



The State of HaaS

Insights on the Trends and Key Metrics
Driving Hardware-as-a-Service

2022
Report by Silicon Valley Bank with
support from Eclipse Ventures



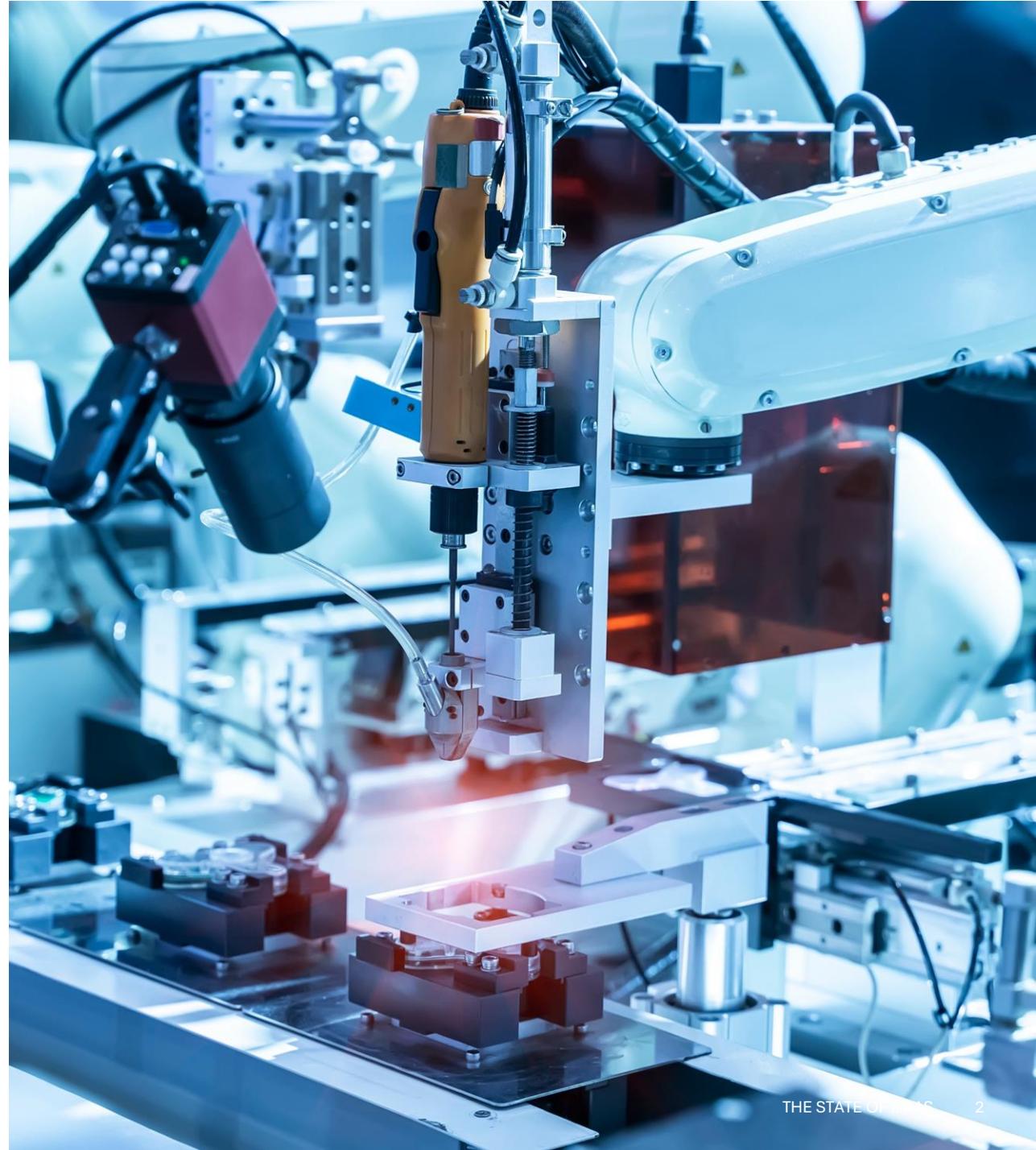
The State of HaaS

4 Macro:
Trends Driving HaaS

7 Rise of HaaS:
A New Model for Hardware Startups

9 Investment:
Deals, Dollars and Valuations

11 Metrics that Matter:
The Key Performance Indicators
for Evaluating HaaS Companies



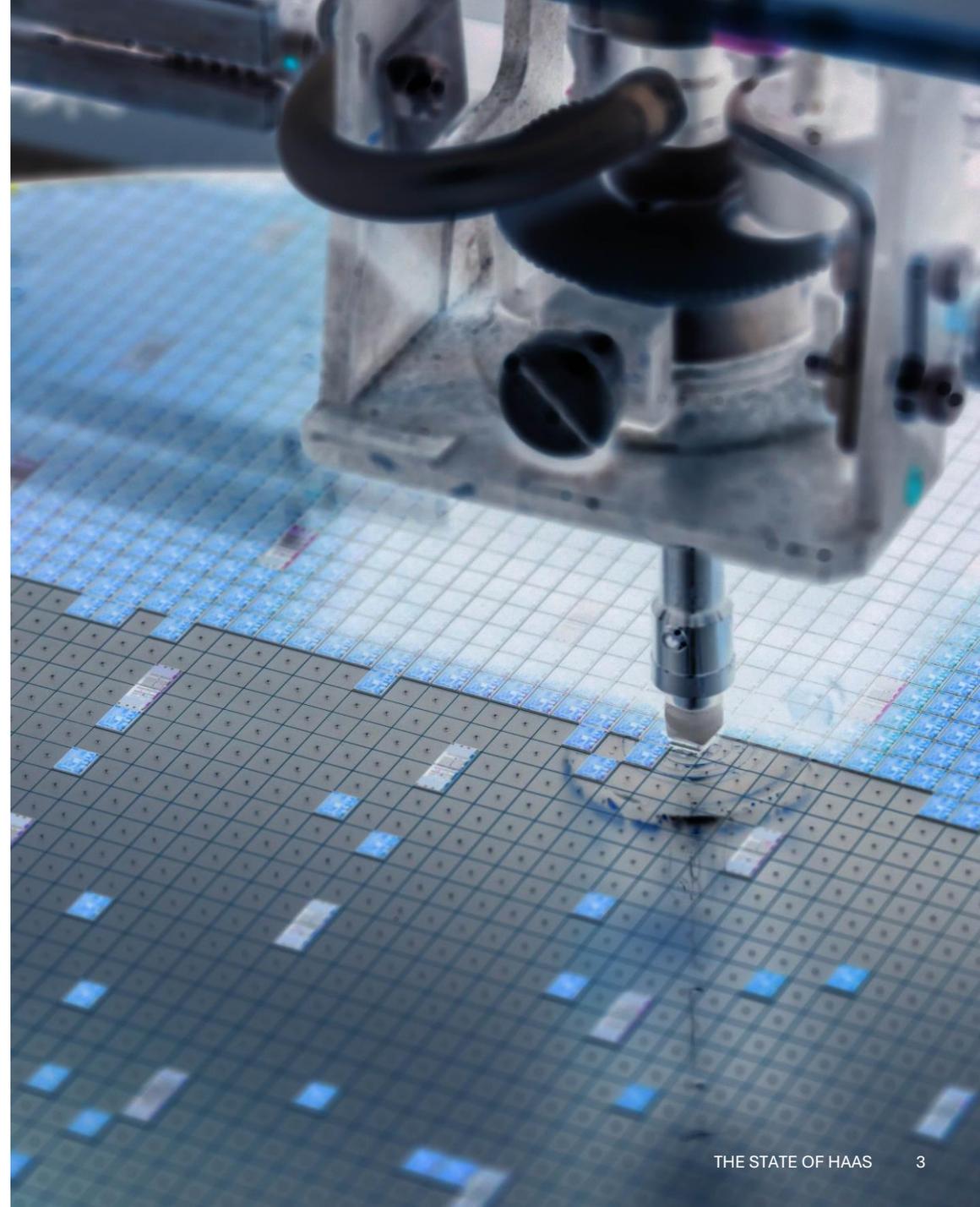
Executive Summary

Hardware companies are evolving their approach. At SVB, we've witnessed the emergence of Hardware-as-a-Service (HaaS), a model that companies use to provide hardware, software, maintenance and other services in one package for a monthly (recurring) fee. We issued our first custom HaaS loan in 2017.

Digital transformation is raising the expectations of what hardware-enabled industries expect from technology. Hardware, like an industrial robot, is now just part of the overall offering, providing a platform for additional services, like real-time monitoring, predictive diagnostics and AI-powered analytics. HaaS companies are rising to meet these challenges with a business model more suited to their customers. Instead of significant upfront capital expenditures, the HaaS model transforms this into a recurring payment more easily accommodated as an operating expense. For the HaaS company, this provides more predictable revenue and more sticky customer relationships.

