ICONIQ | Growth

Engineering Leadership: A Hiring Blueprint

What to prioritize when hiring an Engineering executive from $0 to $50M ARR

July 2024

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About the research

We believe executive hiring is the final frontier within the modern organization that has yet to benefit from the proliferation of data. Despite having data to guide nearly every other business decision – and despite the criticality of executive hiring decisions – CEOs and Founders have heretofore largely relied on anecdotal guidance.

In the Leadership Analytics series

Determined to help de-risk hiring decisions by empowering CEOs and Founders with data, we are studying every leadership hire between Founding and IPO at dozens of SaaS companies. We segment each hiring decision by growth stage in order to relevant insights. To date, we have collected 50,000+ datapoints on over 1,500 leaders to examine key profile characteristics and understand how these impacted a functional leader's longevity.

The result is a series of first-of-their-kind playbooks that help guide decision-making across the entire private company lifecycle – whether you are making your first leadership hire or evaluating the skillsets needed to adeptly enter the public markets.

In this report

We hope this analysis, which examines the backgrounds of Engineering executives at SaaS companies from $0M to $50M ARR, serves as a north star as you build and scale your engineering organization.

Access the Full Engineering Series

Chapters in The Series

ICONIQ Growth's Engineering Series provides detailed answers to **key questions across the following operating and executive hiring topics** utilizing proprietary data[1] and industry perspectives from 200+ B2B SaaS leaders and 100+ engineers at SaaS companies.

★ Focus of this report

The State of Engineering	• The future of engineering • DevOps maturity • Developer experience • Impact of AI
Product Leadership	• Hiring your next Head of Product from $0-$50M ARR • Hiring your next Head of Product from $50M ARR to IPO
Engineering Leadership	• **Hiring your next Head of Engineering from $0-$50M ARR** ★ • Hiring your next Head of Engineering from $50M ARR to IPO
Building Engineering and Product Teams	• Org structure and make-up of engineering teams • Typical headcount ratios • Diversity in engineering
Compensation & Incentives	• Compensation for engineering and product teams • Performance evaluation
Engineering Operations	• Developer productivity • Capacity allocation • Tooling and DevOps

Guide The Engineering Reporting Guide

Template Engineering Board Slides

Notes: (1) Please refer to page 6 for methodology and data sources for the Engineering Leadership Study.
There can be no such assurances that any plans or operational characteristics of a company discussed herein will continue or be realized on the terms expressed herein or at all, and such plans are subject to uncertainties and risks.

The Dataset

We studied ***Heads of Engineering hired at these 68 B2B SaaS companies from the day they were founded to the day they went public**, capturing the entire private company lifecycle[1]:

ICONIQ Growth Portfolio Companies[2,3]

alteryx, Bill.com, braze, coupa, CROWDSTRIKE, DATADOG, enfusion, fastly, GitLab, HashiCorp, MARQETA, PLURALSIGHT, PROCORE, snowflake, sprinklr

Other Companies[3]

Amplitude, Anaplan, appfolio, APPTIO, asana, ATLASSIAN, Avalara, BIGCOMMERCE, blend, box, C3.ai, Carbon Black., CLOUDERA, CLOUDFLARE, CONFLUENT, DigitalOcean, DOMO, Dropbox, elastic, FORESCOUT, freshworks, JFrog, Livongo, Medallia, mimecast, mongoDB, MuleSoft, ncino, NUTANIX, okta, PagerDuty, PURESTORAGE, RAPID7, samsara, SendGrid, SentinelOne, shopify, slack, smartsheet, sproutsocial, SQUARESPACE, Square, sumo logic, talend, tenable, toast, twilio, UiPath, unity, UserTesting, yext, zscaler, zuora

*We defined **"Head of Engineering" as the senior-most executive responsible for managing the day-to-day engineering organization**, agnostic of title. This includes Chief Technology Officer, S/VP Engineering/Technology, Chief Architect, Director of Engineering/Technology, Head of Engineering/Technology and others, depending on organizational structure and engineering responsibility at each company.

Throughout this analysis, **we use "Head of Engineering" as a catchall term.**

Company Inclusion Criteria:

- SaaS business model
- Went public after 2015 via IPO or Direct Listing
- Raised venture capital prior to going public

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1) Data sources for this analysis included LinkedIn profiles, company websites, press releases, articles, and others.
2) Includes fully realized investments.
3) Includes companies that have been de-listed. Please see full list of ICONIQ Growth Portfolio companies at the end of the presentation.

Executive Summary

Head of Engineering Hiring Overview (p. 8-12)

- **Throughout various technological inflection points**, including the dot-com era, mobile revolution, cloud computing, and now the emergence of AI/ML, **the core responsibilities of a Head of Engineering have remained largely similar**. However, in the context of the specific technology change we are seeing unfold today, **our Technical Advisory Board suggests that leaders should invest more time in understanding the long-term impacts on their business** and **maintain a strong grasp of the underlying technology**. For this current AI/ML trend, this means having some degree of literacy in data systems, pipelines, and infrastructure.
- From founding to IPO, **companies typically have 2-3 Heads of Engineering, with co-founders often leading the organization initially**. Companies with 2 leaders **tend to transition to an externally hired Head of Engineering during the mid-growth stages ($20M-$100M ARR)**.
- Heads of Engineering externally hired between $0-$50M ARR have a median tenure of 3.5 years[1], which is among the longest we've observed to date across all externally hired executives at this stage (e.g., Heads of Marketing, Heads of Finance).

Key Operational Traits for Externally Hired Heads of Engineering (p. 13-25)

- **49% of leaders have previously led entire engineering organizations before**, with most having this experience at <$50M ARR companies. The data shows having this experience is critical, as **leaders with prior Head of Engineering experience stay 2x longer than those without it (4+ years vs. 2 years)**.
- Upon further examination of hires with prior Head of Engineering experience at private SaaS companies, **two sub-profiles emerge: those who also have experience in large engineering organizations at public companies and those who operate exclusively in the private SaaS landscape**. Both profiles demonstrate relatively long tenures of 4.5+ years, making either a viable option for CEOs to consider.
- **Leaders lacking prior Head of Engineering experience often had experience overseeing engineering teams as SVPs, VPs, or Directors at public companies**. At the $0-$50M ARR stage, this **background tends to result in shorter tenures**, with many leaving their roles within 2.5 years.
- Although companies often prefer to hire within their own sector, the data suggests **CEOs should prioritize strong leadership and technical skills over specialized sector expertise**, as sector affinity does not show strong correlation with tenure outcomes.

Co-Founder Heads of Engineering (p. 26-28)

- **75% of companies have their technical co-founder initially leading the engineering function**. Regardless of whether they are first-time founders or have prior founder experience, both groups typically manage the day-to-day engineering organization for approximately 6 years.

1) We acknowledge individuals depart from their roles for various reasons, though we generally believe longevity and ability to scale across multiple growth stages are key indicators of a successful leader.

Despite tech inflection points like the dot-com era, mobile revolution, cloud computing, and now AI/ML, the core responsibilities of a Head of Engineering remain largely consistent. However, during these times, understanding the business impact and underlying tech is critical.

