

F/PRIME

State of Robotics

Investment trends 2020-2024



State of Robotics – Key Stats & Methodology

1500+

Companies
analyzed

\$70B

Raised
since 2020

10%

Investment
CAGR

26

Private
Unicorns

8

Public Cos
with Mkt Cap
> \$500M

20

Acquisitions
> \$250M

Methodology

- Analysis consisted of extracting all companies listed in Pitchbook which raised in aggregate of at least \$3M from 2020-2024 and which appeared to be related to AV and robotics; those companies were then individually tagged with the use case, or those that were not relevant to the category were filtered out.
- Geographic coverage focused on North America, Europe, and Israel.
- Companies focused exclusively on space, manned flight, electric vehicles, and semi-conductors were excluded from the analysis.

Summary

The venture capital market for robotics saw a significant rebound in 2024, with investments more than doubling and approaching all-time highs of 2021. The primary driver of the investment surge was mega-rounds above \$50M across a few specific companies and sectors. These investments were concentrated in select companies seeing significant scale up in commercial operations across the AV, defense and logistics sectors, and emerging companies at the leading edge of AI advancements focused on humanoids and robotics foundation models.

The AV sector saw a bifurcation between the perceived winners and everyone else. Waymo saw a significant scale up of commercial operations, and newer generations of AV companies built on more modern AI tech stacks continued to raise significant capital. At the same time, many heavily funded players saw continuing product delays, leading to strategic pivots and restructuring, or a shut-down as in the case of Cruise.

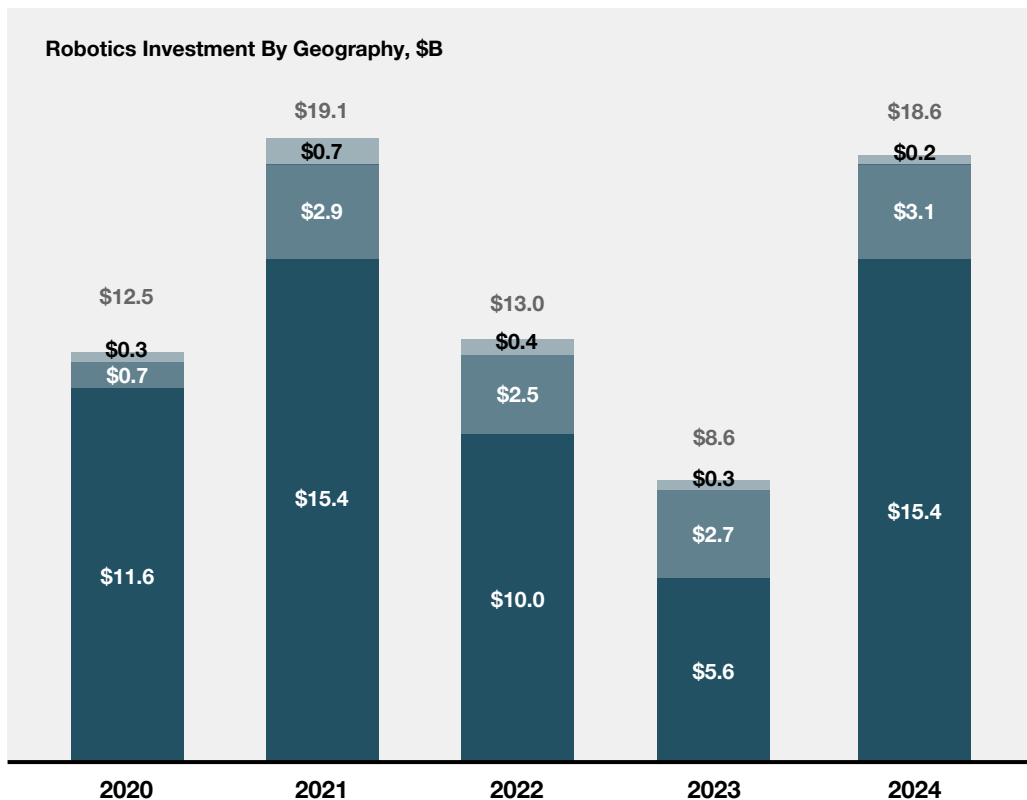
Vertical robotics saw a 30% year-over-year growth in investments, surpassing previous highs of 2021 and 2022. Much of the activity was driven by large funding rounds in the defense and logistics sectors, led by Anduril. Amongst other verticals, agriculture was a bright spot with investments reaching an all-time high of \$500M+.

Early and mid-stage funding rounds continue to be subdued. Early-stage rounds (\$2.5-\$15M raised) declined by 25% year-over-year, while mid-stage rounds (\$15-50M raised) were flat year-over-year, though down 30% from 2022 highs.

There continues to be significant value locked in private unicorns - \$100B+ of aggregate value based on last round valuation. However, there are signs of a thawing exit market with the 2024 public listings of Pony.ai and Serve Robotics and 6 M&A exits of \$250M+ in the last two years.

Several public robotics companies saw strong market performance in 2024 with market caps growing 50%+ in many cases. However, the number of public companies with market caps of \$500M+ continues to be small, with only eight such companies. At the same time, China has evolved as a successful parallel market for robotics. In China, there have been five IPOs in the last two years, and seven companies have market caps of \$1B+.