The recurring revenue model is spreading to every sector of frontier technology, from construction robots mapping out job sites and security bots roaming office buildings to autonomous drones gathering data from the open ocean. HaaS companies are creating additional value by using their physical assets to build large data sets and create additional services. By bringing a greater depth and breadth of insights to their customers, HaaS companies are increasing customer lifetime value, ultimately driving higher profits.

We wanted to better understand how HaaS companies are performing. In the first half of this report we dive into the key trends driving the adoption and financing of the HaaS model. For the second half of this report, we surveyed 400 top clients in our proprietary State of HaaS Survey. We partnered with Eclipse Ventures, a venture firm that partners with exceptional companies that make physical industries more efficient, resilient, and profitable, to determine the key performance metrics for HaaS companies. Since inception in 2015, the Eclipse Team has focused on transforming physical industries. They helped us identify the six metrics that matter (for HaaS companies) and partnered with us to provide the aggregated results from our survey.





Macro:

Trends Driving HaaS



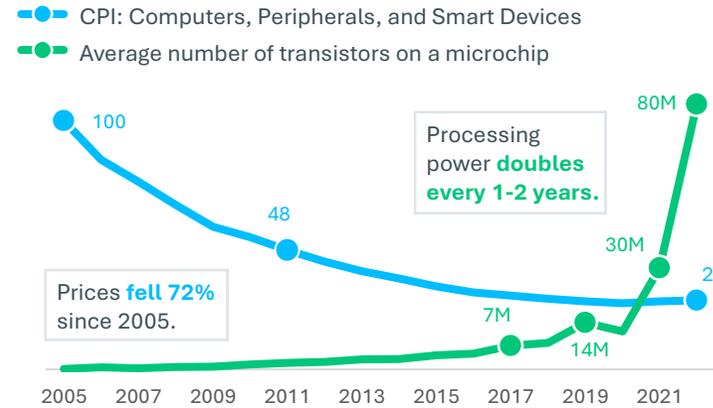
Faster, Smaller, Cheaper Bots

Fifty-three years ago one of the world's first smart devices rocketed into outer space. The Apollo Guidance Computer weighed 70 pounds and cost \$200k.¹ Its 32k bits of RAM got the astronauts to the moon and back, but it wouldn't have been enough memory to store the content from a single page of this report. Computers have evolved. Today the iPhone is one million times more powerful than the Apollo computer and at a tiny fraction of the size and price. Great leaps in processing power and efficiency have made it feasible to fit a computer into nearly everything. It's not just phones that are getting smart. More than 131 million households own a smart speaker, 78 million own a smart security camera, and electronics now comprise 40% of a new vehicle's total cost.

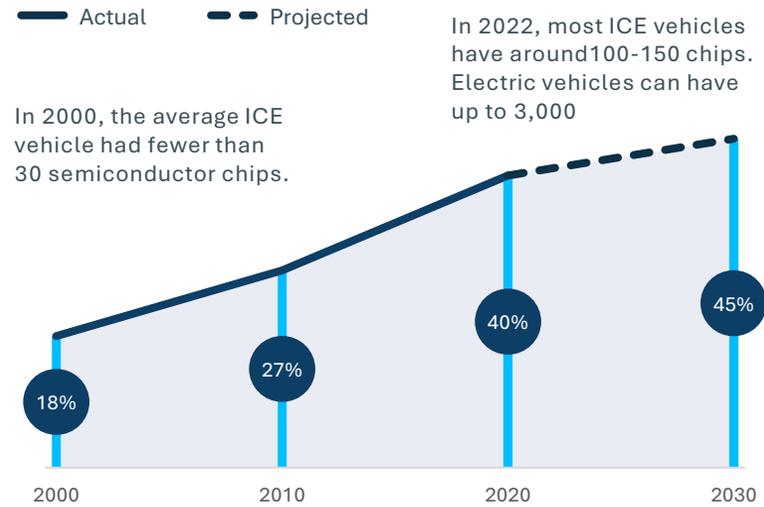
On the factory floor, in warehouses and in fields, robots automate tedious and dangerous work, while sensors gather the data that businesses crave. The barrier for hardware innovation is lower than ever. Parts that were once custom built are now available off the shelf (OTS). The minimum viable computer costs less than \$20. Hobbyists and engineers can grab a Raspberry Pi and equip a circuit board to just about anything.

Spurred on by digital adoption, the pace of innovation in the hardware space has accelerated in recent years. If it has a battery, it probably has a WiFi connection. Yet hardware companies now face new challenges. Computers are becoming a commodity. Input costs are halving every year, forcing companies to differentiate in other ways, such as their business model. Startups are creating robots that are easier to integrate and at the same time finding new revenue streams from the data they mine. Hardware is breaking out from its conventional realm and proliferating across new and exciting applications.

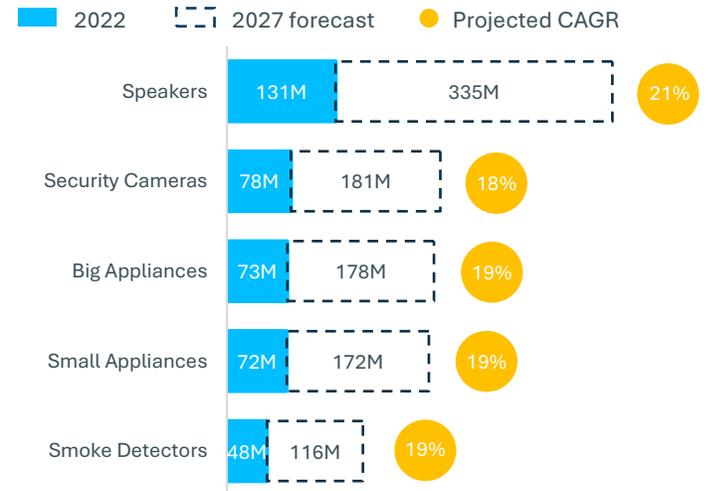
Computer Prices² and Computer Processing Power Over Time



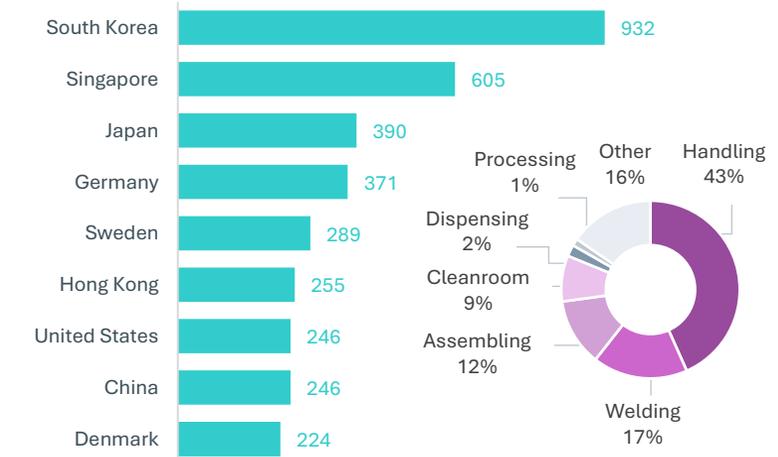
Electronics' Percentage of New Car⁴ Costs



Global Households with Smart Devices³



Robot Density by Country⁵ and Global Robot Installations by Industrial Application⁶



Notes: 1) Equivalent to \$1.6M today. 2) Average CPI per year, indexed to 100 for 2005. 3) Compound Annual Growth Rate (CAGR) reflects projected change from 2022 to 2027. 4) Internal Combustion Engine (ICE) vehicles. The chip count in 2000 is an estimated equivalent of \$150 of chips. 5) Robots per 10,000 workers in 2020, latest available data. 6) Application of new robots Source: Computer-History.com, US Bureau of Labor Statistics, Capital IQ, Statista, Deloitte, Wikipedia Transistor Count, International Federation of Robotics, and SVB analysis.

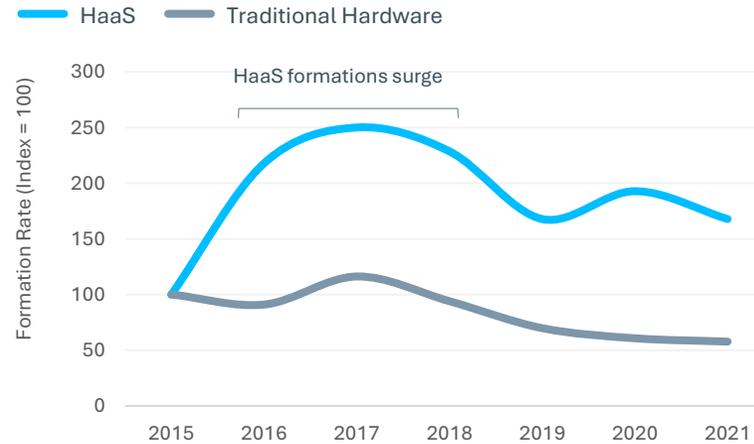
Out with the Old, in with the HaaS

The traditional “transactional” sales model for hardware companies is fading, with a new “recurring” model — Hardware-as-a-Service (HaaS) — taking over. The HaaS sales model is sweeping across all hardware industries, from home gym equipment to factory robots. It allows companies to have a more predictable revenue stream and build deeper relationships that go beyond the initial sale to include services such as automation, monitoring and analytics. The payoff for vendors is a higher lifetime value per customer, provided by incremental revenue from these value-added services and greater stickiness of the relationship.