Engineering Leadership in an Evolving Technology Landscape

Matt Eccleston
ICONIQ Growth
Technical Advisory Board

Formerly VP Growth at Dropbox, Chief Architect at VMware

The **CTO is expected to have a profound understanding of the business impact of technological changes**, more so than other executives. During the shift to the cloud, there was a general understanding of the technology but leaders were unsure of the speed and necessity of the transition – **such burdens increase during periods of transition**. This is all part of their job normally, but **it will demand significantly more of their attention during these inflection points**.

Mike Curtis
ICONIQ Growth
Technical Advisory Board

Formerly VP Engineering at Airbnb, Director Engineering at Facebook

I tend to think that **new, emerging technology likely doesn't radically change the CTO profile** and it is more dependent on the individual to keep up with the trends and lead in that environment. That said, **they should have some degree of literacy with data, how data systems are built, how data pipelines are managed, how machine learning infrastructure works** – this is going to be really important for the foreseeable future.

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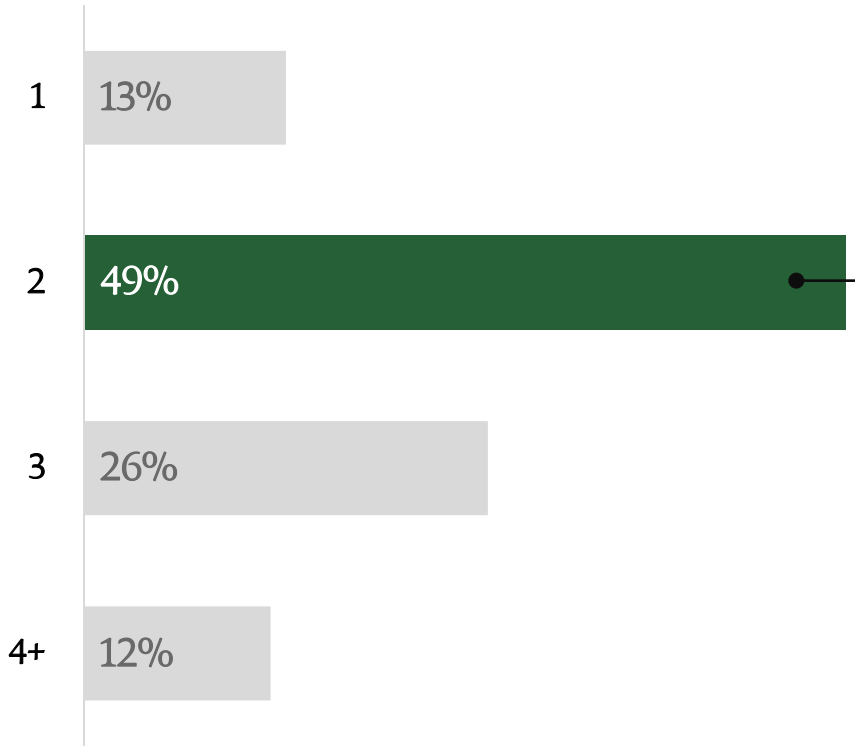
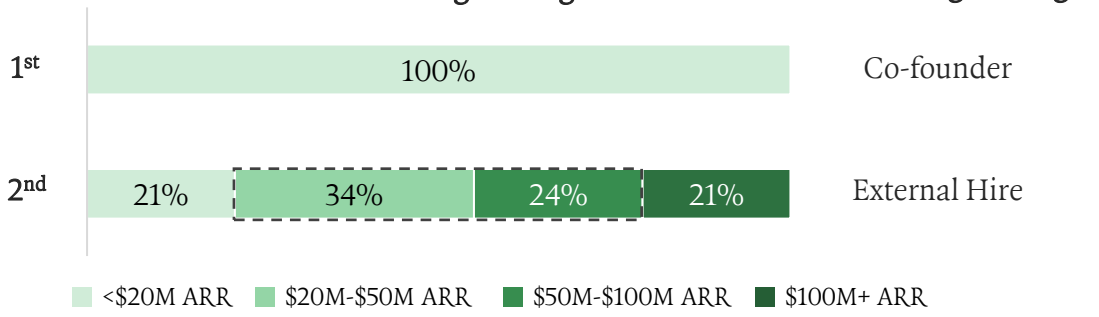
Companies typically have 2-3 Heads of Engineering from founding to IPO, with co-founders often leading the engineering organization initially. Companies with 2 leaders tend to transition to an externally hired leader during the mid-growth stages ($20M - $100M ARR[1]).

Number of Heads of Engineering[2,3] from Founding to IPO

n = 68 companies





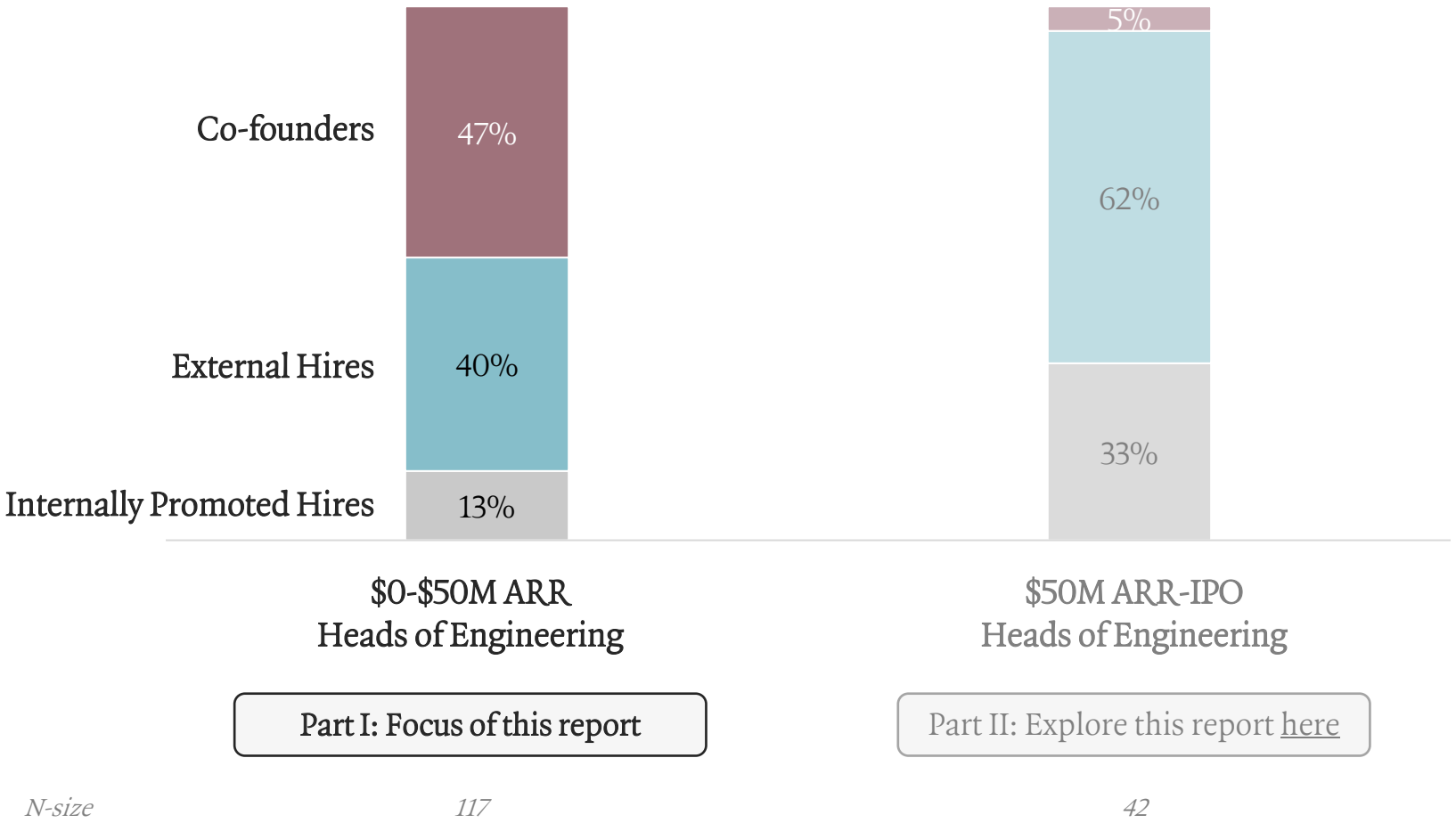
> "As a company matures, **more formal management systems should be in place, necessitating a different skill set from the Head of Engineering**. Co-founders without experience running larger organizations may want to consider transitioning to someone with leadership experience at this scale."