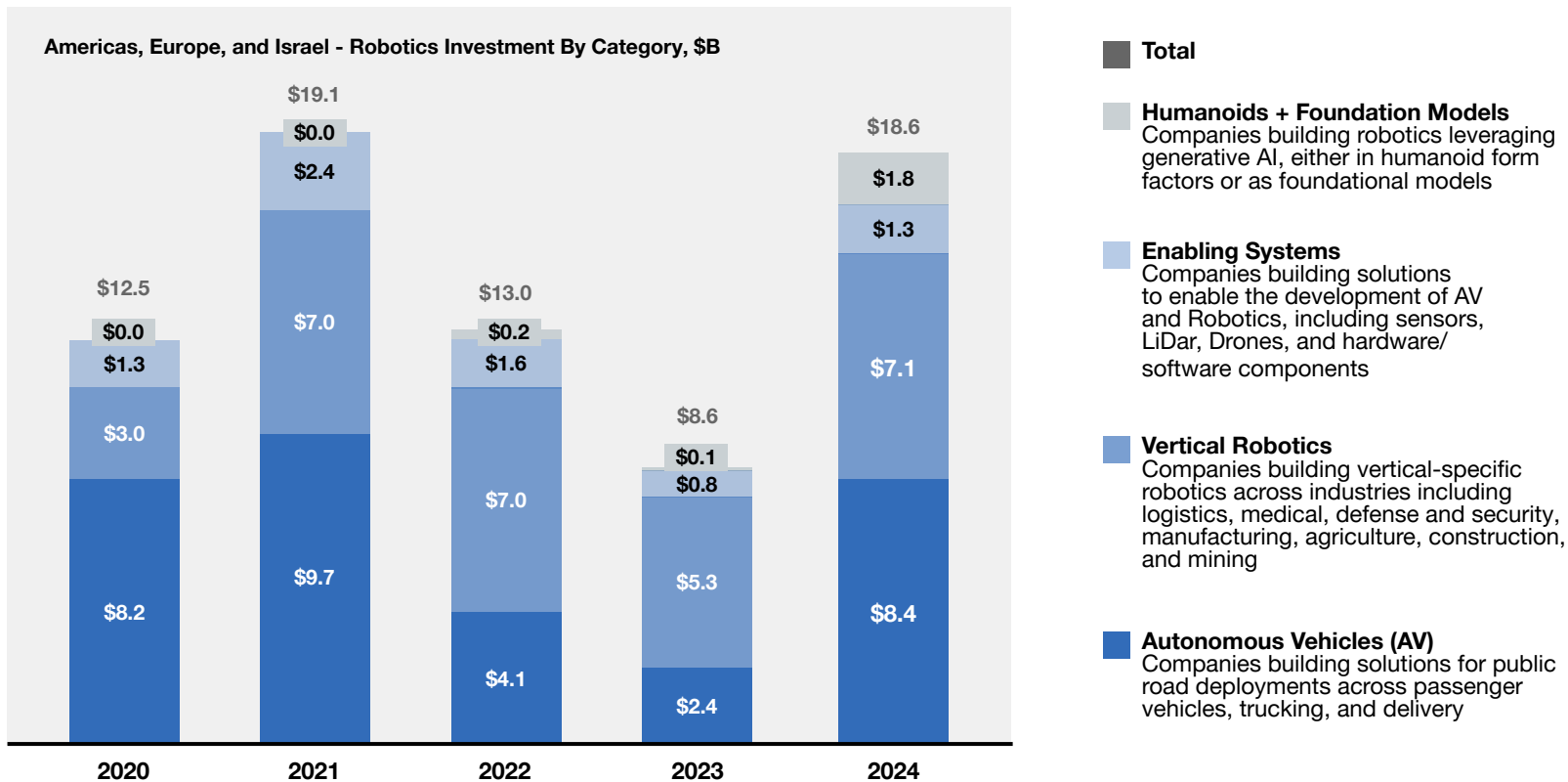
Investment in Robotics rebounded in 2024 to near the all-time high of 2021