We identified and analyzed a cohort of nearly 600 frontier tech companies with subscription- and usage-based sales models. Compared to traditional hardware companies, which rely on one-time sales, the formation rates of HaaS companies rocketed from 2015, increasing 150% by 2017, and maintained a higher rate of formations than traditional (and SaaS) companies. HaaS companies were highly concentrated in both California and Massachusetts (thanks in large part to MIT), two hotbeds for robotics and transportation tech.

Increasingly, HaaS companies are repositioning to solve data problems. The focus on analytics and monitoring solutions, instead of the enabling hardware, is pushing engineers to create machines more oriented to that purpose. OTS parts and interchangeable components are lowering the barrier of entry to build robots. Entrepreneurs who might have shied away from building hardware a decade ago are now diving in, as evidenced by a surge in venture capital (VC) deals since 2018. They can take confidence from the interest investors are showing in the HaaS model, with deal sizes trending higher in comparison to both traditional hardware and SaaS deals.

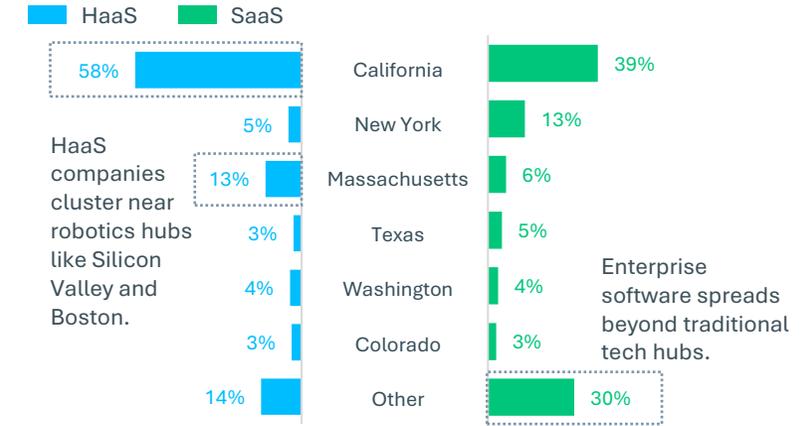
Rate of US Company Formation by Sales Model¹



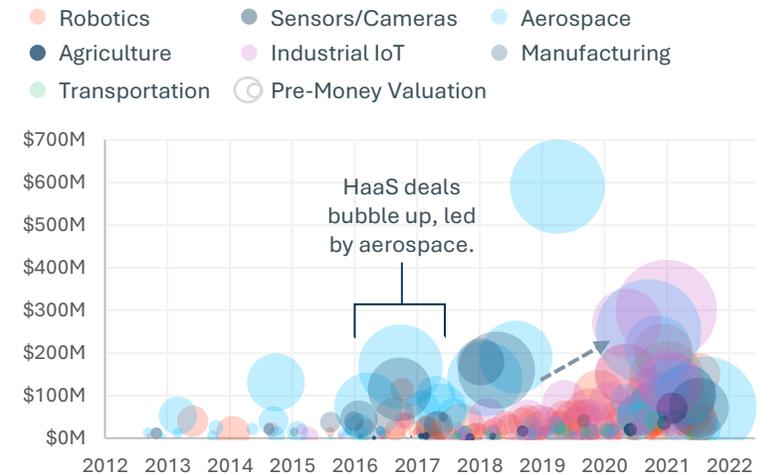
First VC Round Deal Size³ by Sales Model



Geographic Distribution of US VC Deals² by Sales Model



VC Deal Sizes for US HaaS Companies by Sector



Notes: 1) Total companies closing a first VC round. Indexed to 2015. HaaS companies are hardware companies with a recurring sales model. Traditional hardware companies have a one-time sales model. SaaS are enterprise software companies. 2) VC deals since 2015. 3) US-based companies. Source: PitchBook and SVB analysis.



Rise of HaaS:

A New Model Emerges
for Hardware Startups



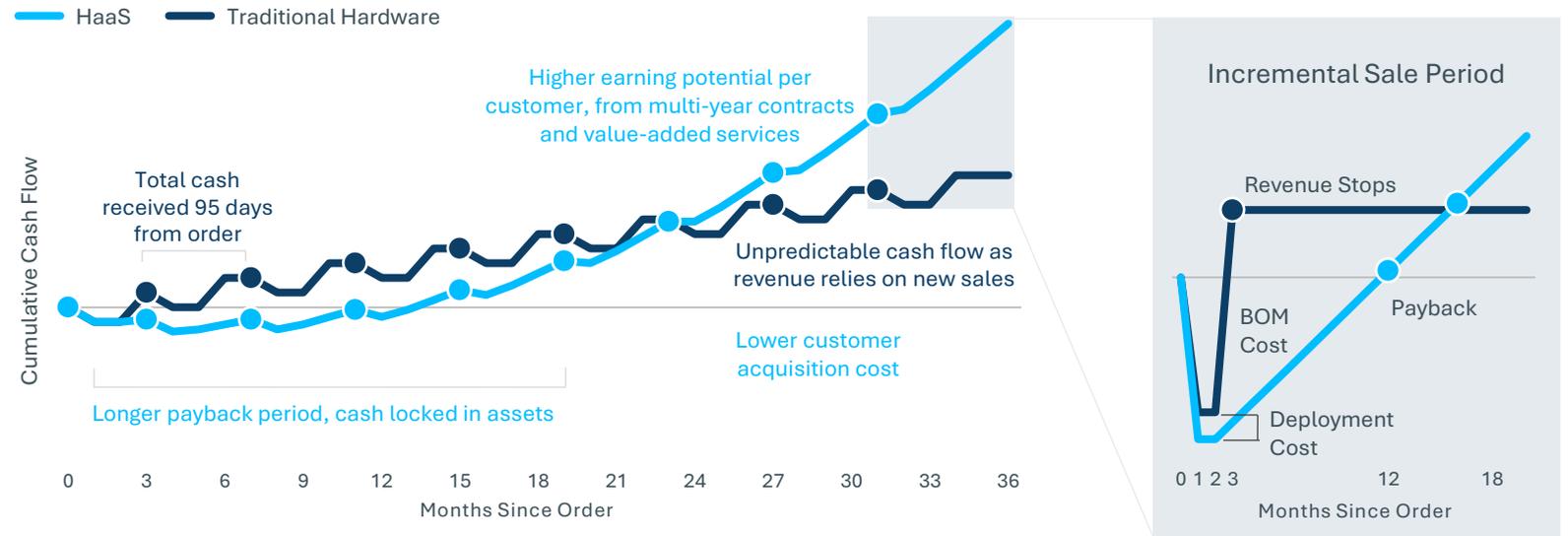
A Better Model for Hardware

For the traditional hardware sales model, revenue is recognized only once – at the time of purchase. A new order comes in, inventory is checked, the product is shipped, and within 95 days payment is received. That's fine initially to gain market traction, but companies pay for it in the long run with high customer acquisition costs and unpredictable revenue swings. Conversely, a subscription sales model is more scalable, predictable and profitable. Software companies figured this out in the early 2000s, starting with Salesforce in 1999 launching their CRM product as a Software-as-a-Service (SaaS) solution. The result: higher profitability and stickier customer relationships.

It was Amazon that first applied the as-a-service (aaS) model to hardware. When Amazon Web Services (AWS) launched in 2006, the only way for companies to operate their data network infrastructure was to buy the equipment (servers), lease a place to put it and hire people to run it. Cloud computing — the original HaaS model use case — was a win-win for customers and providers alike. Clients avoided the expense of setting up costly infrastructure and valued the flexibility of usage-based rates. Amazon proved that after an initial payback period HaaS can be a highly scalable way to grow revenue. The growth trajectory for AWS's operating income (similar to other SaaS models) starts low and builds as customer contracts start to layer and reach profitability. Compared to Amazon's razor thin e-commerce margins (1.6% in 2021), AWS is highly profitable (29.8% in 2021).

To measure success, HaaS companies are embracing a new set of key metrics that combine elements from both SaaS and traditional hardware approaches. Among these metrics, payback period and customer lifetime value are key. Later in this report we'll identify the six key benchmarks every HaaS company should know.

