ICONIQ

ICONIQ ANALYTICS & INSIGHTS

Developer Technology Stack Study

ICONIQ Capital, LLC

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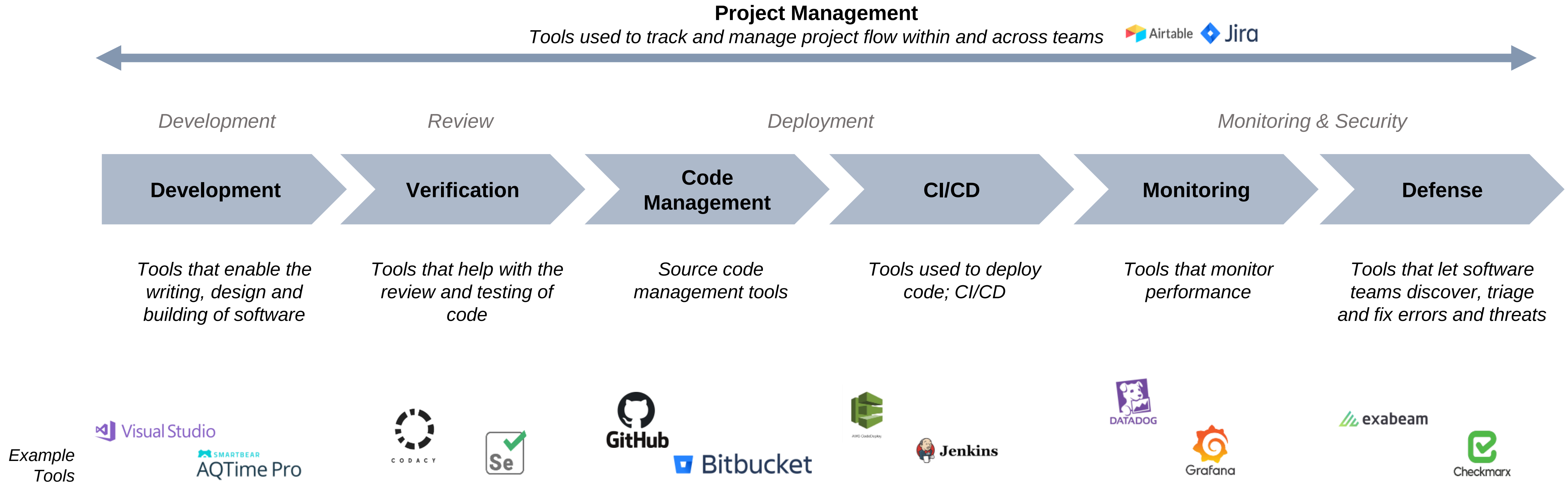
Executive Summary

The following is an in-depth study of the modern developer tech stack, in which we break down the DevOps lifecycle into six distinct phases, each with its own set of tools

DevOps Lifecycle: Seven Tool Categories Explored in Depth



Project Management
Tools used to track and manage project flow within and across teams
Airtable Jira

Development — **Development**: *Tools that enable the writing, design and building of software*

Review — **Verification**: *Tools that help with the review and testing of code*

Deployment — **Code Management**: *Source code management tools*

Deployment — **CI/CD**: *Tools used to deploy code; CI/CD*

Monitoring & Security — **Monitoring**: *Tools that monitor performance*

Monitoring & Security — **Defense**: *Tools that let software teams discover, triage and fix errors and threats*

Example Tools

Visual Studio, SMARTBEAR AQTime Pro

CODACY, Se

GitHub, Bitbucket

AWS CodeDeploy, Jenkins

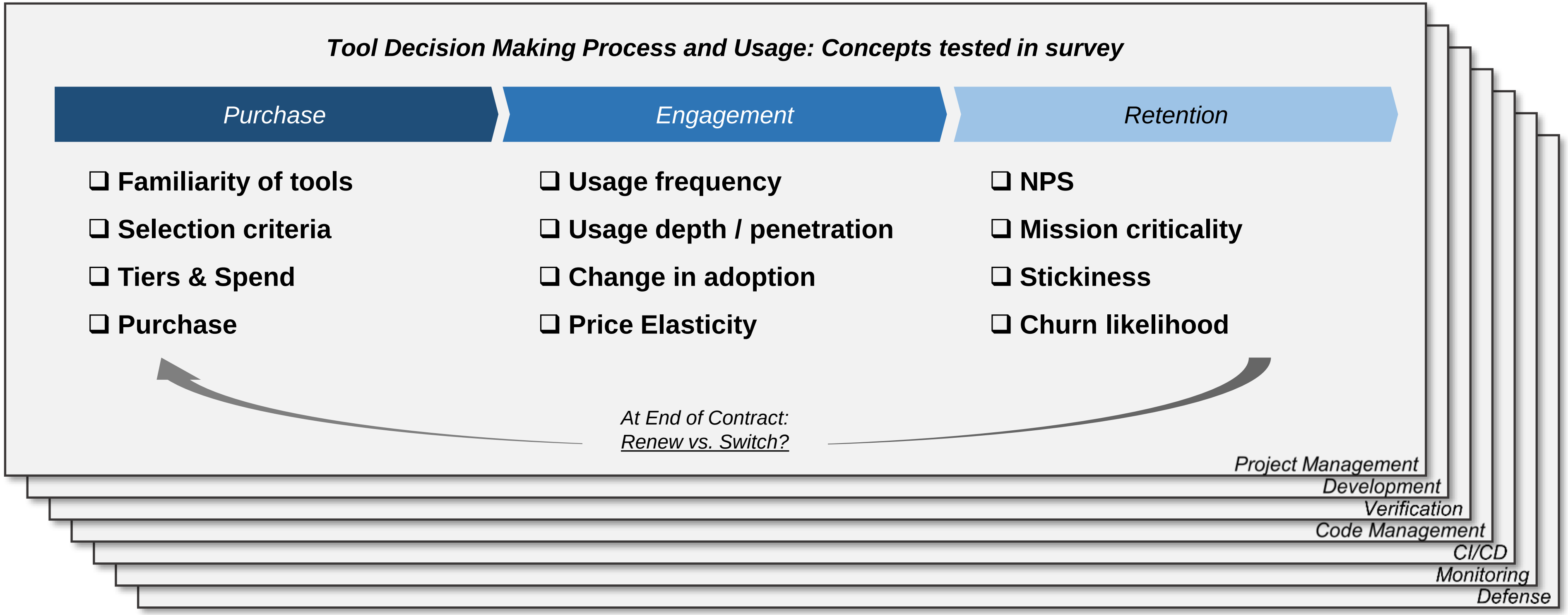
DATADOG, Grafana

exabeam, Checkmarx

Executive Summary – Project Overview (2 of 2)

For each of these lifecycle stages, we will examine high-level trends, followed by a drill-down on specific tools and associated key top-of-mind questions

DevOps Lifecycle:
Key Questions & Concepts Explored by Lifecycle Stage



Tool Decision Making Process and Usage: Concepts tested in survey

Purchase
- □ **Familiarity of tools**
- □ **Selection criteria**
- □ **Tiers & Spend**
- □ **Purchase**

Engagement
- □ **Usage frequency**
- □ **Usage depth / penetration**
- □ **Change in adoption**
- □ **Price Elasticity**

Retention
- □ **NPS**
- □ **Mission criticality**
- □ **Stickiness**
- □ **Churn likelihood**

At End of Contract:
Renew vs. Switch?

Project Management
Development
Verification
Code Management
CI/CD
Monitoring
Defense

+ Other Themes & Trends Explored

- □ **Machine Learning**
- □ **Cloud & Containerization**
- □ **Monitoring & Security**

We've used 3 data sources for this project along with the guidance and perspectives of our Technical Advisory Board - each providing a unique lens through which we can answer key questions

External Survey

External survey fielded through a panel of software companies, with ~200 respondents

Detailed survey teasing out high-level trends related to the developer tech stack decision-making process, followed by a drill-down on specific tools and several open-ended topics related to broader tech strategy

Note that this survey questionnaire was dynamic based on which tools respondents used – n-sizes will vary by question and are noted as relevant across slides

ICONIQ Growth Portfolio Survey

Survey and interviews across ICONIQ Growth companies for additional insights + validation

Focused on 3 key dimensions – spend, satisfaction & other noteworthy trends

Additionally, gathered context around tool selection, focusing on prior and existing pain points

Secondary Research

StackShare, G2Crowd, Other

***StackShare*: Dataset with 250K+ registered developers reporting their companies' technology stacks**

Comprehensive data on tech stacks across hundreds of companies, allowing us to gather industry-wide themes as well as insights related to individual tools performance / prevalence

+ G2Crowd for reviews and other various related reports

Perspectives from ICONIQ Growth Technical Advisory Board

Aditya Agarwal
Former CTO at Dropbox (Cove, Facebook)

Keith Adams
Chief Architect at Slack (Facebook, VMWare)

Matt Eccleston
Former VP Growth at Dropbox (VMWare)

Anantha Kancherla
VP Engineering at Lyft (Dropbox, Facebook)

Jeff Rothschild
Former VP Infrastructure at Facebook (Mpath, Veritas)

Nate Walkingshaw
CXO at Pluralsight (Tanner Labs, Stryker)

Executive Summary – Key Findings

In response to bottoms-up adoption and a proliferation of tools, we have seen a growing focus on organizational-level security and integration, with code development and project mgmt. tools being central to architecture design

Key Project Findings: The Dev Stack Decision Making Process

1

The number of tools used by developers has proliferated...

- As the **number of available tools** related to the code development process **continues to explode**, the **focal point in the design and assembly of technology stacks has evolved**
- Emerging technology companies (potentially by nature of the agility required in high-growth stages) have **evolved to encourage the experimentation of new tools**, with early adoption largely **driven by a bottoms-up motion**

2

Resulting in a focus on security & integration...

- Because there are now **many tools** in the average stack **with multiple potential points of failure, security has become a top priority**
- Concurrently, **integration capabilities have become critical** in order to effectively **manage the overarching architecture across disparate tools**

3

...And, project management and code development tools have become "anchor-points"

- In particular, project management & code development are key tool categories around which the rest of the stack is built
  - Project management tools are a **critical conduit between product and business teams**
  - Development tools or IDEs (Integrated Development Environments), are intuitively central to any technology architecture as they are typically where developers spend most time

4

While tool adoption is generally driven in a bottoms-up fashion, final selection criteria continues to be defined by top-down decision makers

- **Integration capabilities are top-of-mind** in the selection of project management tools while **reliability is a close second**
- Although price is sometimes important, **ROI time horizon** is often more so, indicating an appreciation for the value that can be driven by even some of the more expensive tools

5

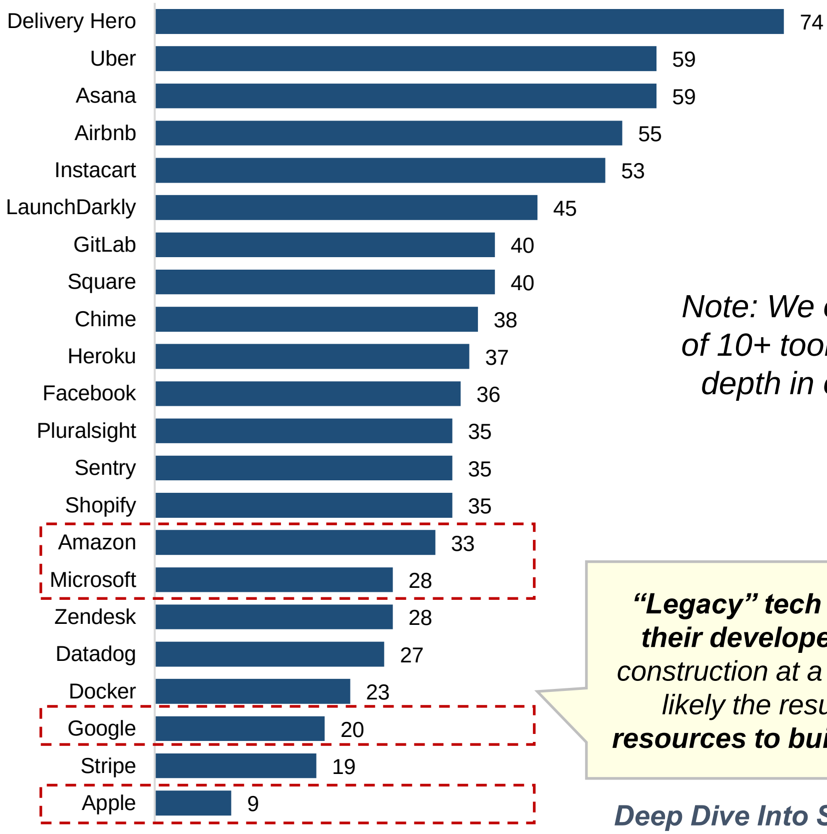
Additionally, challenges and organizational decisions related to machine learning resource allocation are top-of-mind

- **Machine Learning resource allocation** is top-of-mind in a world where **demand for this skillset has outpaced growth in the necessary talent pool**
- Most companies currently have **in-house ML teams and capabilities**, while a **smaller subset outsource machine learning needs** on an ad-hoc basis as their primary approach

Given low experimentation costs, companies have started to include an increasing number of tools in their developer stacks; however, more mature companies tend to have consolidated stacks

Number of Tools Used by DevOps Team

StackShare | Example Companies | Includes Business Tools



Note: We explored an average of 10+ tools per respondent in-depth in our external survey

"Legacy" tech giants have relatively fewer tools in their developer stacks** – potentially driven by stack construction at a time with more limited options and also likely the result of an **NIH culture and** having the **resources to build more solutions and tools in-house

Deep Dive Into Select Companies' Stacks on Page 63

> *"**We're at the cutting edge of a rapidly evolving space, which means a lot of experimentation.**"*
> *– Director of Engineering at HyperScience*

> *"**We are constantly evaluating the best tools for the job** to make sure our tech stack allows us to maintain a great product for our users."*
> *– Sr. Engineer at OkCupid*

> *"I think it's a huge mistake to try and use a one-size-fits-all tool across different use cases, even within departments… **each of our tools are great at the highly specific thing we use them for**, but wouldn't be as effective if we tried to stretch them across secondary capabilities."*
> *– Decision maker at enterprise SaaS company*

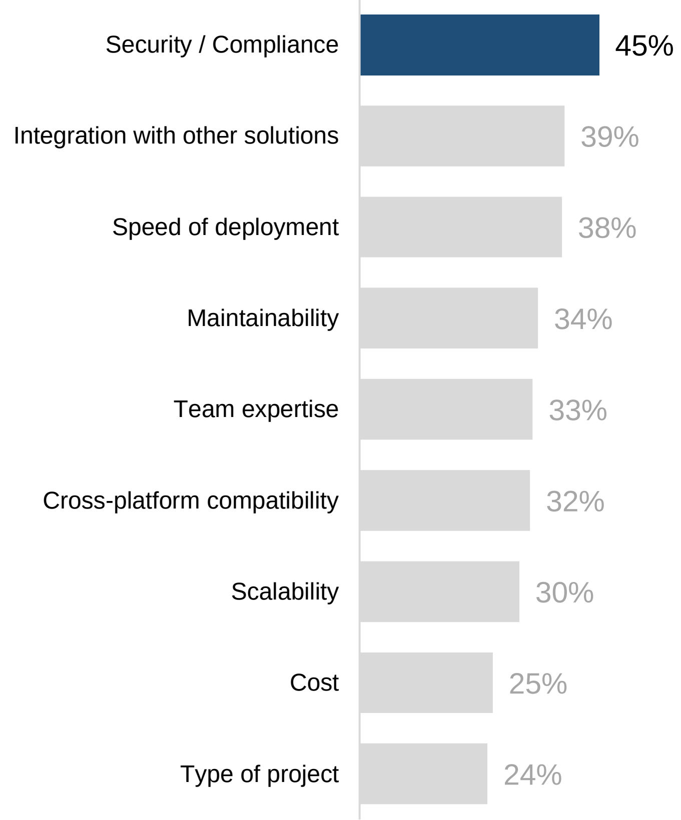
> *"There is a balance, of course, but I still strongly believe in a best-in-breed approach **– The cost of having to change your tool stack and the underlying data down the road is just too high not to choose the best one from the get-go**."*
> *– Decision maker at enterprise SaaS company*

Sources: StackShare, ICONIQ Analytics & Research

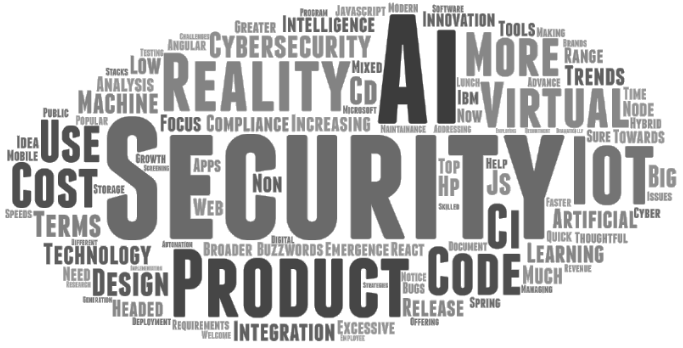
Executive Summary – Stack Design Considerations

