Game Changers

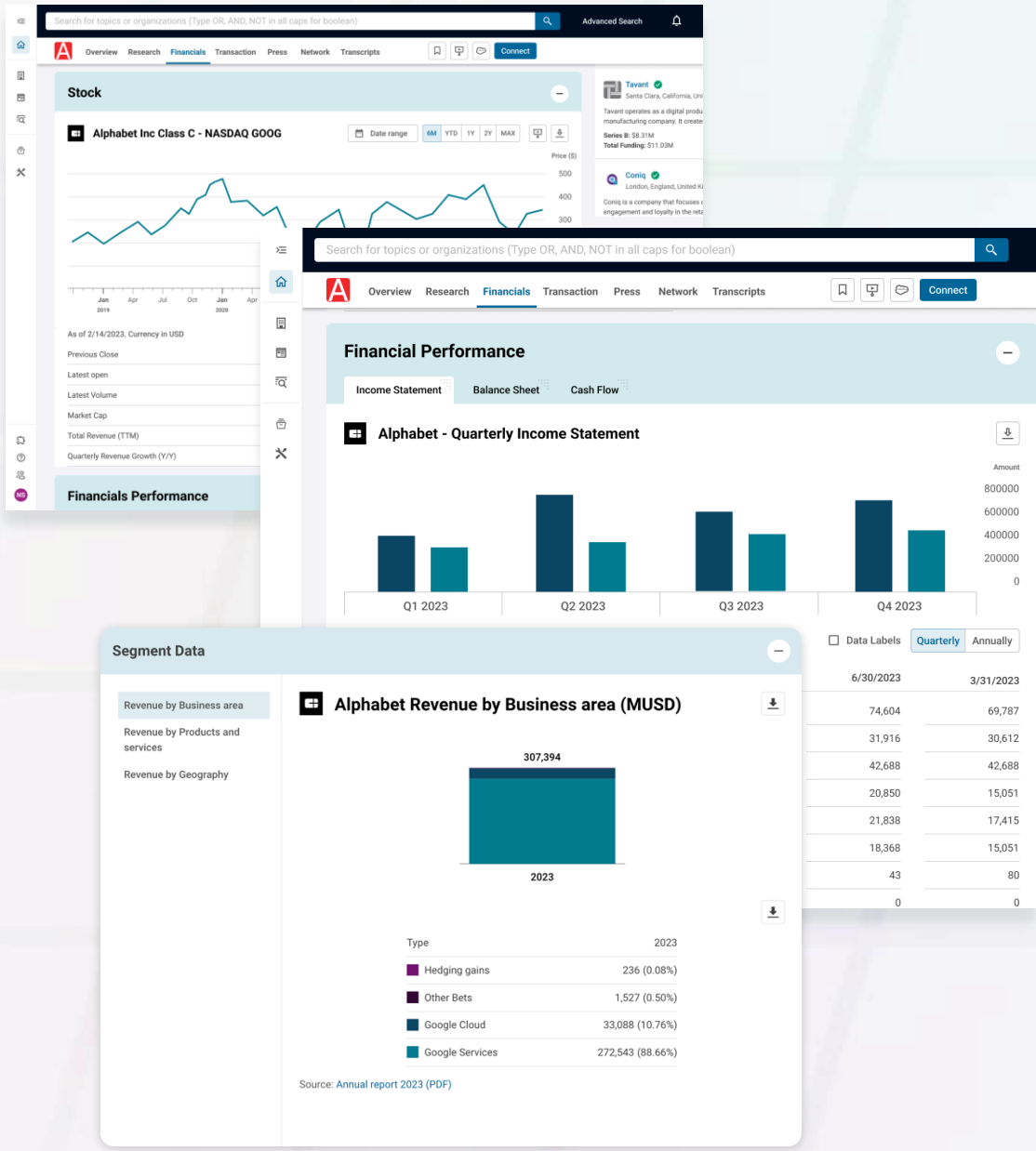
2025

CBINSIGHTS

Want to predict your competitor's next move?

Instantly surface your rivals' strategies with the all-in-one platform for public and private company data.