Cash Flow by Business Model: HaaS vs. Traditional Hardware¹

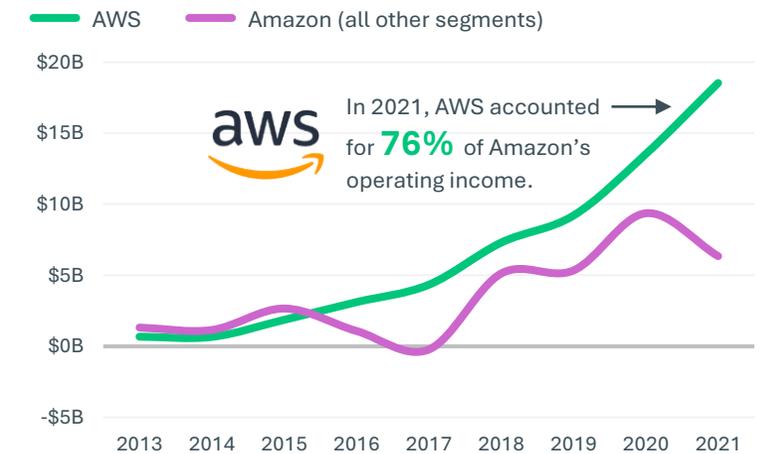


Key Metrics by Business Model

Hardware + **SaaS** = **HaaS**

Hardware	SaaS	HaaS
One-time Sales	New Contracts	New Contracts
Bill of Materials (BOM) Cost	Payback Period	Payback Period
Deployment Cost	Customer Acquisition Cost (CAC)	CAC
Inventory	Churn	CLV
Lead Times	Customer Lifetime Value (CLV)	BOM Cost
	Committed Monthly Recurring Revenue	Deployment Cost
		Inventory
		Lead Times

Case Study: Amazon's Operating Income²



Notes: 1) HaaS includes hardware companies with an aaS business model. Traditional hardware companies do one-time sales only. 2) Operating income is annual sales minus annual expenses. Source: Amazon Annual Reports and SVB analysis.



Investment:

Deals, Dollars and Valuations

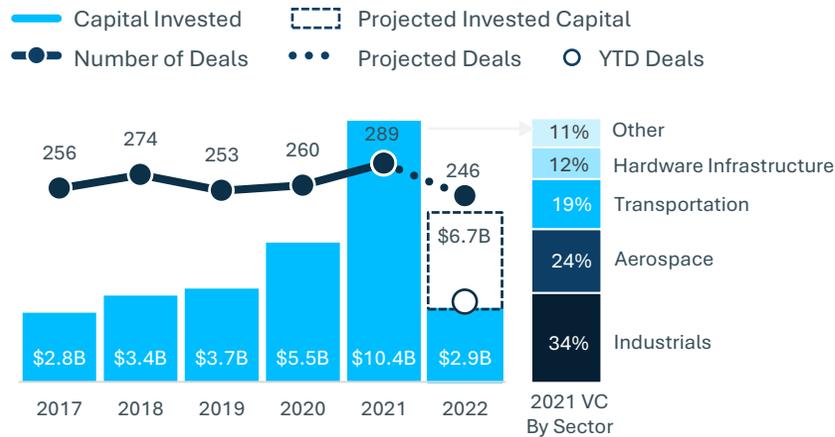


Investors Buy into the Concept

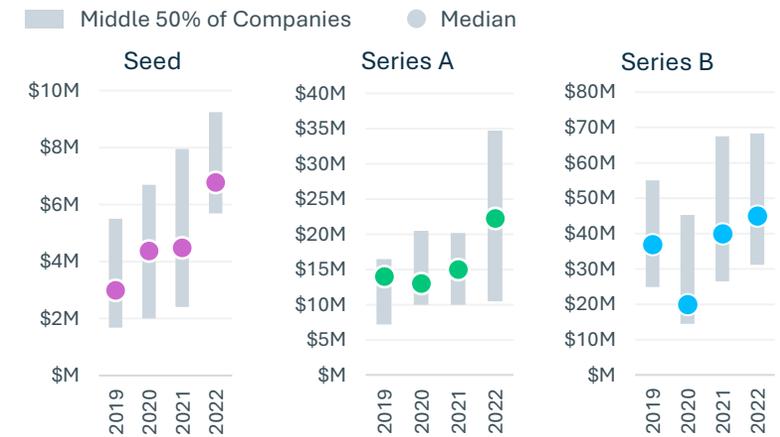
Hardware investors favor a recurring revenue sales model. In 2021, total US VC investment in HaaS companies reached \$10.4B, an 89% year-over-year (YoY) increase. Of this, \$2.2B of investment went to early-stage HaaS companies. The median deal size for a HaaS seed round was \$6.8M in 2022, a jump of 51% from 2021, and more than double the \$3.0M raised by traditional hardware companies. For reference, the median seed deal for SaaS companies in 2021 was \$2.6M. However, recent macroeconomic headwinds are hampering activity, with the total number of HaaS deals in 2022 down 18% over the same period last year. As the market enters into what could be a sustained downturn, HaaS companies may turn to alternative financing types, such as debt, to extend their runways instead of raising equity on unfavorable terms.

For growth companies, metrics don't completely justify the market opportunity, which in many cases is being established by said companies. For example, there is no current market for flying taxis, but in theory the technology could disrupt many traditional industries. This dynamic poses a challenge for investors, especially those without serious industry expertise, and often results in a financing chasm – between the MVP and commercialization – for hardware founders to cross. Our analysis found that it takes at least \$4 of capital to generate \$1 of revenue for HaaS companies that have reached the \$10M revenue threshold. The capital-intensive nature of most hardware solutions combined with the difficulty raising growth financing has led hardware founders to consider unconventional strategies. For example, of the seven HaaS companies that have gone public since January 2021, all but one chose to exit via a special purpose acquisition company (SPAC). Even the one IPO, Knightscope, had been one of the first to try equity crowdfunding.

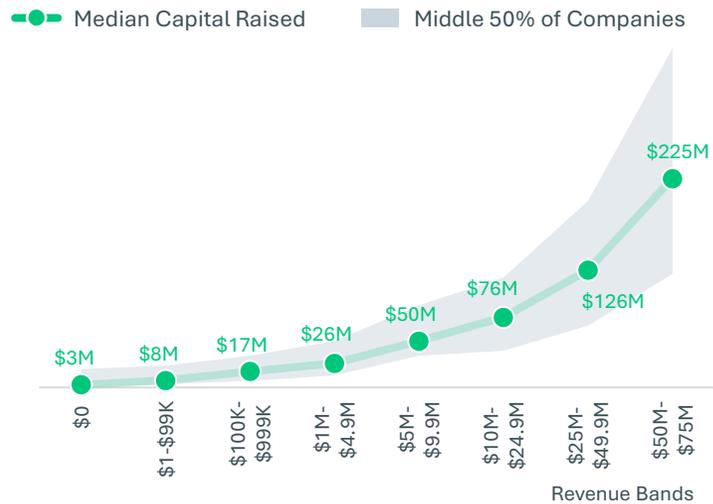
US VC Investment in HaaS Companies¹



HaaS Deal Size² by Series



Equity Capital Raised by Revenue Band for US HaaS Companies³



Notable HaaS Exits Since January 2021

Company	Exit Date	Revenue Multiple at Exit	Years from Round 1 to Exit
ChargePoint	Feb-21	16x	12.1
TuSimple Holdings	Apr-21	NMF	5.6
Evolv Technology	Jul-21	142x	7.9
Spire Global	Aug-21	37x	9.1
Joby Aviation	Aug-21	Pre-Revenue	7.7
Planet Labs	Dec-21	21x	8.5
Knightscope	Jan-22	53x	8.8

HaaS Exits - Value at Exit





Metrics that Matter:

The Key Performance Metrics for Evaluating HaaS Companies



How to Evaluate HaaS Performance

Relevant, informative, actionable metrics are critical for companies to benchmark their performance and for investors to appropriately evaluate them. That's especially true at the growth stage, where startups must meet major milestones, typically tied to a combination of metrics. To better understand what differentiates success, we asked our partners at Eclipse Ventures to help identify the metrics that should matter most to a HaaS company. A cohort of HaaS companies spanning all life stages and sectors were then surveyed. The results — presented on the following pages — offer a guide.

Here's a breakdown of the metrics that matter and our takeaway for each:

1. Machine Lifetime Value (MLV) to BOM Ratio: Aim for a 7x return on your machine's lifetime value to BOM.
2. Customer Contract to BOM Ratio: Structure contracts to reach the payback BOM cost.
3. Operating Profit Margin: Machine operating costs need to be manageable. Companies should strive for around 15% of revenue. If you're not there now, improve this number over time.
4. Lead Time Efficiency Ratio: Circumvent supply chain disruption by maintaining up-to-date lead times and sufficient inventory on hand for critical parts.
5. Machine Acquisition Cost (MAC) Multiple: Avoid bloat by making sure your MAC multiple stays low as you grow your business.
6. Machine Churn: Keep machine churn low to maintain high CLV and confidence.