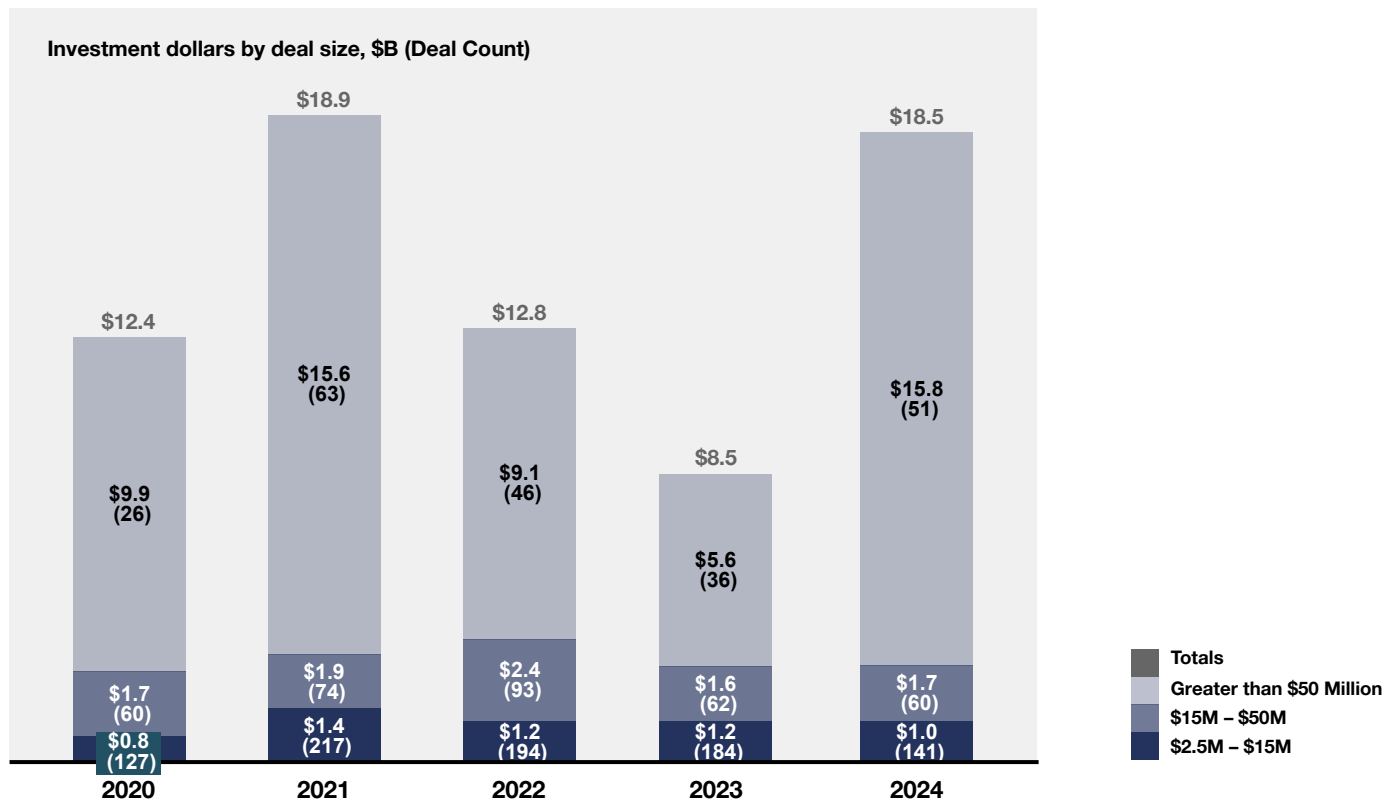
83%
of investments
go to companies
in the Americas

Total
Israel
Europe
Americas

Most of the growth has been driven by investments in AV, Humanoids, and Robotic Foundation Models

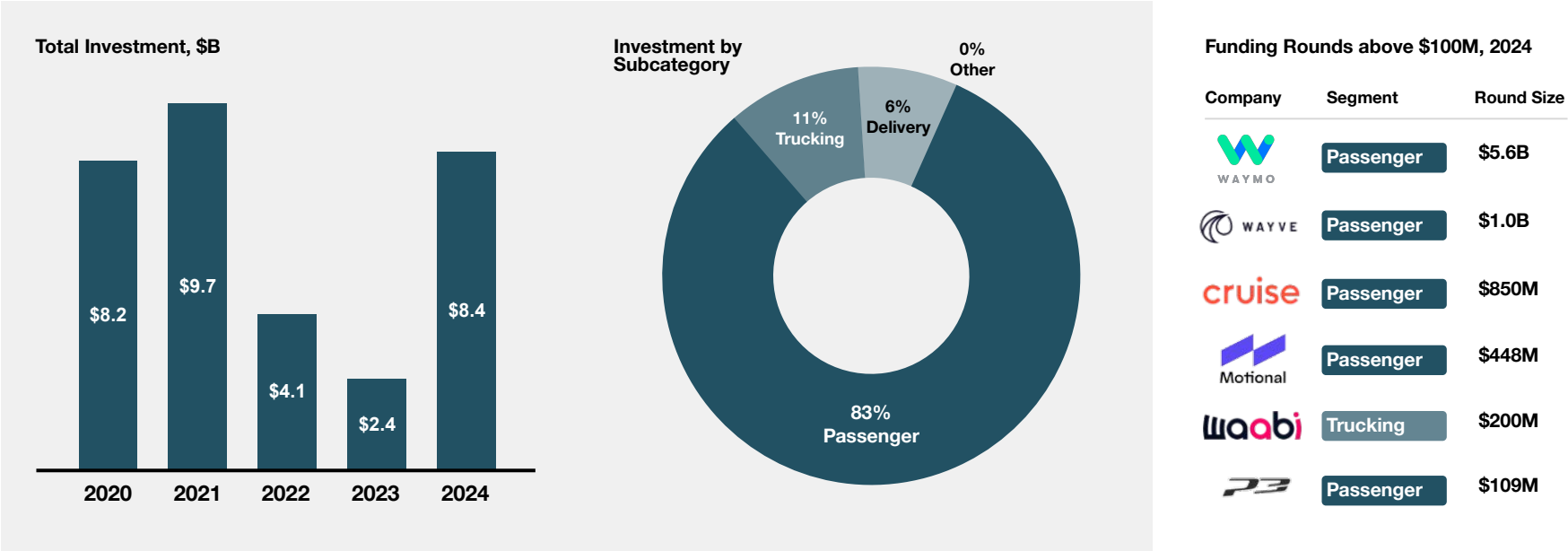


All of the funding gains of 2024 have been for mega rounds of \$50M+; early and mid-stage rounds are flat or down from recent years



Significant AV funding went to a few established companies in 2024

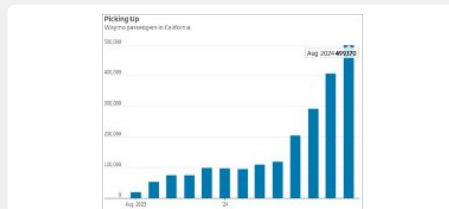
Autonomous Vehicles - Americas, Europe, Israel



Waymo is leading the way with commercial AV services, while several well-funded players continue to struggle

Waymo is emerging as the winner...

