

RCSV RESEARCH

Robotics Center · Annual Report Series

ANNUAL REPORT · 2024

State of Robotics 2024

The inflection year — when foundation-model thinking entered robotics, humanoid platforms proliferated, and data collection costs began their decisive decline.

PUBLISHED

March 2024

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FORMAT

Free · Web & PDF

roboticscenter.ai/state-of-robotics-2024

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KEY FINDINGS

2024 by the Numbers

\$17.8B

Global robotics market in 2024, up 25% year-over-year — acceleration resumes after a slower 2023.

5% VLA

Vision-Language-Action models reached 5% of new deployments — from research curiosity to first production trials.

-43%

Data collection cost per hour fell from \$520 to ~\$295 through 2024, bending the cost curve for the first time.

3

Commercial humanoid platforms now available for purchase or lease — Agility Digit, Figure 01, and Unitree H1.

\$4.8B

Global VC investment in robotics recovered to \$4.8B, led by strategic capital from Big Tech and defense.

IL Rising

Imitation learning reached 38% adoption, up from 28% in 2023, driven by ACT, Diffusion Policy, and OpenVLA.

CHAPTER 01

Executive Summary

2024 is the inflection year. Not because a single product shipped or a single paper published, but because the *way the industry thinks* about robotics changed irreversibly. Foundation-model reasoning — the idea that a single large model, trained on broad data, can be fine-tuned for specific tasks — crossed from the natural language processing world into physical manipulation. The implications are enormous: rather than engineering a bespoke control pipeline for every robot and every task, teams began asking whether a pre-trained Vision-Language-Action model, fine-tuned on a few hundred demonstrations, could do the job instead.

The answer, in 2024, is "sometimes." VLA models reached 5% of new commercial deployments by Q4, up from near zero at the start of the year. That number is small in absolute terms but significant in trajectory. The companies deploying VLAs in 2024 are not hobbyists — they are Amazon (Sparrow pick systems), Agility (Digit warehouse deployments), and a handful of well-funded startups that bet early on end-to-end learned control.

Meanwhile, the hardware layer expanded in two critical directions. First, the sub-\$10,000 robotic arm market grew from eight to fourteen credible manufacturers, with six of those now Chinese. Second, three commercial humanoid platforms became genuinely available for purchase — not press releases, not waitlists, but shippable products with documentation and support contracts. Agility's Digit deployed in Amazon facilities. Figure 01 emerged from stealth with a \$675M raise and an OpenAI partnership. Unitree's H1 shipped at a price point that forced the industry to reconsider its assumptions about humanoid economics.

The central thesis of this report: 2024 is the year that robotics stopped being a hardware problem and started becoming a data-and-model problem. The companies that recognized this shift early are building the infrastructure — data collection pipelines, policy training loops, evaluation frameworks — that will determine competitive position for the next five years.

Data collection costs, the single most important bottleneck for scaling learned robot policies, fell from \$520/hour in Q1 2023 to approximately \$295/hour by Q4 2024. This 43% reduction was driven by three factors: the proliferation of low-cost leader-follower teleoperation systems (many manufactured in China), the release of open-source dataset tooling (DROID, early LeRobot work), and the increasing standardization of episode formats. The cost curve has bent, and it will not bend back.

Investment patterns tell a complementary story. Global VC deployment in robotics reached \$4.8B, a modest recovery from the 2023 trough of \$4.1B. But the composition of that capital changed dramatically: strategic investors — NVIDIA, Microsoft, Amazon, and defense primes — now account for a larger share of total capital than traditional venture funds. The smart money is not betting on robots; it is betting on the data and model infrastructure that makes robots useful.

CHAPTER 02

Hardware: Arms Race & Humanoid Dawn

The hardware landscape in 2024 is defined by two parallel stories: the rapid commoditization of robotic arms and the emergence of the first genuinely commercial humanoid platforms. Both trends point in the same direction — toward a world where the differentiating asset is not the robot itself but the data collected on it and the policies trained for it.

The Sub-\$10K Arms Market Expands

At the start of 2024, approximately eight manufacturers offered six-DoF or seven-DoF robotic arms priced below \$10,000. By year end, that number reached fourteen. The most significant new entrants are Chinese: companies like Unitree (branching from quadrupeds into arms), AgileX, Elephant Robotics, LEBAL, and Flexiv have leveraged Shenzhen's component supply chain to produce arms at price points 30–50% below Western equivalents. Lead times from Chinese OEMs compressed from 12–16 weeks to as few as 4–6 weeks for standard configurations.

This manufacturing advantage is not merely about cost. Chinese manufacturers are building arms that are explicitly designed for data collection — backdrivable joints for leader-follower teleoperation, onboard USB-C for low-latency camera integration, and compatibility with standard URDF formats for simulation. The hardware is being designed around the assumption that someone will want to teleoperate it, collect demonstrations, and train a policy. That is a fundamentally different design philosophy from the traditional industrial arm market.

Key insight: Six of the fourteen sub-\$10K arm manufacturers are now Chinese. This is not a quality concern — it is a structural advantage rooted in supply chain proximity. US and European manufacturers are responding with software integration and support density rather than price competition.