The Six Metrics that Matter for HaaS Companies¹

 <p>Machine Lifetime Value (MLV) to BOM Ratio²</p>	<p>Are you getting enough ROI per unit? The median lifetime value of the HaaS survey cohort was 7x BOM costs.</p>	$\frac{(\text{Annual Revenue} - \text{Annual OPEX}) * \text{Expected Service Life}}{\text{BOM Costs}}$
 <p>Customer Contract to BOM Cost</p>	<p>Is the contract long enough? At a minimum, contracts should exceed their payback period.</p>	$\frac{(\text{Annual Revenue} - \text{Annual OPEX}) * \text{Years in Contract}}{\text{BOM Costs}}$
 <p>Operating Margin Growth Rate</p>	<p>How efficient is your system? Higher efficiency generally leads to higher profits. The target operating profit margin is 85%.³</p>	$\frac{\left(\frac{\text{Monthly OPEX Start Period}}{\text{Monthly Rev Start Period}}\right) - \left(\frac{\text{Monthly OPEX End Period}}{\text{Monthly Rev End Period}}\right)}{\left(\frac{\text{Monthly OPEX Start Period}}{\text{Monthly Rev Start Period}}\right)}$
 <p>Lead Time Efficiency Ratio</p>	<p>Will you stay supplied? Longer lead times require more inventory to be held. Balance the cost of holding inventory vs. lost revenue opportunities.</p>	$\frac{365}{(\text{Avg. Lead Time} + (\text{Longest Lead Time} * \% \text{ of BOM for Longest Lead Time}))}$
 <p>Machine Acquisition Cost (MAC) Multiple</p>	<p>Are you selling efficiently? A higher MAC multiple could mean inefficient sales and/or implementation efforts. This metric should trend down over time.</p>	$\frac{(\text{Cost of Sales} + \text{Cost of Implementation})}{\text{New Machines Deployed}}$ <p>LTV</p>
 <p>Machine Churn</p>	<p>Is your system reliable and valued? Lower machine churn results in a higher customer lifetime value.</p>	$\frac{\# \text{ Machines Extracted from Deployment in Period}}{\# \text{ New Machines Deployed in Period}}$

Notes: 1) We identified these key metrics based on our proprietary survey of HaaS companies. When the results indicated a clear benchmark, we provided it. 2) OPEX is the cost to operate a HaaS system per year. 3) Operating profit margin is a static machine's annual revenue minus its operating expenses. Source: SVB State of HaaS Survey results and SVB analysis.

Customer Contracts Breakdown

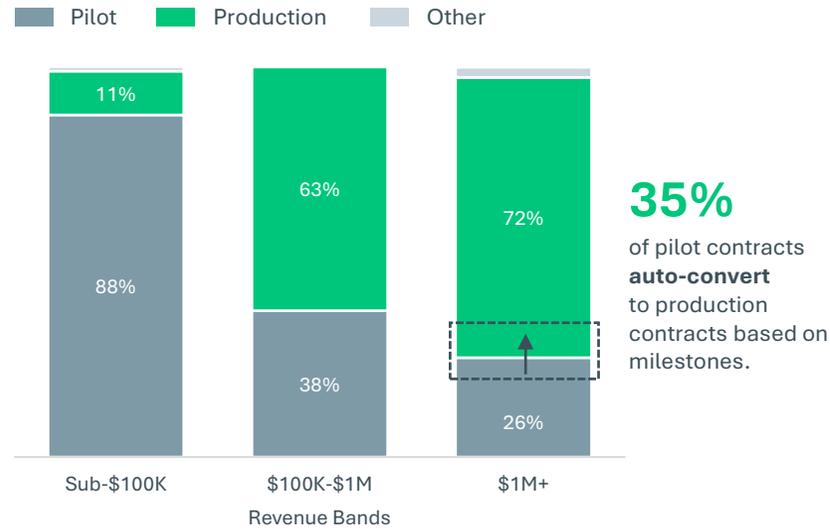
Typically, most HaaS startup customers start out under a pilot contract. These pilots are a valuable way for startups and customers to prove out the technology and test drive the solution at a scale and cost that isn't excessive to either party. Our survey found that the median pilot contract lasts three months, and 72% ultimately convert to a production contract.

HaaS investors prefer pilot contracts to have an auto-conversion clause. The clause provides a higher probability of attaining a longer-term, larger (production) contract without the need for excessive negotiations or down time (providing the system meets the milestones for auto-conversion). We found 35% of HaaS companies use contracts with an auto-conversion clause.

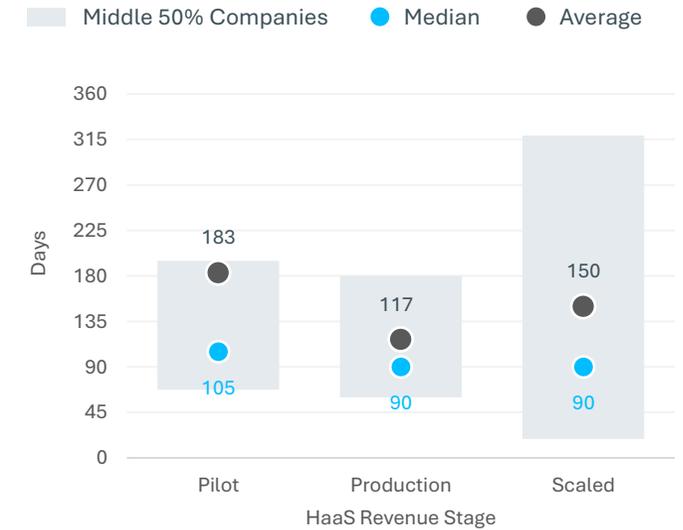
Typically, HaaS companies create additional value from the data they are collecting. Among respondents, 41% said they own the data generated by their hardware. Another 16% indicated that they either have a data-sharing agreement or some other kind of understanding with their clients.

One benefit to the HaaS model is converting large capital expenditures, which typically require financial planning and senior management sign-off, to periodic "operating" expenses. This generally means a shorter sales period, lower selling expense and simpler account management.

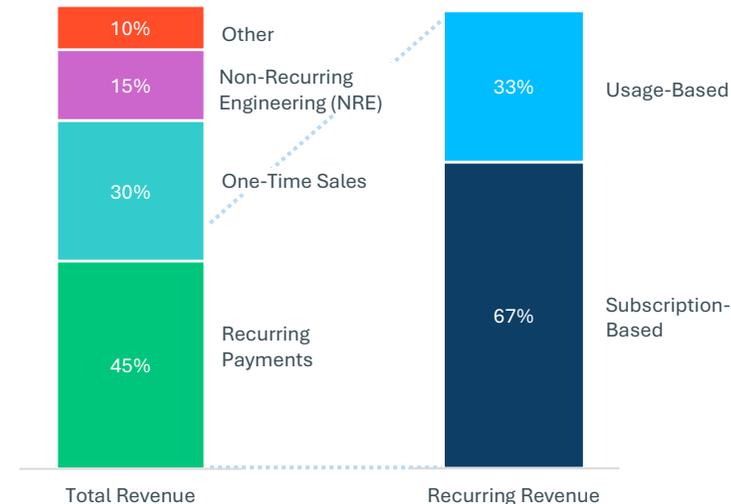
HaaS Contract Types by Revenue¹



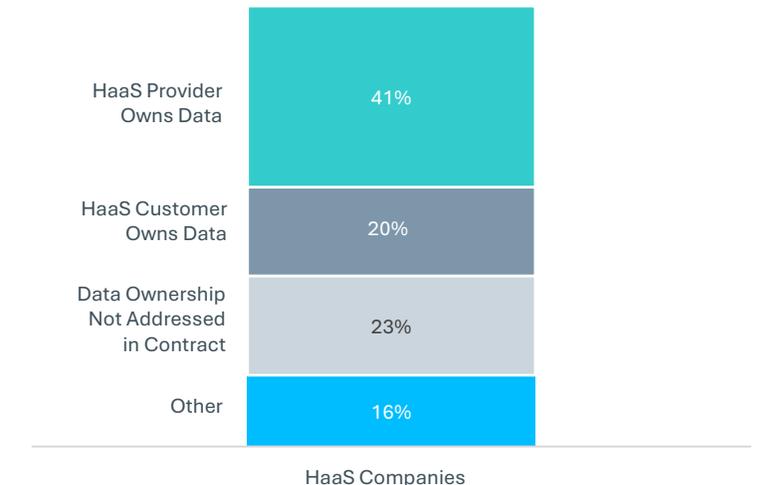
Length of Pilot Contracts by Revenue²



HaaS Company Cohort Revenue Breakdown



HaaS Company Cohort Data Agreement Breakdown



Notes: 1) Results come from a survey of US HaaS companies identified by SVB. HaaS includes hardware companies with a recurring revenue business model. 2) Stages based on HaaS revenue: pilot companies have less than \$100K, production companies have \$100K-\$1M, scaled companies have over \$1M. Average HaaS revenue for scaled companies is \$41M. Source: SVB State of HaaS Survey results and SVB analysis.

