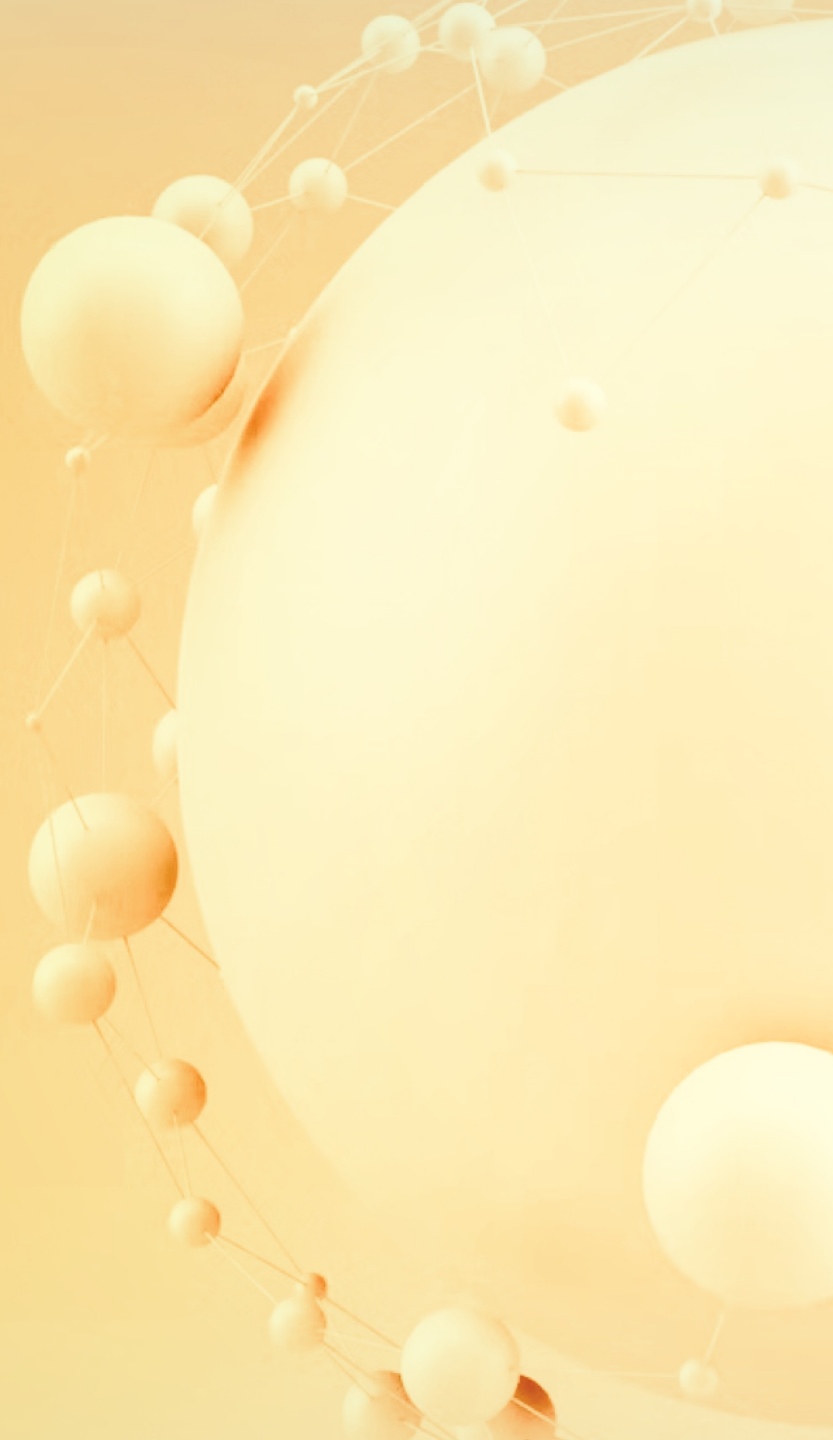


SPEEDA  
**EDGE**

# **Funding Analysis 2023: The GenAI takeover**



# Funding Analysis 2023: The GenAI takeover

VC funding\* across the 150+ SPEEDA Edge industry hubs\*\* amounted to \$100 billion in 2023 over 2,500+ funding rounds.

VC funding fell for a second year in a row, but **GenAI** took the spotlight, amassing over \$20 billion.

Among other bright spots were **battery recycling** and **long-duration energy storage (LDES)**, while **Web3** fell out of favor.

More on these trends (and more) inside, as we dissect 2023's VC funding landscape.

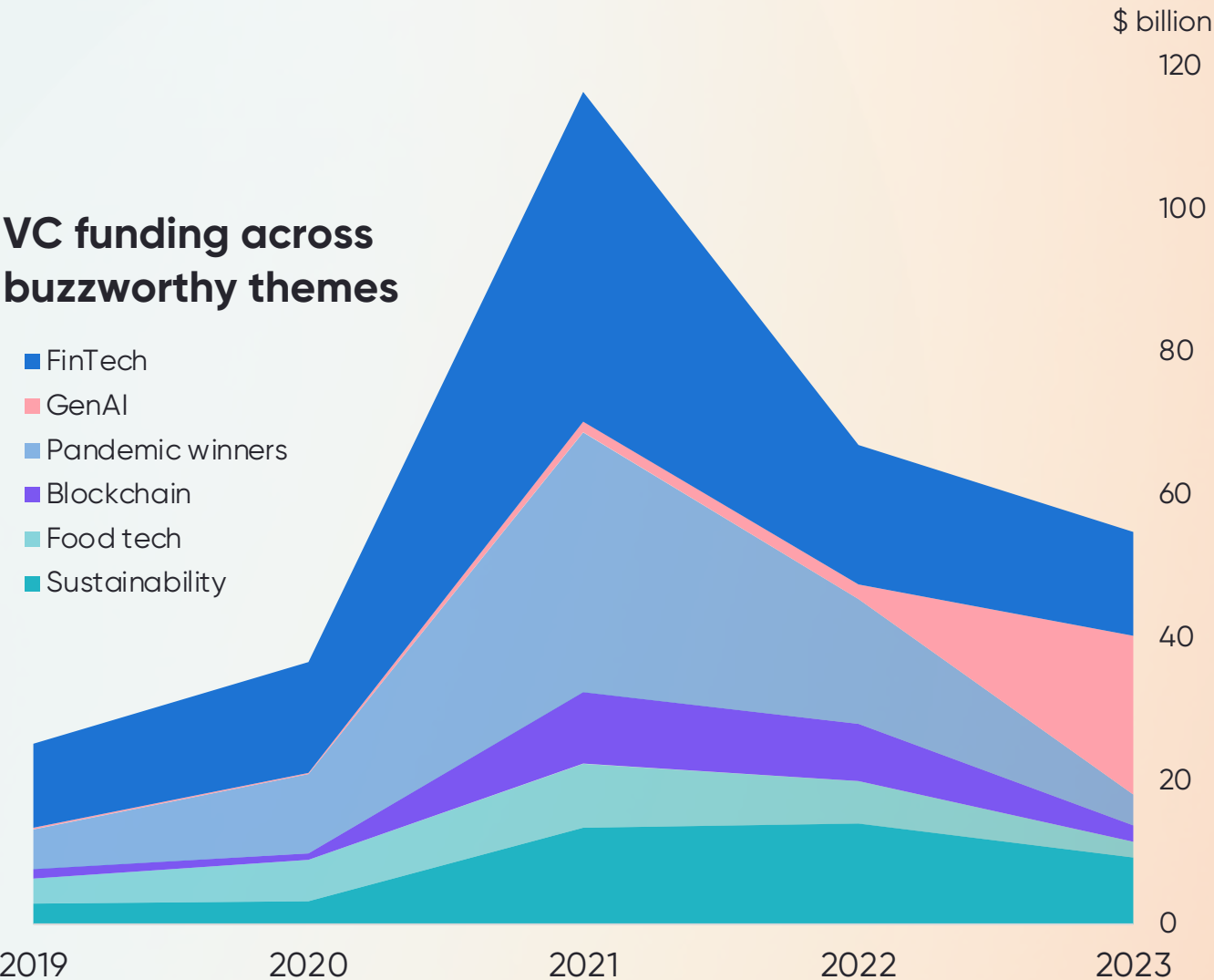
\*VC funding includes seed (angel, pre-seed, seed, seed-convertible notes, and seed-corporate rounds), early (Series A and B rounds, early-convertible notes, and early-corporate rounds), growth (Series C and above, private equity, growth-convertible notes, and growth-corporate rounds), and series unknown rounds. VC funding excludes debt financing, initial coin offerings, non-equity assistance, IPO and post-IPO funding, crowdfunding, grants, and undisclosed rounds

\*\*Only the funding activities of the companies that are covered in the 150+ SPEEDA Edge industry hubs are included in the analysis. As such, the term "funds" (or any related terms), in the context of this report, refers to VC funding across all SPEEDA Edge industry hubs unless mentioned otherwise.