Humanoids Cross the Commercial Threshold

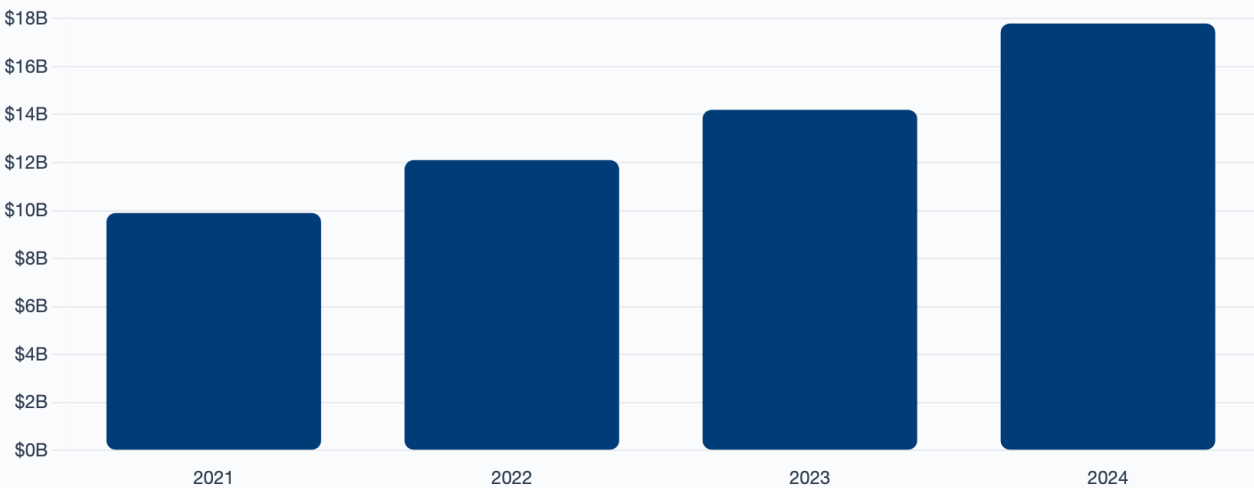
Three commercial humanoid platforms became available for structured purchase or lease in 2024 — a number that sounds small but represents a genuine market formation event. In 2022, only one platform (Boston Dynamics' Atlas, in limited research configurations) was available. In 2023, two. The 2024 additions matter because they represent distinct strategies:

- **Agility Digit:** Purpose-built for logistics. Deployed in Amazon fulfillment centers for tote-moving tasks. Not a general-purpose humanoid — a specialized biped optimized for a defined workflow. This is the pragmatic approach: build a humanoid shape because the environment was designed for humans, not because humanoid form is inherently superior.
- **Figure 01:** The flagship of the "foundation model humanoid" thesis. Figure's \$675M raise and OpenAI partnership signal a bet that a general-purpose humanoid, powered by a large

language model for task understanding and a VLA for manipulation, will be commercially viable within 3–5 years. The hardware is impressive; the business case is still being constructed.

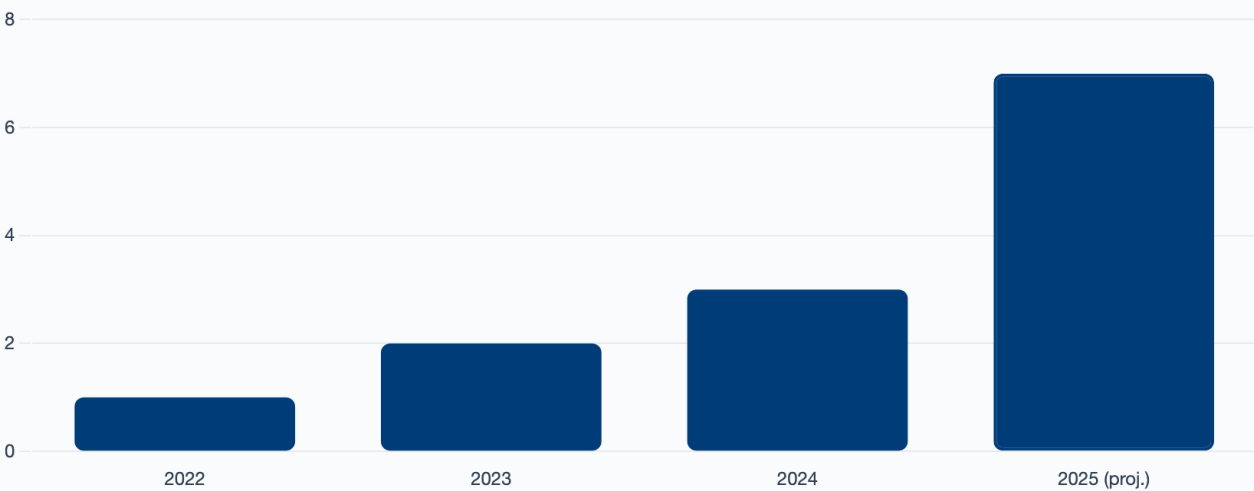
- **Unitree H1:** Priced aggressively at approximately \$90,000 — roughly one-third of what industry observers expected for a full bipedal humanoid. Unitree's strategy mirrors its quadruped playbook: ship hardware at scale, at low margin, and let the ecosystem build value on top. The H1 and its smaller sibling, the G1, signal that humanoid hardware costs will fall faster than most forecasts assumed.