Matt Eccleston
ICONIQ Growth Technical Advisory Board

1) Source for ARR data is from internal and external data sources. If ARR was unavailable, it was estimated using proxy metrics (e.g., headcount, primary invested capital).
2) This chart reflects various types of Heads of Engineering, including founders, internal promotions, and external hires.
3) The "Number of Heads of Engineering" signifies the sole individual overseeing the engineering organization within a specific timeframe. If a company had more than one Head of Engineering, they assumed the role in succession.

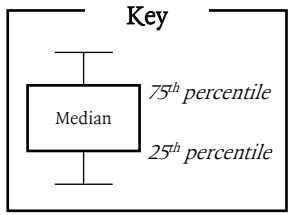
During the $0-$50M ARR stage, companies rely on either co-founders or externally hired Heads of Engineering to lead the engineering organization. Once companies scale beyond $50M ARR, they generally hire an engineering leader from outside the organization.

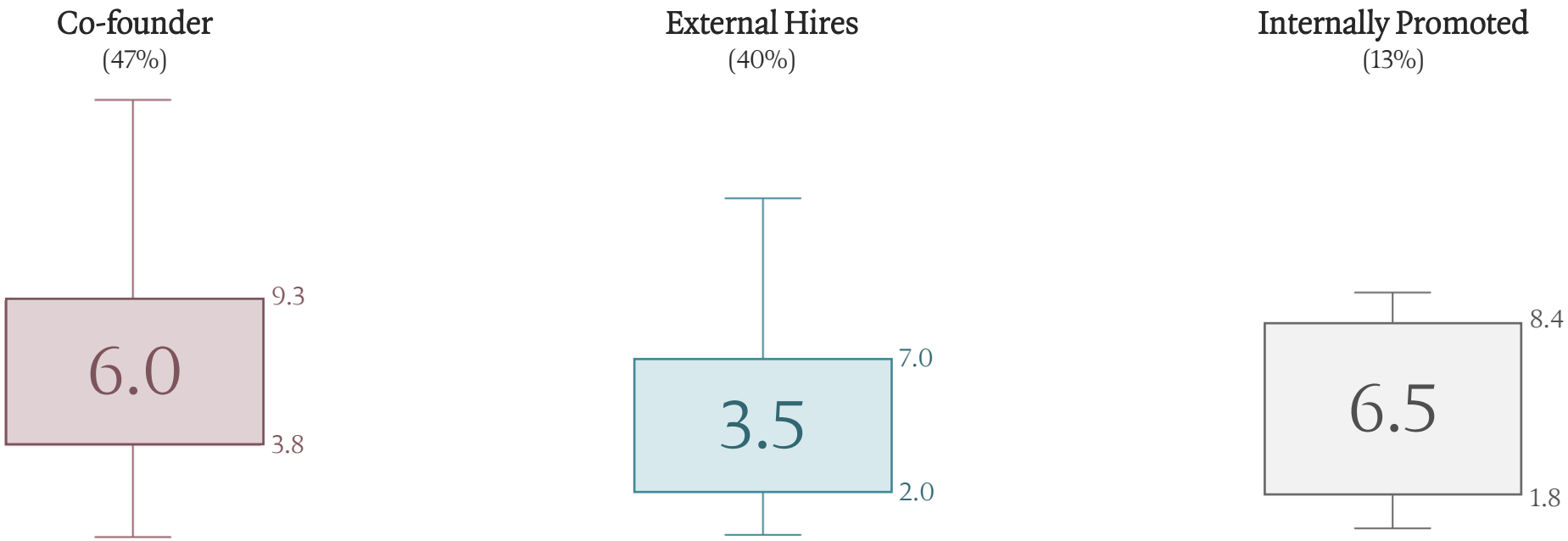
Types of Heads of Engineering Hired by ARR Stage



Co-founders typically manage the day-to-day engineering organization for 6 years while externally hired leaders tend to oversee the function for 3.5 years. Internally promoted leaders, despite showing greater variability, tend to have the longest tenures.

$0-$50M ARR Heads of Engineering[1] by Tenure Outcomes (years)[2]



