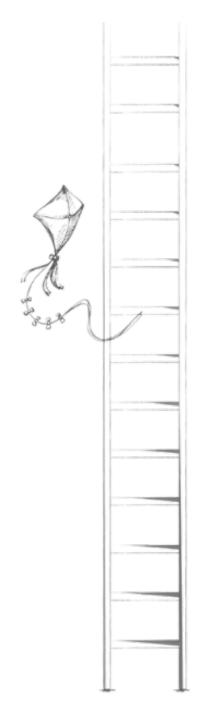- Most companies expect to increase workflow automation spend in 2023

Emerging Leaders[1]

AUTOMATION ANYWHERE   quixy

ROCKETBOT   UiPath

36

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4

Appendix

Supplemental Materials
About ICONIQ Growth

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Detail by Category | DevOps

Tool	Number of Reviews	NPS	Star Rating	Meets Requirements	Price	Ease of Use	Ease of Setup	Likely to Recommend	Ease of Admin	Quality of Support	Ease of Doing Business With
Jira	4922	89.24	4.48	6.41	4.96	6.10	5.76	8.95	5.77	6.17	6.20
Postm											
AWS											
Panth											
Sales Platfo											
Goog Tools											
TestF											
MadC											
Syncf											
Phras											
Lamh Servi Platfc											
Stopl											
Rand											
Plesk	234	100.00	4.76	6.00	4.50	6.67	7.00	9.25	7.00	6.33	7.00

Please reach out to ICONIQGrowthAnalytics@iconiqcapital.com for more detail by category and tool.

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Analytics & Insights

Seeking to empower our portfolio with proprietary analytics and insights across business operations and strategy

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Christine Edmonds

Head of Portfolio Analytics

Vivian Guo

Portfolio Analytics

Claire Davis

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Addison Anders

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Sam O'Neill

Portfolio Data Manager

Additional Insights

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Analytics & Insights

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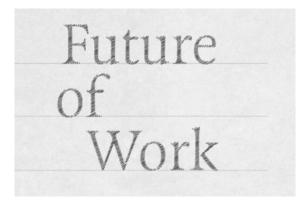
ICONIQGrowthAnalytics@iconiqcapital.com

Topline Growth & Operational Efficiency

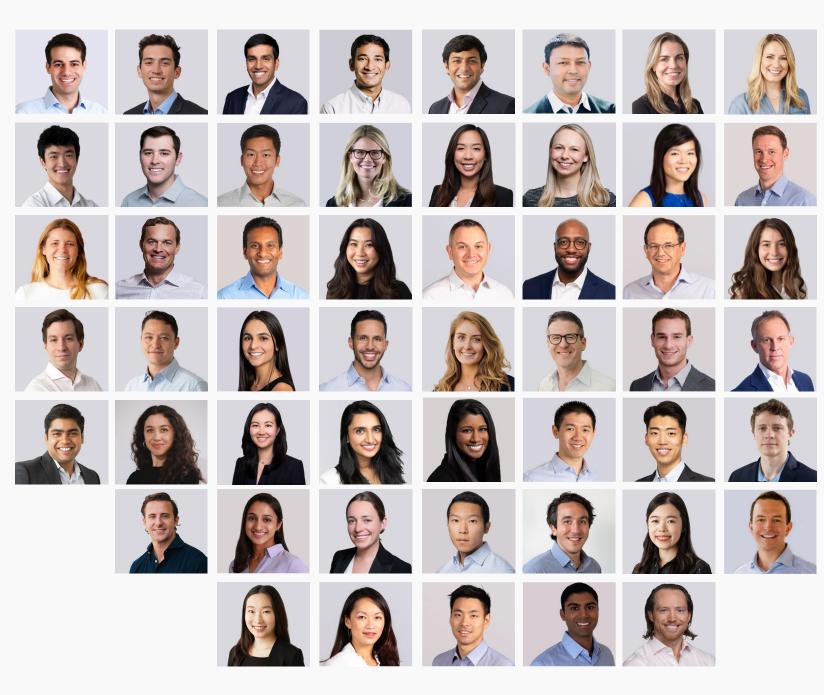Future of Work Series

Path to IPO Series

Go-To-Market Series

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A Portfolio of Category Leaders

1Password   adyen   Age of Learning   airbnb   Airtable   ajaib   Alibaba Group   alteryx   APTTUS

articulate   aurora   AUTOMATTIC   AXONIUS   bambooHR   Benchling   BetterUp   bill.com   BLACKLINE

braze   Calendly   Campaign Monitor   CaptivateIQ   chime   CLARA   collibra   conexiom   coupa

CROWDSTRIKE   CyberGRX   DATADOG   dataiku   dbt   DevotedHealth   dialpad   DocuSign   DRATA

enfusion   EPIC GAMES   Epic   ezcater   fastly   fetch REWARDS   Fivetran   Fireblocks   Flipkart

FREEWILL   FTX   Gem   GitLab   gofundme   GoodRx   GreenSky   Groww   GUILD

HashiCorp   headspin   HEPTAGON   highradius   HIGHSPOT   hightouch   Hippo   HONEST   houzz

iex   INTERCOM   inVision   komodohealth   loom   Lucid   MARQETA   miro   MC MONTE CARLO

motorway   Moveworks   Nayya   netskope   notable   Notion   orca security   panther   people.ai

PLURALSIGHT   Primer   PROCORE   QGenda   ramp   recharge   RED VENTURES   Reify HEALTH   Relativity

Re/prise   Restaurant365   robinhood   SANITY   SERVICETITAN   shopmonkey   side   skuid   sendbird

SMARTLING   snowflake   SPOTNANA   sprinklr   SQUIRE   TENCENT MUSIC ENTERTAINMENT   truckstop.com   turbonomic   twin

Twistlock   UBER   Unit21   UNITE US   vic.ai   virtru   WARBY PARKER   wayfair   Wealthsimple

Wolt   zinier   zoom

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