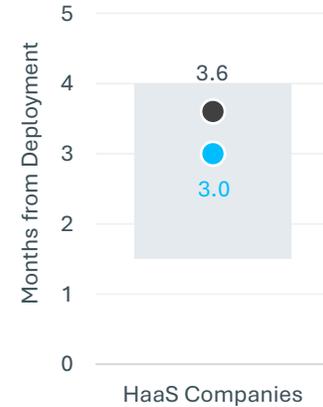
Machine Value Analysis

There are two common problems that stifle promising HaaS companies: machine performance and customer expectations. The pilot stage of a contract gives companies the opportunity to refine their offerings to better meet customer needs on a manageable scale without major cost outlays. Managing cash (flows) is probably the main drawback of the HaaS model, as vendors have to outlay the full cost of a system but not recoup those costs for months or even years. Unlike traditional hardware sales, in which customers pay back the cost of the hardware plus profit within 95 days, HaaS customers spread that payment over the life of a subscription term. We found the median payback period was around 16 months across all HaaS life stages and sectors. The top quartile of systems recouped costs in 10 months, while the bottom quartile took 32 months to break even. However, it is reasonable for the payback period to vary based on the scale and service life of the system. For example, a satellite might cost \$1M to build and take three years to payback, but if its service life is 15 years, it's well worth the wait.

On the conversion side, HaaS companies should monitor the percent of machines being returned from deployment in a given period. Reliability is key. Customer churn rates for HaaS companies should be better than the rates for their enterprise software peers, as hardware integrations inherently have higher switching costs. According to Bessemer Venture Partners, the annual customer churn rate for top enterprise software companies is between 5%-7% a year. HaaS systems tend to replace or supplement human labor costs, and their lack of downtime is a major benefit for customers. Keeping machines operating is more important for the HaaS model than it is for the traditional hardware model, especially if the contract is usage-based. Profitability depends on maximizing service life.

Time (in Months) to Generate First Revenue

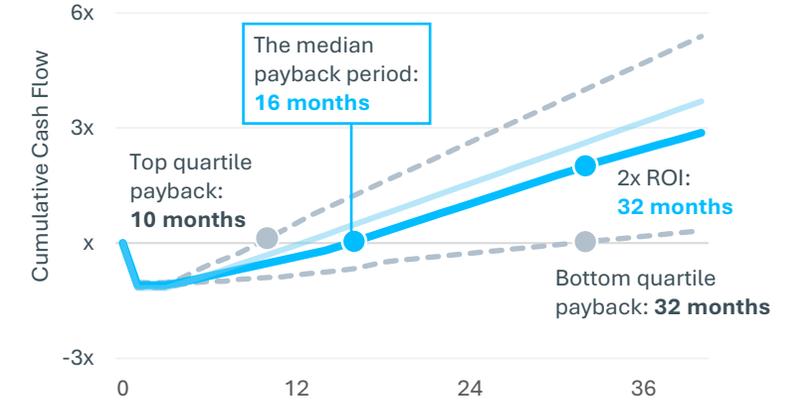
■ Middle 50% Companies ● Median ● Average



The median period from executed contract to first revenue is **3 months.**

Payback Period per HaaS System¹

--- Middle 50% Companies — Median — Average



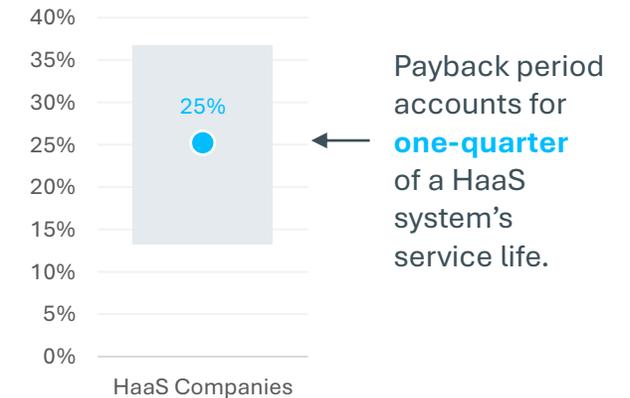
Expected Machine Service Life²

■ Middle 50% Companies ● Median ● Average



Payback Period as a Percent of Expected Machine Service Life

■ Middle 50% Companies ● Median



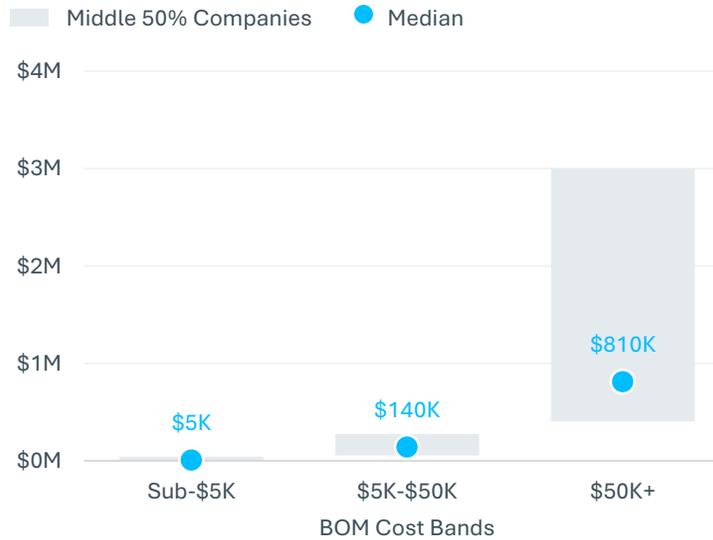
Notes: 1) The payback period is the time it takes monthly revenue minus expenses to equal BOM costs. 2) Stages based on HaaS revenue: pilot companies have less than \$100K, production companies have \$100K-\$1M, scaled companies have over \$1M. Average HaaS revenue for scaled companies is \$41M. Source: SVB State of HaaS Survey results and SVB analysis.

Bill of Materials Evaluation

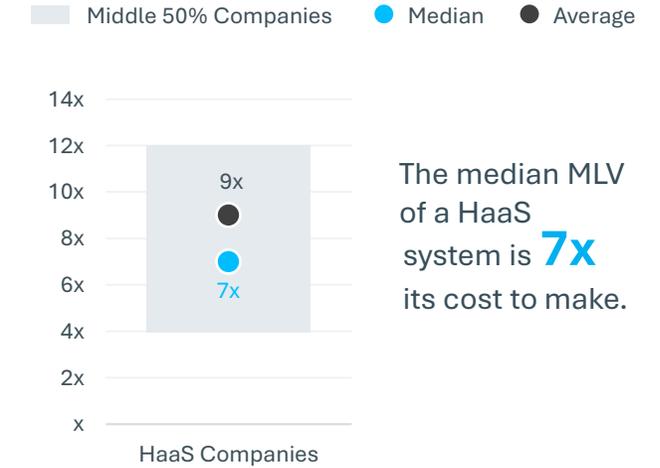
The length of the customer contract should be determined by the length of the payback period. A single customer contract should be balanced to return the upfront costs of building the machine while keeping the subscription cost manageable. To account for these factors in cost, time and scale, an important metric is MLV to BOM costs. The median MLV for all HaaS companies was 7x BOM costs. The top quartile reached 12x BOM. Things to consider when evaluating this metric are the value of the data (and accompanying solutions) and how this value changes over time. Using another satellite example, as a constellation is built (many satellites working together), the breadth, recency and accuracy of the data improves significantly, and consequently the number of use cases where it is valuable increases.

Costs beyond the BOM should be factored into the pricing of the contract, including the cost to sell, deploy, maintain and recover hardware. The main risk is that a customer will cancel their service before these costs are recouped. The best way to mitigate this risk is to ensure that the market is willing to pay for a machine for the full payback period. One thing to consider here is the cost of the labor or the equipment that a HaaS system is offsetting. Take a security robot for an office building. It must cost less per month than the guard(s) it would replace. The technology must also be upgradable. As new use cases emerge, can the robot add facial recognition and environmental monitoring or adapt to different terrains? The ease and ability to add new features is important for maintaining (or extending) service life. Contract pricing is a critical element, but so is cost management. The ability to lower costs is generally key to adoption and ultimately profitability. As the number of units scale, the cost of production should fall. Similarly, as installation processes are refined, costs should consolidate.