All funding values are in US Dollars (\$).

Funding data powered by Crunchbase.

VC funding across buzzworthy themes



Note: Pandemic winners include remote work tools and infrastructure, telehealth, and edtech domains

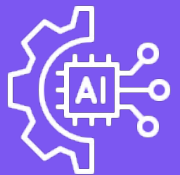
# Key takeaways



**VC funding for SPEEDA Edge industries dropped for the second consecutive year**, consistent with the slowdown in global funding activity. Record-high interest rates, combined with a recessionary economic outlook and geopolitical tensions had made VCs more cautious.



EVs, Cybersecurity, and Precision Medicine were also among the most funded, but were down significantly from last year. **Web3 and Distribution Tech saw notable declines, along with Remote Work, Telehealth, and EdTech**, as pandemic-driven interest in these industries continued to wane.



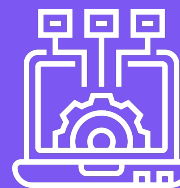
**GenAI-related industries attracted strong VC interest following ChatGPT's success**, accounting for 23% of total VC funds raised across all SPEEDA Edge industries. However, VC interest was yet to fully trickle down to potential GenAI beneficiary industries.



**Debt financing reached new record levels, with VC investments declining.** Capital-intensive industries, particularly in the financial services and sustainability domains, had turned to debt in the absence of VC support.

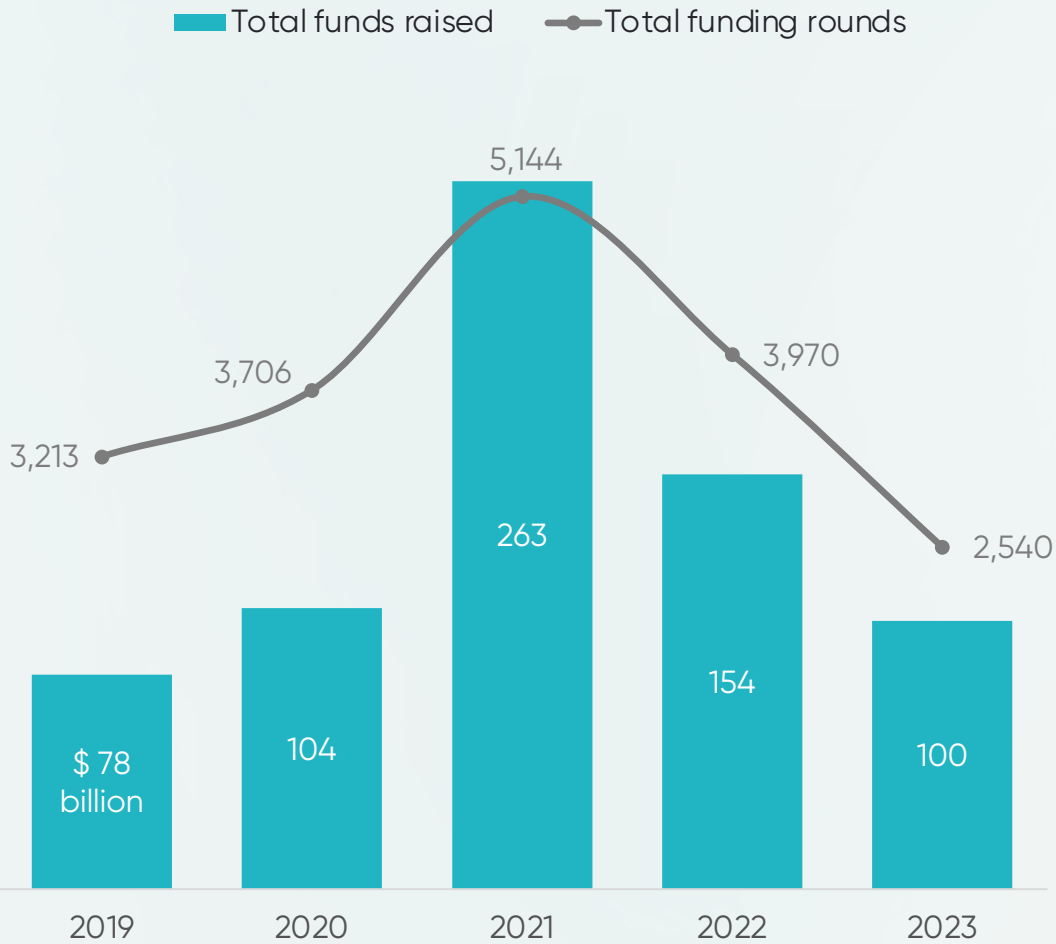


**EV battery recycling and LDES were the other bright spots.** Both domains raised over a billion dollars for the third year straight, while funding was concentrated among established early- and growth-stage startups.



**Big Tech investments in GenAI soared**, led by big-ticket deals from Microsoft, Google, and Amazon. Sustainability remained a recurring theme across the board, while Google's investments in healthcare were noteworthy.

# VC funding slumped for the second consecutive year



**\$100 billion**

**Total VC funding** across 150+ SPEEDA Edge industry hubs in 2023. This accounted for ~40% of total VC funds raised in North America and Europe.