Global Robotics Market Size (\$B)



Source: RCSV Research, IFR 2024, PitchBook

Commercial Humanoid Platforms Available



Source: RCSV Research

CHAPTER 03

The Data Infrastructure Shift

The single most consequential trend in 2024 robotics is not a product launch or a funding round — it is the bending of the data collection cost curve. High-quality teleoperation data, the raw material for training manipulation policies, fell from approximately \$520/hour at the start of 2023 to \$295/hour by Q4 2024. This 43% decline over eight quarters is the result of compounding improvements across hardware, software, and process standardization.

What Drove the Cost Drop

Three forces converged. First, leader-follower teleoperation hardware was commoditized. Systems that cost \$8,000–\$12,000 in 2022 are now available for \$2,000–\$4,000 from Chinese manufacturers, with comparable quality and significantly shorter lead times. This made it economically viable to deploy multiple teleoperation stations simultaneously — a prerequisite for collecting data at the hundreds-of-hours scale that modern policies require.

Second, open-source dataset tooling matured. The DROID project (Stanford/Berkeley) released a large-scale multi-robot dataset with standardized episode formatting. Hugging Face began early work on LeRobot, a framework for collecting, curating, and sharing robot demonstration data. These tools did not eliminate the engineering effort of data collection, but they reduced it from weeks to days for teams building new collection pipelines.

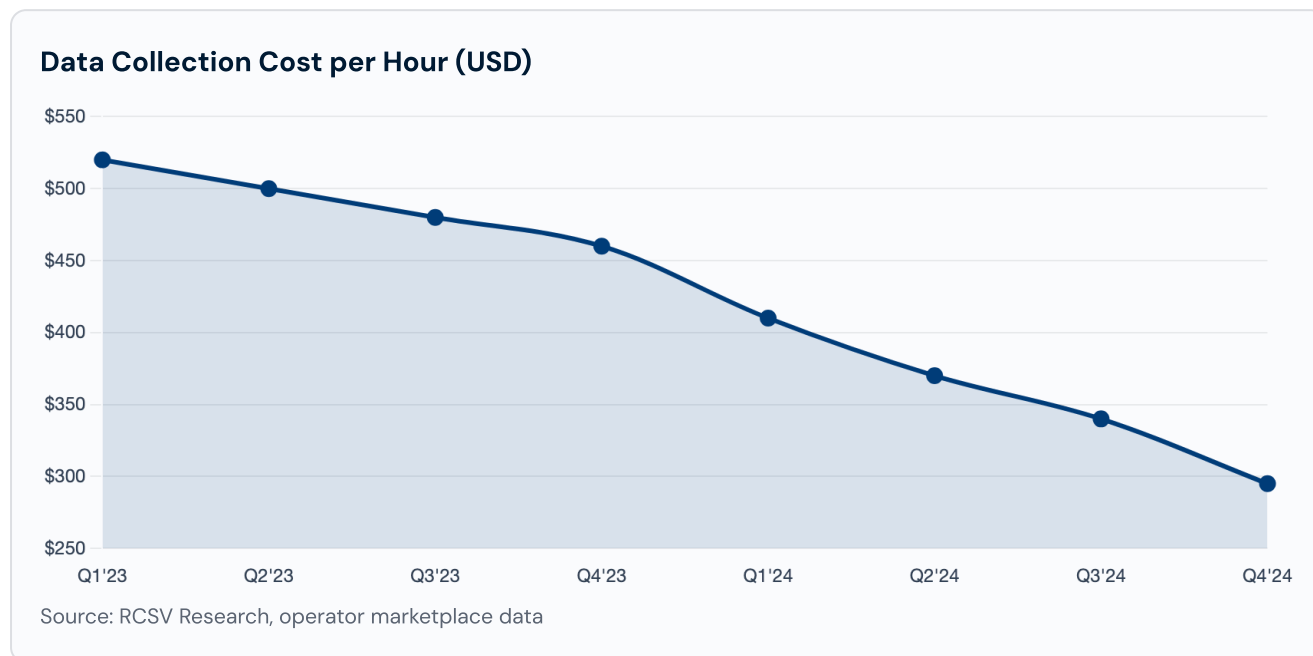
Third, episode format standardization began to take hold. The convergence on RLDS (developed by Google) and HDF5 schemas reduced the "integration tax" — the engineering overhead required to make data collected on one platform usable on another. This is a mundane but critical development: without format standardization, every new hardware platform requires a bespoke data pipeline, and cross-platform training becomes impractical.

The scale threshold shifts: At \$520/hour, collecting 500 hours of demonstration data for a single task costs \$260,000 — a research-lab budget. At \$295/hour, the same dataset costs \$147,500. This is still expensive, but it is now within range for well-funded enterprise pilot programs. The cost curve has not reached its floor; we expect it to fall further in 2025 as tooling and hardware continue to improve.

The DROID Dataset and Open Data

The release of the DROID dataset in 2024 was a landmark event for the robot learning community. Comprising tens of thousands of manipulation demonstrations collected across multiple robot platforms, DROID represented the largest publicly available collection of real-world robot data. Its impact was less about the data itself — which was useful but not sufficient for production deployment — than about the proof of concept: large-scale, multi-site, multi-robot data collection is feasible, and the resulting datasets can be shared in standardized formats.