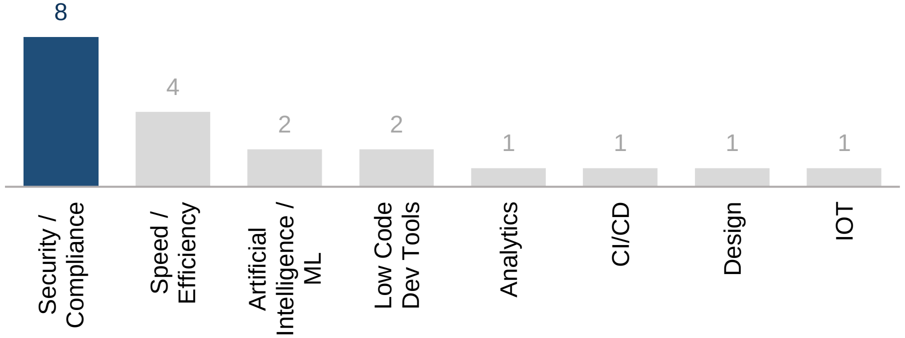
As a result, security has overwhelmingly become the most important consideration; not only was it most important, respondents indicated willingness to compromise efficiency and scalability to ensure security

Most Important Design Criteria



Most Prevalent Themes From Trends Noted





Select Survey Quotes

*"**Security first and foremost,** efficiency later even at the expense of increased cost."*

*"**Security takes priority over efficiency** as it will be easier to find vulnerabilities now rather than in the field."*

*"Our top concern is keeping our system updated to new threats without disrupting our end users' work. **To address this, we run as much security as we can as deep in the background as we can,** schedule patches and updates during times of low use in our system, and **support our users when there is a conflict."***

*"**We now focus first on security because of previous threats** but also focus on maintaining efficiency as well when possible."*

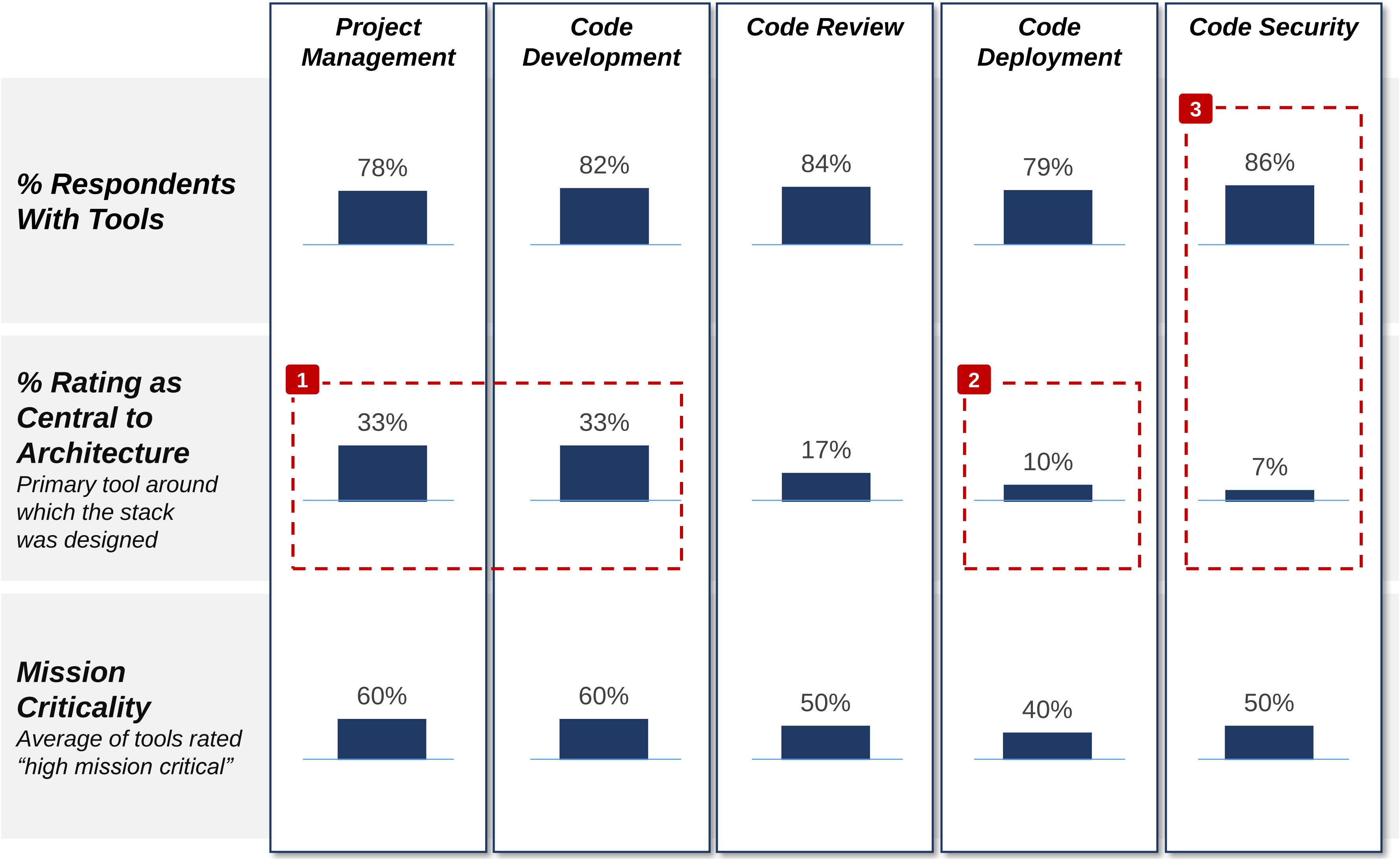
In addition to the proliferation of tools, another driver of the increased focus on secure tools may be shortage in cybersecurity talent
-- IBM cybersecurity study

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200, primary interviews + secondary research

Executive Summary – Overall Stack

3

Project management & code development tools are central to stack architecture in a landscape experiencing rapid growth in tools; while code deployment and security tools are largely ubiquitous, they tend to be secondary from a decision-making standpoint



1 **Project Management & Code Development tools serve as anchor points** in a landscape that has experienced rapid proliferation of tools.

Management tools in particular are critical as the conduit between product and business teams.

Development tools - where the engineering team spends the bulk of their time - are also a key decision point.

2 **Code deployment tools,** by virtue of being used last in the code building process, seem to **take the back seat in terms of the decision-making process.**

With CI/CD methods, teams also tend to retro-fit existing toolsets vs. proactively design stacks around deployment tools.

3 While security *across* tools remain a key priority, **code security tools as a category are often selected once the other key pieces are in place**, likely driven by the fact that this is generally the last phase of the development cycle.

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

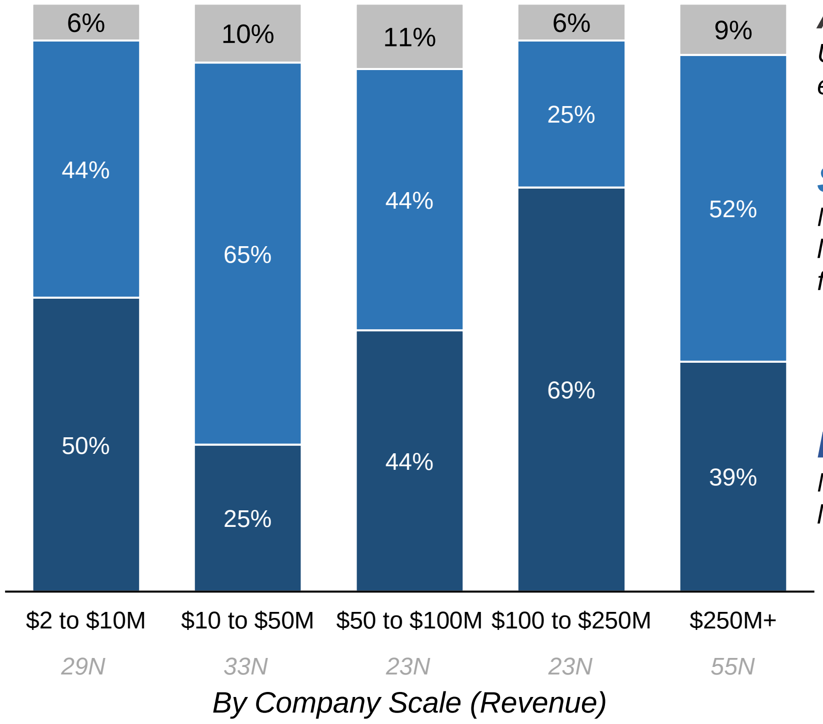
Executive Summary – Strategic Considerations: Machine Learning Resources

Generally, companies increasing deploy small teams of Machine Learning engineers dedicated to each function as they scale; outsourcing is a helpful way for some companies to supplement resources on an ad-hoc basis

Machine Learning Resource Allocation

Machine Learning Resource Organization

Which of the following best describes your organization's strategy as it pertains to machine learning? Select the one that best fits your situation.



Ad-Hoc Outsourcing

Using outsourced machine learning engineers on an Ad Hoc basis

Shared In-House Team

Maintaining a dedicated team of machine learning engineers that operate across all facets of the organization

In-House Teams by Function

Maintaining a small team of machine learning engineers for each function

How are companies thinking about their broader machine learning strategy?

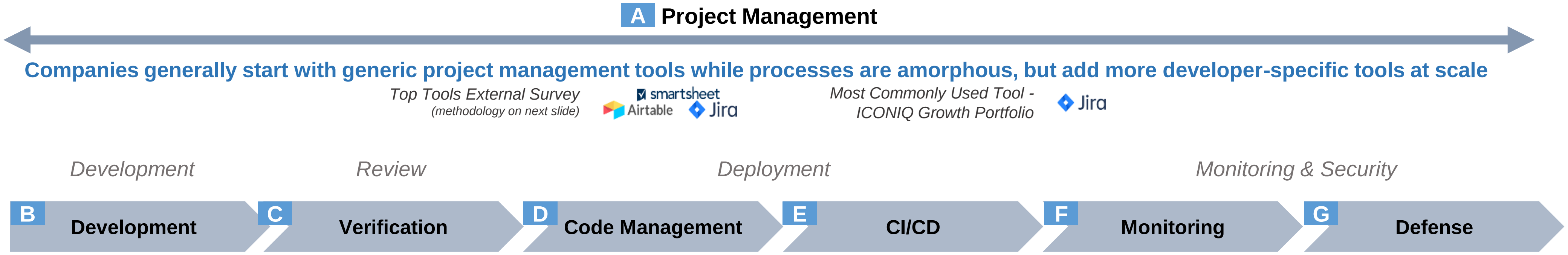
- Most companies are **currently using insourced machine learning capabilities**
- **Some teams** (~5-10%) **use outsourced ML talent as their primary resource**
- **Between $10M and $250M, companies increasing deploy small teams of ML engineers for each function;** much larger companies ($250M+), however, switch to have dedicated teams that operate cross-functionally

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Decisions around tools selection are often driven by factors idiosyncratic to the tool category; sometimes these are driven by scale, by coding language or by codebase environment

Further detail by tool category on subsequent slides

DevOps Lifecycle: Key Themes & Findings



Companies generally start with generic project management tools while processes are amorphous, but add more developer-specific tools at scale

Top Tools External Survey *(methodology on next slide)*: smartsheet, Airtable, Jira

Most Commonly Used Tool - ICONIQ Growth Portfolio: Jira

B Development: Traditional, free tools remain universal, while some teams are starting to use low code tools – choice largely driven by programming language

C Verification: Given importance of integration at this phase, tools that span multiple pieces of the DevOps lifecycle fare particularly well

D Code Management: Tried-and-True names and multi-purpose tools that span the DevOps lifecycle are stronger options

E CI/CD: Integration drive success of ecosystem players and multi-purpose tools

F Monitoring: Ability to aggregate data from various sources in a distributed infrastructure is key

G Defense: Selection generally dictated by codebase architecture given decision often comes later in process; 2+ tools common to ensure all needs served

	B	C	D	E	F	G
Top Tools - External Survey *(methodology on next slide)*	Notepad++ SMARTBEAR AQTime Pro	ESLint CODACY GitLab	GitHub GitLab Bitbucket	GitLab ANSIBLE	Prometheus DATADOG kibana	Checkmarx Guardicore exabeam
Most Commonly Used Tool - ICONIQ Growth Portfolio	*Varied*	GitLab	GitHub	Jenkins	DATADOG	pagerduty

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200; ICONIQ Growth Portfolio Survey, n = 20

Executive Summary – Tools Scoring Methodology

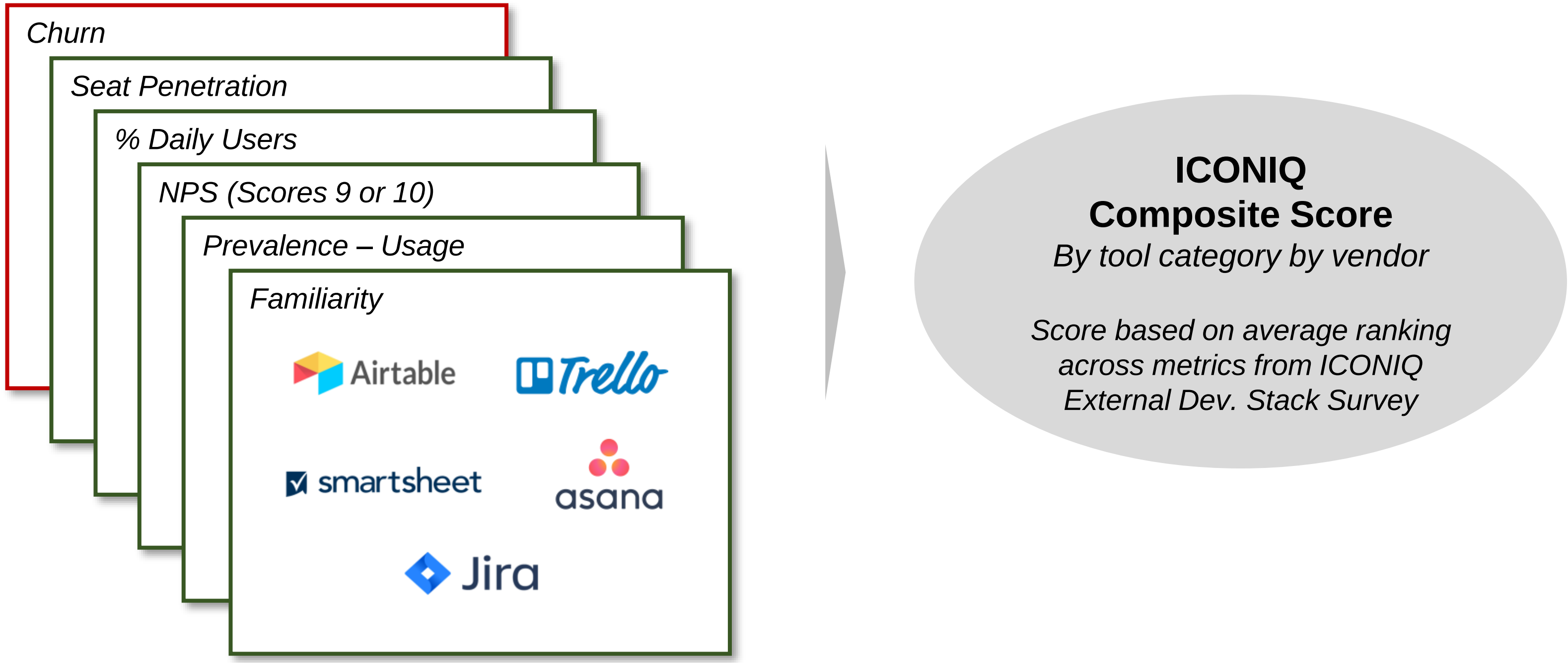
In order to distill an objective view of ‘top tools’ by category, we used a combination of various metrics to calculate a composite score, including brand awareness, adoption, satisfaction, engagement and retention likelihood

Tool Scoring Methodology

ICONIQ Analytics External Dev. Stack Survey Rankings

We used surveyed metrics along the purchase lifecycle (purchase, engage, retain) to derive a composite score for each tool:

- ✓ **Brand awareness |** Familiarity
- ✓ **Adoption |** Prevalence
- ✓ **Satisfaction |** NPS
- ✓ **Engagement |** % Daily & Seat Penetration
- ✓ **Retention likelihood |** Churn propensity



ICONIQ
Composite Score
By tool category by vendor

Score based on average ranking across metrics from ICONIQ External Dev. Stack Survey

Companies typically start with generic project management tools with built-in flexibility (e.g., Smartsheet) but transition to more robust tools specific to the developer process and team as they scale (e.g., Jira)

Project Management

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
Airtable	39%	31%	77%	50%	54%
smartsheet	46%	32%	63%	47%	49%
asana	41%	27%	67%	40%	48%
Jira	41%	27%	55%	52%	53%

Avg. Ranking

Key Takeaways

- Integration capabilities are of **key importance as project management tools serve as an anchor point** in a landscape that has experienced rapid proliferation of tools
- Although price is sometimes important, **ROI time horizon is often more important,** indicating buyers appreciate the value these tools can bring, even at higher price points

Differences by Company Scale

*Project Management tools tend to be more critical component of **tech stack for larger scale vs. smaller scale***

smartsheet **Smartsheet is more popular among smaller companies** given amorphous processes at earlier stages easier to handle in generic, self-defined tool

Jira **Larger companies exhibit deeper engagement** vs. other scale buckets – in terms of % daily users

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Coding language drives selection of code development tools (vs. company maturity); traditional, free development tools remain universal, while low code / no code tools continue to emerge as a parallel category

Development Tools

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
Notepad++	36%	26%	48%	60%	57%
Visual Studio	46%	35%	61%	35%	49%
SMARTBEAR AQTime Pro	28%	22%	75%	42%	51%

Avg. Ranking

Key Takeaways

Choice of development tool more likely to be driven by programming language (Mobile, C++, etc.)