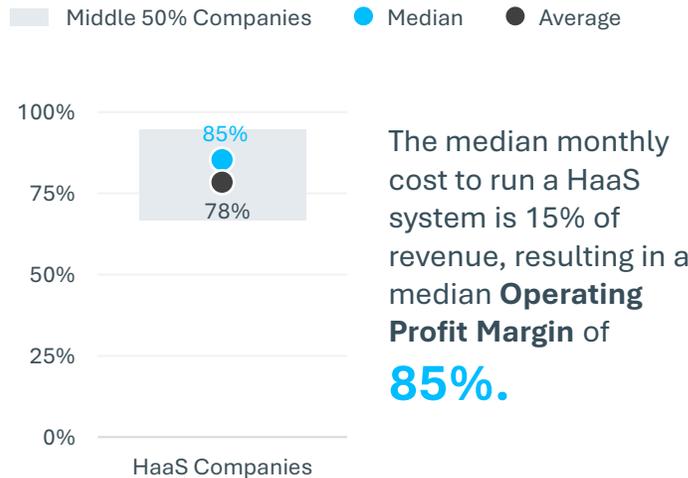
Expected Machine Lifetime Value by BOM Cost¹



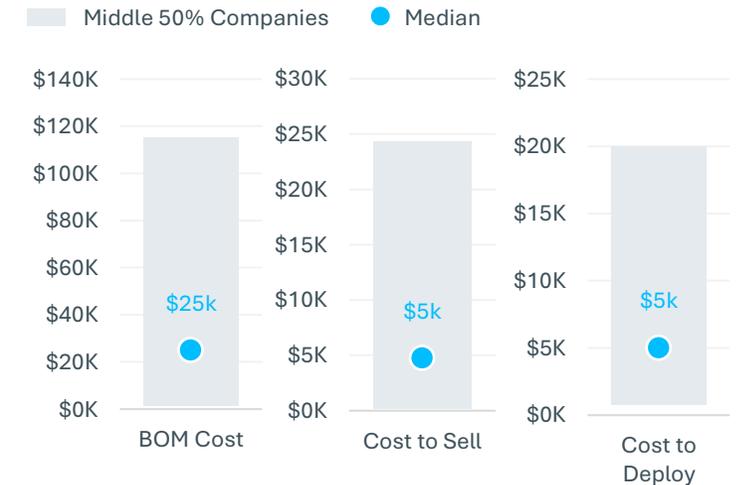
Expected Machine Lifetime Value to BOM Ratio²



Operating Profit Margin per HaaS System³



Cost Breakdown per Unit⁴



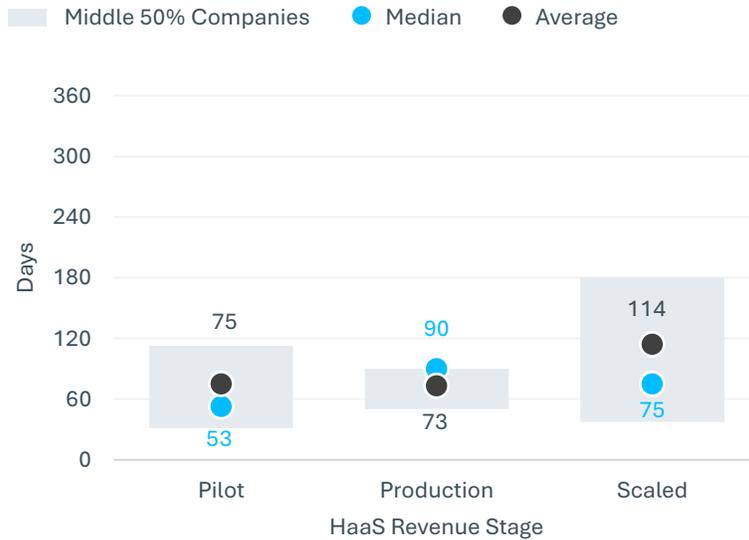
Notes: 1) BOM Cost Per Unit. 2) BOM is the cost to build one HaaS system. 3) Per unit: revenue minus operating expenses divided by revenue. 4) Units are deployable HaaS systems. Source: SVB State of HaaS Survey results and SVB analysis.

Assessing Supply Chain Efficiency

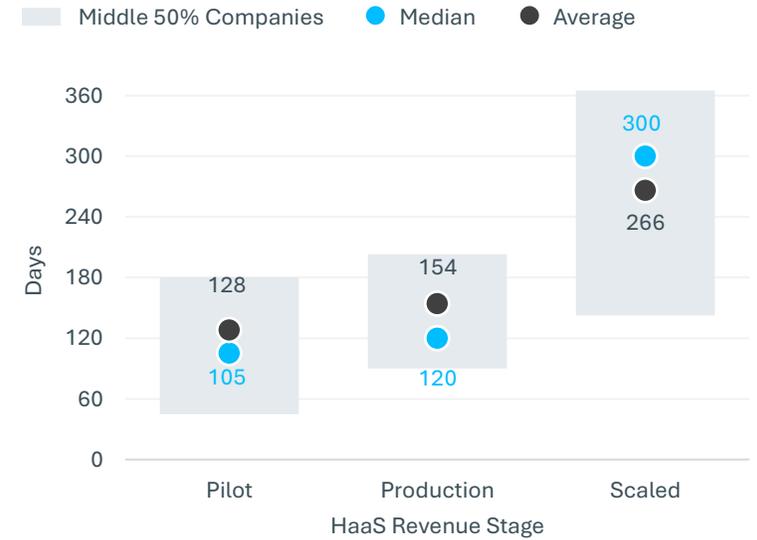
The Russia-Ukraine conflict, COVID-19-induced factory shutdowns in China and continued global logistics gridlock have caused supply chains to become stretched. Navigating these constraints can be a matter of survival for hardware companies. At the earliest stage, HaaS companies looking to build a minimum viable product have more flexibility in sourcing materials. The widespread availability of OTS parts has made it easier for HaaS startups to develop prototypes and launch pilots without developing components in-house. The goal in the early days is to develop a working product, so startups running pilots are less focused on BOM costs and more on meeting pilot milestones. That changes as companies mature. While early-stage companies can often avoid logistical bottlenecks because their scale is smaller, larger companies are tied to their supply chains. A company building a few dozen machines has more options in acquiring parts than a company shipping 10,000 units. For this reason, maturing HaaS companies tend to rigorously engineer their longest lead-time components to either reduce the lead time or replace them with a shorter lead-time component.

This trend shows up in the survey data. The average lead time for a component part is 89 days across all HaaS companies. However, the longest lead time varies greatly depending on scale. For HaaS companies with under \$100K in revenue, the average company has to wait four months for their longest lead-time part. For companies in this revenue band, this component represented on average 20% of total BOM cost. Companies with at least \$1M in revenue wait an average of nine months for their longest lead-time part, which costs just 10% of BOM. The difficulty acquiring these basic parts is causing an issue for US HaaS companies to solve. One solution is moving manufacturing closer to the US by either re- or near-shoring.

Lead Time for All Component Parts¹



Longest Lead Time for a Component Part

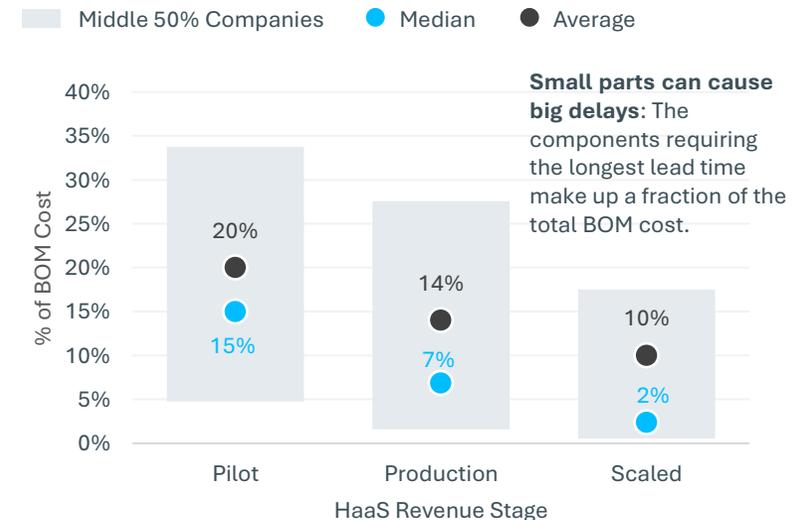


Longest Lead-Time Component Cost



Across all HaaS companies, the median price of the longest lead-time component is **\$1,500.**

Longest Lead-Time Component Cost as a Percent of BOM Cost²



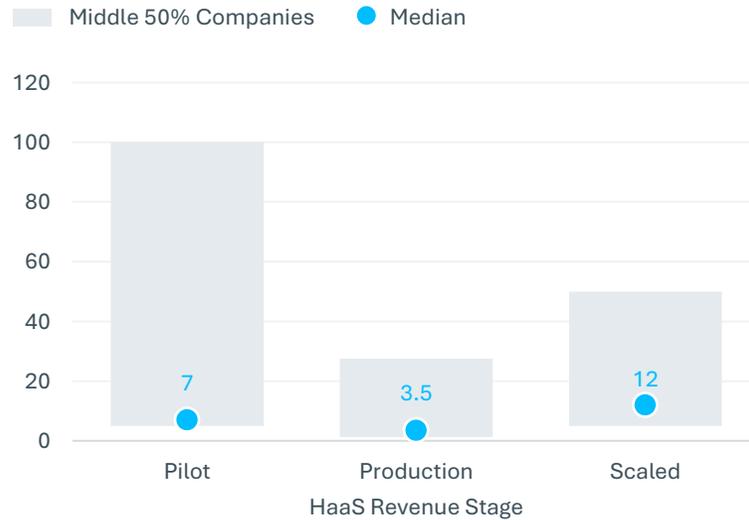
Small parts can cause big delays: The components requiring the longest lead time make up a fraction of the total BOM cost.