Consistent rider growth



Partnerships

Waymo robotaxis to become available on Uber in Austin, Atlanta in early 2025

TechCrunch

Geographic Expansion



Alphabet's Waymo to expand ride-hailing services in Miami



...while others struggle with operational challenges

Delays

Aurora Innovation delays commercial autonomous truck launch to 2025

TechCrunch

Pivots

Nuro pivots to license self-driving tech to carmakers, mobility companies

TechCrunch

Restructuring

Motional cut about 550 employees, around 40%, in restructuring, sources say

TechCrunch

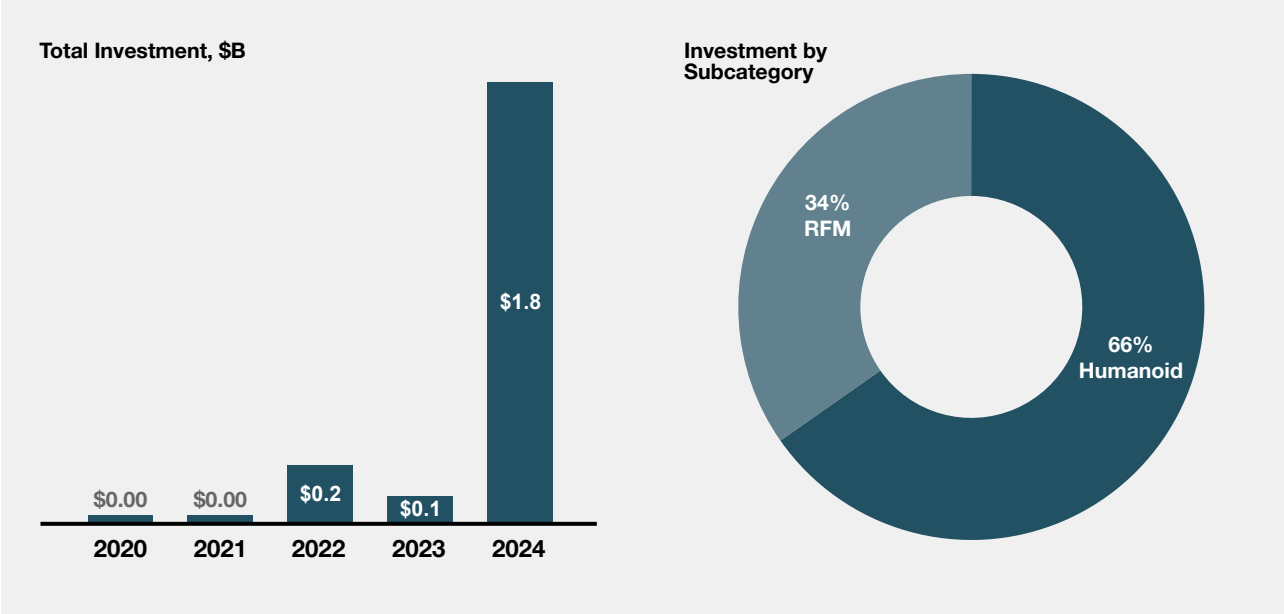
Shutdown

Cruise's robotaxi service will shut down as GM pulls its funding





TheVerge

Investments in Humanoids and Foundation Models spiked in 2024, concentrated across a handful of companies

Humanoids & Robotic Foundation Models - Americas, Europe, and Israel



Funding Rounds above \$100M, 2024

Company	Segment	Round Size
 FIGURE	Humanoid	\$675M
Physical Intelligence (π)	RFM	\$400M
 SKILD AI	RFM	\$300M
 Agility Robotics	Humanoid	\$150M
 1X	Humanoid	\$100M

Demos from Humanoid and Foundation Model companies illustrate the future potential of Robotics

Click each
image to
view



BostonDynamics 



Agility
Robotics



Physical Intelligence (π)