Notepad++ Visual Studio — **Free traditional tools such as Notepad++ and Visual Studio Code remain universally the most prevalent** code development tools

Appian — Some teams are **starting to implement low code / no code tools such as Appian and Appsheet** to improve deployment speed

Betty Blocks — **Betty Blocks**, a fully “enterprise-grade” no-code tool **somewhat more popular among smaller companies**

Differences by Scale

*While integration remains top of mind for companies in their selection of development tools, **pricing structure & contract flexibility start to matter as companies scale***

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

While Codacy ranks highest in this category, multi-dimensional tools like GitLab also fare well given the importance of integration for code verification tools

Verification

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
CODACY	31%	24%	75%	48%	59%
GitLab	40%	32%	62%	36%	49%
ESlint	24%	15%	58%	50%	49%

Avg. Ranking

Key Takeaways

Given importance of integration capabilities for code verification tools, companies are willing to use multi-purpose tools such as GitLab despite shortcomings in certain areas

CODACY GitLab

Codacy and GitLab are within the top 3 tools for most scale buckets in terms of % of respondents using; however GitLab generally has lower engagement scores amongst $10-$50M bucket, but remains a top tool overall

GitLab

GitLab has the highest overall prevalence in developer stacks, propelled by those who prioritize reliability and integration – criteria across which GitLab ranks particularly well

Differences by Scale

*While integration remains top of mind for companies in their selection of verification tools, **pricing structure & contract flexibility start to matter as companies scale***

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Given code management space is generally more consolidated than other tool groups, awareness is a key driver with GitHub being the top used and known tool; GitLab follows closely given consolidation synergies

Code Management

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
GitHub	35%	27%	60%	40%	47%
GitLab	20%	14%	55%	50%	50%
Bitbucket	19%	10%	40%	20%	41%

Avg. Ranking

Key Takeaways

Given less fragmentation** in the code management ecosystem, **top vendors fare much better than those less well known

GitHub, most well-known in the code management space, **has both the most users and good NPS / G2 review scores...**

...However, GitLab comes close due to consolidation synergies with other parts of the DevOps lifecycle

Bitbucket was paired with the most other code management tools – implying functionality gaps that need other tools to supplement

Differences by Scale

- **Pricing structure & contract flexibility are more important for smaller companies**
- **Bitbucket ranked higher for smaller companies** vs. larger companies

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

In the CI/CD space, integration drives strength of both ecosystem players, such as AWS, and tools that serve multiple functions across the DevOps lifecycle such as GitLab

CI / CD

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
AWS CodeDeploy	38%	27%	60%	37%	49%
GitLab	20%	14%	55%	50%	50%
ANSIBLE	24%	15%	52%	39%	47%

Avg. Ranking

Key Takeaways

Integration drives *strength of both* ***ecosystem players****, such as AWS,* ***and tools that serve multiple functions within the DevOps lifecycle***

AWS CodeDeploy

AWS CodeDeploy has the highest overall prevalence in developer stacks, propelled by a high % of companies using AWS as their cloud provider – cohort that has over-indexed affinity toward AWS CodeDeploy for CI/CD

GitLab

However, GitLab comes close due to consolidation synergies with other parts of the DevOps lifecycle

Differences by Scale

- **Pricing structure & contract flexibility are more important for smaller companies**
- **Generally, larger companies have a higher base of serious daily users;** indicating decision makers are probably more intentional in their purchases / sign ups

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

For monitoring tools, ability to unify logs, metrics, and traces from across one's distributed infrastructure is key; this makes Datadog – a tool with 200+ integrations – the preferred choice

Monitoring

Top Selection Criteria

Integration Capabilities & ROI Time Horizon

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
DATADOG	31%	25%	59%	41%	48%
kibana	17%	12%	61%	22%	39%
Prometheus	16%	11%	53%	18%	54%

Avg. Ranking

Key Takeaways

*For monitoring tools, the **ability to unify logs, metrics, and traces from across one's distributed infrastructure is key***

DATADOG

Code monitoring tools generally have low engagement scores in terms of % using daily; somewhat expected given predominantly passive nature of involvement

Nonetheless, Datadog's engagement metric is 2x that of the next best *(Kibana)*

"Monitoring for **many** apps is the top reason developers like Datadog" – StackShare Community

Differences by Scale

- **Scale does not seem to drive selection of code monitoring tools in a meaningful way, despite slightly different selection criteria**
- **Customer service especially important for larger** companies while **integration capabilities & ROI more important for smaller scale buckets**

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Selection of defense tools likely driven by the particular codebase environment the company operates in; most companies have more than one defense tool given the disparate functions served *(e.g., SIM vs. Code scanning)*

Defense

Top Selection Criteria

Integration Capabilities

Top Tools & Metrics

% Respondents

	Familiarity	Prevalence	NPS *9 or 10*	% Daily	Seat Penetration
Checkmarx	28%	24%	83%	53%	55%
exabeam	30%	19%	68%	43%	47%
Guardicore	20%	12%	72%	44%	44%

↑ ***Avg. Ranking***

Key Takeaways

***Selection of defense tools likely primarily driven by the particular codebase environment** the company operates in*

Most companies, will have 2+ defense tools for both redundancy and given slightly different capabilities across this 'best-of-breed' group (e.g., SIM vs. Code Scanning)

Checkmarx is the most popular defense tool across most companies; it is especially prevalent amongst those that prioritize ROI time horizon

PagerDuty and Lacework have the highest proportion of daily users despite lagging in overall prevalence

Differences by Scale

Scale does not seem to drive selection of defense tools in a meaningful way

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Project Management Tools

Project Management Tools – Usage

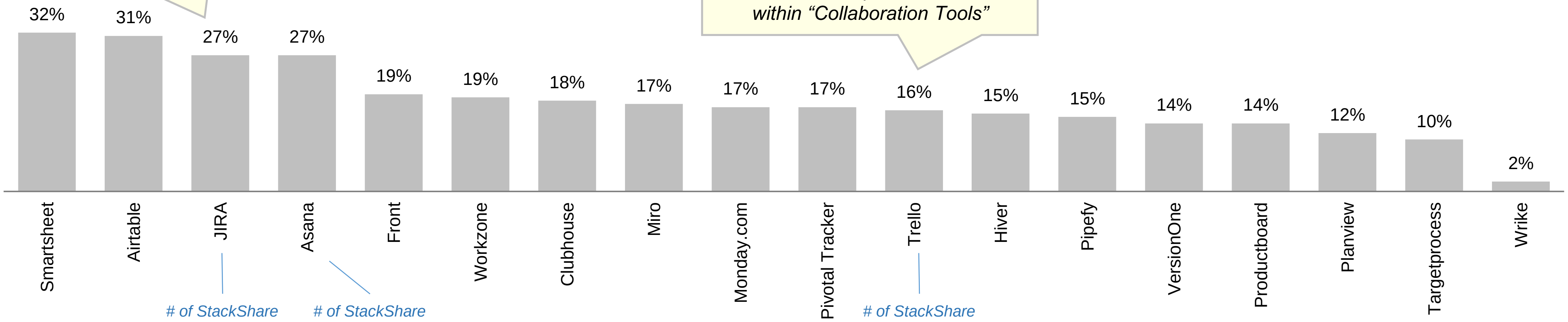
JIRA and Asana are the most widely used project management tools within larger teams while Smartsheet is disproportionately used by smaller companies

Usage by Company Scale (Annual Revenue) – Top 10 tools

Which of the following project / workflow management tools does your organization currently use? Base: 155

StackShare top 3 tool of 2019 within "Collaboration Tools"

StackShare top 3 tool of 2019 within "Collaboration Tools"



# of StackShare companies using: ***~1,700***

# of StackShare companies using: ***~500***

# of StackShare companies using: ***~1,400***

	Smartsheet	Airtable	JIRA	Asana	Front	Workzone	Clubhouse	Miro	Monday.com	Pivotal Tracker	Trello	Hiver	Pipefy	VersionOne	Productboard	Planview	Targetprocess	Wrike
***$2 to $10M** (24N)*	38%	29%	8%	4%	13%	21%	8%	13%	13%	4%	8%	17%	17%	25%	0%	13%	13%	4%
***$10 to $50M** (28N)*	50%	14%	25%	29%	18%	11%	21%	14%	11%	18%	25%	14%	18%	7%	14%	11%	14%	0%
***$50 to $100M** (21N)*	38%	52%	24%	29%	19%	24%	33%	29%	33%	29%	24%	19%	14%	19%	19%	24%	14%	10%
***$100 to $250M** (25N)*	20%	36%	40%	32%	16%	24%	24%	20%	36%	28%	4%	16%	20%	12%	20%	8%	8%	0%
***$250M+** (57N)*	23%	30%	32%	33%	25%	18%	12%	16%	7%	12%	18%	14%	11%	11%	14%	9%	7%	0%

Ranked by prevalence within full cohort / all respondents

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Project Management Tools – Selection Criteria & Top Tools

Integration capabilities are top-of-mind in the selection of project management tools while reliability is a close second; price is often contextualized relative to value / productivity gains

Selection Criteria & Top Tools by Company Scale (Annual Revenue)

	$2 to $10M	***$10 to $50M***	***$50 to $100M***	***$100 to $250M***	***$250+***
Top Selection Criteria *(Criteria Selected as Top 3 | **Above Median Shown**)*	**Integration Capabilities** (67%)	**Integration Capabilities** (64%)	**ROI Time Horizon** (62%)	**ROI Time Horizon** (64%)	**Integration Capabilities** (63%)
	Customer Reviews (46%)	**Reliability** (54%)	**Integration Capabilities** (57%)	**Integration Capabilities** (40%)	**Reliability** (51%)
	Price (33%)	**ROI Time Horizon** (39%)	**Customer Service** (38%)	**Reliability** (40%)	**ROI Time Horizon** (40%)
Top Tools *(Ranked)*	*Smartsheet* *Airtable* *VersionOne*	*Smartsheet* *Asana* *JIRA*	*Airtable* *Smartsheet* *Clubhouse & Monday.com (tied)*	*JIRA* *Airtable* *Monday.com*	*Asana* *JIRA* *Airtable*

Details on following page

Key Takeaways

- ***Integration capabilities are top-of-mind*** *in the selection of project management tools while reliability is a close second*
- *Although, price is sometimes important, ROI time horizon is often more important, indicating* ***buyers contextualize price relative to value / productivity gains***
- ***Smartsheet is popular among smaller teams*** *while* ***JIRA and Airtable are most popular for larger teams***

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Project Management Tools – Selection Criteria & Top Tools

Airtable ranks very highly amongst respondents that prioritize integration, pricing structure & contract flexibility and ROI time horizon; however, lacks in reliability; Asana, more than other tools, stood out in its reliability score

Top Tools (% Respondent Using) by Selection Criteria

Top 3 Criteria	Smartsheet	Airtable	JIRA	Asana	Front	Workzone	Clubhouse	Miro	Monday.com	Pivotal Tracker
Overall % Using	32%	31%	27%	27%	19%	19%	18%	17%	17%	17%
Ability to integrate	30%	32%	28%	28%	20%	20%	16%	18%	17%	17%
Pricing structure & contract flexibility	28%	33%	17%	22%	15%	15%	15%	15%	13%	17%
Reliability	31%	21%	31%	33%	15%	13%	16%	13%	12%	13%
Return on investment (ROI) time horizon	21%	39%	29%	30%	17%	19%	20%	19%	21%	24%

These 4 criteria (out of 9) are uniformly the most important selection criteria with a sharp drop off after

Airtable ranks very highly amongst respondents that prioritize integration, pricing structure and ROI time horizon; however, lacks in reliability

While Asana ranks decently in all 4 top criteria, it stands out in it's reliability

Other Selection Criteria: Time to implement, customer service, customer reviews, price, user-friendliness

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Project Management Tools – Tools Scorecard

In line with usage prevalence, Smartsheet and Airtable also score highly in engagement and satisfaction metrics including positive reviews on G2

Engagement & Satisfaction Metrics

N = 155 Respondents

	% Overall Users	**% Daily Users**	**NPS[1]** (9 or 10)	**G2[2] Score** (out of 5)
Smartsheet	32%	47%	81%	4.2
Airtable	31%	50%	78%	4.6
JIRA	27%	52%	77%	4.1
Asana	27%	40%	76%	4.3
Front	19%	30%	69%	4.6
Workzone	19%	34%	68%	4.3
Clubhouse	18%	32%	67%	4.4
Miro	17%	37%	67%	4.7
Monday.com	17%	38%	73%	4.5
Pivotal Tracker	17%	42%	69%	4.0

User Reviews [G2]

__[Smartsheet]__ I like that it's a built in widget on Microsoft Teams, which is our primary collaboration software in the company.

__[Airtable]__ A software that __undoubtedly enhances the business's goals and strengthens__ its operation.

I __like that Jira combines multiple features to create unique tools that help me to start a new project.__ The Kanban boards are EXTREMELY helpful and the design Jira provides is very aesthetic and easy to understand.

__[Front] Integrations are on point and simple to setup and manage.__ At Bento we have tried out numerous integrations - from softphones to centralized helpdocs - these have had varying degrees of success, but the part that stays consistent is the __ease of setup within Front.__

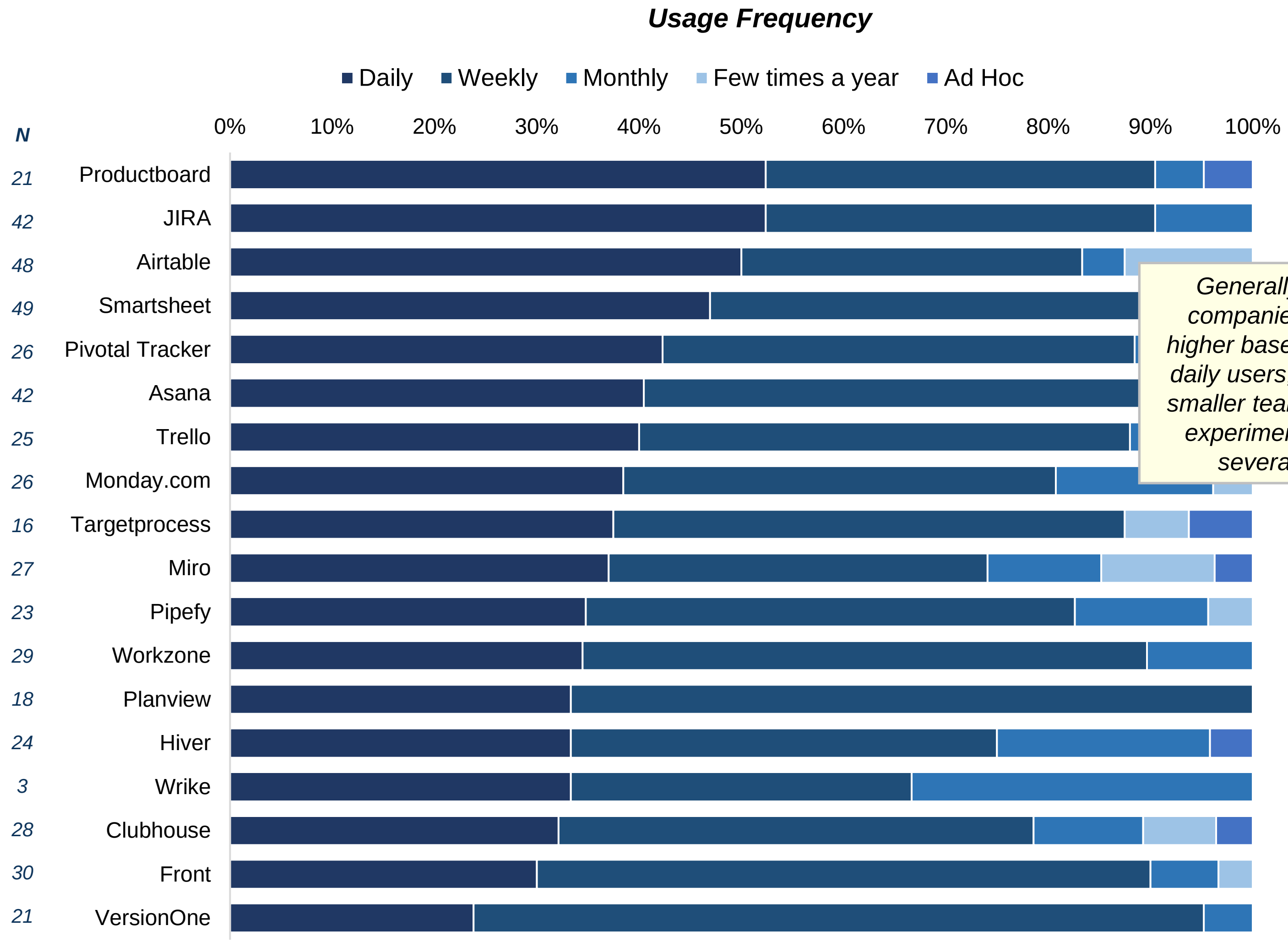
__Clubhouse__ has provided the __best overall tool for ticketing and project management__ without a steep learning curve.