**-35% YoY**

**Decrease in funds raised** and 36% YoY decrease in funding rounds. Excluding GenAI gains, drop in funding was 49% YoY.

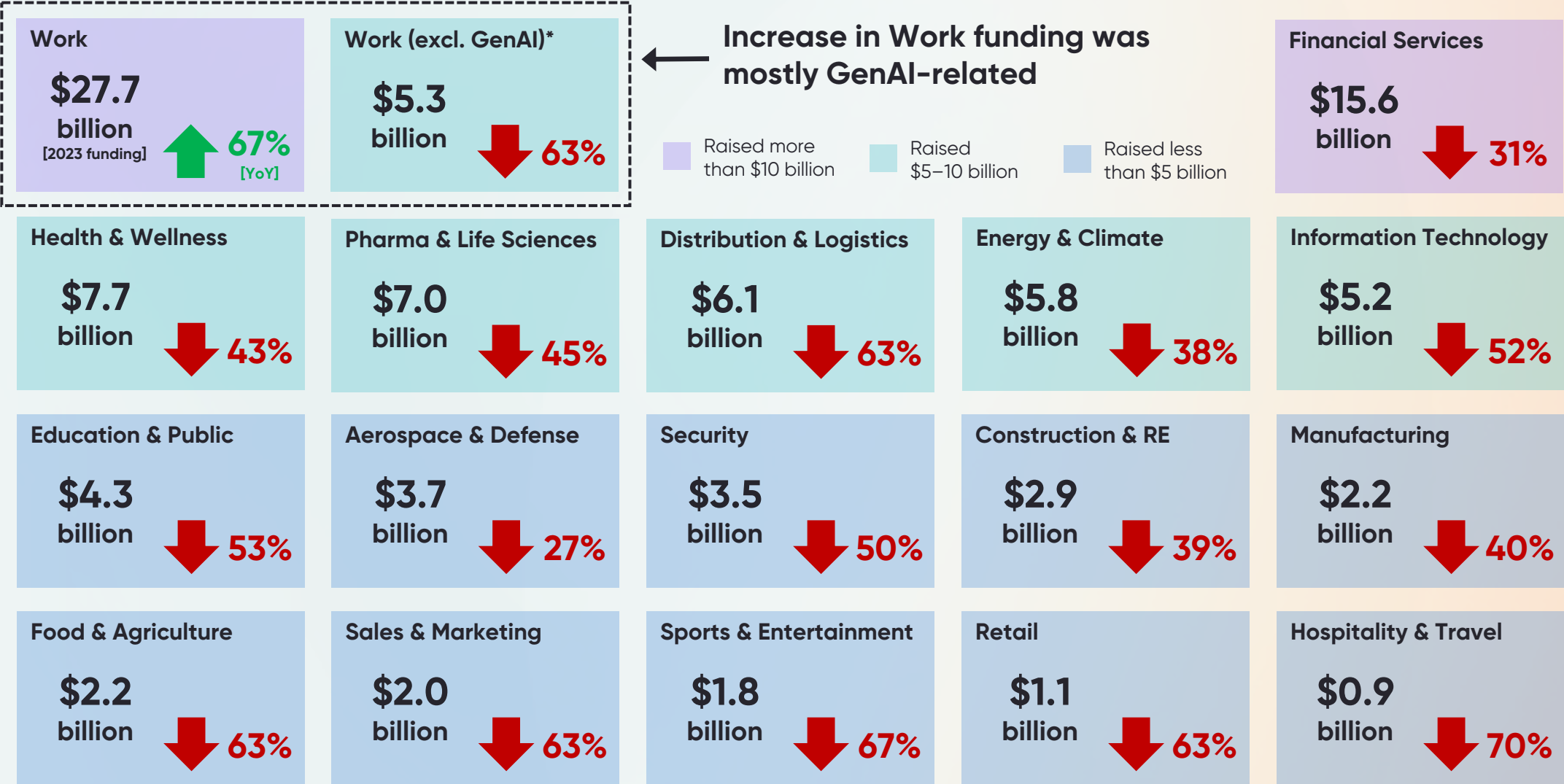
**+1% YoY**

**Increase in the average deal size** despite the decline in funding (\$39 million in 2023), due to large GenAI-related deals. Excluding GenAI, the average deal size fell by 17% YoY.

**-58% YoY**

**Decrease in mega deals** (\$100 million+) from 429 in 2022 to 182 in 2023.

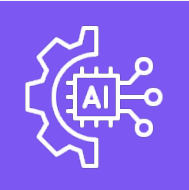
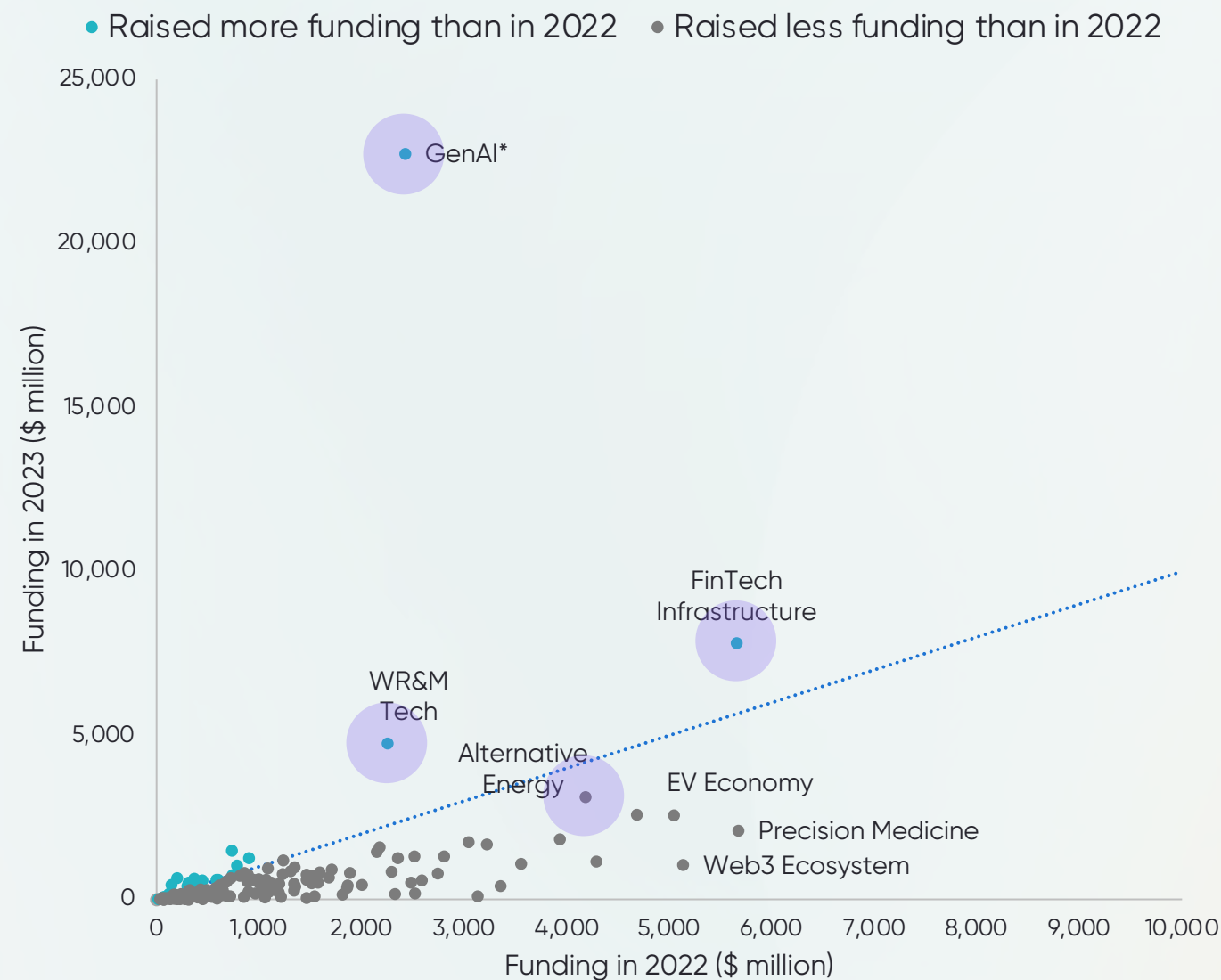
# Funding across almost all major sectors declined



\*Excludes funding related to GenAI Applications, Natural Language Processing (NLP) Tools, and Foundation Models



# ...but there were some bright spots



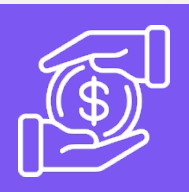
**GenAI\*** attracted significant VC interest following ChatGPT’s success.



**EV battery recycling** startups had several large rounds reflected under Waste Recovery & Management (WR&M) Tech.



**Long-duration energy storage (LDES)** investments remained strong despite an overall drop in Alternative Energy funding.



**Nine giga-deals** (\$1 billion+), which included Stripe’s \$6.5 billion round in FinTech Infrastructure.

\*Includes unique funding rounds of startups covered under Foundation Models, GenAI Infrastructure, GenAI Applications, and Natural Language Processing (NLP) Tools industries.