 FIGURE



TESLA



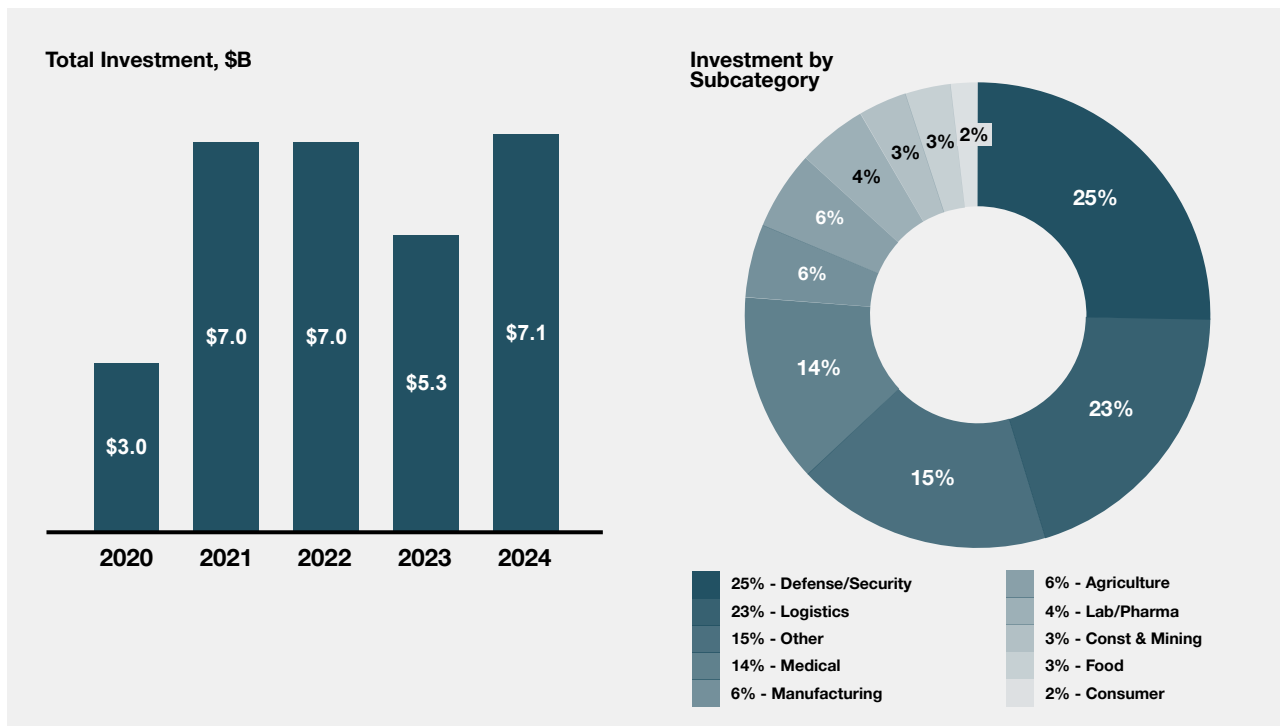
 SANCTUARY AI

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Source: F-Prime team analysis

Defense and Logistics represent nearly half of investment in Vertical Robotics

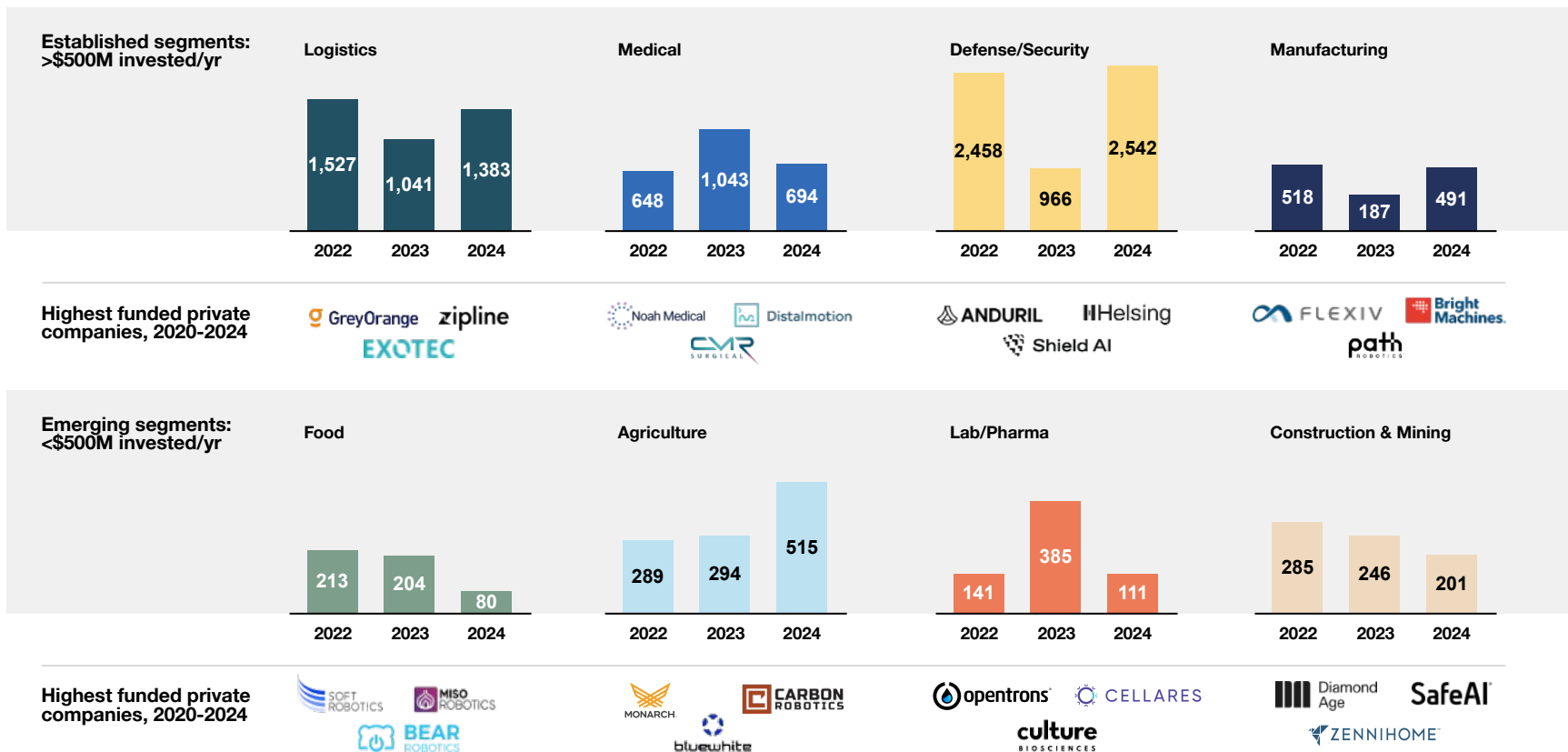
Vertical Robotics - Americas, Europe, Israel