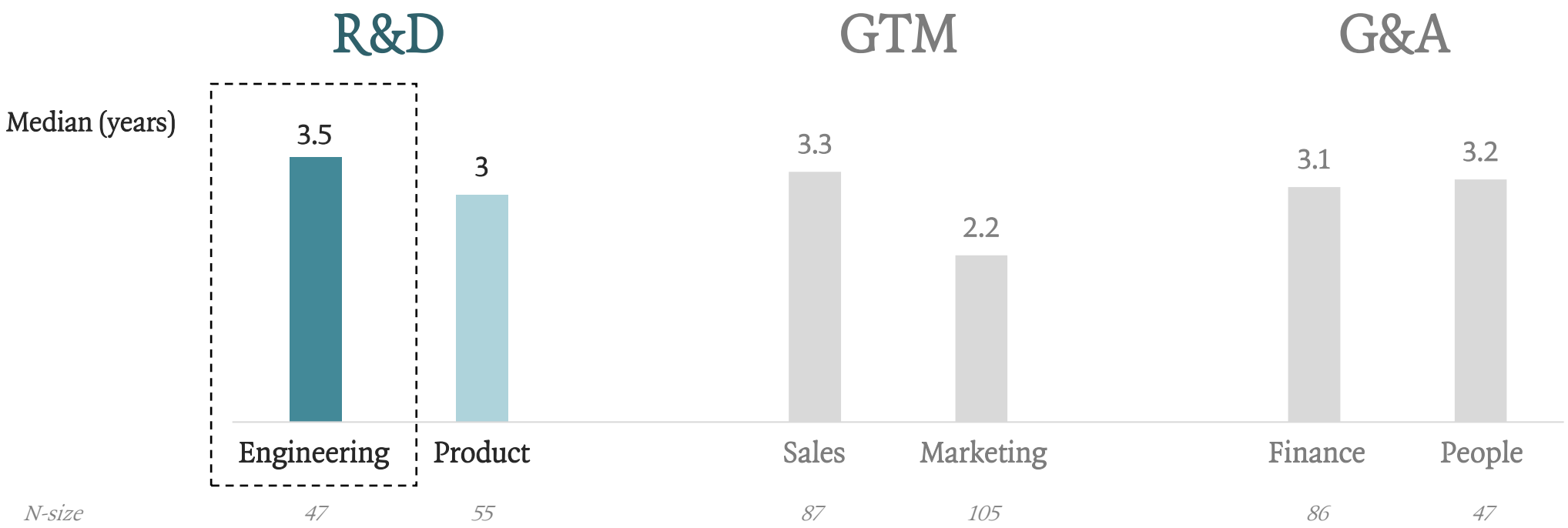


	Co-founder (47%)	External Hires (40%)	Internally Promoted (13%)
	Focus of Co-founder Heads of Engineering section P. 26-28	Focus of Externally Hired Heads of Engineering section P. 13-25	Excluded from detailed analysis
N-size	*55*	*47*	*15*

1) <10% of external hires are still in their roles, meaning their tenure with the company continues to increase.
2) Reflects the cumulative years of a hire's tenure as Head of Engineering, including post-IPO. "Tenure Outcomes" are defined as the duration in which an individual serves as the Head of Engineering at the companies in this dataset. This definition also applies to pages 14-24, 28.

On average, R&D leaders have slightly longer tenures compared to other functions, with Heads of Engineering having some of the longest.

$0-$50M ARR External Executive Hires by Tenure Outcomes (years)



The next section focuses on **Externally Hired Heads of Engineering** and examines key profile characteristics to understand how these impact an engineering leader's longevity.

Note: For details on each specific data source, please refer to the respective reports available on our website here for R&D (Product), here for GTM (Sales, Marketing) and here for G&A (Finance, People). Additionally, for leaders who were still in their roles at the time of publication of these reports, tenure data has been updated as of June 2024 to reflect any changes since then.

Engineering Leadership Trends

Hiring For Success

Why do some Heads of Engineering leave within a year, while others stay for 13+ years? We analyzed a selection of major traits in engineering executive backgrounds at these companies to understand how these traits impacted a leader's longevity.

Companies included in this section[1]

ATLASSIAN, Anaplan, asana, Avalara, Bill.com, BIGCOMMERCE, blend, box, C3.ai, CLOUDERA, coupa, CROWDSTRIKE, DOMO, fastly, GitLab, HashiCorp, Livongo, MARQETA, MuleSoft, ncino, NUTANIX, okta, PURESTORAGE, RAPID7, SentinelOne, smartsheet, sprinklr, SQUARESPACE, sumo logic, toast, User Testing, zscaler, zuora

Head of Engineering Operational Traits

Tenure Impact[2]

Less → More

Prior Head of Engineering Experience
Prior Head of Engineering experience by company ARR scale

P. 15-16

Prior Years of Engineering Experience
Number of years in software engineering roles at any level

P. 17

Longevity in Prior Company
Number of years at prior company where they assumed the Head of Engineering role, whether promoted or hired directly into the role

P. 18

Private SaaS Company Experience
Prior experience as junior and/or senior-level engineers in private SaaS companies

Public Technology Company Experience
Prior experience as junior and/or senior-level engineers in public technology companies

P. 19-20

Sector and Sub-Sector Affinity
Degree of prior exposure within a sector and sub-sector

P. 21-23

1) Pages 15-25 reflect data and insights from external hires. N-sizes may include more than one hire from a company.
2) "Tenure Impact" indicates the extent to which a variable influenced an individual's tenure as the Head of Engineering. While efforts have been made to control confounding variables and ensure robustness, unaccounted contextual factors may also affect the impact on tenure.

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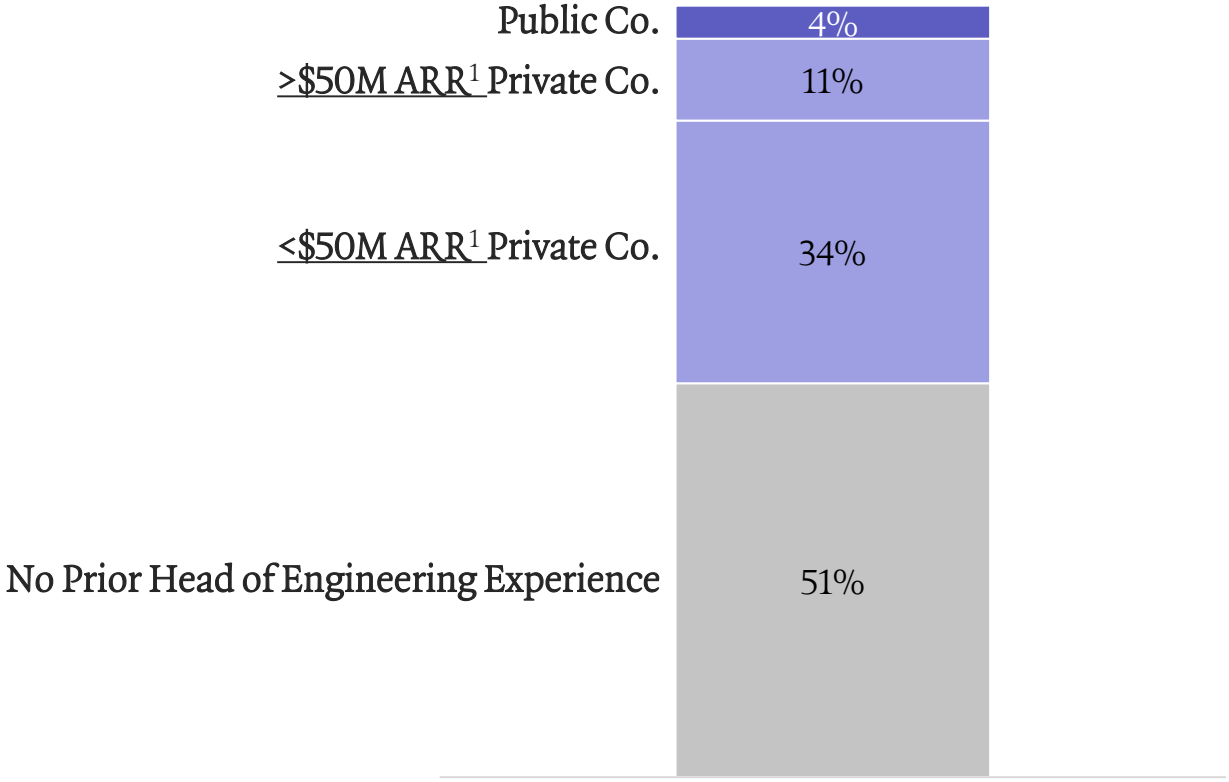
Prior Head of Engineering Experience

Nearly half of externally hired leaders have prior Head of Engineering experience. Among those with such experience, most led engineering organizations at companies of a similar size.