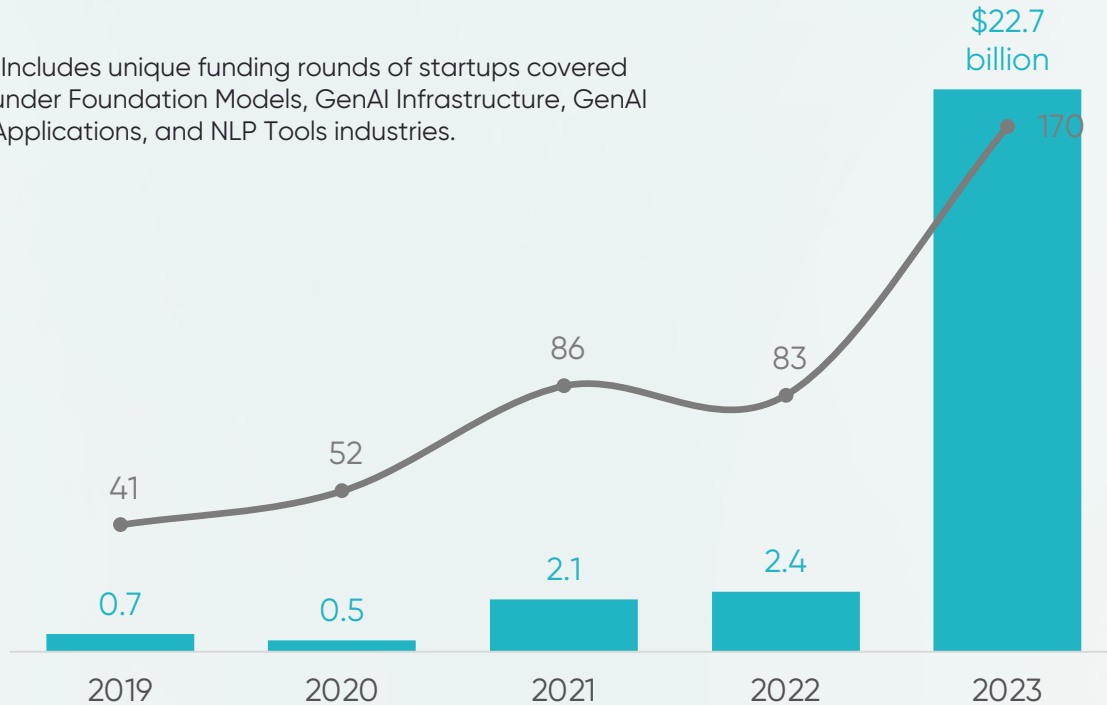
A closer look at  
the **bright spots**



# GenAI funding surged following ChatGPT's launch

■ Total funds raised by GenAI startups\*  
— Total funding rounds by GenAI startups

\*Includes unique funding rounds of startups covered under Foundation Models, GenAI Infrastructure, GenAI Applications, and NLP Tools industries.



**\$22.7 billion**

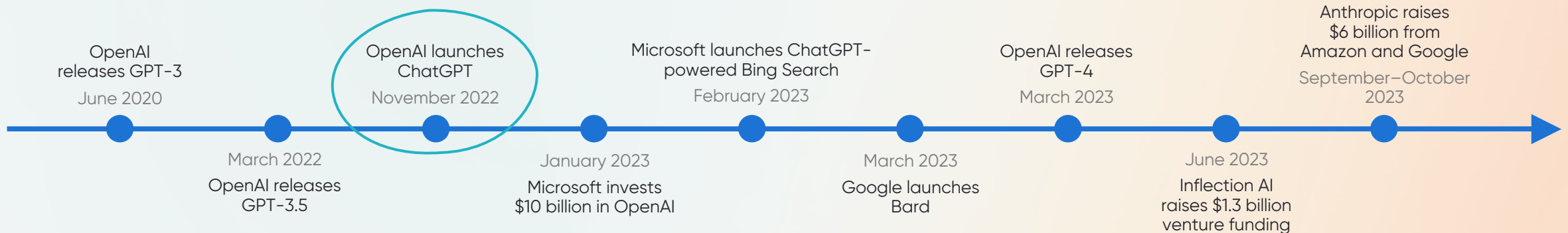
**VC funding raised by GenAI startups** in 2023 (+9x YoY). This accounted for **23% of total VC funding raised** across all SPEEDA Edge industry hubs during the year.

**+17x YoY**

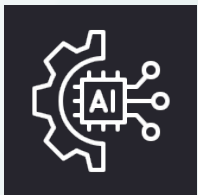
**Increase in Foundation Models funding** (from \$1.2 billion in 2022 to \$20.7 billion in 2023) as the race for “bigger and better AI” heats up. 20+ startups launched new large AI models in 2023, including Open AI (GPT-4) and Inflection AI (Inflection-2).

**20 mega deals**

**GenAI accounted for ~11% of all mega deals** in 2023 including four “billion-dollar” deals across OpenAI, Anthropic, and Inflection AI. Databricks and Aleph Alpha also raised \$500 million+.







# ...but VC interest was yet to fully trickle down to potential GenAI beneficiaries



## Content Creation Tools

**\$0.6  
billion**

[2023 funding]

**-18%  
YoY**

[2023 change]

- **GenAI-based content creation tools** such as Typeface, Runway, Writer, and Synthesia had a few large rounds that partially offset the overall decrease in funding for the year.



## AI Drug Discovery

**\$1.7  
billion**

**-48%  
YoY**

- Funding picked up in 2H 2023 (4.3x more compared with 1H) led by a few large rounds from companies such as Generate Biomedicines and Nimbus Therapeutics, which have **started incorporating GenAI into their drug development processes.**

**\$1.3  
billion**

[2H 2023]

**+84%  
YoY**

[2H 2023]

- [Evozyne](#) was the only AI drug startup to earmark funds raised for GenAI advancements.



## Extended Reality (XR)

**\$1.0  
billion**

**-26%  
YoY**

- **Incorporation of GenAI for XR platforms** [accelerated](#) toward the end of 2023, but funding activity was limited to non-pure-play GenAI application providers like Inworld AI and Atlas.
- AR monacle producer [Brilliant Labs](#) was the only pure play XR startup to raise funds specifically for GenAI advancements.



## Smart Factory

**\$0.4  
billion**

**-64%  
YoY**

- [Smart Factory](#) and [Next-gen Cybersecurity](#) were also **early adopters of GenAI through several product integrations**, but this trend was not reflected in funding. There were no rounds specifically targeting GenAI advancements in the two industries during the year.



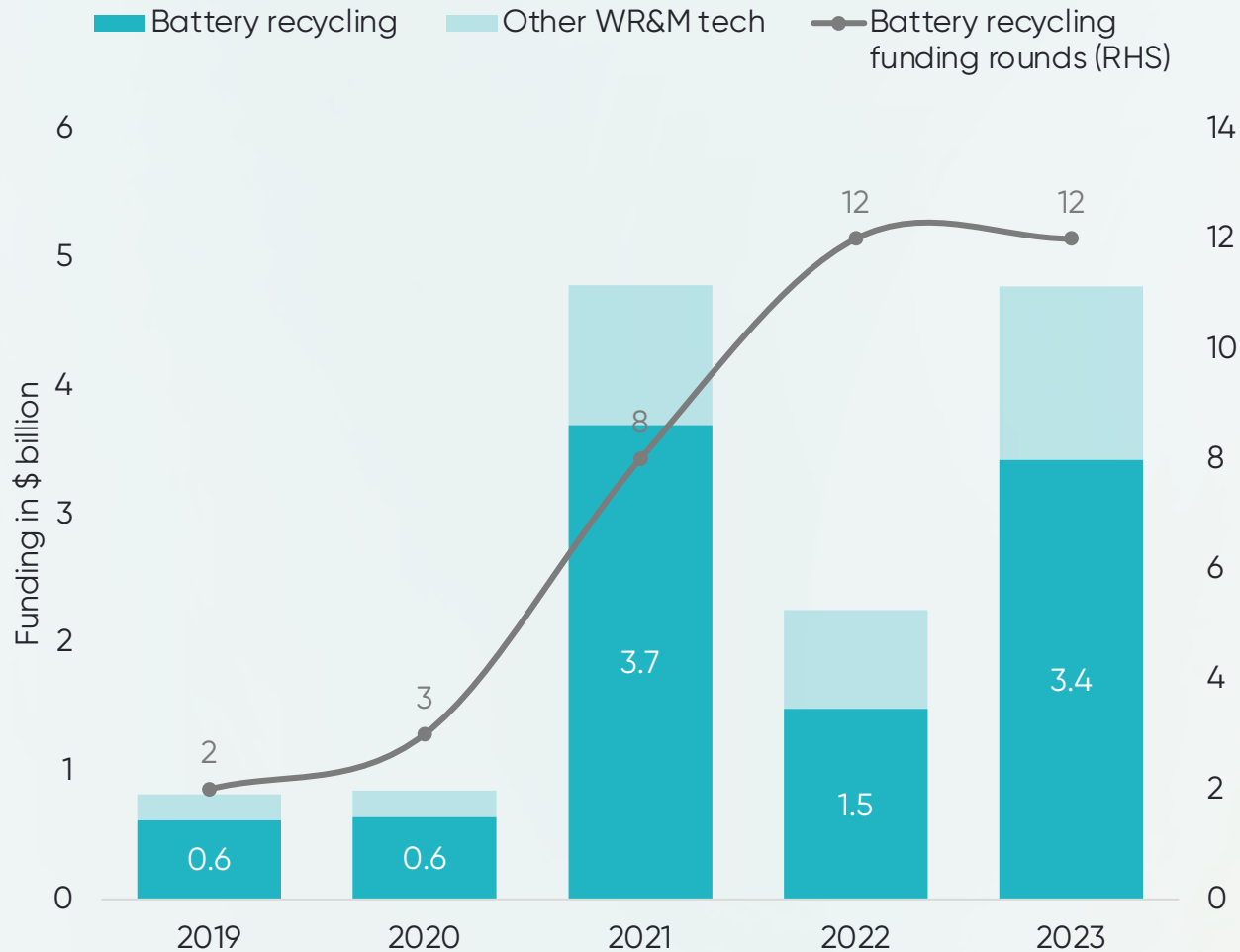
## Next-gen Cybersecurity

**\$2.6  
billion**

**-45%  
YoY**



# Battery recyclers raised big money



**\$3.4 billion**

**VC funding by battery recycling startups** in 2023. Nearly all funding was directed toward **capacity expansion**.

**96% top three startups**

**Funding concentrated among top three:** Northvolt (\$1.75 billion), Redwood Materials (\$1 billion), and Ascend Elements (\$542 million).