Funding Rounds above \$100M, 2024

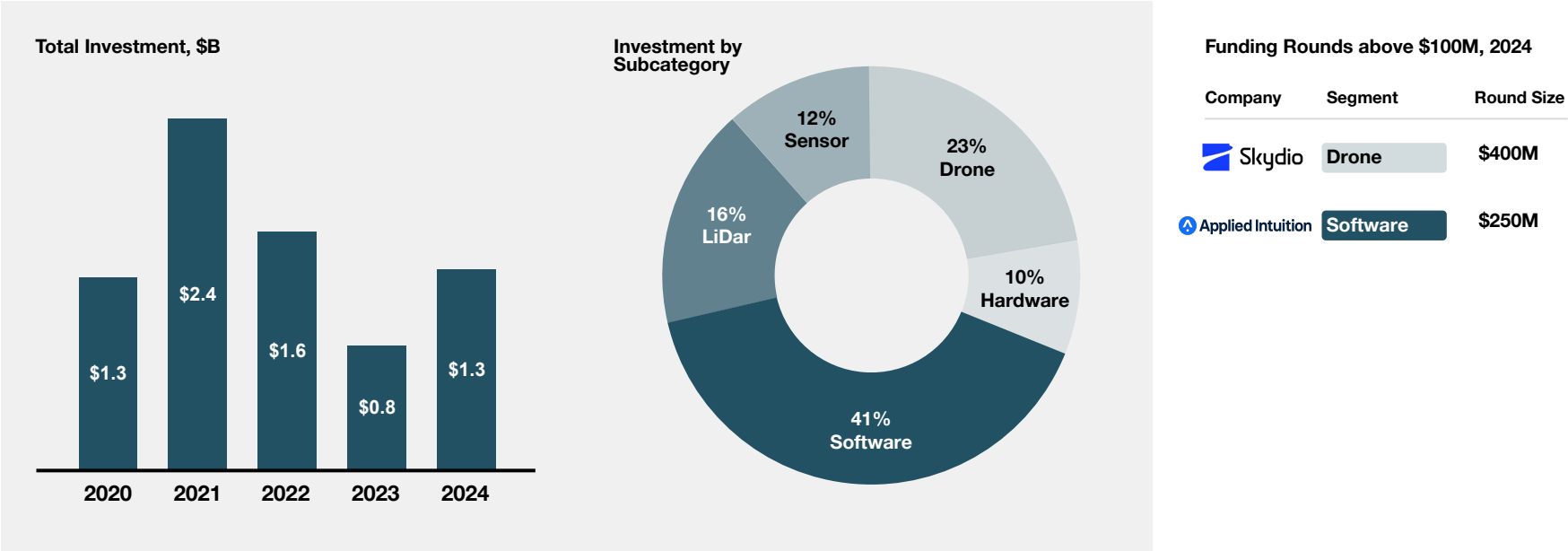
Company	Segment	Round Size
ANDURIL	Defense	\$1.5B
Helsing	Defense	\$484M
zipline	Logistics	\$350M
AMP ROBOTICS	Other	\$195M
SARONIC	Defense	\$175M
SAIE	Consumer	\$150M
MONARCH	Agriculture	\$133M
Bright Machines	Manufacturing	\$126M
Skyports	Logistics	\$112M
AMVbotics	Other	\$111M
MMÍ	Medical	\$110M
nimble	Logistics	\$106M
Path Robotics	Manufacturing	\$100M
cobot	Logistics	\$100M

In addition to established verticals, agriculture has started to attract more investment