Prior Head of Engineering Experience

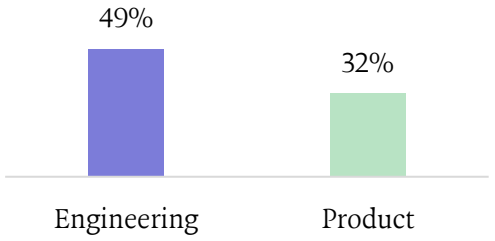


N-size = 47

ICONIQ Growth Cross-Functional Insight

Unlike its close counterpart, the product function, the engineering function in <$50M ARR companies tends to place a higher premium on prior leadership experience.

% of Executive Hires with Prior Functional Leadership Experience



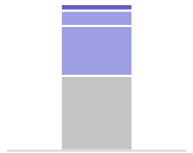
Check out our Executive Leadership Series and other research here

1) With respect to private companies, company ARR at the time of prior employment was estimated using proxy metrics including headcount, primary invested capital, and/or funding stage (subject to available data).

Prior Head of Engineering Experience by Tenure Outcomes

Hires with prior Head of Engineering experience often stay 2x longer than those without this qualification. CEOs should consider leaders with this experience from private SaaS companies, particularly those from <$50M ARR companies, as they tend to have the greatest longevity.

Prior Head of Engineering Experience by Tenure Outcomes (years)



From page 15

	≤ 2 years	2 - 3.5 years	3.5 - 7 years	7+ years	Median (years)	*N-size*
All <$50M ARR Heads of Engineering	21%	32%	21%	26%	3.5	*47*
Public Co. (4%)	50%		50%		*Low n-size*	*2*
>$50M ARR[1] Private Co. (11%)	40%	20%	40%		4.1	*5*
<$50M ARR[1] Private Co. (34%)	25%	31%	44%		4.6	*16*
No Prior Head of Engineering Experience (51%)	42%	33%	13%	12%	2.2	*24*

1) With respect to private companies, company ARR at the time of prior employment was estimated using proxy metrics including headcount, primary invested capital, and/or funding stage (subject to available data).

Prior Years of Engineering Experience

Those with private company Head of Engineering experience often have three more years of engineering experience compared to hires without it. This likely leads to a deeper understanding of technical challenges, better strategic planning, and enhanced management skills.

Prior Years of Engineering Experience

Data reflects years of engineering experience at any role level/title

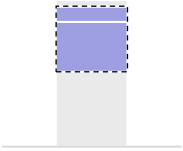
	All <$50M ARR Hires[1]	Hires with prior Private Co. Head of Eng. Experience (45%)	Hires without prior Head of Eng. Experience (51%)
Median Prior Years of Eng. Exp.	10	12.5	9.5
Median Tenure Outcomes (years)	3.5	4.5	2.2
N-size	*47*	*21*	*24*

1) All hires are featured in the "All <$50M ARR Hires" bar chart, but those who have prior Head of Engineering experience at public companies are not broken out due to a small n-size.

Stint at Prior Company by Tenure Outcomes

Among the leaders with private co. Head of Engineering experience, those who spent over 6 years within their prior engineering organization tend to yield better tenure outcomes in their next Head of Engineering role, further emphasizing the value of accumulated experience.

Prior Stint by Tenure Outcomes (years)



From page 15

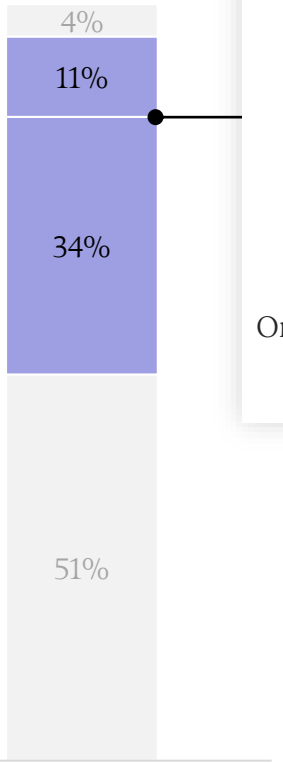
	2 - 3.5 years	3.5 - 7 years	7+ years	Median (years)	*N-size*
Hires with Prior Private Co. Head of Engineering Exp. (45%)	29%	29%	43%	4.5	*21*
6+ years *at prior company*	40%		60%	7	*5*
3 - 6 years *at prior company*	43%	14%	43%	4	*7*
≤ 3 years *at prior company*	33%	33%	33%	4	*9*

Prior stint data reflects the cumulative years spent at the company in which they assumed the Head of Engineering role, whether they were hired directly into the role or promoted into it.

Hires with Private Co. Head of Engineering Experience

When further examining this group, two sub-profiles emerge: those who also have public company experience and those who only operate within the private SaaS landscape. CEOs can prioritize either profile, as both types yield relatively long tenures of 4.5+ years.

Further Details on Hires with prior Private Co. Head of Engineering Experience



Hires with Private Co. Head of Engineering Experience (45%)

All <$50M ARR Hires
Median Tenure = 3.5 years

Other Engineering Experience		Median Tenure Outcomes (years)	Additional Insights
	45%		
Public Co. SVP/VP	21%	4.5	Approximately **half of the hires with public company experience were at 'Big Tech' companies**[1] (e.g. Microsoft, Oracle, and Cisco), often spending their IC and middle management years there before transitioning to the private sector. The **remaining hires were typically acqui-hired into such roles**.
Public Co. Director	9%		
Public Co. Below Director	2%		
Only Private Co. Experience	13%	5.5	Leaders who had only worked at private companies were either **multiple-time CTOs or prior founders of their own tech companies**.

> **My ideal candidate would have experience at the same stage of SaaS company they would be joining as well as experience in a larger, more mature organization.** At a bare minimum they need to have leadership experience at a company with stage affinity, but it would also be nice for this candidate to have a vision of where the tech org needs to get to in the next 4-5 years.

Matt Eccleston

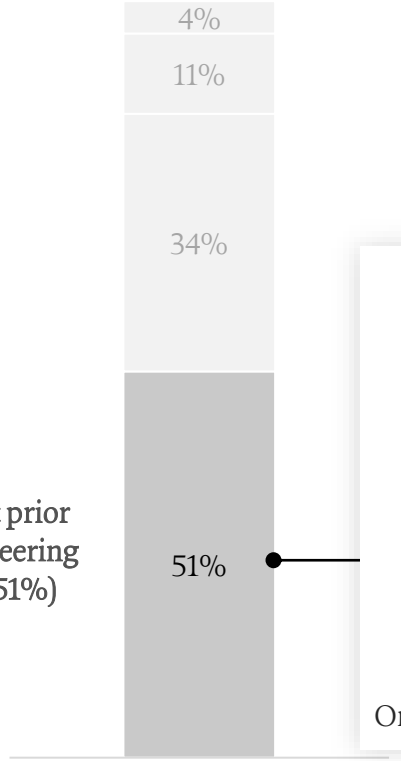
Former VP Growth at Dropbox

1) For this study, we defined 'Big Tech' as public companies with a market capitalization of >$100B at the time they were at this company.

Hires without Head of Engineering Experience

Hires without prior Head of Engineering experience primarily manage large engineering organizations as SVP/VPs, or Directors at public companies. Those accustomed to the dynamics of large enterprises may find it challenging to thrive in a more unstructured environment.