**27% market CAGR**

**Demand for Li-ion batteries** is [expected](#) to reach 4.7 TWh by 2030 (from 700 GWh in 2022), with over 70% of this demand coming from EVs.

**~5% lithium reuse**

**Share of lithium recycled at present**, providing significant headroom for growth.



# ...to fund capacity expansion plans

**northvolt**<sup>®</sup>

**\$1.75  
billion**  
[2023]

**\$5.0  
billion**  
[2019–22]

- **New launch:** Joint facility with European Metal Recycling in August 2023 (10 K tons of battery materials).
- **In development:** Europe's largest battery recycling facility in Sweden (125 K tons). Expected to be operational from 2023.
- **Planned:** Hydrovolt JV in Norway plans to recycle 70 K tons in 2025 and 300 K tons in 2030 and develop new facilities in France and Germany.

**REDWOOD**  
MATERIALS

**\$1  
billion**

**\$0.8  
billion**

- **M&A:** Acquired Redux Recycling (10 K tons) in September 2023 to accelerate its expansion into Europe.
- **In development:** Plans to spend \$3.5 billion through 2030 to develop a large-scale facility in Nevada to recycle batteries for five million EVs per year.
- DOE committed to provide a \$2 billion loan facility to develop the Nevada facility in February 2023.

**ASCEND**  
ELEMENTS

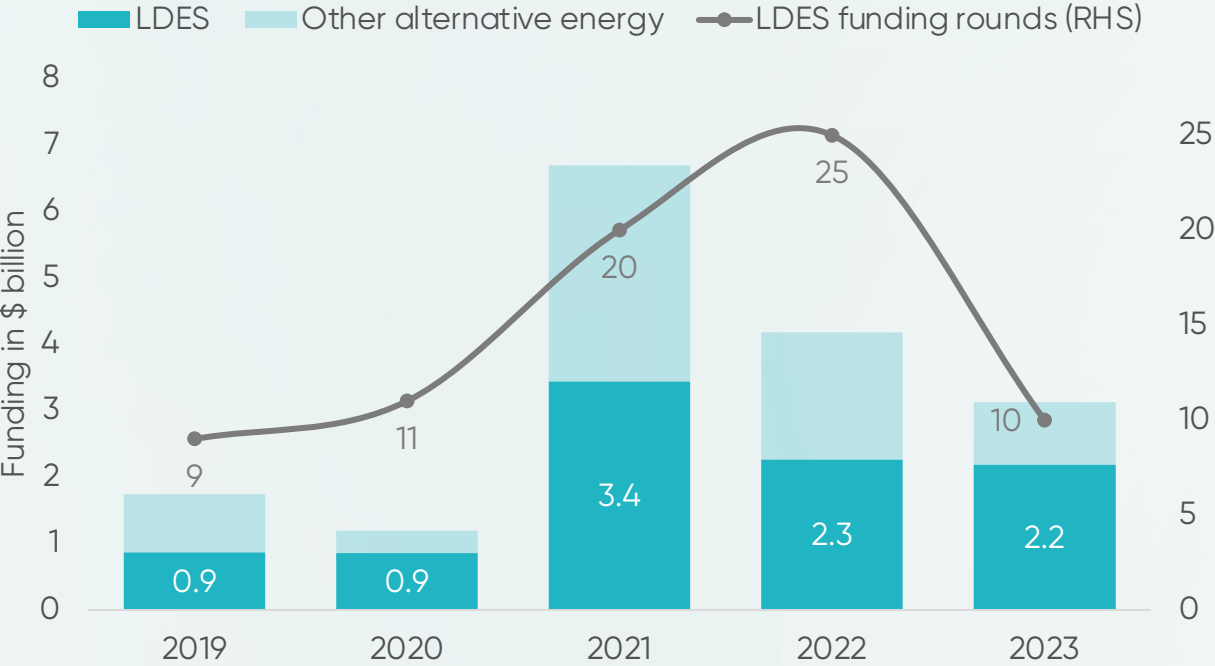
**\$0.5  
billion**

**\$0.3  
billion**

- **New launch:** Commenced operations at North America's largest battery recycling facility in Georgia in March 2023 (30 K tons).
- **In development:** \$1 billion facility in Kentucky to be operational from 2023/24.
- **Planned:** Build new facilities across North America, Europe, and Asia to process up to 150 K tons.



# LDES funding remained strong for a third straight year



**\$2.2  
Billion**

**VC funding by LDES startups in 2023.**  
More than \$1 billion raised for the third consecutive year.

**+1.4x  
YoY**

**Increase in the average deal size** as funding concentrated among larger players. Seed deals—accounted for nearly half last year—were non-existent in 2023.

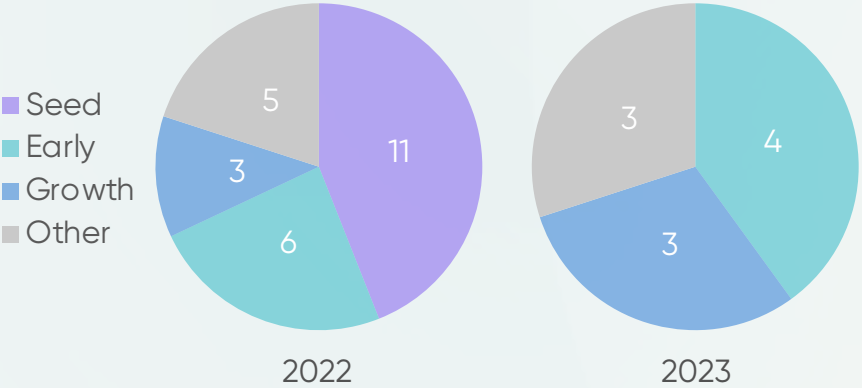
**15x  
Industry  
growth**

**Estimated increase in global LDES capacity over 2021–2030** (from 27 GW to 411 GW) underpinned by growing renewable energy adoption.

**30%  
tax  
credit**

**Investment tax credit eligibility on US LDES projects** is likely to accelerate growth. Introduced by the Inflation Reduction Act of 2022.

**LDES  
deals by  
stage**





# Nine “billion-dollar” deals



Foundation Models

GenAI Applications

**\$10.0  
billion**

**The AI developer** raised corporate funds from Microsoft at a valuation of \$29 billion in January. This was the largest deal in 2023.



EV Economy

WR&M Tech

**\$1.3  
billion**

**The battery manufacturer/recycler** raised convertible notes to expand in Europe and North America in August.



FinTech Infrastructure

**\$6.5  
billion**

**The payment infrastructure provider** raised Series I funds at a valuation of \$50 billion to provide liquidity for employees in March.



Smart Mobility Information

**\$1.1  
billion**

**The park-and-go app** raised Series C funds to acquire a parking facility management services company in October. This was the largest-ever round in the industry.



Foundation Models

GenAI Applications

**\$4.0  
billion**

**The AI developer** raised corporate funds from Amazon to support AI development in September.

**\$2.0  
billion**

**The AI developer** raised further corporate funds from Google to support AI development and expand operations in October.



Truck Industry Tech

**\$1.0  
billion**

**The autonomous truck tech provider** raised funds from the Softbank Group to accelerate growth and technology development in September.



Foundation Models

GenAI Applications

**\$1.2  
billion**

**The AI developer** raised funds from investors including Microsoft and NVIDIA at a valuation of \$4 billion for product design and development in June.