See it in action



Game Changers

2025

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Game Changers

2025

Tech that could change the world

CBINSIGHTS

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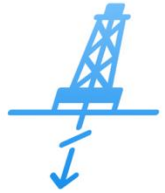

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1. **AI weather prediction**
   Models that can accurately predict extreme weather at the local and global scale
2. **Ultra-deep drilling**
   Advanced drilling techniques that can go far deeper to unlock superhot rock energy
3. **AI agent marketplaces**
   Enabling dynamic collaboration of specialized agents across software platforms
4. **Advanced nuclear propulsion**
   Nuclear power approaches to open the door to deep space exploration
5. **Biocomputing**
   Combining human neurons with chips to unlock the efficiency of the human brain for computers
6. **Brain manipulation tech**
   AI brings forward personalized "brain pacemakers" and other devices to treat neurological disorders
7. **Quantum-optimized portfolios**
   Using quantum computing to build higher-performing portfolios, faster
8. **Cellular & epigenetic reprogramming**
   Altering the gene expression of cells to extend the healthy human lifespan
9. **GPS-less navigation systems**
   Approaches that boost the resiliency of positioning services critical to global infrastructure

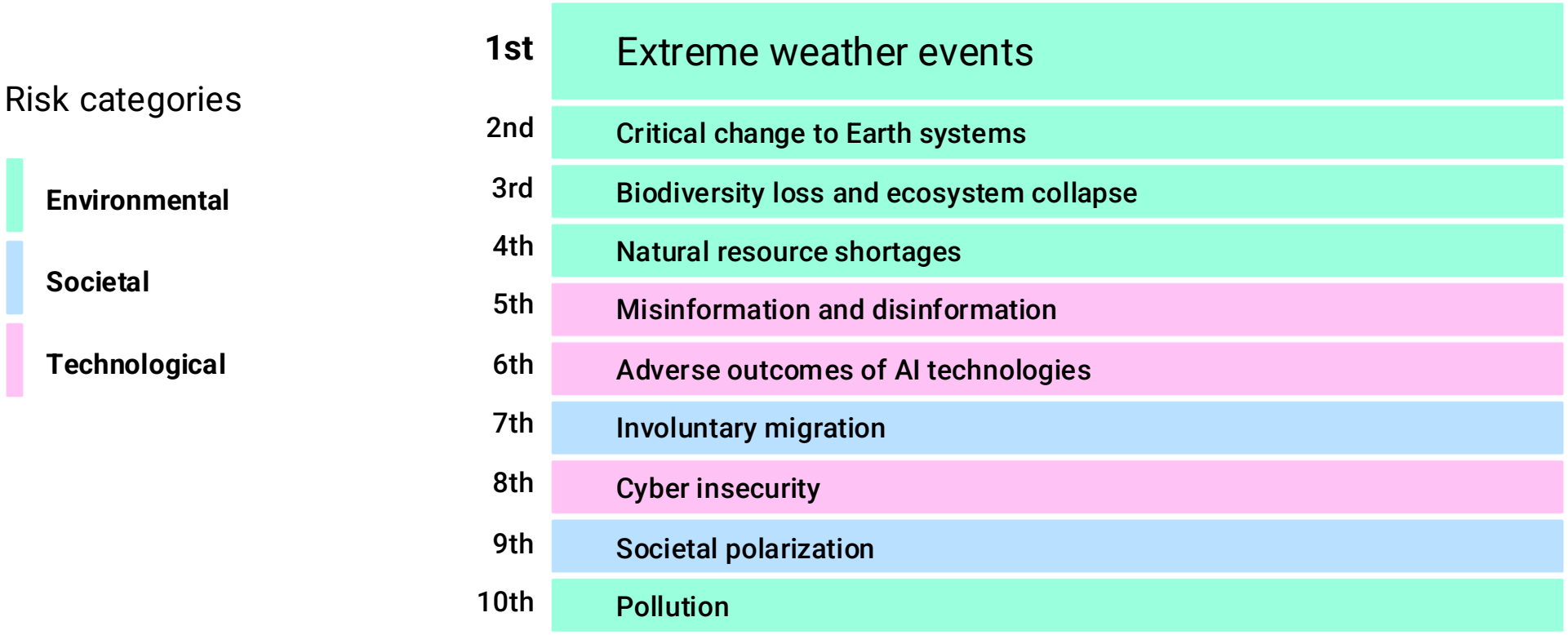
Insurance

AI weather prediction

CBINSIGHTS

Extreme weather is the #1 long-term global risk in the next 10 years

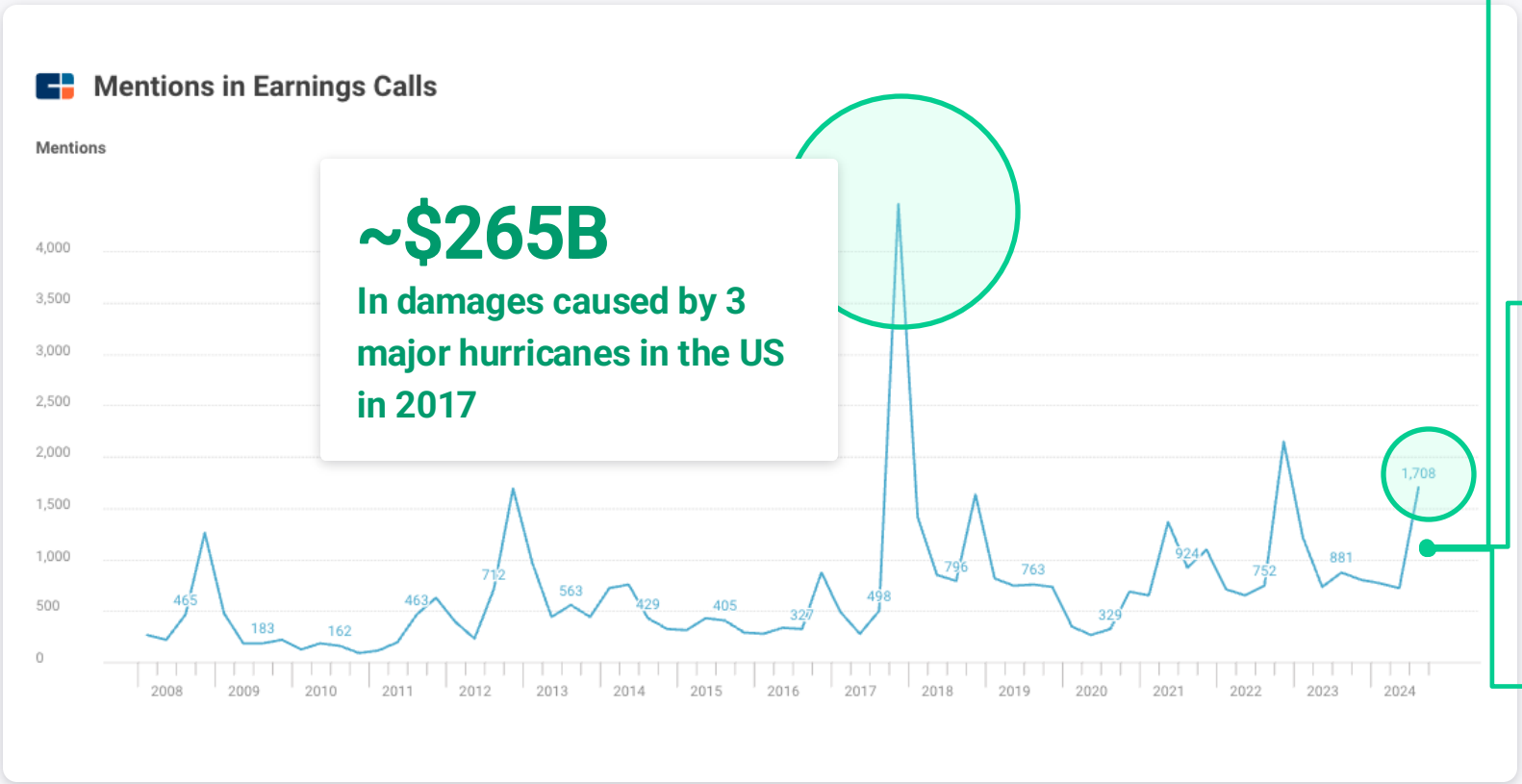
Global risks ranked by severity (negative impact on the world) over upcoming 10-year period*



Source: Global Risks Report 2024, World Economic Forum
*Based on the Global Risks Perception Survey (GRPS) of 1,490 experts. “Global risk” is defined as the possibility of an event occurring that would negatively impact a significant portion of global GDP, population, or natural resources.