Further Details on Hires without prior Head of Engineering Experience



Hires without prior Head of Engineering Experience (51%)

All <$50M ARR Hires
Median Tenure = 3.5 years

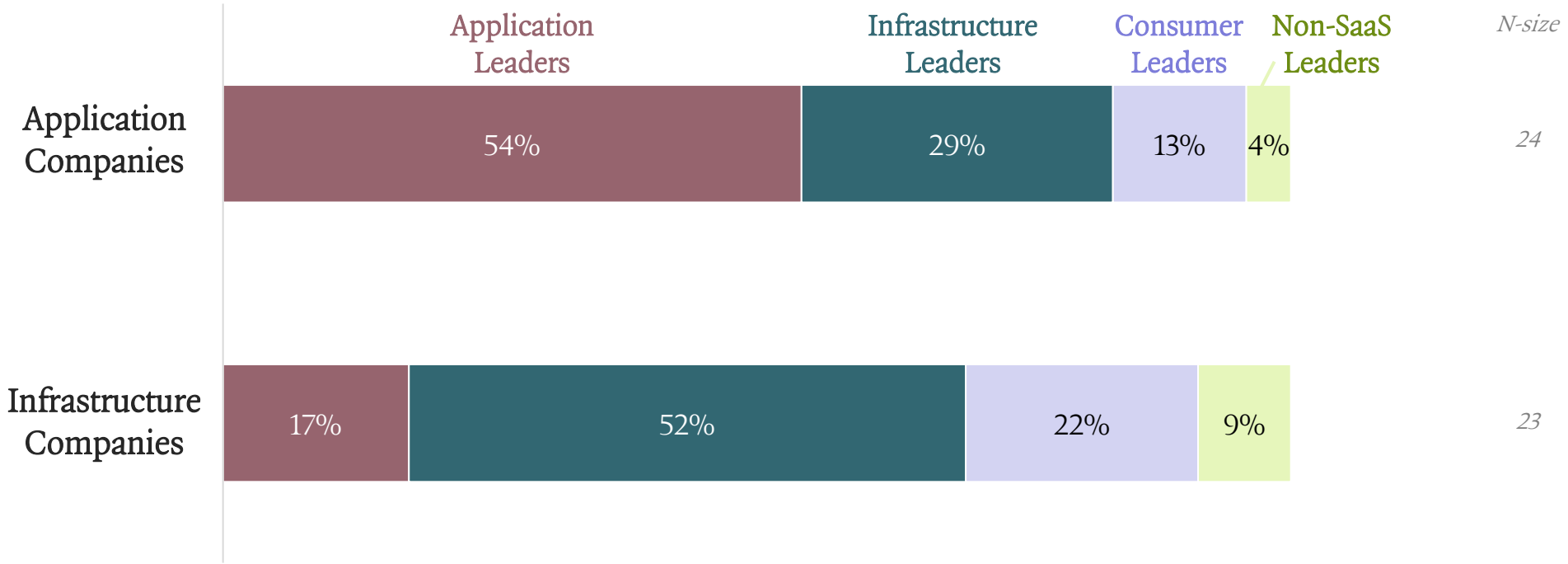
Other Engineering Experience		Median Tenure Outcomes (years)	Additional Insights
51%			
Public Co. SVP/VP	19%	2.3	Hires without prior Head of Engineering experience typically **spent the majority of their careers advancing within large public companies**, often dedicating **7+ years to a single organization**.
Public Co. Director	17%		
Public Co. Below Director	9%		
Only Private Co. Experience	6%	*Low n-size*[1]	

1) N-size = 3.

Sector

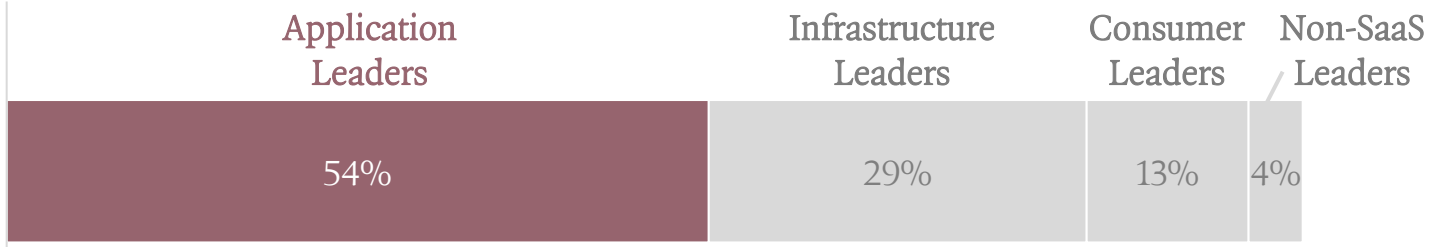
Despite a general preference for companies to hire from their respective sectors, nearly half of the Heads of Engineering transitioned to a sector where they lacked substantial prior experience.

Engineering Leader's Sector Background vs. Company's Sector



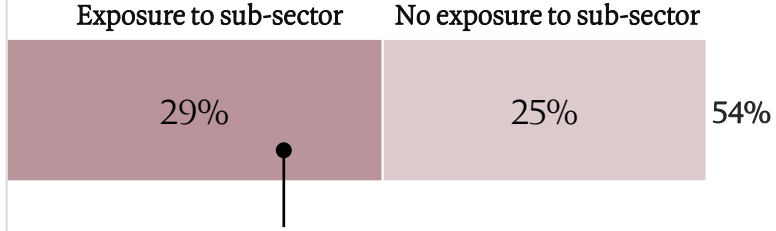
While Application companies primarily opt for application-oriented leaders, their tenure outcomes are similar to those with infrastructure or consumer backgrounds. Of the hires with an application background, a slight majority come from the same sub-sector.

Application Companies: Prior Sub-Sector Exposure



Median Tenure Outcomes (years)

2.5 years | 3.0 years



Back Office companies in particular tend to hire leaders from the same sub-sector

> **I value strong leadership and technical skills over specific technical experience.** Optimize for hiring the best leader rather than for their specific technical skillset.