WR&M Tech

**\$1.0  
billion**

**The battery recycler** raised Series D funds at a valuation on \$5.3 billion to expand its capacity and domestic battery supply chain in August.



**Other notable  
funding trends**

# Where did Big Tech invest?

25  
GenAI  
deals

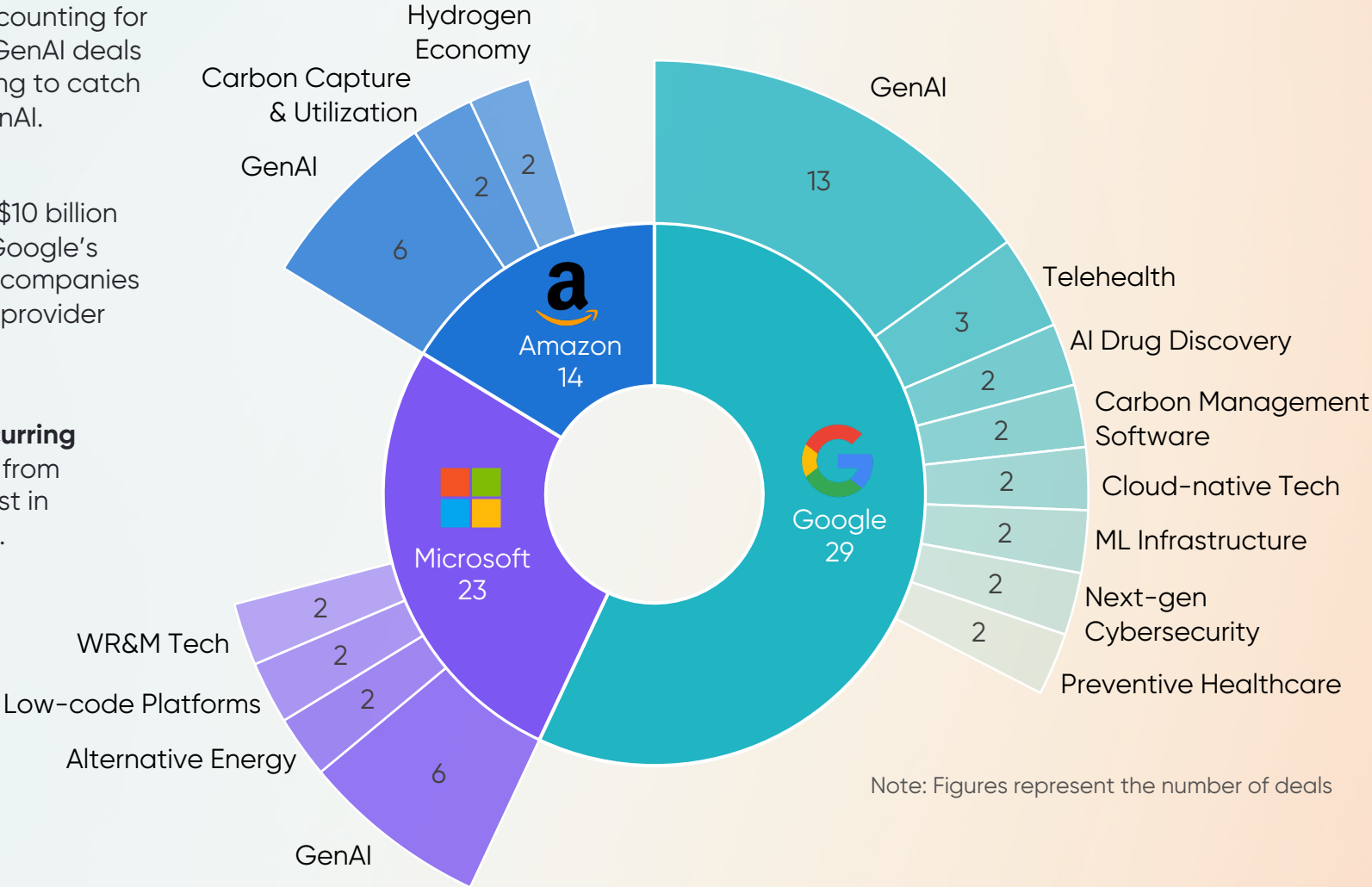
**Big Tech investments in GenAI soared**, accounting for ~40% of total deals. Google had 2x more GenAI deals as Microsoft and Amazon, presumably trying to catch up with Microsoft’s early success with OpenAI.

\$16  
billion+

**Notable GenAI deals** included Microsoft’s \$10 billion investment in OpenAI and Amazon’s and Google’s \$6 billion investment in Anthropic. All three companies also invested in data and AI infrastructure provider Databricks.

Climate  
and  
health

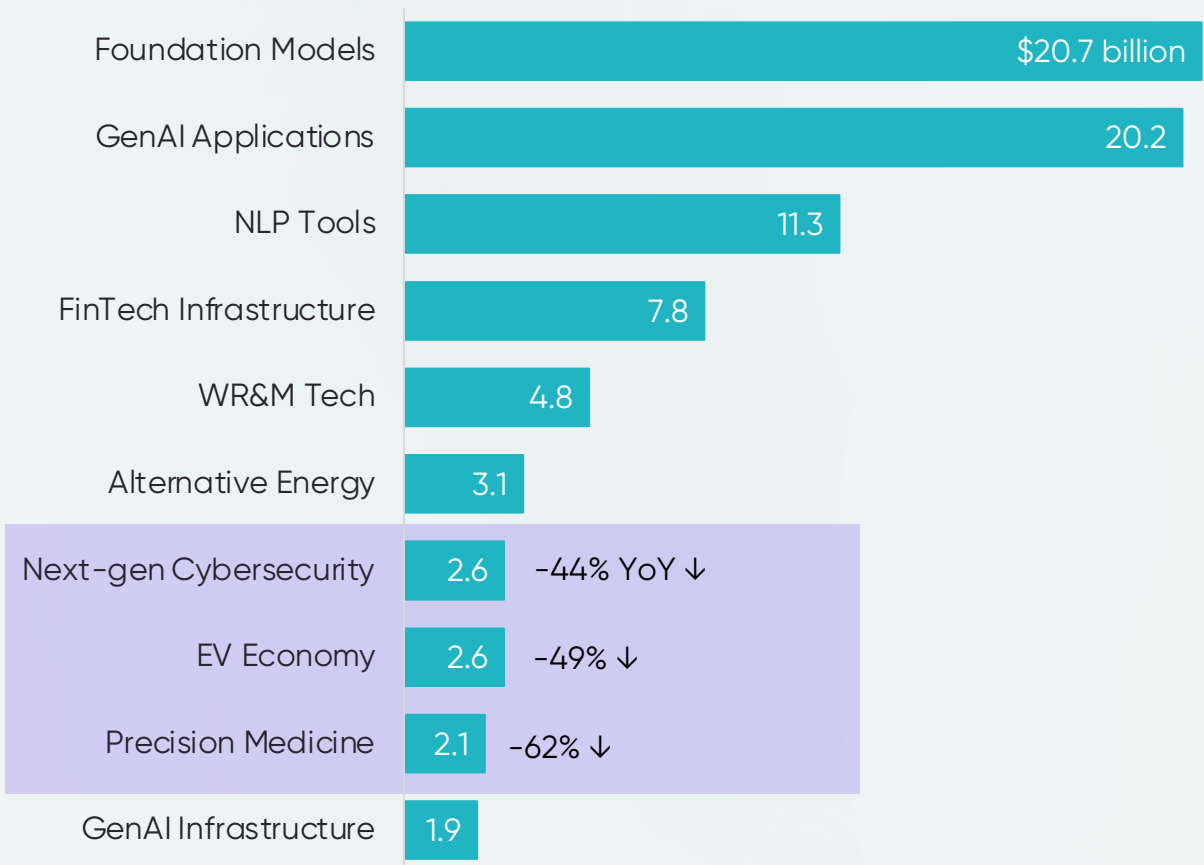
**Outside of GenAI, sustainability was a recurring theme**, with investments across the board from energy to carbon capture. Google’s interest in healthcare industries was also noteworthy.