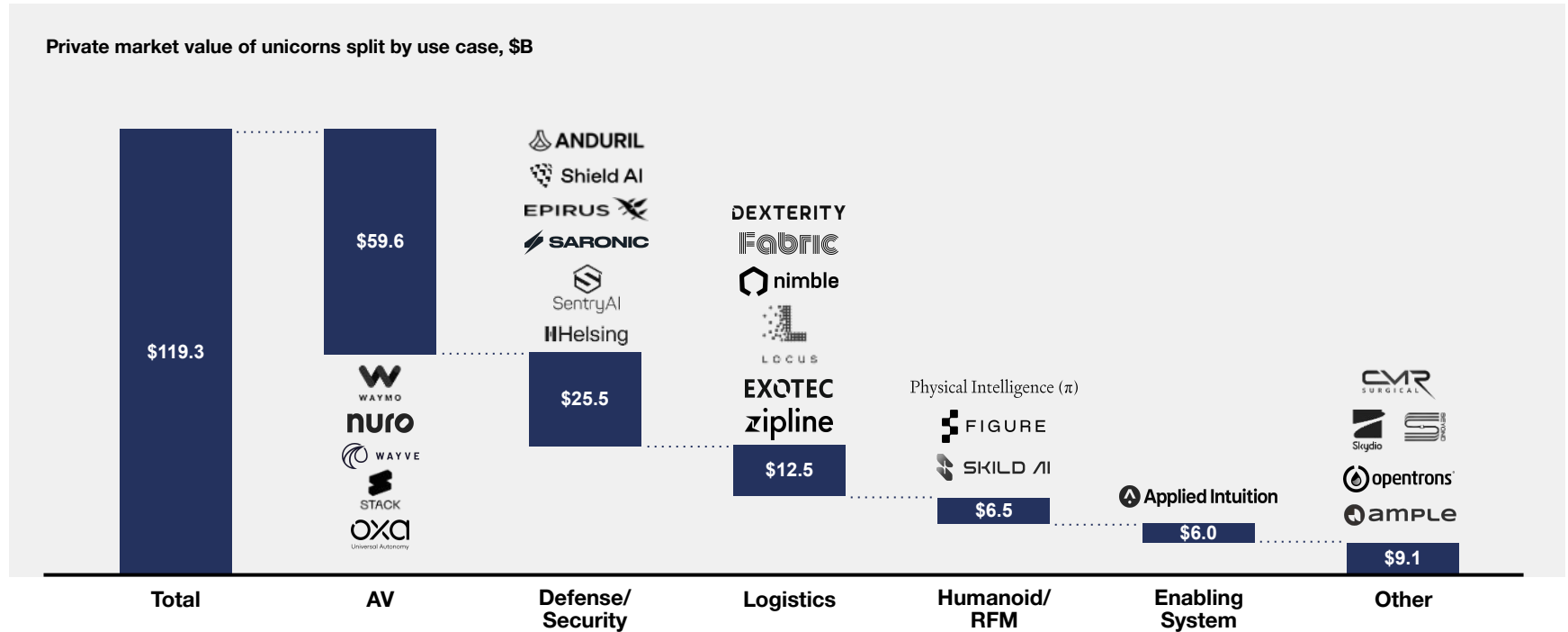


Investments in Enabling Systems are a small niche within Robotics

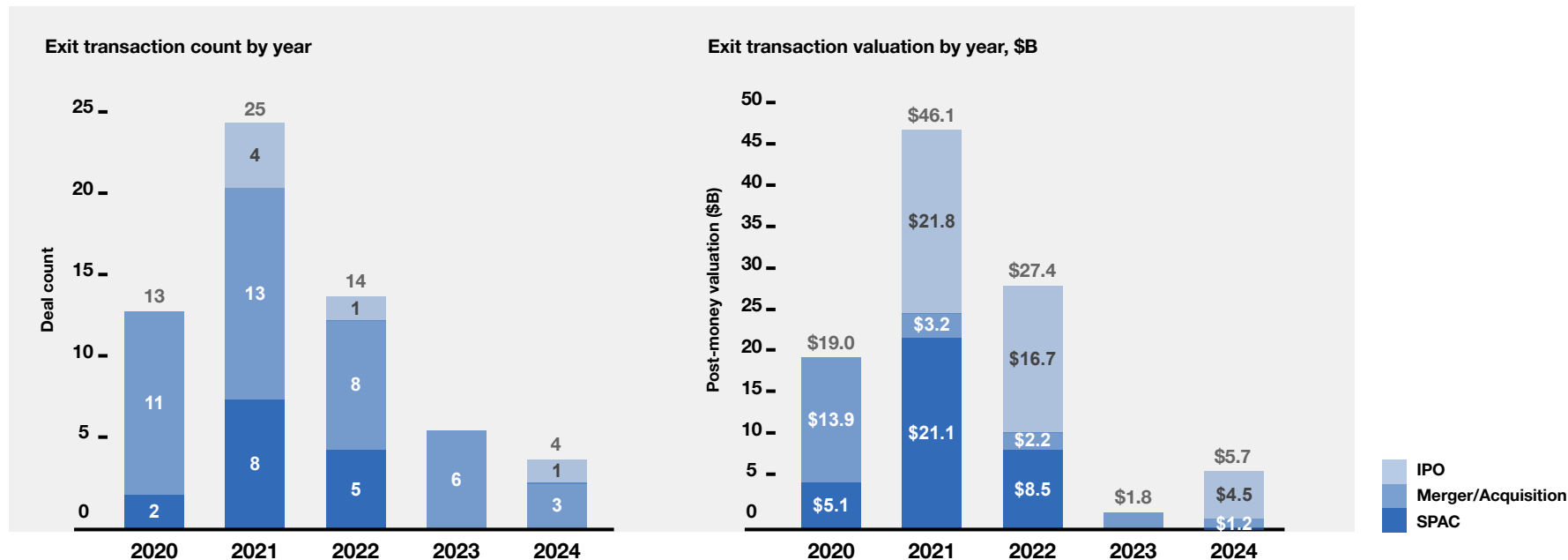
Enabling Systems - Americas, Europe, and Israel