The Hugging Face team's early work on LeRobot complemented DROID by providing tooling for the collection and curation workflow. While LeRobot was still in its early stages in 2024, it signaled an important direction: the infrastructure for robot data collection is being built by the same institutions that built the infrastructure for language model training data. This is not a coincidence — it is a recognition that the bottleneck in robot learning has shifted from algorithms to data.



CHAPTER 04

Foundation Models Enter Robotics

The transition of foundation-model thinking from language and vision into physical manipulation is the defining intellectual development of 2024 in robotics. This is not about a single model or a single paper. It is about a paradigm shift: the recognition that large models, pre-trained on broad data and fine-tuned on task-specific demonstrations, can outperform bespoke control pipelines on an expanding range of manipulation tasks.

The RT-2 Aftermath

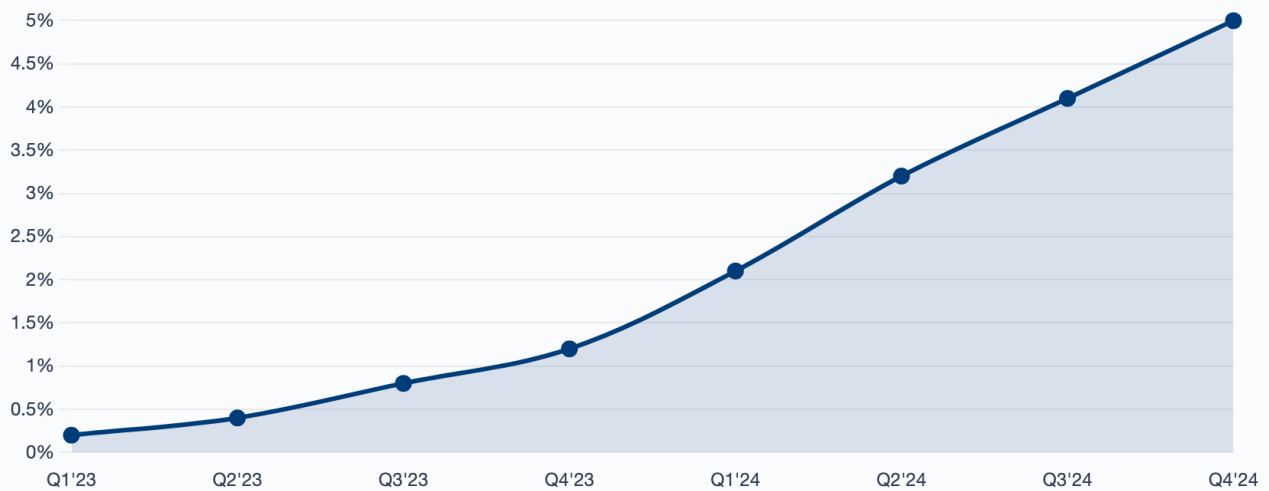
Google's RT-2 paper (published in mid-2023) demonstrated that a Vision-Language-Action model — essentially a large language model extended with an action decoder — could ground natural language instructions into robot actions. The impact was less about RT-2's specific capabilities (which were impressive but limited to Google's hardware) than about the conceptual precedent it established: language models are not just for text. They can reason about physical space, object properties, and manipulation strategies in ways that transfer to real-world robot control.

The 2024 response from the research community was rapid and broad. Three research programs deserve particular attention:

- **OpenVLA (Stanford/Berkeley):** An open-weight VLA model built on the Llama backbone, fine-tunable on custom demonstration datasets. OpenVLA's significance lies in its accessibility — any team with a GPU and a dataset can fine-tune a VLA model, rather than needing Google-scale infrastructure. Training began in earnest in mid-2024; early results showed competitive performance with 200–500 task-specific demonstrations.
- **ACT++ and Diffusion Policy:** While not VLAs per se, these imitation learning architectures became the standard research foundations for manipulation policy training in 2024. Tony Zhao's ACT paper (originally published in 2023) demonstrated that action chunking — predicting sequences of actions rather than single actions — dramatically improved policy robustness. Diffusion Policy (Chi et al.) applied diffusion model techniques to action generation, producing smoother and more reliable manipulation trajectories. Both became de facto baselines against which new methods are measured.
- **Physical Intelligence (PiO):** Founded in 2024 with a \$70M seed round (the largest in robotics history), Physical Intelligence set out to build a general-purpose foundation model for robot control. PiO's initial work focused on training a model that could control multiple robot form factors from a single set of weights — a capability that, if achieved at production quality, would fundamentally change the economics of robot deployment.

The economic argument for VLAs: Training a task-specific policy from scratch requires 1,000+ demonstrations and weeks of engineering. Fine-tuning a pre-trained VLA on the same task requires 200–500 demonstrations and days of engineering. At 2024 data collection costs, this translates to a 3–5x reduction in the total cost of deploying a new manipulation capability. The VLA approach is not yet reliable enough for safety-critical tasks, but for pick-and-place, sorting, and simple assembly, the economics already favor it.