Mike Curtis

Former VP Engineering at Airbnb

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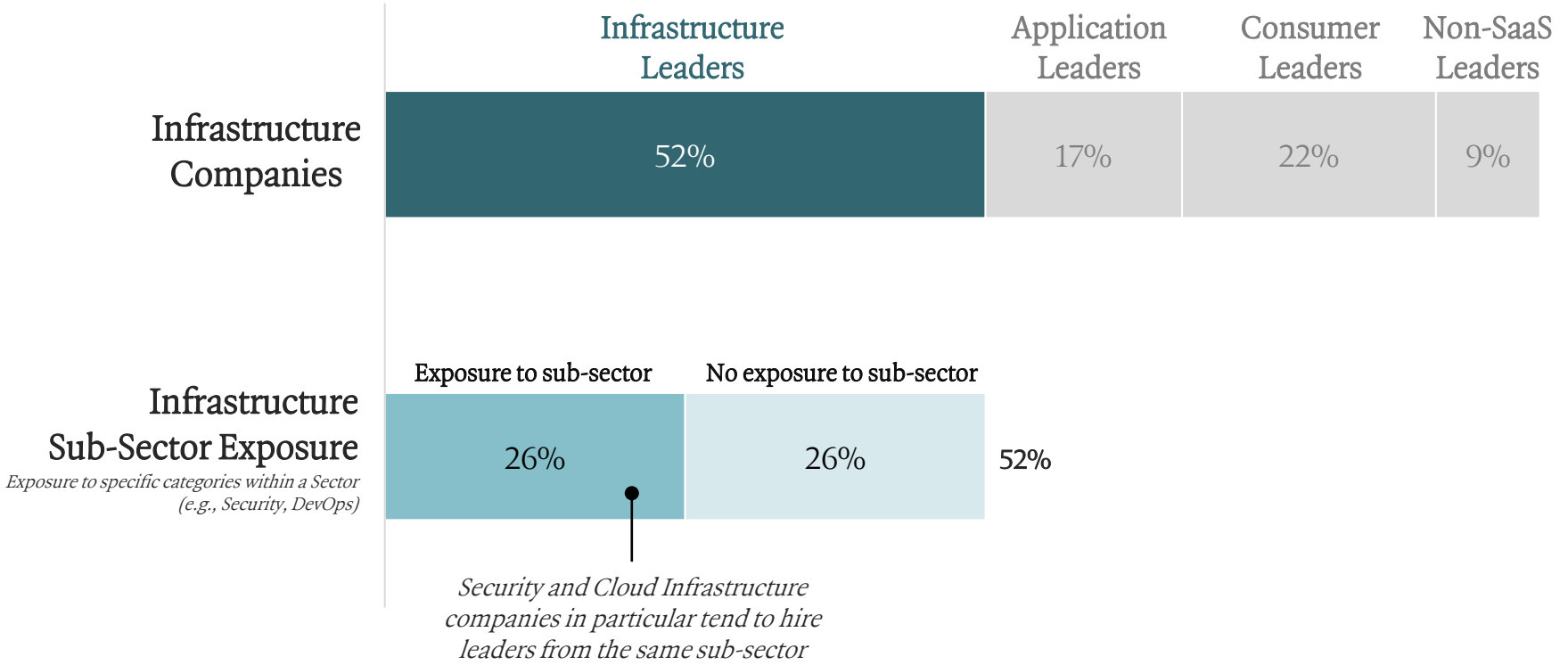
Similarly, Infrastructure companies tend to hire leaders from other infrastructure companies, though this appears to not significantly impact tenure. Half of the leaders with an infrastructure background have experience within the same sub-sector.

Infrastructure Companies: Prior Sub-Sector Exposure



Median Tenure Outcomes (years)

3.0 years | 4.5 years

More than half of the hires without an infrastructure-oriented background had prior Head of Engineering experience, driving up median tenure and further emphasizing the importance of prior leadership experience.

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Hiring For Success

Head of Engineering Operational Traits

Tenure Impact[1]

Less → *More*

Prior Head of Engineering Experience
Prior Head of Engineering experience by company ARR scale

Prior Years of Engineering Experience
Number of years in software engineering roles at any level

Longevity in Prior Company
Number of years at prior company where they assumed the Head of Engineering role, whether promoted or hired directly into the role

Private SaaS Company Experience
Prior experience as junior and/or senior-level engineers in private SaaS companies

Public Technology Company Experience
Prior experience as junior and/or senior-level engineers in public technology companies

Sector and Sub-Sector Affinity
Degree of prior exposure within a sector and sub-sector

Summary

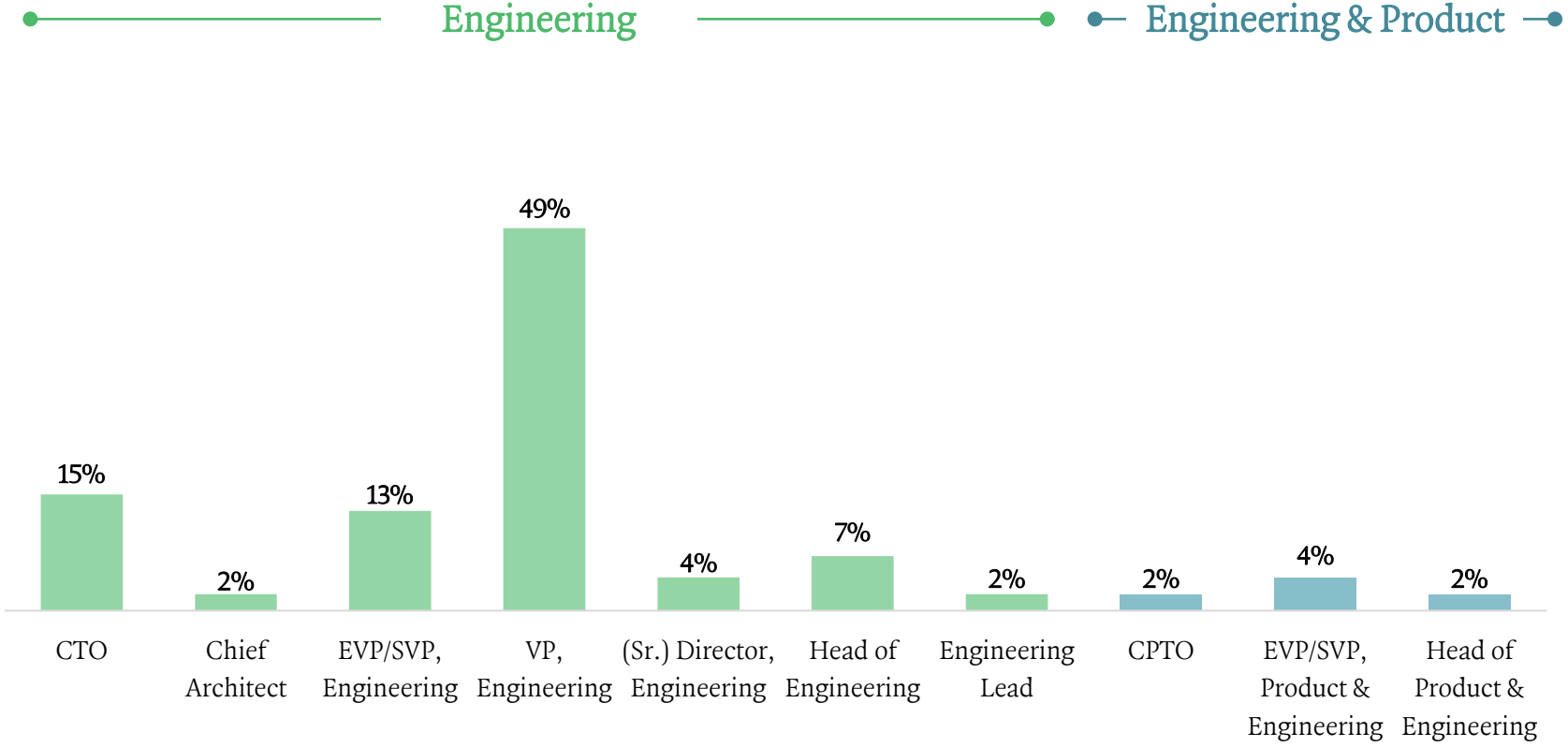
- The data suggests that CEOs **should prioritize leaders with prior Head of Engineering experience at similarly sized companies**, particularly those **who have demonstrated longevity at those companies** as this tends to result in better tenure outcomes.
- **Two sub-profiles emerge** among hires with prior private company Head of Engineering experience: **those who also have public company experience** and those who only **operate in the private SaaS landscape**. Both profiles have tenures of 4.5+ years, making either a viable option for CEOs.
- While companies generally have a preference to hire from their same sector, the data indicates that **CEOs should optimize for overall strong leadership and technical skills over specific sector expertise**.