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Note: (1) NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 (“promoters”) less the % respondents ranking same question as a 6 or lower (“detractors”) x 100 (2) G2 score is average rank across reviewers on scale of 1 (worst) to 5 (best)

Project Management Tools – Usage Frequency

Productboard, JIRA and Airtable have the highest proportion of daily users – with 50%+ using daily; larger companies have a higher base of serious daily users vs. those at smaller scales



Generally, larger companies have a higher base of serious daily users; indicating smaller teams may be experimenting with several tools

Usage Frequency (% Daily) by Company Scale

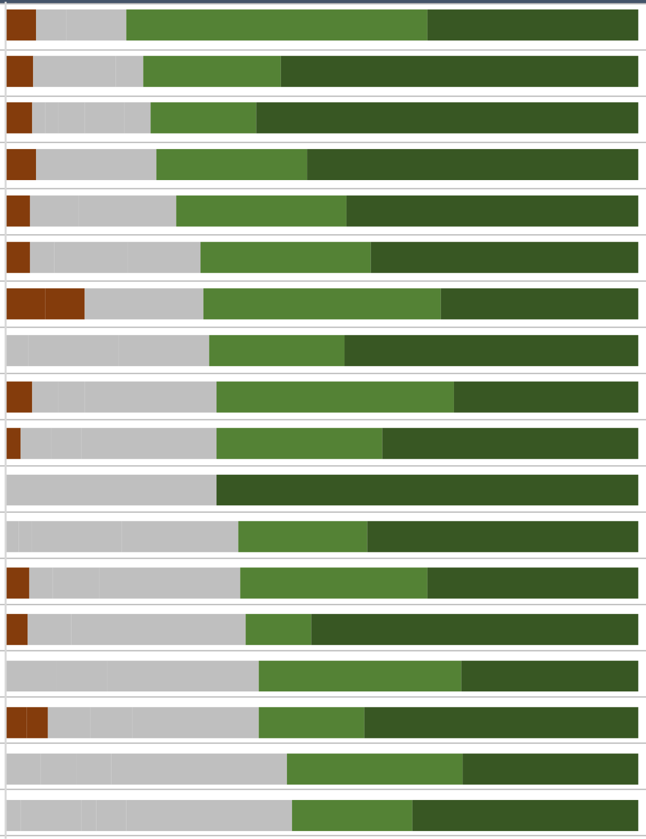
$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M
N/A	25%	25%	100%
100%	29%	80%	70%
0%	25%	55%	89%
56%	50%	38%	60%
100%	20%	17%	71%
0%	25%	17%	50%
0%	14%	60%	100%
33%	0%	14%	67%
Small sample size			
33%	0%	17%	60%
0%	20%	67%	60%
60%	33%	20%	33%
Small sample size			
0%	25%	50%	0%
Small sample size			
0%	33%	29%	33%
67%	0%	25%	50%

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

VersionOne, Pipefy, Airtable, Productboard and Pivotal Tracker have the highest % of users rating 9 or 10 on the NPS scale; Targetprocess stood out in its polarization of user base – with 13% of respondents rating 1 or 2

NPS Scores by Tool – All Responses

On a scale of one to ten, how likely are you to recommend the following software to a colleague or someone in your network? 10 being most likely.



N	NPS Distribution		Scores 1 or 2	Scores 9 or 10
21	VersionOne		5%	81%
23	Pipefy		4%	78%
48	Airtable		4%	77%
21	Productboard		5%	76%
26	Pivotal Tracker		4%	73%
26	Monday.com		4%	69%
16	Targetprocess		13%	69%
28	Clubhouse		0%	68%
24	Hiver		4%	67%
42	Asana		2%	67%
3	Wrike		Small sample size	
49	Smartsheet		0%	63%
27	Miro		4%	63%
29	Workzone		3%	62%
25	Trello		0%	60%
30	Front		7%	60%
18	Planview		0%	56%
42	JIRA		0%	55%

- 🟩 NPS Score 10
- 🟩 NPS Score 9
- ⬜ NPS Scores 3-8
- 🟫 NPS Scores 1 or 2

Ranked by

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100

Project Management Tools – Churn Propensity

Clubhouse, Workzone and Productboard have 10%+ of its users indicating that they'd churn in 3-5 years; smaller companies are unlikely to reduce their use of project management software significantly

Churn Propensity by Tool

*How is your organization's adoption of the following project management software likely to change 3-5 years from now? – **Decrease significantly or stop entirely***

N		ALL	$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M	$250M+
28	Clubhouse	11%	0%	0%	14%	17%	14%
29	Workzone	10%	0%		0%	17%	10%
21	Productboard	10%		0%	0%	0%	25%
26	Pivotal Tracker	8%	0%	0%	0%	14%	14%
16	Targetprocess	6%	Small sample size				
21	VersionOne	5%	0%	0%	0%	33%	0%
48	Airtable	4%	0%	0%	0%	0%	12%
24	Hiver	4%	0%	0%	0%	0%	13%
42	JIRA	2%	0%	0%	0%	10%	0%
49	Smartsheet	2%	0%	0%	13%	0%	0%
26	Monday.com	0%	0%	0%	0%	0%	0%
30	Front	0%	0%	0%	0%	0%	0%
27	Miro	0%	0%	0%	0%	0%	0%
42	Asana	0%	Small sample size				
18	Planview	0%	0%	0%	0%	0%	0%
25	Trello	0%	0%	0%	0%	0%	0%
3	Wrike	0%	Small sample size				
23	Pipefy	0%	0%	0%	0%	0%	0%

Within the groups where a significant number of users plan to reduce use adoption significantly, the patterns are relatively similar across tools

Smaller companies are unlikely to reduce their use of project mgmt. software significantly

Note: Data points with very small sample size removed where applicable

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

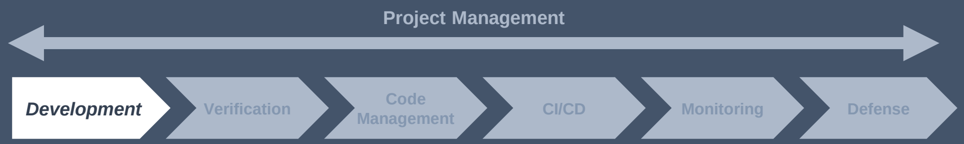
Project Management Tools – Overall Tool Ranking

When we consider all key surveyed metrics along the purchase lifecycle, Airtable and Smartsheet come out at the top, followed by Asana and JIRA

Composite “Score” by Tool

	% of Respondents						***Ranking by Criteria***						***Avg. Ranking*** *Lower score = better*
	Measure of brand awareness + adoption		*Satisfaction*	*Measure of engagement*		*Likely to keep using product*							
	Familiarity	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Churn***	***Familiarity***	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Churn***	***Avg.***
Airtable	39%	31%	77%	50%	54%	4%	4	2	1	2	4	7	3.3
Smartsheet	46%	32%	63%	47%	49%	2%	1	1	6	3	6	5	3.7
Asana	41%	27%	67%	40%	48%	0%	3	4	5	5	9	3	4.6
JIRA	41%	27%	55%	52%	53%	2%	3	4	10	1	5	6	4.7
Monday.com	28%	17%	69%	38%	55%	0%	8	10	3	6	1	3	5.0
Pivotal Tracker	26%	17%	73%	42%	54%	8%	10	10	2	4	3	8	6.1
Miro	32%	17%	63%	37%	49%	0%	6	8	7	7	8	3	6.4
Clubhouse	30%	18%	68%	32%	54%	11%	7	7	4	9	2	10	6.5
Front	27%	19%	60%	30%	49%	0%	9	5	9	10	7	3	7.1
Workzone	34%	19%	62%	34%	45%	10%	5	6	8	8	10	9	7.7

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200


Project Management

Development

Verification

Code Management

CI/CD

Monitoring

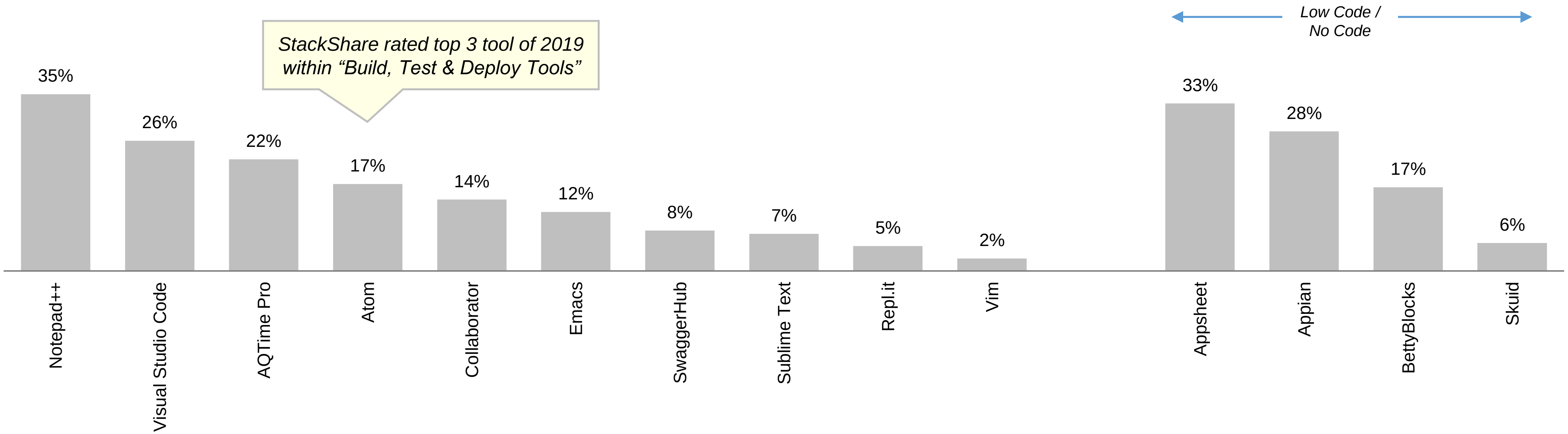
Defense

Code Development Tools

Notepad++, Visual Studio Code and AQTime are the most widely used code development tools; Appsheet and Appian are among the most prevalent low code / no code tools

Usage by Company Scale (Annual Revenue) – Top 10 tools

Which of the following code development tools does your organization currently use? Base: 163N



StackShare rated top 3 tool of 2019 within “Build, Test & Deploy Tools”

	Notepad++	Visual Studio Code	AQTime Pro	Atom	Collaborator	Emacs	SwaggerHub	Sublime Text	Repl.it	Vim	Appsheet	Appian	BettyBlocks	Skuid
$2 to $10M *(29N)*	48%	21%	24%	10%	10%	7%	10%	10%	10%	3%	21%	24%	17%	0%
$10 to $50M *(33N)*	33%	27%	18%	15%	9%	9%	9%	6%	0%	0%	27%	21%	12%	9%
$50 to $100M *(23N)*	48%	17%	26%	39%	22%	22%	9%	13%	13%	4%	39%	26%	26%	9%
$100 to $250M *(23N)*	4%	30%	30%	17%	4%	13%	9%	4%	0%	0%	57%	43%	26%	9%
$250M+ *(55N)*	36%	29%	18%	13%	20%	11%	5%	5%	4%	4%	31%	27%	11%	4%

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Integration capabilities are top-of-mind in the selection of code development tools; pricing structure, contract flexibility and customer reviews and service matter more for these tools than they do for project management ones

Selection Criteria & Top Tools by Company Scale (Annual Revenue)

	$2 to $10M	***$10 to $50M***	***$50 to $100M***	***$100 to $250M***	***$250M+***
Top Selection Criteria *(Criteria Selected as Top 3 | **Above Median Shown**)*	**Integration Capabilities** (55%)	**Reliability** (52%)	**ROI Time Horizon** (52%)	**Integration Capabilities** (57%)	**Integration Capabilities** (55%)
	Price (41%)	**Integration Capabilities** (49%)	**Integration Capabilities** (48%)	**Reliability** (39%)	**Pricing Structure & Contract Flexibility** (45%)
	ROI Time Horizon (38%)	**Customer Service** (39%)	**Customer Reviews** (35%)	**Pricing Structure & Contract Flexibility** (39%)	**Reliability** (45%)
Top Tools *(Ranked)*	*Notepad++* *Appian* *AQTIme Pro*	*Notepad++* *Appsheet* *Visual Studio Code*	*Notepad++* *Appsheet* *Atom*	*Appsheet* *Appian* *Visual Studio Code* *AQTime Pro*	*Notepad++* *Appsheet* *Visual Studio Code*

Details on following page

Key Takeaways

- ***Integration capabilities are top-of-mind** in the selection of code development tools*
- *Although, price is sometimes important, ROI time horizon is often as important, indicating **buyers contextualize price relative to value / productivity gains***
- ***Notepad++ is the top** tool for most scale buckets; Appsheet and Appian are close contenders across the board*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Development Tools – Selection Criteria & Top Tools

Notepad++ ranks very highly amongst respondents that prioritize integration; however, ranks 3rd place in terms of reliability – where Visual Studio Code and some low code applications rank better

Top Tools (% Respondent Using) by Selection Criteria

								Low Code / No Code		
Top 3 Criteria	**Notepad++**	**Visual Studio Code**	**AQTime Pro**	**Atom**	**Collaborator**	**Emacs**	**SwaggerHub**	**Appsheet**	**Appian**	**BettyBlocks**
Overall % Using	35%	26%	22%	17%	14%	12%	8%	33%	28%	17%
Pricing structure & contract flexibility	36%	25%	25%	22%	17%	14%	11%	34%	27%	16%
Reliability	28%	30%	13%	12%	9%	9%	6%	30%	25%	7%
Ability to integrate	38%	28%	22%	19%	14%	9%	5%	29%	30%	21%
Return on investment (ROI) time horizon	38%	23%	30%	14%	17%	13%	11%	36%	31%	22%

Notepad++ ranks very highly amongst respondents that prioritize integration; however, ranks 3rd place in terms of reliability

While AQTime Pro generally does not rank well, it does better among respondents that prioritize ROI time horizon

Other Selection Criteria: Time to implement, customer service, customer reviews, price, user-friendliness

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Development Tools – Tools Scorecard

While Notepad++ has the most users, Visual Studio Code users engage with their tool most frequently; low code tool Appsheet rates highly in terms of satisfaction in our survey as well as G2 Crowd

Engagement & Satisfaction Metrics

	% Overall Users	**% Daily Users**	**NPS[1]** (9 or 10)	**G2 Score[2]** (out of 5)
Notepad++	35%	35%	61%	4.6
Visual Studio Code	26%	60%	48%	4.6
AQTime Pro	22%	42%	75%	4.0
Atom	17%	29%	50%	4.4
Collaborator	14%	17%	70%	4.0
Emacs	12%	21%	42%	4.5
SwaggerHub	8%	46%	62%	4.0
	Low Code / No Code Tools			
Appsheet	33%	48%	69%	4.8
Appian	28%	51%	73%	4.4
BettyBlocks	17%	30%	56%	4.5

User Reviews [G2]

*"**Notepad** is free and open source software. Notepad provides far better functionality rather than just an editor. It supports multiple languages like XML, Java, HTML etc. Notepad displays the content with respect to the language you are using and also gives you the formatted pattern."*

*"The only negative point **[about Atom]** is that it takes too much time to start. So if it were to use less resources for its operation it would be really nice."*