VLA Adoption (% of New Deployments)



Source: RCSV Research, enterprise deployment tracker

CHAPTER 05

Training Methods in Transition

The training method landscape in 2024 is a market in transition. Reinforcement learning (RL) remains the dominant approach, used in 65% of commercial manipulation deployments. But imitation learning (IL) is gaining share rapidly, reaching 38% of deployments (up from 28% in 2023). Hybrid approaches — typically IL for initial policy training followed by RL for fine-tuning — remain a small but persistent 7% of deployments.

Why RL Still Dominates

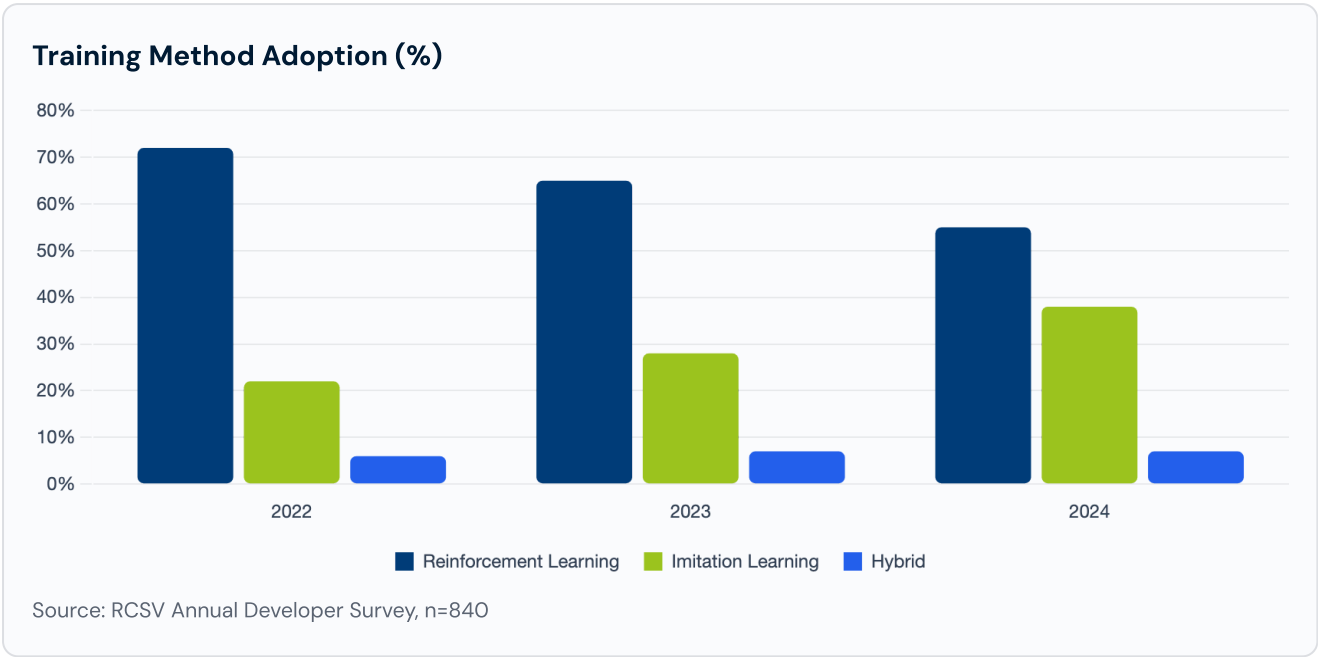
Reinforcement learning's dominance reflects institutional momentum as much as technical superiority. Most robotics engineering teams hired before 2023 were trained in RL methods. The tooling is mature (Stable Baselines3, RLlib, Isaac Gym). The deployment pipelines are well-understood. For teams with existing RL infrastructure, switching to IL introduces integration risk without guaranteed improvement. RL also retains clear advantages for tasks where the reward function is easy to define (e.g., reaching a target position) but demonstration data is hard to collect (e.g., tasks requiring precise force control).

IL's Rapid Ascent

Imitation learning's rise from 28% to 38% in a single year reflects two developments. First, the ACT paper (Zhao et al.) demonstrated that simple, well-designed IL architectures could produce policies that generalize across task variations without the reward engineering and hyperparameter tuning that RL requires. ACT's action-chunking approach — predicting sequences of 20–100 future actions rather than single actions — produced smoother trajectories and dramatically improved success rates on bimanual tasks.

Second, the data collection infrastructure described in Chapter 3 made IL economically viable for the first time. IL requires demonstration data; RL requires a simulator or a reward function. As demonstration data becomes cheaper, the cost advantage of RL narrows. For teams starting new manipulation projects in 2024, the calculus is increasingly: collect 300–500 demonstrations and train an IL policy, rather than spend weeks building a simulator and reward function for RL.

When to use RL vs. IL in 2024: RL remains the better choice for tasks with well-defined reward functions, tasks requiring exploration of novel strategies, and tasks where simulation is already available. IL is the better choice for tasks where demonstrations are easier to collect than rewards are to define, tasks requiring natural and smooth motions, and tasks where the goal is to replicate human behavior rather than optimize a metric. Hybrid approaches — IL warm-start followed by RL fine-tuning — are theoretically optimal but require expertise in both methods and are rarely the most practical path.