Managing weather risk could protect $30T worth of global GDP impacted by weather

Extreme weather is top-of-mind for execs on earnings calls



"Our insurance business was impacted by the severe weather events in the Greater Toronto Area and the wildfires in Alberta in Q3 and by hailstorms in Calgary and floods in Montreal this month."

TD Bank, Q3'24

"But again, a bit of caution. We're well aware that we have a large part of the year still ahead of us. And especially in respect of natural catastrophes, **we're entering the hurricane season** as we speak."

Swiss Re, Q3'24

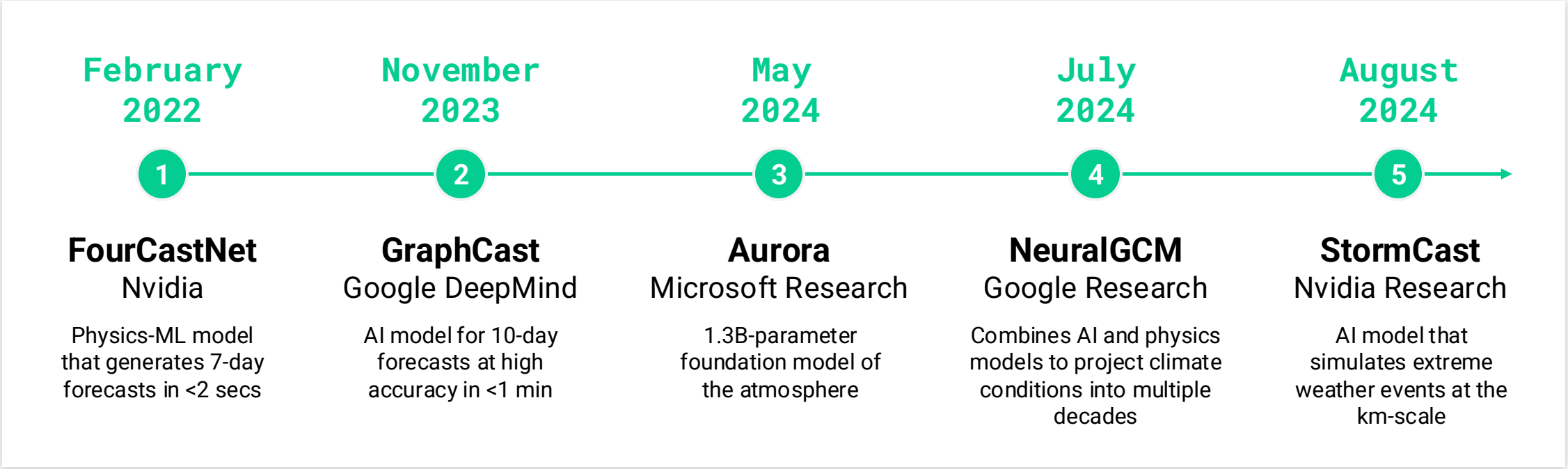
"The other issues were **supply chain challenges due to extreme weather patterns**."

Tiger Brands, Q2'24

Source: CB Insights earnings transcripts search — mentions of extreme weather events; CNBC
*Quarter reflects date call occurred.

Deep learning is making it easier to accurately predict extreme weather events at the local and global scale

AI weather and climate models are rapidly improving, enabling faster and more accurate predictions at lower computation costs than traditional physics-based models, which rely on supercomputers to crunch through equations to simulate future conditions. New models use historical weather data to learn from weather patterns and generate future projections in minutes once trained.



Source: Company releases
Note: Select models visualized.

Outside of big tech, startups tackling better weather forecasting with AI are targeting industries like insurance, financial services, and defense