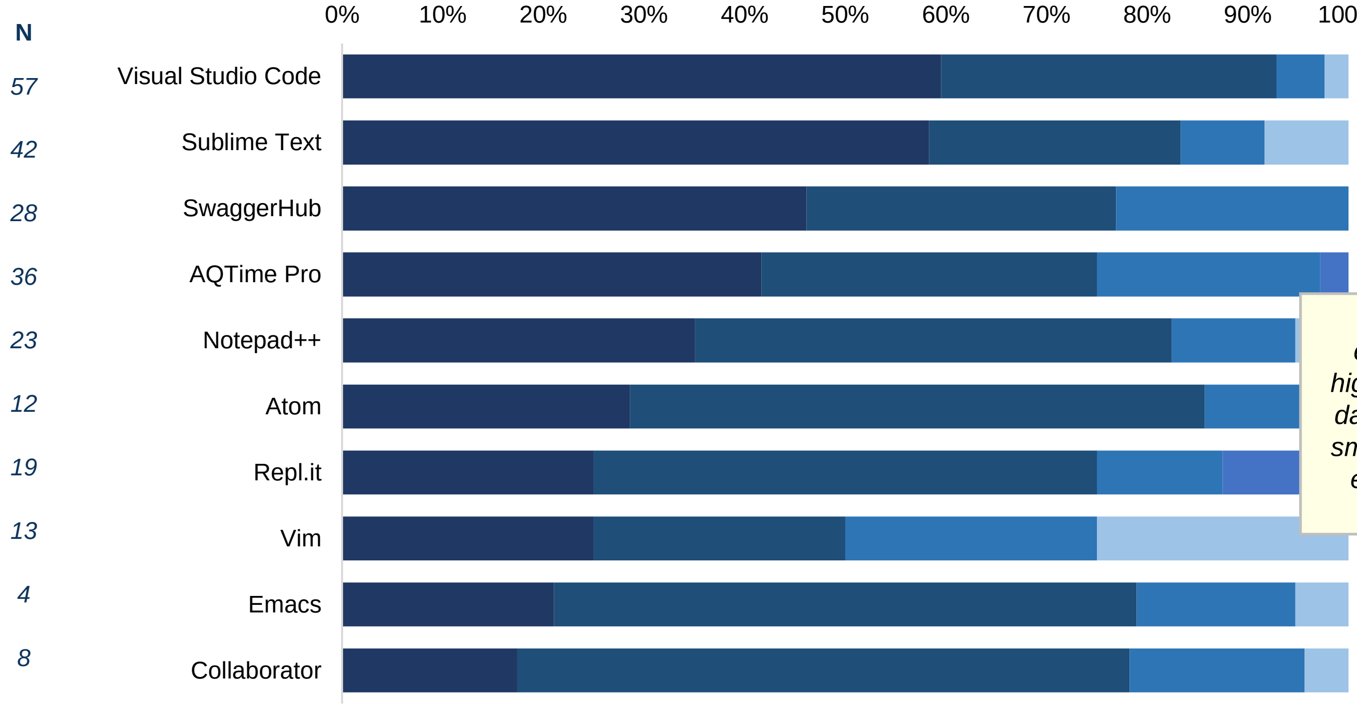
*"I like **Appian** so that you can integrate into many other applications to ensure a continuous process flow. Appian has the capability of providing real-time data on all connected systems."*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: (1) NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100 (2) G2 score is average rank across reviewers on scale of 1 (worst) to 5 (best)

Code Development Tools – Usage Frequency

Visual Studio Code, Sublime Text and SwaggerHub have the highest proportion of daily users – with 50%+ using daily; barring top tools, larger companies have a higher base of serious daily users vs. those at smaller scales

Usage Frequency



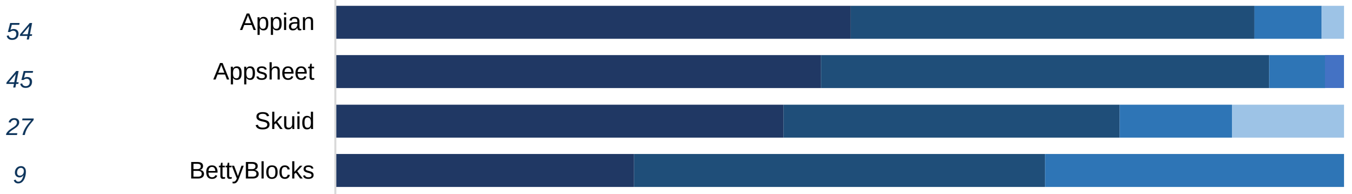
Generally, larger companies have a higher base of serious daily users; indicating smaller teams may be experimenting with several tools

Usage Frequency (% Daily) by Company Scale

$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M
83.3%	77.8%	50.0%	57.1%
66.7%	50.0%	33.3%	0.0%
66.7%	66.7%	50.0%	50.0%
28.6%	16.7%	50.0%	71.4%
50.0%	18.2%	27.3%	100.0%

Small sample size

Low Code / No Code Tools



42.9%	28.6%	16.7%	80.0%
50.0%	33.3%	33.3%	76.9%
N/A	33.3%	50.0%	50.0%

Small sample size

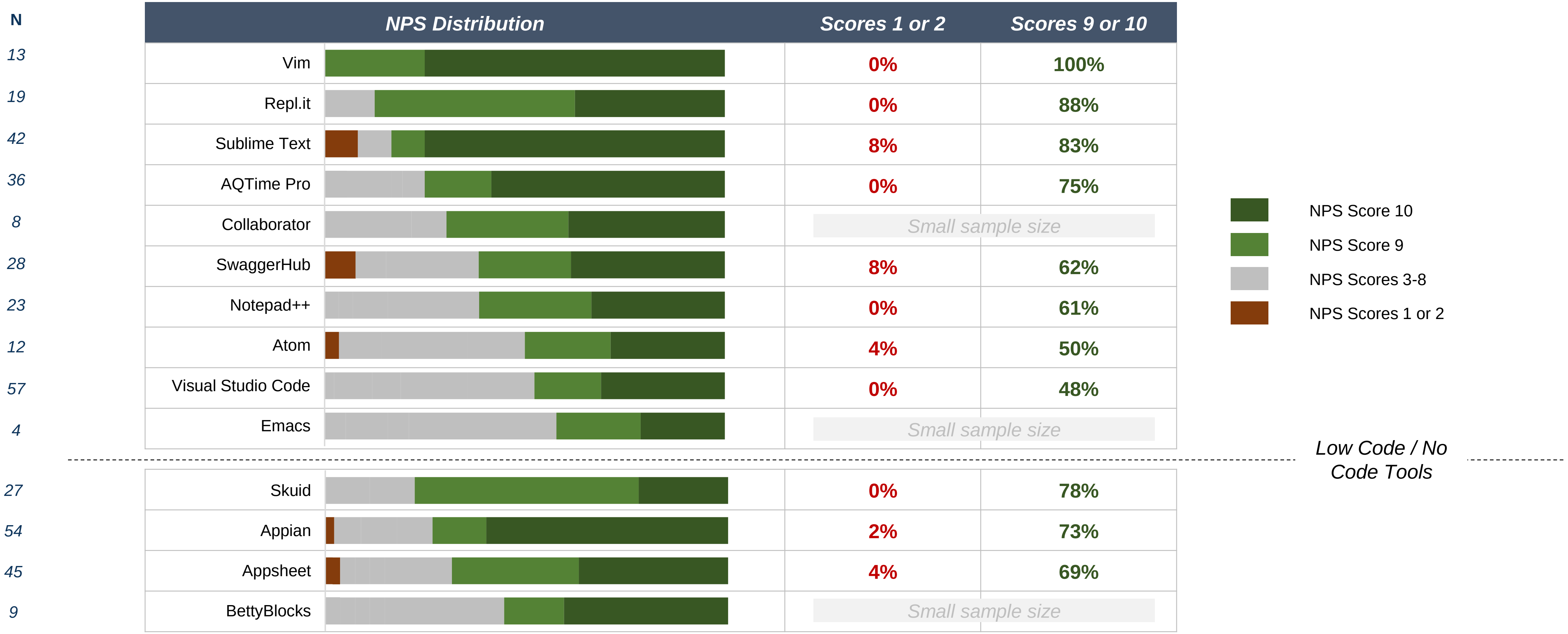
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Development Tools – Satisfaction

Vim has standout NPS scores, while Repl.it and Sublime are somewhat close; Sublime stood out in its polarization of user base – with 8% of respondents rating 1 or 2 out of 10 despite have large share of high scores

NPS Scores by Tool – All Responses

On a scale of one to ten, how likely are you to recommend the following software to a colleague or someone in your network? 10 being most likely.



N	NPS Distribution	Scores 1 or 2	Scores 9 or 10
13	Vim	0%	100%
19	Repl.it	0%	88%
42	Sublime Text	8%	83%
36	AQTime Pro	0%	75%
8	Collaborator	Small sample size	
28	SwaggerHub	8%	62%
23	Notepad++	0%	61%
12	Atom	4%	50%
57	Visual Studio Code	0%	48%
4	Emacs	Small sample size	
	Low Code / No Code Tools		
27	Skuid	0%	78%
54	Appian	2%	73%
45	Appsheet	4%	69%
9	BettyBlocks	Small sample size	

Ranked by

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100

Code Development Tools – Overall Tool Ranking

When we consider all key surveyed metrics along the purchase lifecycle, the universally used free code editors Visual Studio Code and Notepad++ came out top; Appian ranked top amongst low code tools

Composite "Score" by Tool

	% of Respondents						***Ranking by Criteria***						***Avg. Ranking*** Lower score = better
	Measure of brand awareness + adoption		*Satisfaction*	*Measure of engagement*		*Likely to keep using product*							
	Familiarity	**Prevalence**	**NPS (9 or 10)**	**% Daily**	**Seat Penetration**	**Churn**	**Familiarity**	**Prevalence**	**NPS (9 or 10)**	**% Daily**	**Seat Penetration**	**Churn**	**Avg.**
Visual Studio Code	36%	26%	48%	60%	57%	2%	3	4	9	1	1	5	3.8
Notepad++	46%	35%	61%	35%	49%	4%	1	1	6	6	6	6	4.3
AQTime Pro	28%	22%	75%	42%	51%	6%	6	5	1	5	4	8	4.8
SwaggerHub	13%	8%	62%	46%	53%	0%	10	10	5	4	3	2	5.7
Atom	31%	17%	50%	29%	41%	0%	5	6	8	8	10	2	6.5
Collaborator	21%	14%	70%	17%	48%	9%	8	8	3	10	7	9	7.5
Low Code / No Code Tools													
Appian	34%	28%	73%	51%	53%	0%	4	3	2	2	2	2	2.5
Appsheet	42%	33%	69%	48%	50%	2%	2	2	4	3	5	4	3.3
BettyBlocks	25%	17%	56%	30%	46%	4%	7	7	7	7	8	7	7.2

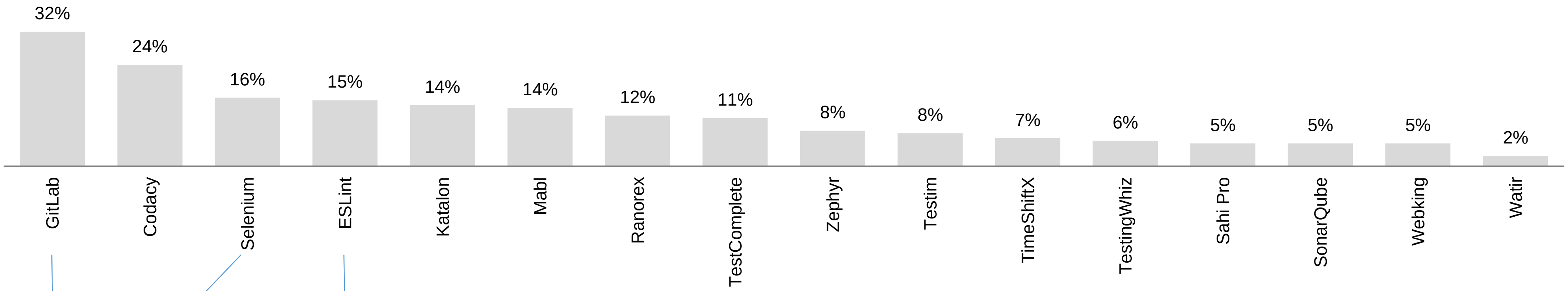
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Verification Tools

GitLab and Codacy are popular within all scale buckets; however, GitLab customers skew large while Selenium customers skew toward the smaller scale buckets

Usage by Company Scale (Annual Revenue) – Top 10 tools

Which of the following code review tools does your organization currently use? Base: 168N



# of StackShare companies using: ***~2,800***

# of StackShare companies using: ***~3,600***

# of StackShare companies using: ***~14,000***

	GitLab	Codacy	Selenium	ESLint	Katalon	Mabl	Ranorex	TestComplete	Zephyr	Testim	TimeShiftX	TestingWhiz	Sahi Pro	SonarQube	Webking	Watir
$2 to $10M *(22N)*	32%	18%	23%	23%	14%	5%	14%	18%	9%	5%	9%	5%	5%	5%	5%	0%
$10 to $50M *(32N)*	13%	22%	19%	13%	13%	6%	9%	9%	9%	6%	6%	9%	0%	3%	3%	3%
$50 to $100M *(27N)*	33%	30%	22%	7%	30%	33%	22%	11%	0%	11%	11%	7%	4%	7%	4%	4%
$100 to $250M *(25N)*	24%	32%	12%	24%	20%	20%	16%	12%	12%	12%	4%	8%	0%	0%	12%	4%
$250M+ *(62N)*	44%	21%	11%	15%	6%	10%	6%	10%	10%	6%	5%	3%	11%	8%	5%	2%

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Verification Tools – Selection Criteria & Top Tools

Integration capabilities and ROI time horizon are top-of-mind in the selection of code review tools; Codacy and GitLab are within the top 3 tools for all scale buckets in terms of % of respondents using

Selection Criteria & Top Tools by Company Scale (Annual Revenue)

	$2 to $10M	*$10 to $50M*	*$50 to $100M*	*$100 to $250M*	*$250M+*
Top Selection Criteria *(Criteria Selected as Top 3 | **Above Median Shown**)*	**Integration Capabilities** (68%)	**Integration Capabilities** (59%)	**ROI Time Horizon** (52%)	**ROI Time Horizon** (60%)	**Integration Capabilities** (63%)
	Price (55%)	**ROI Time Horizon** (47%)	**Pricing Structure & Contract Flexibility** (48%)	**Pricing Structure & Contract Flexibility** (56%)	**ROI Time Horizon** (40%)
	Pricing Structure & Contract Flexibility (36%)	**Pricing Structure & Contract Flexibility** (34%)	**Customer Service** (41%)	**Integration Capabilities** (52%)	**Reliability** (36%)
Top Tools *(Ranked)*	*GitLab* *Selenium* *ESLInt*	*Codacy* *Selenium* *GitLab*	*GitLab* *Mabl* *Codacy*	*Codacy* *GitLab* *ESLint*	*GitLab* *Codacy* *ESLint*

Details on following page

Key Takeaways

- ***Integration capabilities and ROI Time Horizon are top-of-mind*** *in the selection of code review tools*
- ***Pricing structure & contract flexibility is more important*** *for code review tools than it is project management and code development tools*
- ***Codacy and GitLab are within the top 3 tools*** *for all scale buckets*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

GitLab has the highest overall prevalence in developer stacks, propelled by those who prioritize reliability and integration – criteria along which GitLab ranks particularly well

Top Tools (% Respondent Using) by Selection Criteria

Top 3 Criteria	GitLab	Codacy	Selenium	ESLint	Katalon	Mabl	Ranorex	TestComplete	Zephyr	Testim
Overall % Using	32%	24%	16%	15%	14%	14%	12%	11%	8%	8%
Pricing structure & contract flexibility	26%	32%	18%	17%	15%	17%	22%	9%	9%	11%
Reliability	41%	17%	13%	2%	6%	19%	13%	9%	15%	2%
Ability to integrate	33%	25%	15%	20%	18%	13%	13%	11%	7%	8%
Return on investment (ROI) time horizon	25%	27%	12%	15%	15%	11%	10%	8%	7%	11%

GitLab has the highest overall prevalence in developer stacks, propelled by those who prioritize reliability and integration – criteria along which GitLab ranks particularly well

Although Codacy is popular amongst the overall group, it is not as much amongst companies that prioritize reliability

Other Selection Criteria: Time to implement, customer service, customer reviews, price, user-friendliness

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Verification Tools – Tools Scorecard

GitLab has both the most users and high G2 review scores with Codacy following closely

Engagement & Satisfaction Metrics

	% Overall Users	**% Daily Users**	**NPS[1]** (9 or 10)	**G2 Score[2]** (out of 5)
GitLab	32%	36%	62%	4.4
Codacy	24%	48%	75%	4.4
Selenium	16%	30%	44%	4.1
ESLint	15%	50%	58%	
Katalon	14%	38%	54%	4.1
Mabl	14%	48%	52%	4.3
Ranorex	12%	40%	55%	4.2
TestComplete	11%	21%	37%	4.3
Zephyr	8%	43%	50%	4.0
Testim	8%	46%	62%	4.6