CHAPTER 06

Deployment by Vertical

Commercial robot deployments in 2024 are concentrated in three verticals — logistics, automotive manufacturing, and electronics assembly — which together account for 82% of new deployed units. The remaining 18% is distributed across food service, healthcare, agriculture, and emerging verticals. The concentration is not surprising; these are the industries with the highest labor costs, most structured environments, and longest history of automation investment.

Logistics: The Amazon Effect

Logistics and warehousing accounts for 32% of 2024 robot deployments by unit volume, driven overwhelmingly by Amazon. The deployment of Sparrow pick-and-place systems and the broader Sequoia fulfillment redesign represent the largest single-company robot deployment program in history. Amazon's approach is instructive: rather than deploying general-purpose robots, they have built highly specialized manipulation systems optimized for specific fulfillment center tasks — singulation, pick-and-place, and package sorting. Each system is trained on task-specific data collected in Amazon's own facilities.

Beyond Amazon, logistics providers including DHL, FedEx, and several Asian e-commerce operators deployed smaller-scale robotic picking systems in 2024. The common thread is clear: the economics of warehouse labor (turnover rates exceeding 100% annually at many facilities, hourly costs of \$18–\$25 in the US) make automation compelling even at current robot capabilities and costs.

Automotive: Steady but Shifting

Automotive manufacturing represents 28% of deployments. This is a mature automation market, but 2024 saw a meaningful shift: new deployments increasingly involve flexible manipulation (assembly tasks that change between model years) rather than fixed welding and painting automation. The driver is electric vehicle manufacturing, where production lines are reconfigured more frequently than in traditional ICE vehicle plants.

Electronics: Precision at Scale

Electronics manufacturing accounts for 22% of deployments, concentrated in East Asia (China, South Korea, Japan, Taiwan). The tasks — PCB assembly, component placement, inspection — demand high precision and repeatability. The emerging trend is using learned policies for visual inspection and anomaly detection, complementing traditional fixed automation for physical manipulation.

Food Service: The Earliest Movers

Food service represents only 7% of 2024 deployments but is the fastest-growing vertical by percentage. Approximately 80 quick-service restaurant locations in the US and Japan deployed robot systems for kitchen tasks in 2024, up from fewer than 20 in 2023. The economics are

compelling in high-labor-cost markets: a fry-dispensing or burger-assembly robot amortizes in 2–3 years at US labor rates.

VERTICAL	SHARE OF 2024 DEPLOYMENTS	YOY GROWTH	LEADING USE CASE
Logistics / Warehousing	32%	+34%	Pick-and-place, sorting
Automotive	28%	+12%	Flexible assembly, EV lines
Electronics	22%	+18%	PCB assembly, inspection
Food Service	7%	+300%	Kitchen automation, QSR
Healthcare	3%	+45%	Pharmacy, sample transport
Agriculture	3%	+28%	Harvesting, pruning
Other	5%	+22%	Construction, inspection, retail

2024 Deployment by Vertical



Source: RCSV Research, IFR 2024

CHAPTER 07

Investment: Strategic Capital Takes Over

Venture capital investment in robotics reached \$4.8B globally in 2024, a 17% recovery from the 2023 trough of \$4.1B. But this headline number masks a structural shift in *who* is writing the checks. Strategic investors — corporate venture arms of Big Tech companies, defense contractors, and automotive OEMs — now account for a larger share of total capital than at any point in the last decade. Traditional venture funds have not retreated from robotics, but they are increasingly co-investing with strategic partners rather than leading rounds independently.

The Big Tech Thesis

The entry of Microsoft, Amazon, and NVIDIA into robotics investment is not philanthropic. Each company sees robotics through the lens of its existing platform strategy. Microsoft invested in Figure AI as an extension of its AI platform play — the same logic that drove its OpenAI investment. Amazon's Sparrow and Sequoia programs are capex investments in fulfillment efficiency, justified by labor cost savings and throughput improvements. NVIDIA's Isaac Lab and Cosmos announcements position it as the infrastructure provider for robot simulation and training — the same "picks and shovels" strategy that made it dominant in AI training compute.