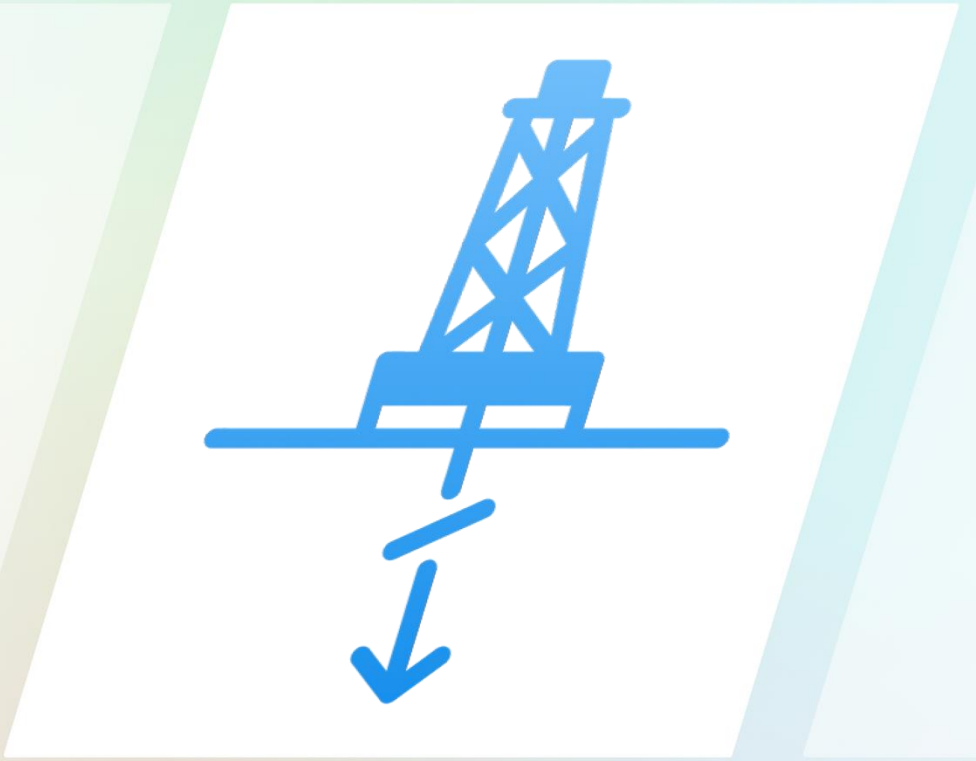
Startup	Description	Industries	Mosaic score*	Commercial Maturity**	Total funding	Select partners
Jua	AI model for 16-day weather forecasts	Energy trading	767	3 (Deploying)	$18M	Volue
Atmo	AI-powered precision weather forecasting	Government & defense, Aerospace, Energy, Agriculture	424	3 (Deploying)		US Air Force, Philippines government
WindBorne Systems	AI model WeatherMesh; long-duration balloons for atmospheric data collection	Government & defense	N/A	3 (Deploying)	$32M	NOAA, Department of Defense, US Air Force
reask earth system risk	AI-powered natural hazard modeling	Insurance, Financial services, Government	595	3 (Deploying)	$4.6M	AXA Climate, Juniper Re

Source: CB Insights company profiles — Jua, Atmo, WindBorne Systems, Reask. Note: Select companies visualized. *Mosaic score (out of 1,000) measures a company's health (as of 9/24/2024). **Commercial Maturity (out of 5) measures a company's ability to acquire customers today.