User Reviews [G2]

***"In my work as a freelancer, GitLab is an excellent tool to keep track of each project that I carry out -** each feature of this software is very important for all users, because we can import and export a project at the time we want and it will always be updated to the most recent version that we have endorsed. In particular, the ability to create branches of the same project is key."*

***"Codacy checks our scala code for dumb (and not-so-dumb) mistakes.** The score (4 out 5), while not perfect, is still an excellent indicator."*

***"MABL** was **extremely easy to use and get up to speed on**. By switching to MABL from open source JS libraries we have eliminated a huge barrier to entry into automation, increased productivity with non-SDETS contributing robust tests, and minimized maintenance with the ML used to identify objects and comparing to previous baselines."*

***"Ranorex helps speed up the automation process** - **it's easy to learn** and pick up and has the ability to enhance functionality by manually adding user codes"*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

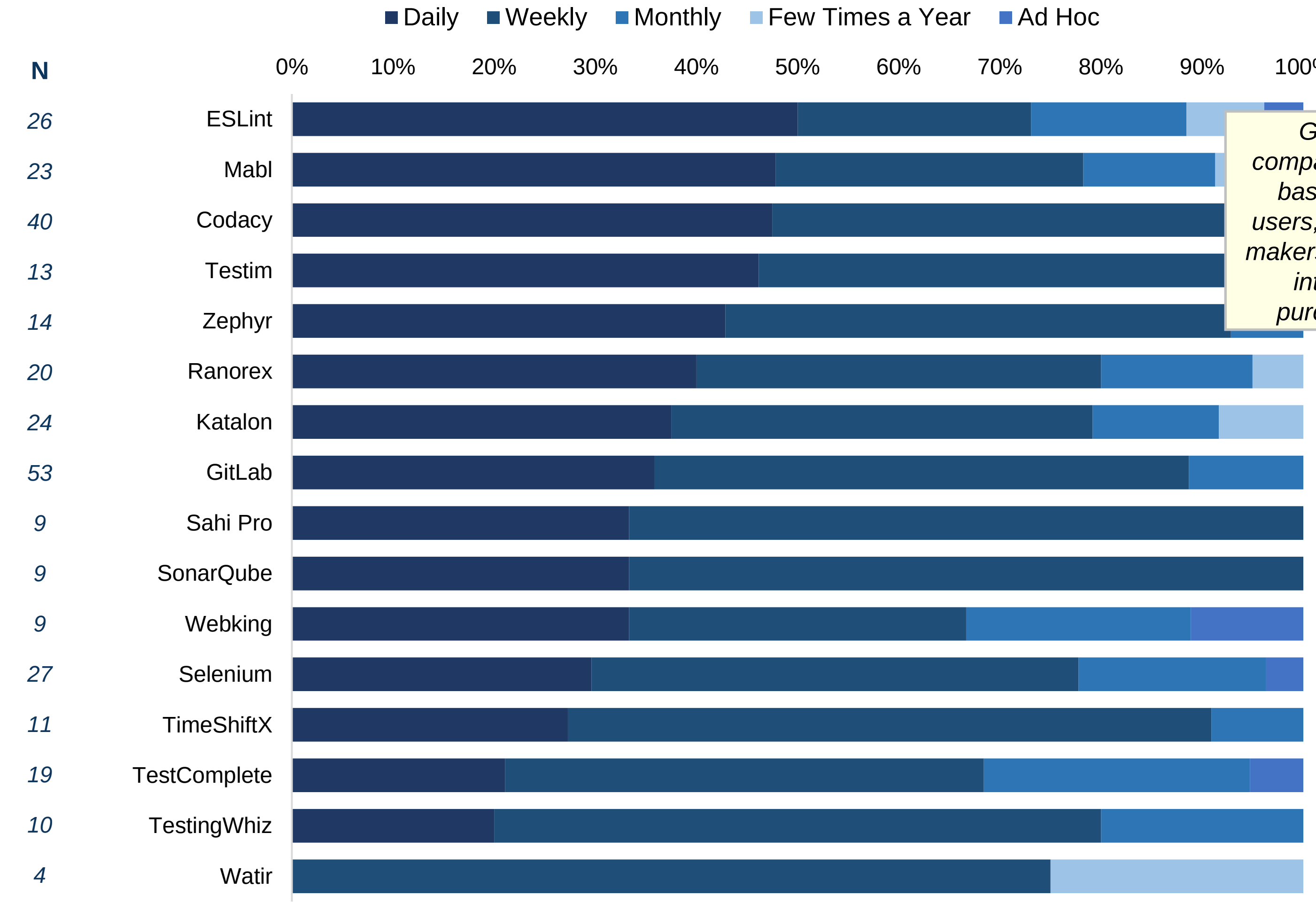
Note: (1) NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100 (2) G2 score is average rank across reviewers on scale of 1 (worst) to 5 (best)

Code Verification Tools – Usage Frequency

Purchase | **Engagement** | Retention

ESLint, Mabl and Codacy have the highest proportion of daily users – with ~50% using daily; generally, larger companies have a higher base of serious daily users vs. those at smaller scales

Usage Frequency



Generally, larger companies have a higher base of serious daily users, indicating decision makers are probably more intentional in their purchases / sign ups

Usage Frequency (% Daily) by Company Scale

	$2 to $10M	*$10 to $50M*	*$50 to $100M*	*$100 to $250M*	*$250M+*
ESLint	0%	50%	50%	83%	56%
Mabl	0%	100%	44%	60%	33%
Codacy	0%	29%	38%	63%	69%
Testim	100%	50%	33%	67%	25%
Zephyr	100%	67%		0%	33%
Ranorex	33%	33%	50%	50%	25%
Katalon	33%	25%	38%	40%	50%
GitLab	14%	0%	22%	83%	41%
Sahi Pro SonarQube Webking	*Small sample size*				
Selenium	0%	50%	33%	33%	29%
TimeShiftX	*Small sample size*				
TestComplete	50%	0%	0%	33%	17%
TestingWhiz Watir	*Small sample size*				

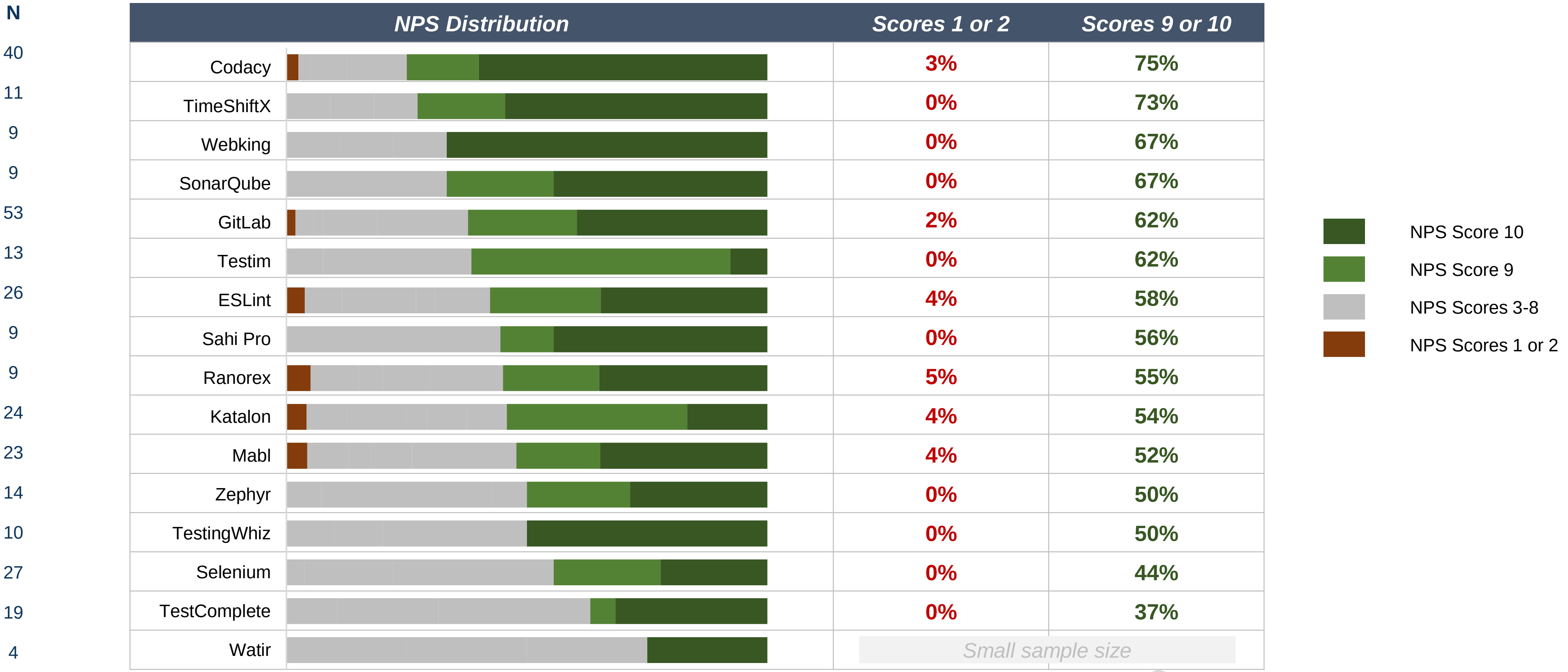
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Verification Tools – Satisfaction

Codacy, TimeShiftX and Webking have the top NPS scores; unlike other tool categories, code review does not have any that are greatly polarizing

NPS Scores by Tool – All Responses

On a scale of one to ten, how likely are you to recommend the following software to a colleague or someone in your network? 10 being most likely.



N		Scores 1 or 2	Scores 9 or 10
40	Codacy	3%	75%
11	TimeShiftX	0%	73%
9	Webking	0%	67%
9	SonarQube	0%	67%
53	GitLab	2%	62%
13	Testim	0%	62%
26	ESLint	4%	58%
9	Sahi Pro	0%	56%
9	Ranorex	5%	55%
24	Katalon	4%	54%
23	Mabl	4%	52%
14	Zephyr	0%	50%
10	TestingWhiz	0%	50%
27	Selenium	0%	44%
19	TestComplete	0%	37%
4	Watir	Small sample size	

Ranked by

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100

Code Verification Tools – Churn Propensity

SonarQube, Mabl and Katalon have 12%+ of its users indicating that they'd churn in 3-5 years; smaller companies are unlikely to reduce their use of code review software significantly

Churn Propensity by Tool

*How is your organization's adoption of the following code review software likely to change 3-5 years from now? – **Decrease significantly or stop entirely***

N		ALL	$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M	$250M+
9	SonarQube	22%	Small sample size				
23	Mabl	13%	0%	0%	11%	20%	17%
24	Katalon	13%		0%	13%	20%	0%
9	Webking	11%	0%	0%	0%	0%	33%
19	TestComplete	11%	0%		33%	0%	0%
10	TestingWhiz	10%	Small sample size				
13	Testim	8%	0%	0%	0%	33%	0%
9	Ranorex	5%	0%	0%	0%	25%	0%
27	Selenium	4%		0%	0%	0%	0%
40	Codacy	0%	0%	0%	0%	0%	0%
11	TimeShiftX	0%	0%	0%	0%	0%	0%
53	GitLab	0%	0%	0%	0%	0%	0%
26	ESLint	0%	0%	0%	0%	0%	0%
9	Sahi Pro	0%	Small sample size				
14	Zephyr	0%	0%	0%		0%	0%
4	Watir		Small sample size				

Within the groups where a significant number of users plan to reduce use adoption significantly, the patterns are relatively similar across tools

Deep dive into high churn products reveal correlation with seamlessness; i.e., products where termination is seamless have the highest churn probability despite high NPS

Smaller companies are unlikely to reduce their use of code development software significantly

Note: Data points with very small sample size removed where applicable

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Verification Tools – Overall Tool Ranking

When we consider all key surveyed metrics along the purchase lifecycle, Codacy leads the pack driven by high penetration, satisfaction and engagement; GitLab and ESLint follow

Composite “Score” by Tool

	% of Respondents						***Ranking by Criteria***						***Avg. Ranking*** ***Lower score = better***
	Measure of brand awareness + adoption		*Satisfaction*	*Measure of engagement*		*Likely to keep using product*							
	Familiarity	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Churn***	***Familiarity***	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Churn***	***Avg.***
Codacy	31%	24%	75%	48%	59%	0%	2	2	1	3	1	3	1.9
GitLab	40%	32%	62%	36%	49%	0%	1	1	2	8	6	3	3.4
ESLint	24%	15%	58%	50%	49%	0%	5	4	4	1	5	3	3.6
Mabl	20%	14%	52%	48%	56%	13%	7	6	7	2	2	10	5.7
Ranorex	23%	12%	55%	40%	51%	5%	6	7	5	6	4	6	5.7
Zephyr	13%	8%	50%	43%	55%	0%	10	9	8	5	3	3	6.3
Selenium	27%	16%	44%	30%	40%	4%	3	3	9	9	10	5	6.5
Katalon	26%	14%	54%	38%	45%	13%	4	5	6	7	8	9	6.5
Testim	17%	8%	62%	46%	41%	8%	8	10	3	4	9	7	6.8
TestComplete	16%	11%	37%	21%	48%	11%	9	8	10	10	7	8	8.7

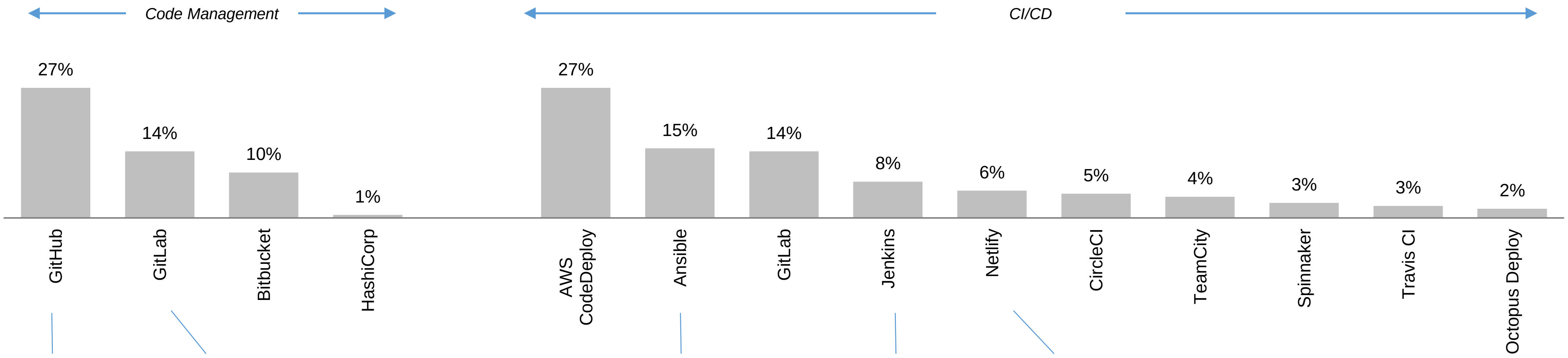
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Deployment Tools

GitHub is the most widely used code management tool; AWS CodeDeploy is the most commonly used CI/CD while GitLab – a tool accomplishing both functions – ranks highly as well

Usage by Company Scale (Annual Revenue) – Top 10 tools

Which of the following code deployment tools does your organization currently use? Base: 157N



# of StackShare companies using: ***~3,500***

# of StackShare companies using: ***~2,800***

# of StackShare companies using: ***~2,200***

# of StackShare companies using: ***~2,200***

# of StackShare companies using: ***~7,200***

***$2 to $10M** (26N)*	23%	12%	8%	0%	12%	8%	12%	12%	8%	4%	4%	4%	0%	0%
***$10 to $50M** (30N)*	37%	10%	7%	0%	23%	10%	10%	10%	7%	0%	7%	3%	0%	0%
***$50 to $100M** (24N)*	33%	17%	25%	4%	38%	33%	17%	13%	13%	13%	4%	0%	4%	4%
***$100 to $250M** (21N)*	29%	14%	5%	0%	29%	19%	14%	0%	5%	0%	10%	0%	5%	5%
***$250M+** (56N)*	21%	16%	7%	0%	32%	11%	16%	5%	2%	7%	2%	5%	4%	2%

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Deployment Tools – Selection Criteria & Top Tools

Although integration capabilities are important for code deployment tools, more than other tool categories, price, customer reviews and time to implement are top selection criteria

Selection Criteria & Top Tools by Company Scale (Annual Revenue)