Validating the Machine's Market

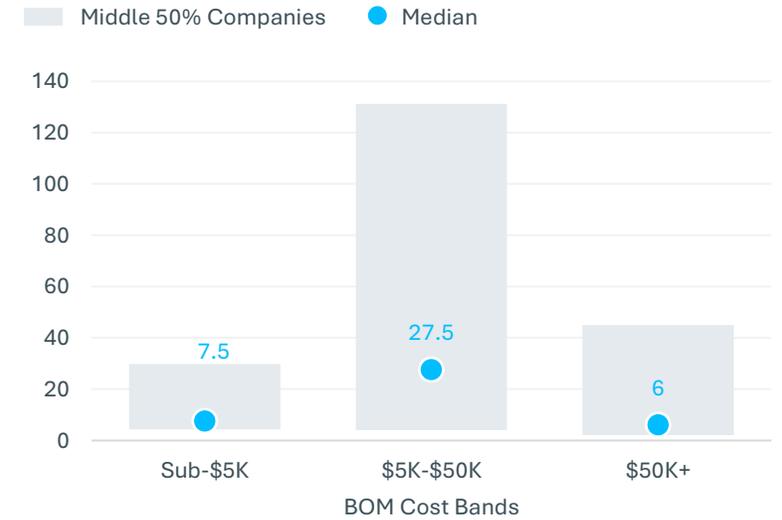
The market opportunity for HaaS companies is effectively limitless. Entire industries are up for disruption as companies create machines to substitute work that is either monotonous or too dangerous for human workers. Industries such as manufacturing, transportation, warehousing and distribution, food and consumer goods are all prime for hardware automation. Industrial robots are performing tasks such as package handling, welding, and assembly. Increasingly, automated devices are moving out of the factories and into more public-facing roles in grocery delivery and healthcare. Peloton effectively leveraged the HaaS model for consumers with their subscription model for exercise hardware and content. Now Apple is considering such a move for the iPhone.

HaaS companies recognize the sizeable (and expanding) addressable market for their solutions. Among survey respondents, the median HaaS company estimated their total addressable target market at 10K customers, with the top quartile stretching to 60K customers. While the benefits of the HaaS model are clear – reduced capital expenditure, all-in-one service, scalability, etc., it still might be a tough sell to companies in industries such as construction and agriculture, which have historically been late movers on the technology-adoption curve. That means HaaS companies must focus on existing sales opportunities, not aspirational ones. Maximizing sales per customer is an important growth strategy for companies looking to meet key milestones and unlock the market's potential.

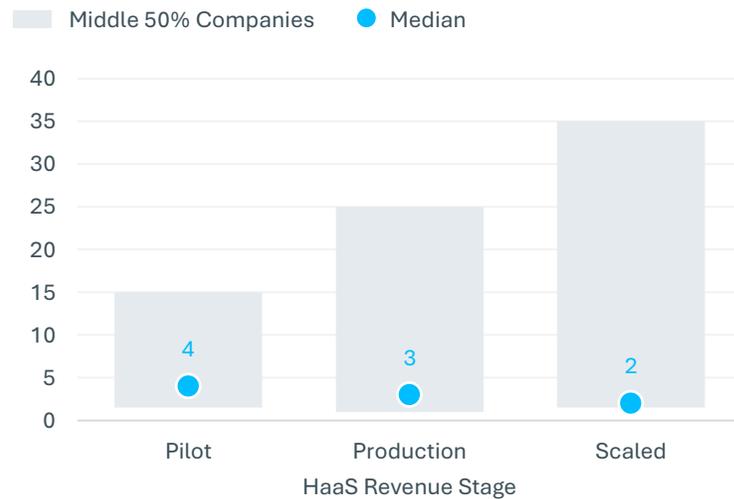
Deployment Sites per Customer by Revenue¹



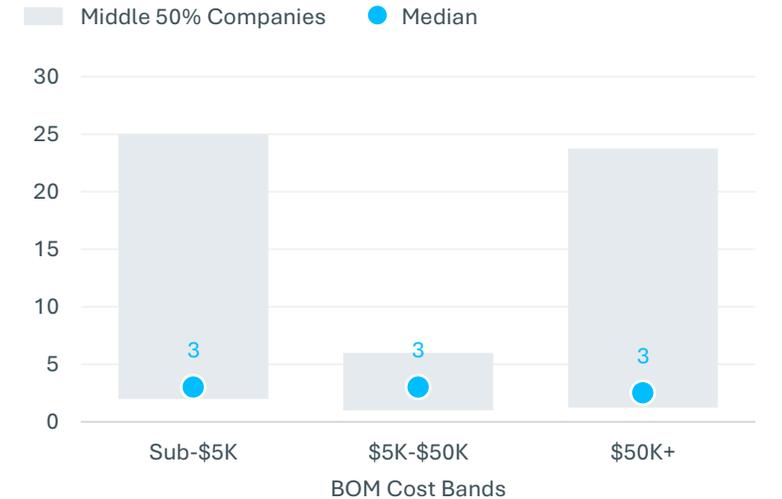
Deployment Sites per Customer by BOM Cost



Systems per Customer Site by Revenue²



Systems per Customer Site by BOM Cost



Notes: 1) Estimated number of sites per customer for the HaaS company's target market. Stages based on HaaS revenue: pilot companies have less than \$100K, production companies have \$100K-\$1M, scaled companies have over \$1M. Average HaaS revenue for scaled companies is \$41M. 2) Estimated number of HaaS machines deployed per customer site for the HaaS company's target market. Source: SVB State of HaaS Survey results and SVB analysis.

Preparing for H2 2022 and beyond

Based on our analysis, here are four key findings for HaaS companies to consider:



Focus on the Metrics that Matter

SaaS has been eating the digital world for decades, and HaaS is poised to do the same for the physical world. To achieve success, companies need to focus on the metrics that track the performance of the entire HaaS system.



Reinforce Supply Chains

Global supply chain issues have stunted recent progress for the hardware industry, increasing the need for companies to be thoughtful in how they source inventory. These issues are also spurring manufacturers to re-shore critical infrastructure. Any business that can reliably deliver and maintain its machines has the wind at its back.



Prioritize a Data Strategy

Machines are three-dimensional data extractors, continually finding new and novel datasets previously unrecorded. Companies who best leverage these insights will be well-positioned to extract incremental value from their services and establish a moat for the business.

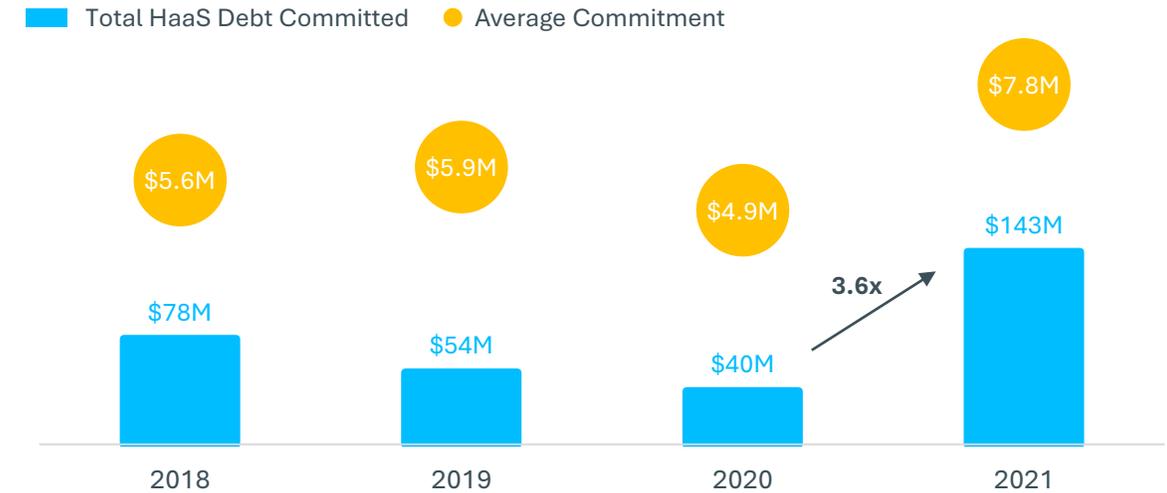


Balance Sources of Capital

Access to capital is paramount for any business. Scaling a hardware solution consumes significant upfront capital. Any company pursuing a HaaS go-to-market strategy must wisely balance the use of debt and equity capital to finance deployments.

The recent growth in demand for SVB's HaaS venture loans offers a useful gauge on the growing adoption of the HaaS model.

SVB Debt Deals for HaaS Companies¹



50+ Loans provided to HaaS companies since 2017

\$350M SVB loan capital committed to Haas companies

3.6x Increase in HaaS loan commitments from 2020 to 2021

62% Increase in average HaaS loan size from 2020 to 2021



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