Note: Figures represent the number of deals

# EVs, Cybersecurity, and Precision Medicine were the other most funded industries, but were down significantly in dollar terms

Highest funded industries in 2023



## EV Economy

EV Economy raised \$2.6 billion, but funding was down 49% YoY (-\$2.5 billion). Funding concentrated in battery and charging infrastructure spaces, while large funding rounds from vehicle manufacturers observed in the previous years were notably absent. Nevertheless, global EV sales were up 34% YoY in 2023, and the outlook for the industry remains largely positive led by aggressive electrification targets.



## Next-gen Cybersecurity

Despite raising \$2.6 billion, funding was down 44% YoY (-\$2.1 billion). Much of this slowdown can be attributed to the inflated valuations from previous years keeping investors at bay, combined with the fact that many companies are still sitting on their cash piles from previous years and have been extending their cash runway through operational changes and layoffs.



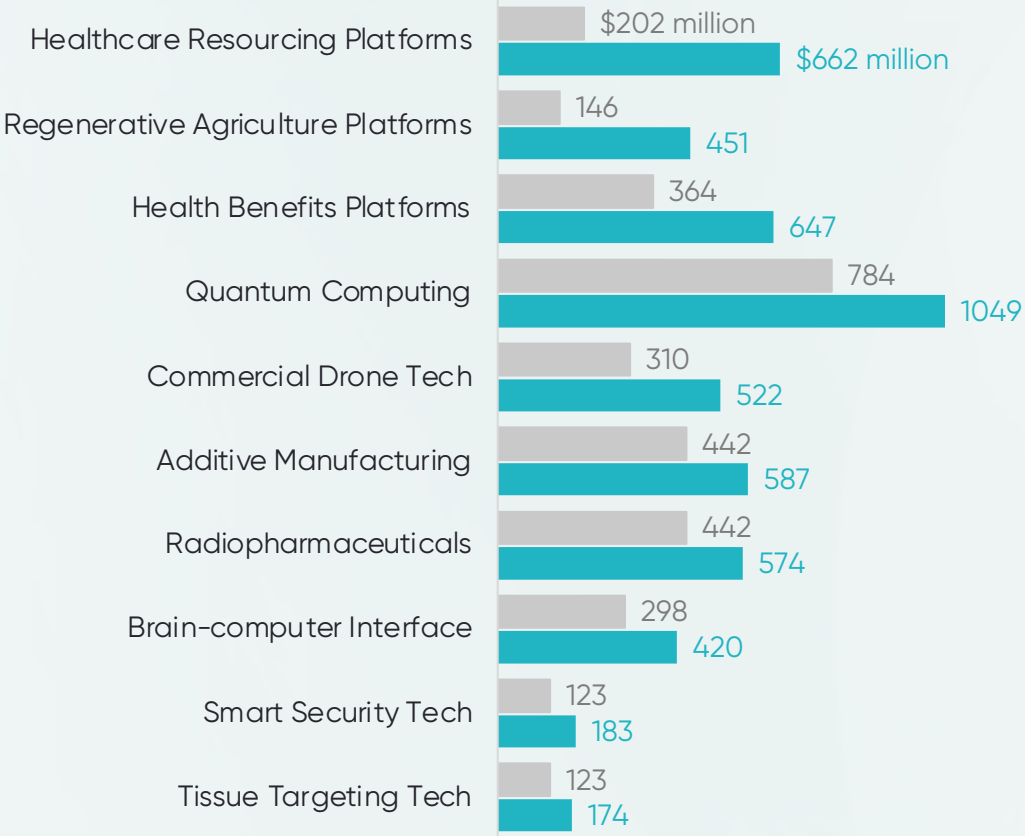
## Precision Medicine

At \$2.1 billion, Precision Medicine funding was down 62% YoY (-\$3.6 billion). While most segments of the industry saw significant declines in investment, companies in the drug discovery and development segment appear to have been less affected (-43% YoY), with the segment accounting for all of industry's mega-rounds in 2023.

# No major funding and deal size gains outside of usual winners\*

Largest increases in funding in 2023\*

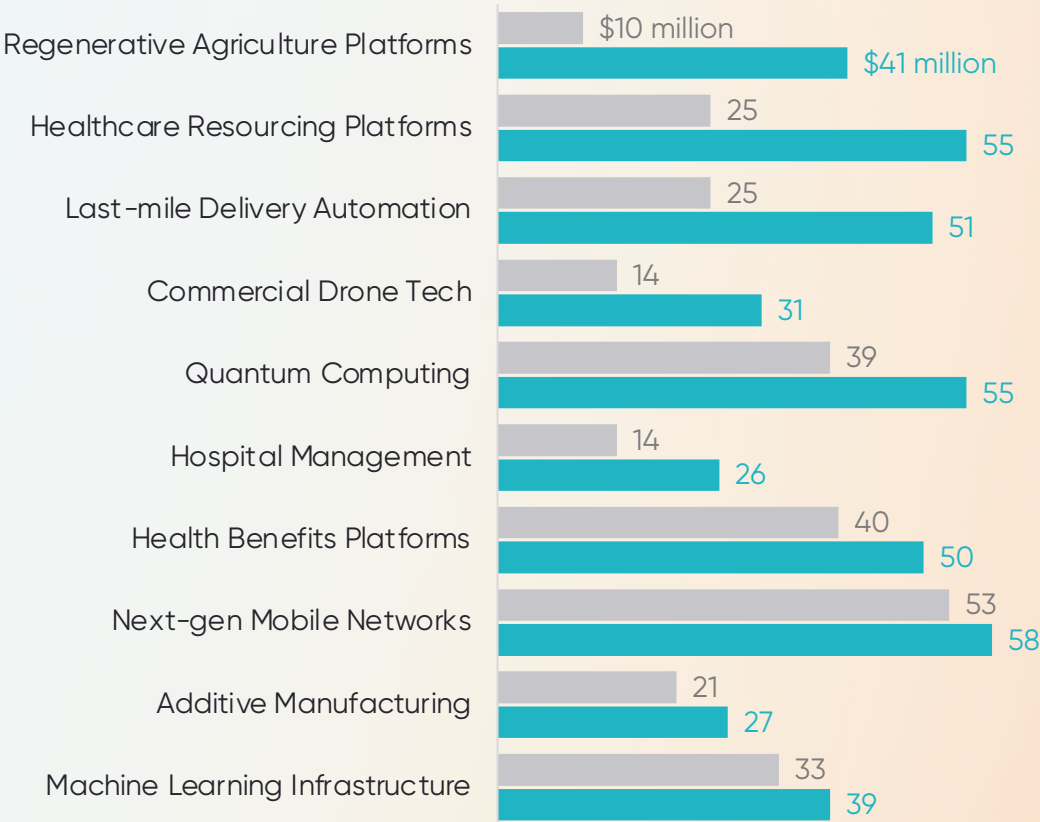
■ Funds raised in 2022   ■ Funds raised in 2023



Largest deal size increases in 2023\*

Criteria: YoY funding increase and 10+ deals

■ Average deal size in 2022   ■ Average deal size in 2023



\*Refers to industries that raised significant funding during the year, such as GenAI, WR&M Tech, Alternative Energy, and other industries with one-off mega deals such as Fintech Infrastructure and Smart Mobility Information. These industries have been excluded from the two charts above