	$2 to $10M	***$10 to $50M***	***$50 to $100M***	***$100 to $250M***	***$250M+***
Top Selection Criteria *(Criteria Selected as Top 3 | **Above Median Shown**)*	**Integration Capabilities** (42%) **ROI Time Horizon** (38%) **Pricing Structure & Contract Flexibility** (37%)	**Integration Capabilities** (58%) **ROI Time Horizon** (42%) **Pricing Structure & Contract Flexibility** (39%)	**Pricing Structure & Contract Flexibility** (43%) **Time to Implement** (40%) **Integration Capabilities** (40%)	**Time to Implement** (42%) **Customer Reviews** (42%) **Price** (42%)	**ROI Time Horizon** (43%) **Customer Reviews** (38%) **Integration Capabilities** (38%)
Top Tools *(Ranked)*	*GitHub* *Alteryx* *GitLab*	*GitHub* *AWS CodeDeploy* *Alteryx*	*AWS CodeDeploy* *GitHub* *Ansible*	*Alertsite* *GitHub* *AWS CodeDeploy* *Alteryx*	*AWS CodeDeploy* *GitHub* *AlertSite*

Details on following page

Key Takeaways

- ***Integration Capabilities, Pricing, Time to Implement and ROI Time Horizon are important***
- ***Pricing structure & contract flexibility is more important*** *for code deployment tools than it is project management and code development tools*
- ***GitHub is within the top 3 tools*** *for all scale buckets*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

GitHub is the most prevalent code management tool, driven by its reliability; AWS CodeDeploy is the most prevalent CI/CD, driven by an over-index from AWS cloud customers

Top Tools (% Respondent Using) by Selection Criteria

Top 3 Criteria	*Code Management*			*CI/CD*						
	GitHub	**GitLab**	**Bitbucket**	**AWS CodeDeploy**	**Ansible**	**GitLab**	**Bitbucket**	**Jenkins**	**Netlify**	**CircleCI**
Overall % Using	27%	14%	10%	27%	15%	14%	10%	8%	6%	5%
Pricing structure & contract flexibility	29%	12%	16%	24%	10%	12%	16%	9%	10%	7%
Reliability	32%	21%	9%	36%	9%	21%	9%	8%	4%	2%
Ability to integrate	30%	12%	9%	33%	12%	12%	9%	6%	11%	6%
Return on investment (ROI) time horizon	27%	14%	8%	29%	14%	14%	8%	7%	3%	5%

AWS CodeDeploy has the highest overall prevalence in stacks, propelled by those who prioritize reliability and integration

Other Selection Criteria: Time to implement, customer service, customer reviews, price, user-friendliness

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Deployment Tools – Tools Scorecard

GitHub has both the most users and high G2 review scores; within CI/CD tools, AWS CodeDeploy has the highest overall penetration but lags in daily engagement and G2 review scores vs. Ansible and GitLab

Engagement & Satisfaction Metrics

	% Overall Users	% Daily Users	NPS[1] (9 or 10)	G2 Score[2] (out of 5)
Code Management				
GitHub	27%	40%	60%	4.7
GitLab	14%	50%	55%	4.4
Bitbucket	10%	20%	40%	4.4
CI/CD				
AWS CodeDeploy	27%	37%	60%	4.2
Ansible	15%	39%	52%	4.5
GitLab	14%	50%	55%	4.4
Jenkins	8%	0%	33%	4.3
Netlify	6%	33%	56%	4.5
CircleCI	5%	25%	88%	4.4

User Reviews [G2]

*"GitHub also provides basic web hosting through GitHub Pages, **making it easy to create a custom web page for your project/repo to share info, docs, download links, etc.** It has all distributed version control and source code management functionalities of git."*

***"It is very simple to use and is free for experimentation for those who want to get the hang of deployment pipelines** without investing too much money. I used CodeDeploy with Bitbucket and the Bitbucket CodeDeploy plugin was very easy to setup. The deployment configuration and groups are nice features."*

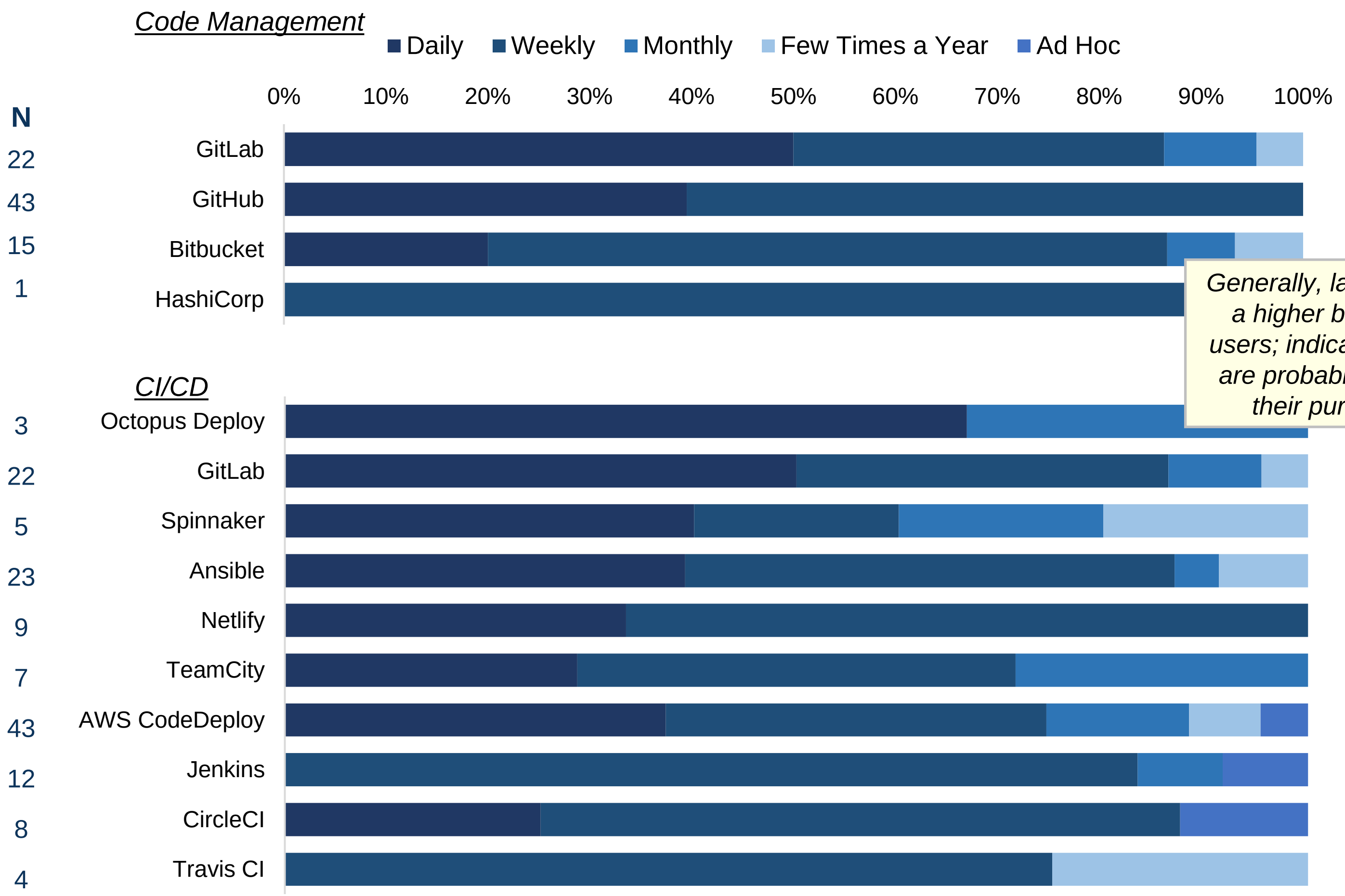
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Note: (1) NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100 (2) G2 score is average rank across reviewers on scale of 1 (worst) to 5 (best)

Code Deployment Tools – Usage Frequency

Barring small user bases, GitLab has the highest proportion of daily users – with 50%+ using daily; generally, larger companies have a higher base of serious daily users vs. those at smaller scales

Usage Frequency



Generally, larger companies have a higher base of serious daily users; indicating decision makers are probably more intentional in their purchases / sign ups

Usage Frequency (% Daily) by Company Scale

$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M	
67%	33%	50%	67%	
17%	45%	63%	33%	
50%	0%	17%	100%	
Small sample size				
Small sample size				
67%	33%	50%	67%	44%
Small sample size				
0%	33%	25%	75%	50%
50%	0%	33%	100%	0%
Small sample size				
33%	43%	22%	50%	39%
0%	0%	0%		0%
Small sample size				

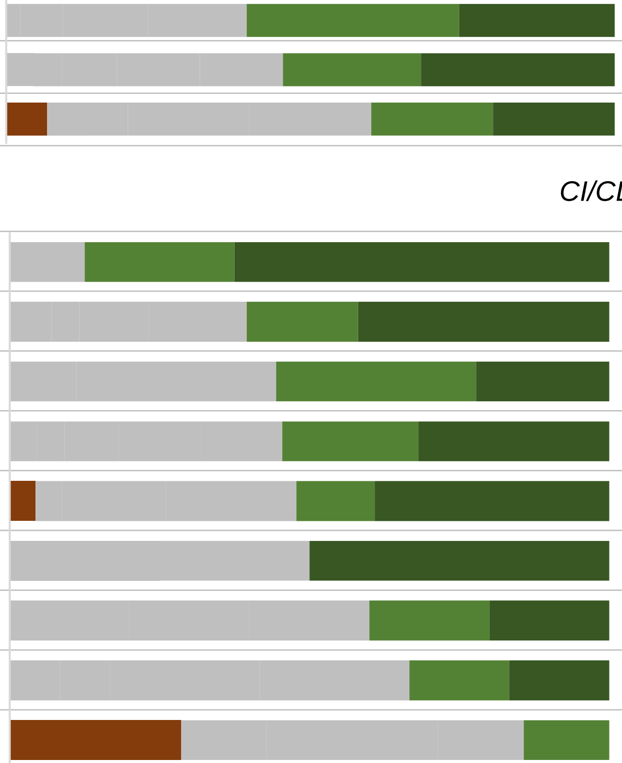
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Deployment Tools – Satisfaction

Amongst code management tools, GitHub and GitLab have the highest NPS; CircleCI, AWS CodeDeploy and Netlify are amongst the top CI/CD tools in terms of user satisfaction

NPS Scores by Tool – All Responses

On a scale of one to ten, how likely are you to recommend the following software to a colleague or someone in your network? 10 being most likely.



Code Management

N	NPS Distribution	Scores 1 or 2	Scores 9 or 10
43	GitHub	0%	60%
22	GitLab	0%	55%
15	Bitbucket	7%	40%

CI/CD

N	NPS Distribution	Scores 1 or 2	Scores 9 or 10
8	CircleCI	0%	88%
43	AWS CodeDeploy	0%	60%
9	Netlify	0%	56%
22	GitLab	0%	55%
23	Ansible	4%	52%
4	Travis CI	*Small sample size*	
5	Spinnaker		
12	Jenkins	0%	33%
7	TeamCity	29%	14%

■	NPS Score 10
■	NPS Score 9
■	NPS Scores 3-8
■	NPS Scores 1 or 2

Ranked by

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100

Code Deployment Tools – Overall Tool Ranking

When we consider all key surveyed metrics along the purchase lifecycle, GitHub leads the pack for code management tools and AWS CodeDeploy for CI/CD; GitLab ranks #2 in both of those categories

Composite "Score" by Tool

	% of Respondents					***Ranking by Criteria***					***Avg. Ranking*** *Lower score = better*
	Measure of brand awareness + adoption		*Satisfaction*	*Measure of engagement*	*Likely to keep using product*						
Code Management	*Familiarity*	*Prevalence*	*NPS (9 or 10)*	*% Daily*	*Seat Penetration*	*Familiarity*	*Prevalence*	*NPS (9 or 10)*	*% Daily*	*Seat Penetration*	*Avg.*
GitHub	35%	27%	60%	40%	47%	2	2	3	2	4	2.4
GitLab	20%	14%	55%	50%	50%	4	4	5	1	2	3.2
Bitbucket	19%	10%	40%	20%	41%	5	5	7	7	7	6.2
CI/CD											
AWS CodeDeploy	38%	27%	60%	37%	49%	1	2	3	4	3	2.4
GitLab	20%	14%	55%	50%	50%	3	3	6	3	5	4.0
Ansible	24%	15%	52%	39%	47%	7	7	4	5	1	4.8
Netlify	13%	6%	56%	33%	51%	8	8	1	6	6	5.8
CircleCI	12%	5%	88%	25%	47%	6	6	8	8	8	7.2
Jenkins	13%	8%	33%	0%	38%	1	2	3	4	3	2.4

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

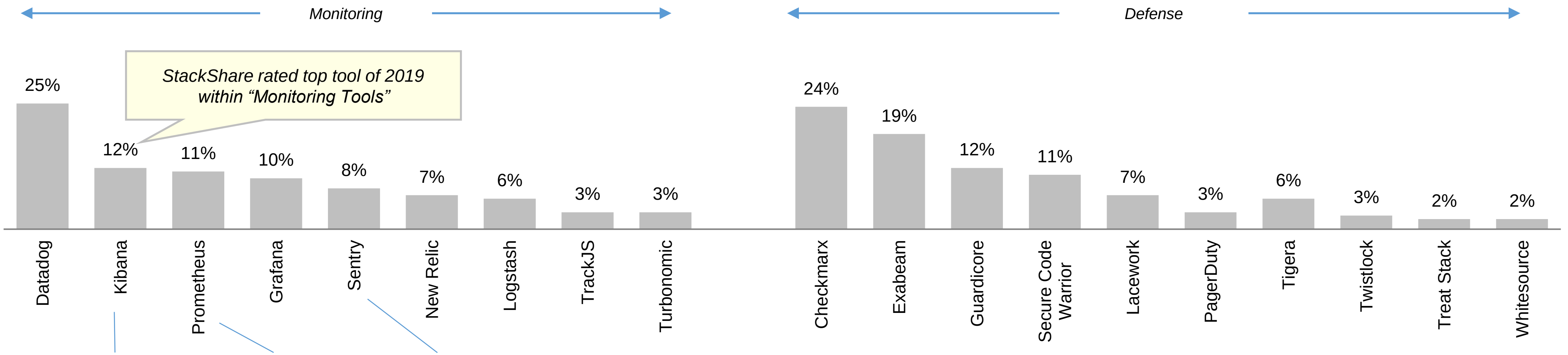
Code Monitoring & Security Tools

Code Monitoring & Security Tools – Usage

Datadog is the most prevalent monitoring tool followed by Kibana and Prometheus; Checkmarx and Exabeam lead the pack amongst defense tools

Usage by Company Scale (Annual Revenue) – Top 10 tools

Which of the following code security tools does your organization currently use? Base: 157N



StackShare rated top tool of 2019 within "Monitoring Tools"

*# of StackShare companies using: **~1,700***

*# of StackShare companies using: **~1,600***

*# of StackShare companies using: **~2,400***

	Datadog	Kibana	Prometheus	Grafana	Sentry	New Relic	Logstash	TrackJS	Turbonomic	Checkmarx	Exabeam	Guardicore	Secure Code Warrior	Lacework	PagerDuty	Tigera	Twistlock	Treat Stack	Whitesource
***$2 to $10M** (26N)*	18%	9%	5%	5%	9%	9%	9%	5%	0%	18%	14%	5%	14%	5%	0%	5%	5%	5%	5%
***$10 to $50M** (30N)*	23%	10%	17%	7%	3%	7%	3%	3%	0%	17%	3%	17%	3%	10%	3%	7%	0%	0%	3%
***$50 to $100M** (24N)*	26%	22%	13%	26%	17%	13%	17%	4%	4%	30%	35%	17%	30%	13%	9%	4%	4%	4%	0%
***$100 to $250M** (21N)*	30%	9%	0%	13%	0%	9%	0%	9%	4%	30%	39%	4%	9%	9%	4%	4%	0%	0%	0%
***$250M+** (56N)*	25%	11%	15%	6%	9%	2%	4%	0%	6%	25%	13%	13%	6%	2%	2%	8%	4%	2%	2%

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Monitoring & Security Tools – Selection Criteria & Top Tools

Customer service is especially important for larger companies when it comes to code monitoring & security tools, while integration capabilities are more important for smaller companies

Selection Criteria & Top Tools by Company Scale (Annual Revenue)

	$2 to $10M	***$10 to $50M***	***$50 to $100M***	***$100 to $250M***	***$250M+***
Top Selection Criteria *(Criteria Selected as Top 3 | **Above Median Shown**)*	**ROI Time Horizon** (50%)	**Integration Capabilities** (47%)	**Integration Capabilities** (52%)	**Pricing Structure & Contract Flexibility** (52%)	**Customer Service** (40%)
	Integration Capabilities (41%)	**Reliability** (43%)	**ROI Time Horizon** (48%)	**Integration Capabilities** (43%)	**Pricing Structure & Contract Flexibility** (40%)
	Pricing Structure & Contract Flexibility (41%)	**Time to Implement** (40%)	**Customer Service** (43%)	**Customer Service** (39%)	**ROI Time Horizon** (40%)
Top Tools *(Ranked)*	*Datadog* *Checkmarx* *Exabeam*	*Datadog* *Checkmarx* *Guardicore*	*Exabeam* *Checkmarx* *Secure Code Warrior*	*Exabeam* *Datadog* *Checkmarx*	*Datadog* *Checkmarx* *Prometheus*