1) "Tenure Impact" indicates the extent to which a variable influenced an individual's tenure as the Head of Engineering. While efforts have been made to control confounding variables and ensure robustness, unaccounted contextual factors may also affect the impact on tenure.

Companies hiring Heads of Engineering between $0-$50M ARR primarily use the "VP Engineering" title. Although less common, some hires assume a dual title of engineering and product, indicating that they are overseeing both functions.

Titles[1] at <$50M ARR Companies

External hires only



ICONIQ Technical Advisory Board Perspective on the Chief Product & Technology Officer (CPTO) role

The decision to combine the executive roles of engineering and product **depends significantly on the CEO's background**. For a sales-oriented CEO, this approach could be beneficial, as they may focus on the GTM side of the business more so than on R&D.

The **benefits of a CPTO role typically include increased organizational productivity** and the ability to move quickly.

However, this can be a challenging path to take, given leaders with deep knowledge and strong capabilities in both engineering and product are rare and **highly sought after**, and **entrusting one person with both crucial functions in a startup can be risky**.

All in all, **the CPTO role is generally not recommended as a standard blueprint**.

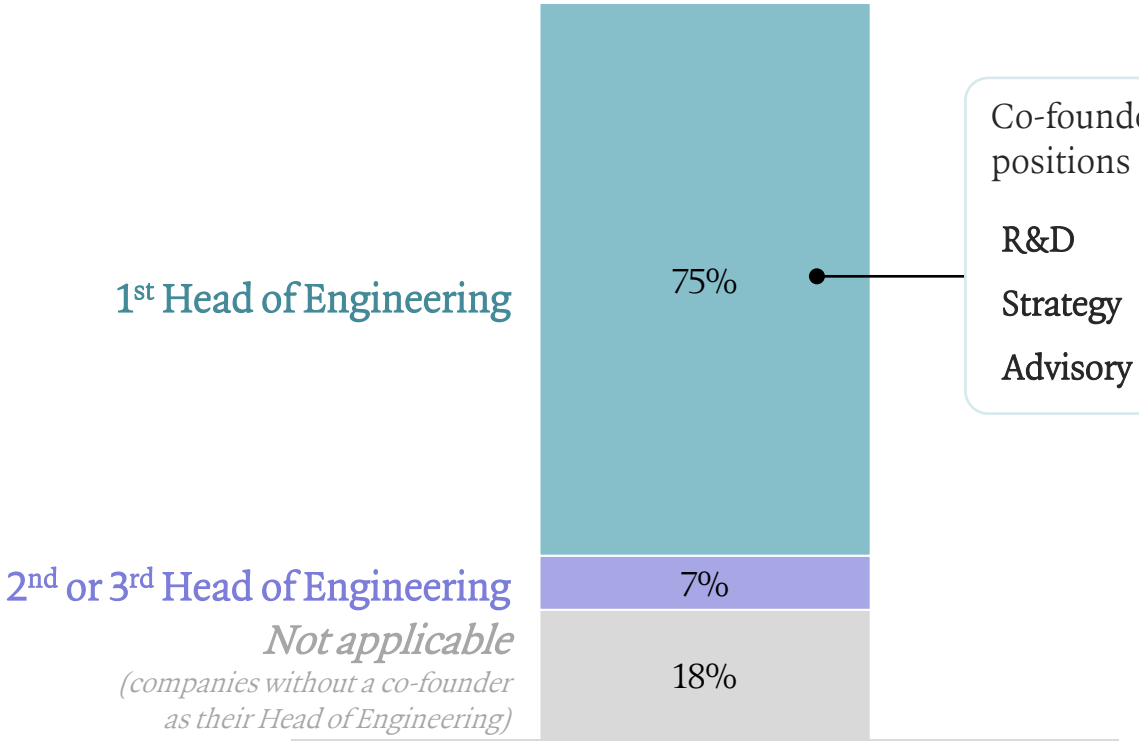
1) Titles reflect the most senior engineering leader managing the day-to-day engineering organization.

Co-founder Heads of Engineering

Co-founder Head of Engineering Overview

While 75% of companies have their co-founder initially leading the engineering organization, co-founder Heads of Engineering who later transition to a new role often move into other R&D leadership roles, strategic positions, or advisory roles.

Sequential Order of Co-founder Heads of Engineering



N-size = 68 companies

Co-founder Heads of Engineering who later transition to new positions often move into the following roles:

R&D	Chief Product Officer, Chief Software Architect
Strategy	Chief Executive Officer, Chief Strategy Officer
Advisory	Board Member, Chairman

Prior Founder Experience by Tenure Outcomes

In this study, most of the co-founders leading engineering at <$50M ARR companies are first-time founders. However, regardless of their prior experience, both first-time and experienced founders typically manage the day-to-day engineering organization for approximately 6 years.

Prior Co-founder Experience by Tenure Outcomes (years)

	≤ 4 years	4 - 6 years	6 - 9 years	9+ years	Median (years)	*N-size*
All <$50M ARR Co-founder Heads of Engineering	29%	26%	18%	27%	6.0	*55*
First-time founders	28%	25%	19%	28%	6.0	*43*
Has prior founder experience[1]	33%	25%	17%	25%	5.5	*12*

Prior founders often only spent 3 to 4 years at their prior startup, suggesting they oversaw relatively small engineering teams.

1) Prior founder experience is sourced from LinkedIn data, which may not fully capture their entrepreneurial background.

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Leadership Analytics

Chief Marketing Officer Study: Part 1 & Part 2	• Quantitative analysis of the most prevalent – and most successful – operational backgrounds and qualifications for Heads of Marketing at private SaaS companies, segmented by Growth Stage	
Chief Revenue Officer Study: Part 1 & Part 2	• Quantitative analysis of the most prevalent – and most successful – operational backgrounds and qualifications for Heads of Sales/CROs at private SaaS companies, segmented by Growth Stage	
Chief Product Officer Study: Part 1 & Part 2	• Quantitative analysis of the most prevalent – and most successful – operational backgrounds and qualifications for Heads of Product at private SaaS companies, segmented by Growth Stage	
Chief Financial Officer Study	• Quantitative analysis of the most prevalent – and most successful – operational backgrounds and qualifications for Heads of Finance at private SaaS companies, segmented by Growth Stage	
*President & Chief Operating Officer Study	• Examination of the advantages and challenges of having a COO and/or President role	
Chief People Officer Study	• Quantitative analysis of the most prevalent – and most successful – operational backgrounds and qualifications for Heads of People at private SaaS companies, segmented by Growth Stage	

Select research shown. We invite you to explore additional resources on our ICONIQ Growth Insights page.
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