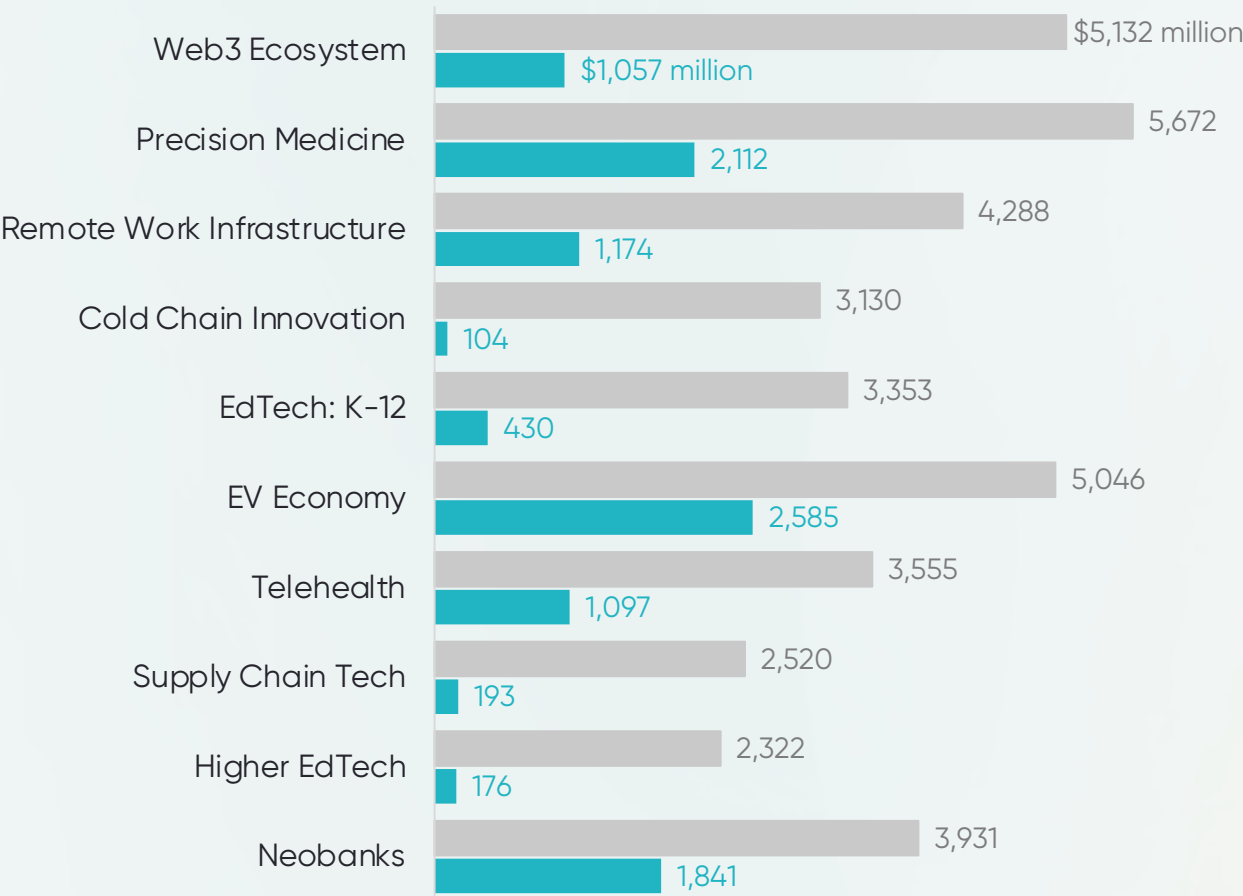




# Notable funding drops in Web3 and distribution; pandemic winners continued to struggle

Largest decreases in funding in 2023

Funds raised in 2022 Funds raised in 2023



## Web3 Ecosystem

Web3 funding declined by ~80% YoY following the FTX scandal (November 2022) and the subsequent crypto winter. Bitcoin's resurgence toward the end of the year was yet to be reflected in funding.



## Distribution Tech

The Supply Chain Tech, Logistics Tech, and Cold Chain Innovation industries saw ~70%–90% YoY drops in funding after two record years. Fewer post-pandemic supply chain disruptions and lower freight costs may have contributed.



## Remote Work, Telehealth, and EdTech

Funding for Remote Work, Telehealth, and EdTech declined for the second consecutive year, as the pandemic-driven interest in these industries continued to wane.

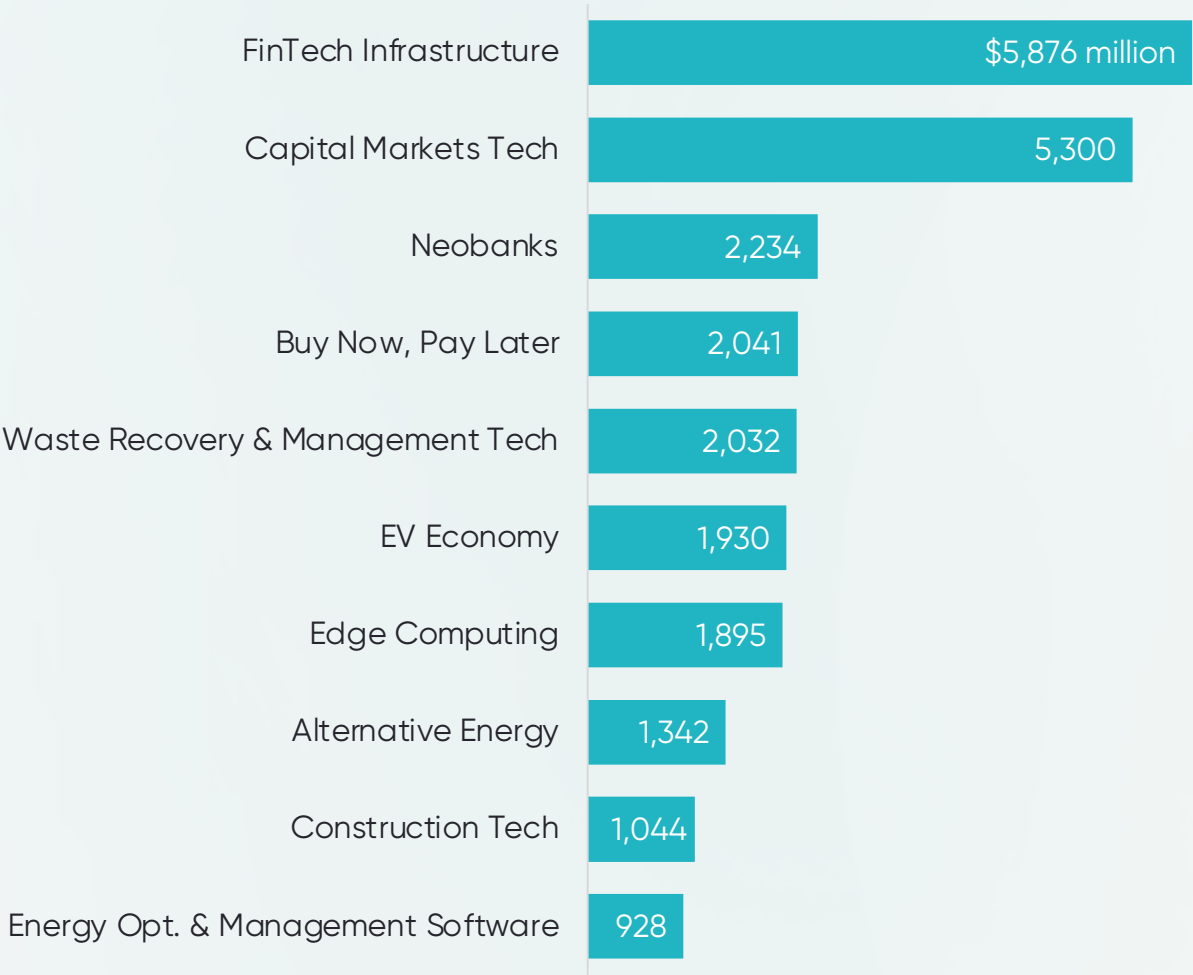


## Precision Medicine, EVs, and Neobanks

Despite losing over \$2 billion each, the percentage decrease across the three industries (~50%–60% YoY) was **only marginally higher than the decrease in overall VC funding** (excluding GenAI gains).

# Capital-intensive industries turned to debt as VC support faded

Industries that raised most debt in 2023



**\$24.1 billion**

Total debt financing across all SPEEDA Edge industry hubs was marginally up from last year (+4% YoY). This was the most debt raised in the last five years.

**\$11.6 billion**

The financial services sector accounted for ~48% of total debt, led by FinTech Infrastructure; Capital Markets Tech; Neobanks; and Buy Now, Pay Later (BNPL).

**3 large rounds**

Higher funding in FinTech Infrastructure and Capital Markets Tech industries was mainly due to banking software provider **Finastra's \$5.3 billion refinancing round**. Battery recycler Redwood Materials (\$2 billion) and EV maker Vinfast (\$1 billion) also raised giga-debt.

**Capital-seeking hubs**

Capital-intensive industries, such as Neobanks and BNPL in the financial services space as well as Alternative Energy, EVs, and WR&M in the sustainability domain, **seem to have turned to debt for their capital needs**, as VC investments slowed.

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