Details on following page

Key Takeaways

- ***Customer service more important criteria*** *for security tools than any other tool category*
- ***Customer service especially important for larger companies*** *while integration capabilities more important for smaller scale buckets*
- ***Checkmarx only tool within the top 3 tools*** *for all scale buckets*

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Datadog has the highest overall prevalence amongst monitoring tools, and is the #1 choice for most companies; Checkmarx and Exabeam are close on most selection metrics and rank highly amongst defense tools

Top Tools (% Respondent Using) by Selection Criteria

	Monitoring					*Defense*				
Top 3 Criteria	**Datadog**	**Kibana**	**Prometheus**	**Grafana**	**Sentry**	**Checkmarx**	**Exabeam**	**Guardicore**	**Secure Code Warrior**	**Lacework**
Overall % Using	25%	12%	11%	10%	8%	24%	19%	12%	11%	7%
Pricing structure & contract flexibility	26%	15%	8%	13%	5%	21%	24%	15%	15%	10%
Reliability	20%	10%	14%	4%	8%	18%	14%	8%	10%	8%
Ability to integrate	27%	11%	13%	10%	8%	21%	15%	11%	11%	6%
Return on investment (ROI) time horizon	32%	14%	7%	2%	11%	30%	25%	9%	11%	5%

Datadog not only has the highest overall prevalence in developer stacks, it is also the #1 choice for companies prioritizing pricing, reliability, integration and ROI time horizon

Other Selection Criteria: Time to implement, customer service, customer reviews, price, user-friendliness

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Monitoring & Security Tools – Tools Scorecard

Datadog is not only the most prevalent monitoring tool, but also has much higher engagement (% daily users) than competitors; within defense tools, Checkmarx has the highest engagement and user satisfaction

Engagement & Satisfaction Metrics

Monitoring	% Overall Users	% Daily Users	NPS[1] (9 or 10)	G2 Score[2] (out of 5)
Datadog	25%	41%	59%	4.2
Kibana	12%	22%	61%	3.8
Prometheus	11%	18%	53%	4.3
Grafana	10%	33%	47%	4.4
Sentry	8%	17%	50%	4.5
Defense				
Checkmarx	24%	53%	83%	4.1
Exabeam	19%	43%	68%	
Guardicore	12%	44%	72%	4.2
Secure Code Warrior	11%	25%	56%	
Lacework	7%	50%	60%	4.4

User Reviews [G2]

"With Datadog you can quickly get up and running. *May be the easiest option out there. Since it enables you to put everything into one dashboard irrespective of their zone, VPC or environment type we can have one bookmarked place to look at for the first report.* ***Once you figure out how to set up Datadog agents then it's a one point solution.*** *Integrating it to IMs like Slack is really easy and thresholds can be set individually to prioritize alerts."*

[Kibana] *"What I like the most is fact, that in a sea of logs, you can easily search for special correlation ID or something else.* ***It's great tool for debugging, which is what I use it for."***

[Checkamarx] "This is an excellent tool to write secure code and follow best practices. *I like that it gives a detailed overview of the issue in your static code and also provides ways to solve it.* ***It attributes a risk profile to each issue and this way you can solve the ones with high priority first."***

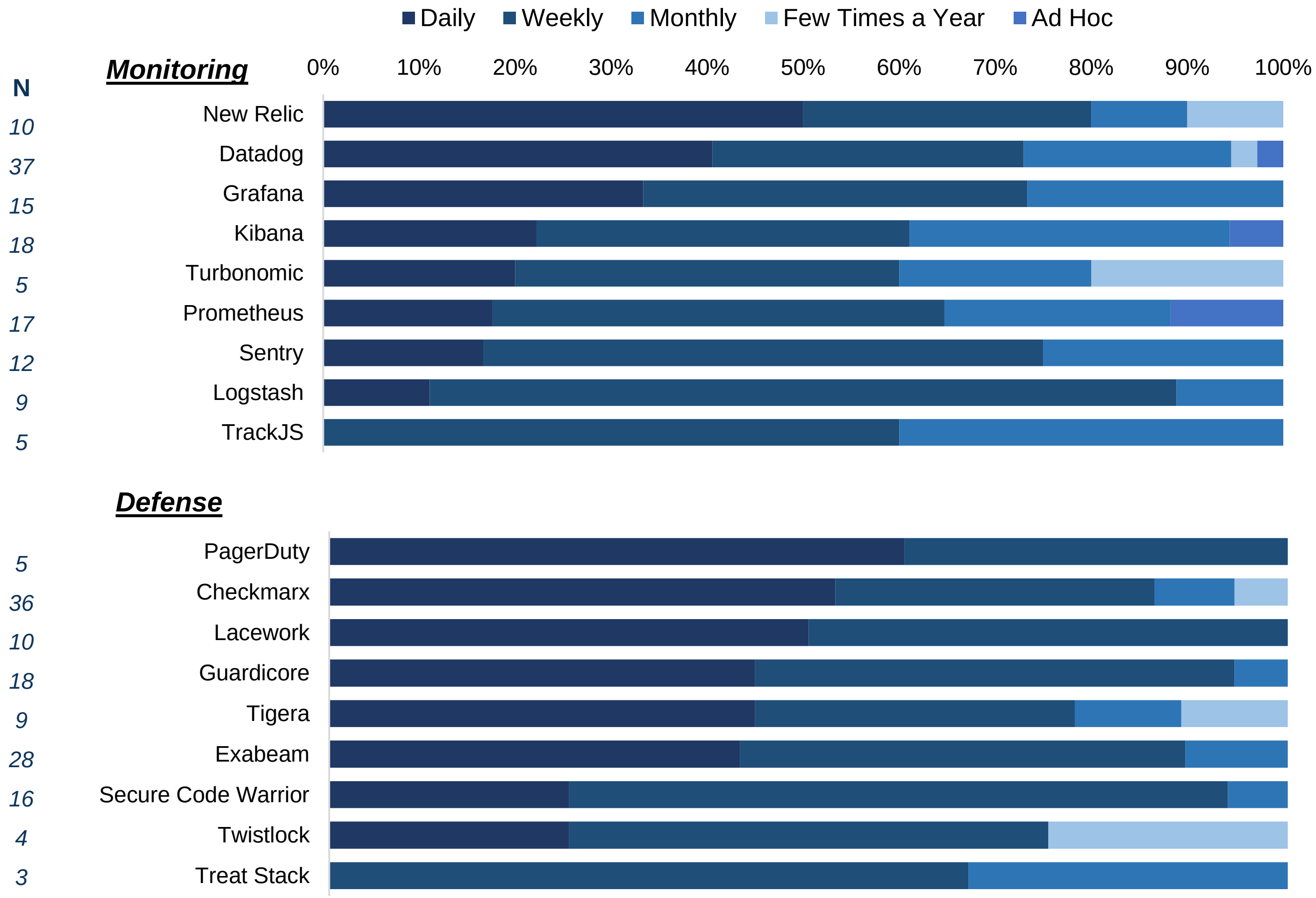
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Note: (1) NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100 (2) G2 score is average rank across reviewers on scale of 1 (worst) to 5 (best)

Code Monitoring & Security Tools – Usage Frequency

New Relic, Datadog and Grafana have the highest proportion of daily users within monitoring tools; PagerDuty and Checkmarx have the highest within defense tools – with 50%+ users using daily

Usage Frequency



Usage Frequency (% Daily) by Company Scale

Monitoring

$2 to $10M	$10 to $50M	$50 to $100M	$100 to $250M
0%	100%	67%	50%
100%	50%	0%	0%
0%	0%	67%	33%
0%	67%	40%	0%
Small sample size			
0%	40%	33%	
50%	0%	0%	
Small sample size			

Defense

Small sample size			
50%	20%	43%	71%
100%	0%	67%	100%
0%	40%	50%	100%
Small sample size			
0%	0%	38%	44%
33%	100%	14%	50%
Small sample size			

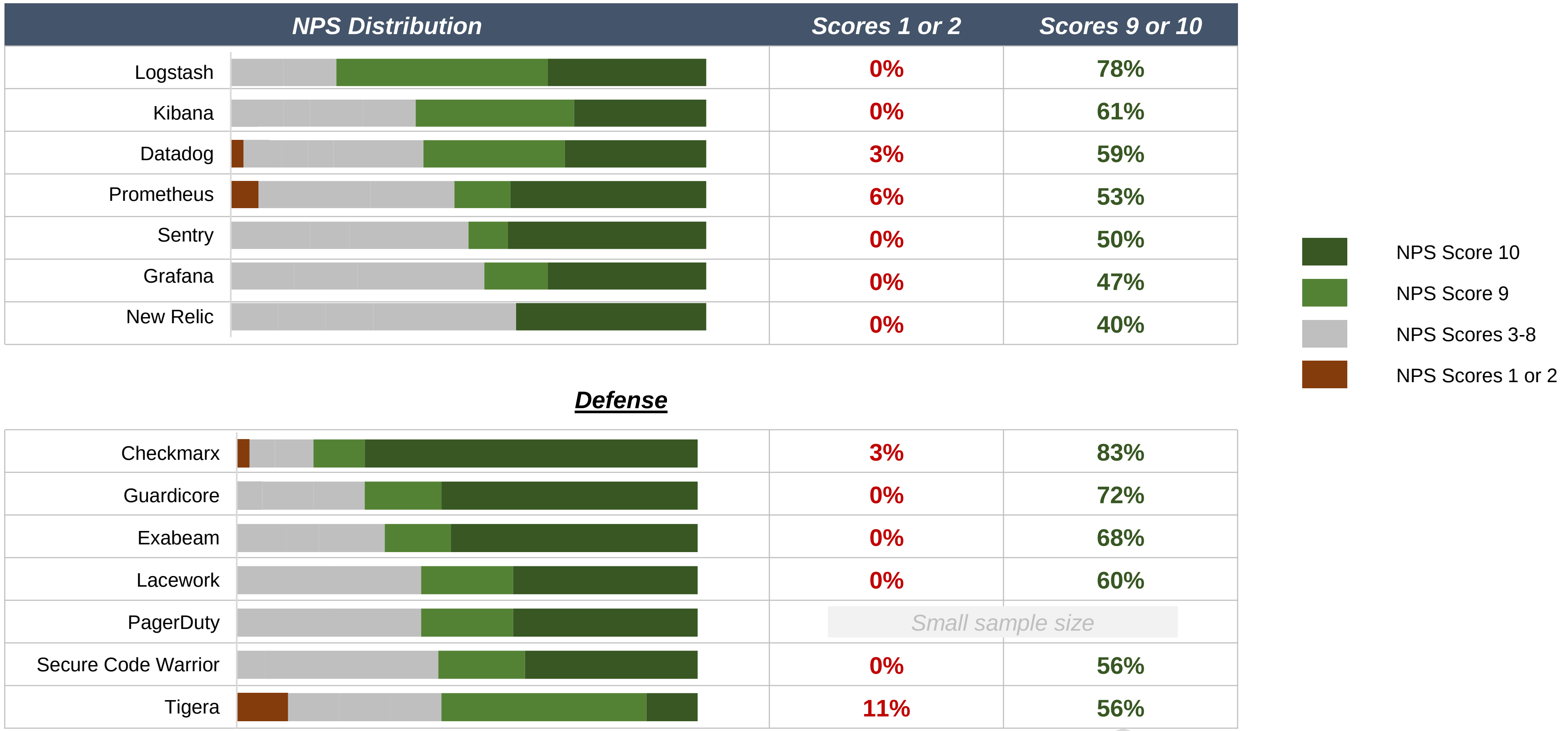
Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Code Monitoring & Security Tools – Satisfaction

Within monitoring tools, Logstash has the most satisfied users, followed closely by Kibana and Datadog; within defense tools, Checkmarx has the biggest lead by a healthy margin

NPS Scores by Tool – All Responses

On a scale of one to ten, how likely are you to recommend the following software to a colleague or someone in your network? 10 being most likely.



Monitoring

N	NPS Distribution	Scores 1 or 2	Scores 9 or 10
9	Logstash	0%	78%
18	Kibana	0%	61%
37	Datadog	3%	59%
17	Prometheus	6%	53%
12	Sentry	0%	50%
15	Grafana	0%	47%
10	New Relic	0%	40%

Defense

N	NPS Distribution	Scores 1 or 2	Scores 9 or 10
36	Checkmarx	3%	83%
18	Guardicore	0%	72%
28	Exabeam	0%	68%
10	Lacework	0%	60%
5	PagerDuty	Small sample size	
16	Secure Code Warrior	0%	56%
9	Tigera	11%	56%

Ranked by

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200
Note: NPS is calculated as the % respondents ranking likelihood to recommend tool as 9 or 10 ("promoters") less the % respondents ranking same question as a 6 or lower ("detractors") x 100

Code Monitoring & Security Tools – Overall Tool Ranking

In both monitoring and security tools, the top choice has a significant lead vs. second choice – indicating tendency to gravitate toward best in breed tools when it concerns security

Composite "Score" by Tool

	% of Respondents					***Ranking by Criteria***					***Avg. Ranking*** *Lower score = better*
	Measure of brand awareness + adoption		*Satisfaction*	*Measure of engagement*	*Likely to keep using product*						
Monitoring	***Familiarity***	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Familiarity***	***Prevalence***	***NPS (9 or 10)***	***% Daily***	***Seat Penetration***	***Avg.***
Datadog	31%	25%	59%	41%	48%	1	1	6	5	6	3.8
Kibana	17%	12%	61%	22%	39%	7	5	4	8	9	6.4
Prometheus	16%	11%	53%	18%	54%	8	6	8	9	2	6.6
Grafana	19%	10%	47%	33%	49%	5	8	10	6	5	6.8
Sentry	15%	8%	50%	17%	52%	9	9	9	10	3	8.0
Defense											
Checkmarx	28%	24%	83%	53%	55%	3	2	1	1	1	1.6
Exabeam	30%	19%	68%	43%	47%	2	3	3	4	7	3.8
Guardicore	20%	12%	72%	44%	44%	4	5	2	3	8	4.3
Secure Code Warrior	17%	11%	56%	25%	52%	7	7	7	7	4	6.3
Lacework	11%	7%	60%	50%	38%	10	10	5	2	10	7.4

Sources: ICONIQ Analytics External Dev. Stack Survey, n=200

Additional Detail

Case Studies – Developer Stacks

1

A deeper look into specific companies’ developer stacks reveal newer companies to have a greater appetite for tools experimentation; code verification is one where companies use fewer tools across the board

▨ *Data not available*

Prominent tool in external survey

		Project Management	Development	Verification	Code Management	CI/CD	Monitoring	Defense	
G	***Age:*** *22 Years* ***Revenue: ~$150B*** ***Employees:*** *~100K* ***HQ:*** *Bay Area*		AngularJS Android Studio Bazel	EarlyGrey					20
shopify	***Age:*** *15 Years* ***Revenue: ~$1.5B*** ***Employees:*** *~5K* ***HQ:*** *Ottawa*				GitHub Git	Chef Buildkite	New Relic		35
Uber	***Age:*** *11 Years* ***Revenue: ~$3B*** ***Employees:*** *~25K* ***HQ:*** *Bay Area*	Asana iDoneThis	Backbon.js Apache Thrift		Brunch	Puppet Labs	Sentry Prometheus Graphite	HackerOne	59
LaunchDarkly	***Age:*** *7 Years* ***Revenue: ~$25M*** ***Employees:*** *~150* ***HQ:*** *Bay Area*	Confluence			GitHub HashiCorp	Ansible CircleCI Spinnaker Armory	Graphite		45
Clearbit	***Age:*** *6 Years* ***Revenue: ~$5M*** ***Employees:*** *~50* ***HQ:*** *Bay Area*	Trello			GitHub	Codeship	Sentry	PagerDuty	36
Revolut	***Age:*** *5 Years* ***Revenue: ~$25M*** ***Employees:*** *~1,500* ***HQ:*** *London*	Jira Confluence	Gatsby Visual Studio	Cypress ESLint	Git BitBucket	Ansible			34

- **Legacy giants**, such as Google, **generally have fewer tools,** likely in part due to **NIH cultures**
- **Newer companies,** especially those experiencing faster growth **have a greater appetite for experimentation**
- **Company HQ location does not seem to drive meaningful differences** in number of tools
- **Companies generally have fewer verification tools**

Newer, fast growing companies have more tools in their stack and a greater number per tool category – indicating appetite for experimentation

Sources: StackShare, ICONIQ Analytics & Research