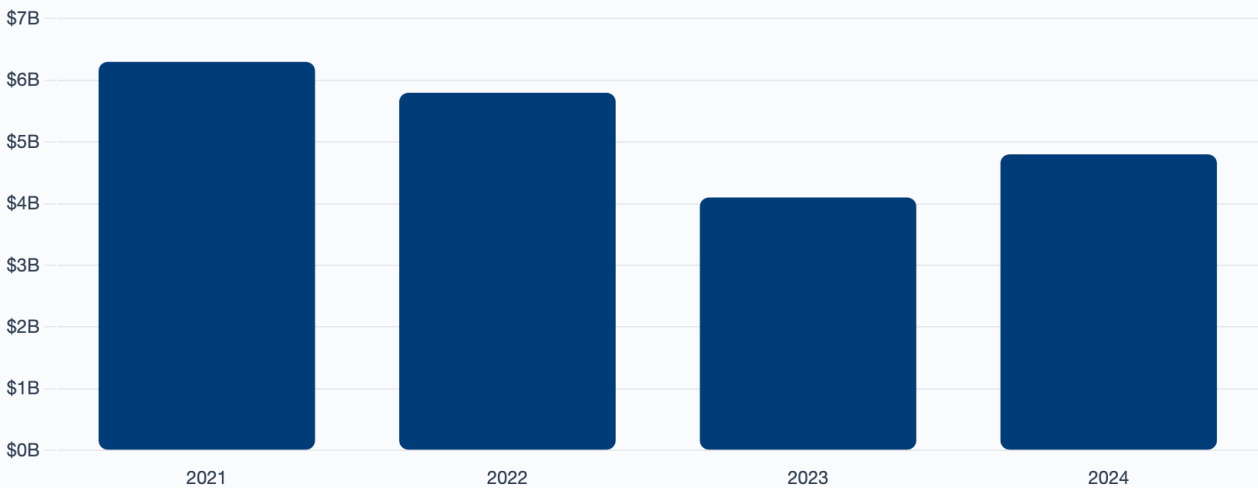
Geographic Capital Distribution

US-headquartered companies received 54% of global robotics venture capital in 2024. China received 26%, continuing a steady increase from 22% in 2022. Europe received 13%, with activity concentrated in Germany (manufacturing automation), France (service robotics), and the UK (inspection and logistics). The remaining 7% was distributed across Japan, South Korea, Israel, and emerging markets.

The US-China split reflects fundamentally different investment theses. US capital is concentrated in software and model infrastructure — companies building the AI layer that sits on top of hardware. Chinese capital is concentrated in hardware manufacturing and deployment at scale — companies building the robots themselves and deploying them in Chinese factories. Both strategies have merit; neither alone is sufficient.

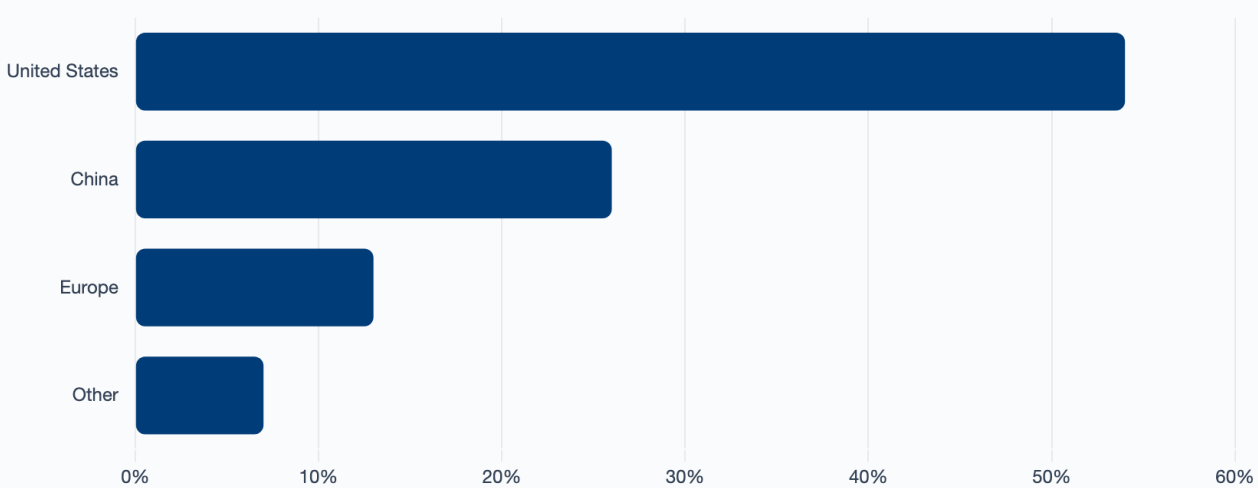
The strategic capital thesis: Strategic investors are not optimizing for financial returns alone. They are optimizing for ecosystem position — ensuring that their platforms (cloud compute, simulation, manufacturing infrastructure) become the default for the next wave of robot deployment. This changes the competitive dynamics: startups backed by strategic capital gain distribution advantages but may face constraints on partnerships and exit options.

VC Investment in Robotics (\$B)



Source: RCSV Research, PitchBook, Crunchbase

2024 Investment by Geography (%)



Source: RCSV Research, PitchBook

CHAPTER 08

2024's Defining Moments

Every year has its moments — the product launches, funding rounds, and research results that, in retrospect, mark genuine turning points. Here are the six events from 2024 that we believe will matter most when the history of this period is written.

1. Figure 01 + OpenAI Partnership

Figure AI's \$675M Series B and simultaneous partnership with OpenAI represented the highest-profile convergence of large language models and physical robotics to date. The partnership's stated goal — integrating GPT-class language understanding with Figure's humanoid hardware for natural-language-directed manipulation — is ambitious and unproven. But the signal it sent to the market was immediate: the world's most valuable AI company considers physical robotics a core strategic priority, not a research curiosity. Capital allocation across the industry shifted visibly in the weeks following the announcement.

2. Physical Intelligence Founded (\$70M Seed)

The founding of Physical Intelligence with a \$70M seed round — the largest seed in robotics history — validated the "foundation model for robots" thesis at the highest level. The team, drawn from Google Brain, Berkeley, and Stanford, set out to build PiO: a general-purpose robot foundation model that could control multiple form factors from a single set of weights. Whether PiO achieves this goal is less important, in 2024, than the fact that \$70M of institutional capital was deployed on the premise that it is achievable.