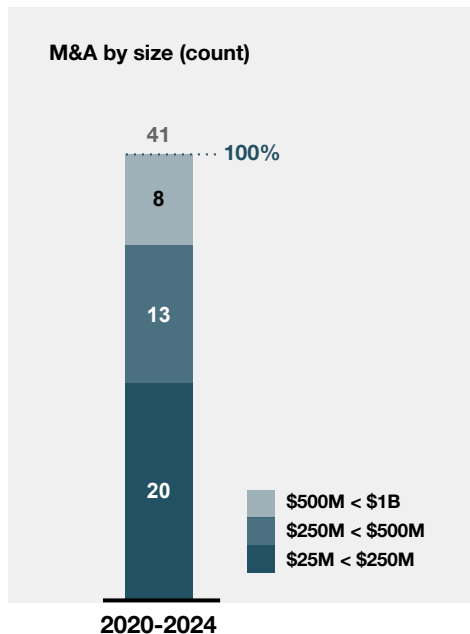
There is \$100B+ of private market value in Robotics, largely driven by the AV sector











The lack of exits the last two years has been an industry headwind




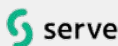
M&A is slowly recovering with several \$250M+ exits the last two years



M&A exits above \$250M, 2023-2024

Company	Acquisition Value	Date	Acquirer	Segment
 CLEARPATH ROBOTICS™	\$609M	October 2023	 Rockwell Automation	Logistics
Velodyne LiDAR™	\$600M	February 2023	 OUSTER™	LiDar
 GHOSTROBOTICS.	\$400M	April 2024	LIG Nex1	Defense
 Dedrone®	\$500M	July 2024	 AXON	Defense
 BERKSHIRE GREY	\$375M	July 2023	 SoftBank	Logistics
 AERODOME™	\$300M	October 2024	flock safety	Security

Several public companies in the sector have seen strong market performance; recent public listings indicate a thawing of the IPO market








Company	Market Cap (12/31/2024)	LTM Revenue	LTM Revenue Growth	ETM/LTM Revenue	LTM EBITDA Margin	12 Month Stock Performance	Segment	IPO Date
INTUITIVE	\$185.9B	\$8352M	17%	23.1x	34%	1.5x	Medical	June 2000
 symbotic	\$14.1B	\$1.9B	44%	5.9x	-3%	0.5x	Logistics	June 2022
 Aurora	\$10.8B	NA	NA	NA	NA	1.4x	AV	November 2021
 pony.ai	\$5.0B	\$84M	17%	70.7x	-150%	1.2x*	Logistics	November 2024
 PROCEPT [®] BIOROBOTICS	\$4.4B	\$200M	72%	21.2x	-51%	1.9x	Medical	September 2021
 AutoStore	\$3.3B	\$613M	0%	6.3x	40%	0.5x	Logistics	October 2021
 OUSTER	\$608M	\$105M	51%	4.5x	-52%	1.6x	LiDar	March 2021
 serve	\$594M	\$2M	692%	NM	NA	4.3x*	Delivery	April 2024

**Performance vs IPO date*

Note: Only includes Americas, Europe & Israel; companies with market cap >\$500M.

Source: Pitchbook, F-Prime team analysis

China has evolved as a parallel market for robotics, with multiple scaled public companies and an active IPO market

Company	Market Cap (12/31/2024)	LTM Revenue	LTM Revenue Growth	ETM/LTM Revenue	LTM EBITDA Margin	12 Month Stock Performance	Segment	IPO Date
 Horizon Robotics	\$6.1B	\$291M	296%	NA	-81%	0.9x*	AV	October 2024
 Roborock	\$5.5B	\$1.4B	31%	3.4x	22%	1.1x	Cleaning	December 2019
 WeRide	\$3.9B	\$52M	-16%	88.9x	NA	0.9x*	AV	October 2024
 Ecovacs Robotics	\$3.7B	\$2.2B	0%	70.7x	6%	1.1x	Cleaning	May 2018
 UBTECH	\$3.1B	\$176M	30%	17.9x	-93%	0.6x	Humanoid	December 2023
 Hesai	\$1.8B	\$274M	16%	5.4x	-19%	1.6x	LiDar	June 2023
 Robosense	\$1.7B	\$237M	134%	6.0x	-38%	0.7x*	LiDar	January 2024

Future outlook

The pace of advancement in robotics is accelerating. More companies are starting to see significant commercial scale, and technological advancements are transforming the capabilities of robotics solutions. These changes are re-kindling investor excitement for the sector, and it is also leading many technology heavy weights such as Tesla, Meta, Google, and Apple to invest in the sector.

With all the excitement, the robotics sector is also bound to experience a hype cycle, as initial enthusiasm eventually gives way to realities of deploying real-world solutions. However, as we are seeing in the AV sector, timelines and capital needs are uncertain, but the prize at the end can be significant. Those companies that are best able to maintain commercial momentum, integrate rapidly changing AI advancements, and find patient and supportive investors, can build transformational businesses in robotics.

The ongoing re-opening of the M&A and IPO markets will be a significant tailwind for the sector. As investors and founders see more liquidity, it will continue to create a virtuous cycle of company creation and exit. We are already seeing some of this as many highly experienced founders launched new robotics businesses in the last year.

As AI transforms the world around us, Physical AI is one of the largest and most untapped market opportunities in venture capital today. The application of modern AI is enabling never-before-imagined capabilities for robotics. The future in robotics is destined to exceed our expectations.

About F-Prime

We create and invest in healthcare and technology companies that impact lives all over the world. We have over 200 companies in our portfolio including 23 that we started. Our global portfolio is spread across the US, Europe, and Asia.



State of Robotics team



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Learn more
about F-Prime:

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[Robotics Roundup](#)

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