3. Unitree H1 and G1 Shipping

Unitree's decision to ship the H1 full-size humanoid at approximately \$90,000 — and the G1 compact humanoid at approximately \$16,000 — reset the industry's assumptions about humanoid pricing. Prior to Unitree, the consensus estimate for a production humanoid was \$150,000–\$300,000. Unitree demonstrated that aggressive hardware cost optimization, leveraging the same Chinese manufacturing base that produces its quadrupeds, could compress that range by 40–60%. The G1, in particular, opened a new category: humanoid-form robots priced accessibly for research labs and education.

4. NVIDIA Isaac Lab and Cosmos

NVIDIA's announcement of Isaac Lab (a unified simulation platform for robot learning) and Cosmos (a world model for generating physically plausible synthetic data) positioned the company as the infrastructure provider for the emerging robot AI stack. Isaac Lab integrated NVIDIA's existing simulation capabilities (Isaac Sim, PhysX) with modern robot learning tooling (Gymnasium compatibility, RL/IL training loops). Cosmos went further, demonstrating that generative models

trained on video data could produce physically plausible synthetic training data for robots. The simulation revolution, long promised, began in earnest.

5. Hugging Face LeRobot

Hugging Face's launch of LeRobot brought the open-source ethos of the NLP community to robot learning. LeRobot provided a standardized framework for collecting, curating, and sharing robot demonstration data — analogous to what Hugging Face's Datasets library did for NLP training data. Early adoption was concentrated in academic labs, but the framework's significance extends beyond research: it established a shared vocabulary and toolchain for robot data that will lower barriers to entry for the next generation of robotics companies.

6. 1X Technologies Raise

1X Technologies (formerly Halodi Robotics) raised \$100M in a Series B led by EQT Ventures with participation from Samsung and NVIDIA. The round valued the company at approximately \$500M and funded expansion of its NEO humanoid robot program. 1X's approach differs from Figure's in emphasis: where Figure leads with AI integration, 1X leads with safe human-robot interaction in unstructured environments, targeting home and commercial building applications rather than factory floors.

The pattern across all six moments: Capital is flowing not to hardware innovation alone, but to the intersection of hardware, data, and foundation models. The companies that attracted the most attention and capital in 2024 are those positioning themselves at this intersection — building robots that generate data, data that trains models, and models that make robots more capable.

CHAPTER 09

What 2025 Will Bring

Prediction is humbling, and we offer the following views with appropriate uncertainty. These are the themes that the RCSV research team believes will define 2025, based on the trajectories established in 2024.

1. VLA Models Reach 10–15% Deployment Share

The trajectory from 0% to 5% in 2024 suggests that VLA adoption will accelerate as fine-tuning tooling matures and inference costs fall. We expect VLAs to be present in 10–15% of new commercial deployments by Q4 2025, concentrated in logistics and food service where the task distribution is well-suited to language-conditioned manipulation.

2. Data Collection Costs Fall Below \$200/Hour

Continued hardware commoditization (Chinese leader-follower systems below \$1,500) and tooling maturation (LeRobot, DROID v2) will push the fully loaded cost of teleoperation data below \$200/hour. This threshold matters because it makes 500-hour datasets — the minimum for robust policy training on complex tasks — achievable at under \$100,000.

3. Humanoid Platforms Reach 5–7

At least two additional humanoid platforms (beyond Agility, Figure, and Unitree) will reach commercial availability in 2025. Candidates include Apptronik's Apollo, Tesla's Optimus (in limited deployment), and 1X's NEO. The humanoid market will begin to segment: logistics-optimized bipeds, general-purpose research platforms, and compact systems for education and light commercial use.

4. The First "Robot Data Marketplace" Launches

The economics of data collection and the standardization of episode formats will enable the first commercial marketplaces for robot demonstration data. Teams that cannot or do not want to collect their own data will be able to purchase curated datasets for specific task categories. Pricing will range from \$50–\$200/hour of demonstration data, depending on quality and task complexity.

5. Simulation-to-Real Transfer Becomes Practical for IL

The combination of photorealistic rendering (NVIDIA Cosmos) and improved domain randomization will make sim-to-real transfer practical for imitation learning for the first time. Teams will supplement 200 real demonstrations with 2,000 simulated variants, reducing real-world data collection needs by 50–70% for supported task categories.

6. Strategic M&A Accelerates

The concentration of capital in strategic investors (described in Chapter 7) will translate into acquisitions. We expect at least 3–5 robotics acquisitions above \$50M in 2025, driven by automotive OEMs, logistics operators, and defense primes seeking to internalize robot learning capabilities. Data assets — proprietary demonstration datasets collected in production environments — will be explicitly valued in deal terms.

Our overarching view for 2025: The companies that will win in 2025 are not the ones with the best hardware or the largest models. They are the ones with the most efficient data collection pipelines, the most rigorous policy evaluation systems, and the deepest understanding of their deployment vertical. The infrastructure layer — data, tooling, evaluation — is where durable competitive advantage is being built. Read the full analysis in our [State of Robotics 2025](#) report.

Cite This Report

Robotics Center. (2024). *State of Robotics 2024: Annual Report on the Global Robotics Industry*. RCSV Research.
<https://www.roboticscenter.ai/state-of-robotics-2024>