Energy

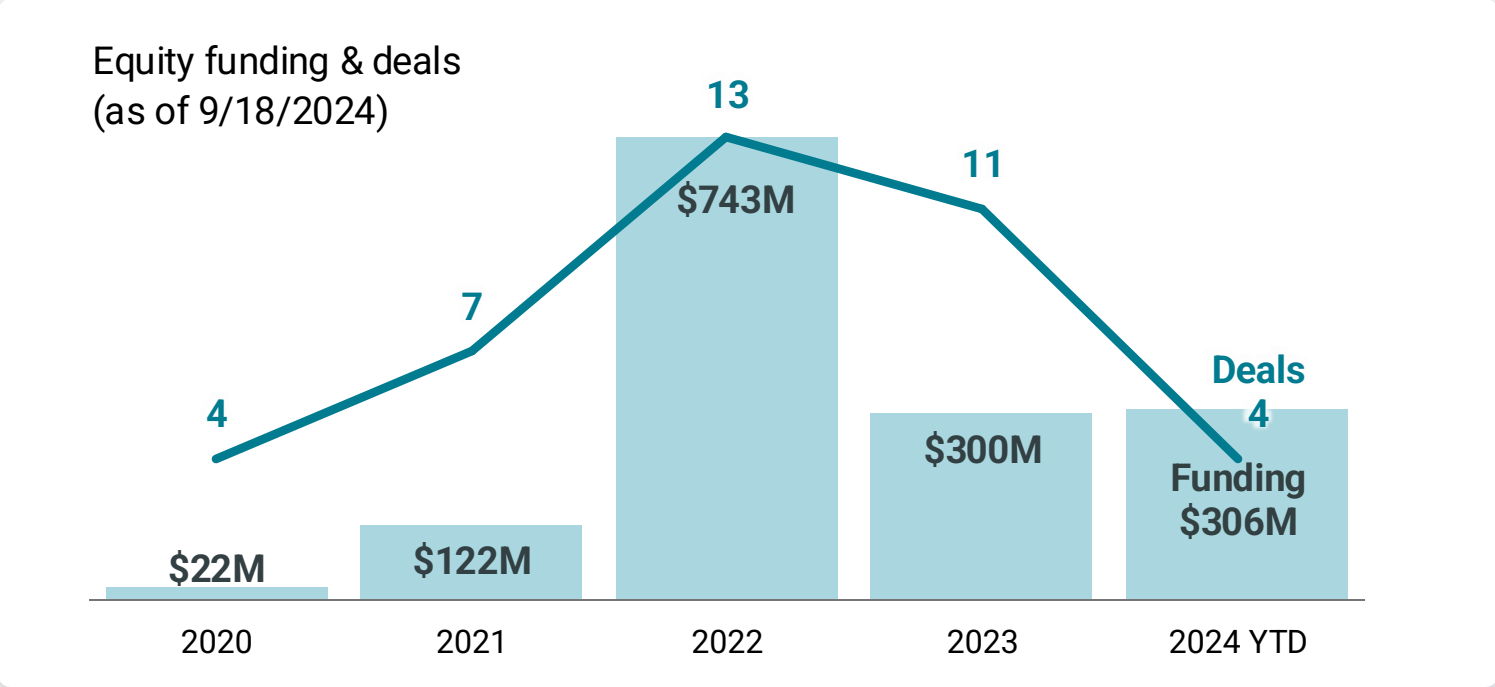
Ultra-deep drilling

CBINSIGHTS



Geothermal power providers have seen a rush of investment in recent years amid tech advances & rising clean power demands

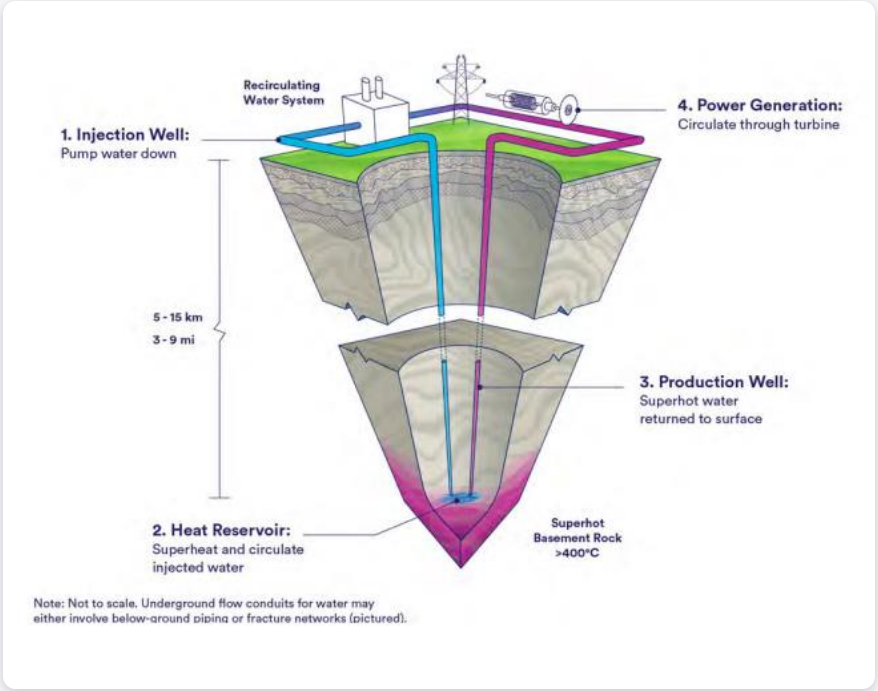
The Earth's interior holds vast untapped energy as heat — but it's historically been largely inaccessible, meaning geothermal energy accounts for less than 0.2% of the world's energy mix. Now, flush with cash, providers are starting to apply fracking techniques (cracking hot rocks to inject water, forming artificial hot water reservoirs) to get at the clean energy source.

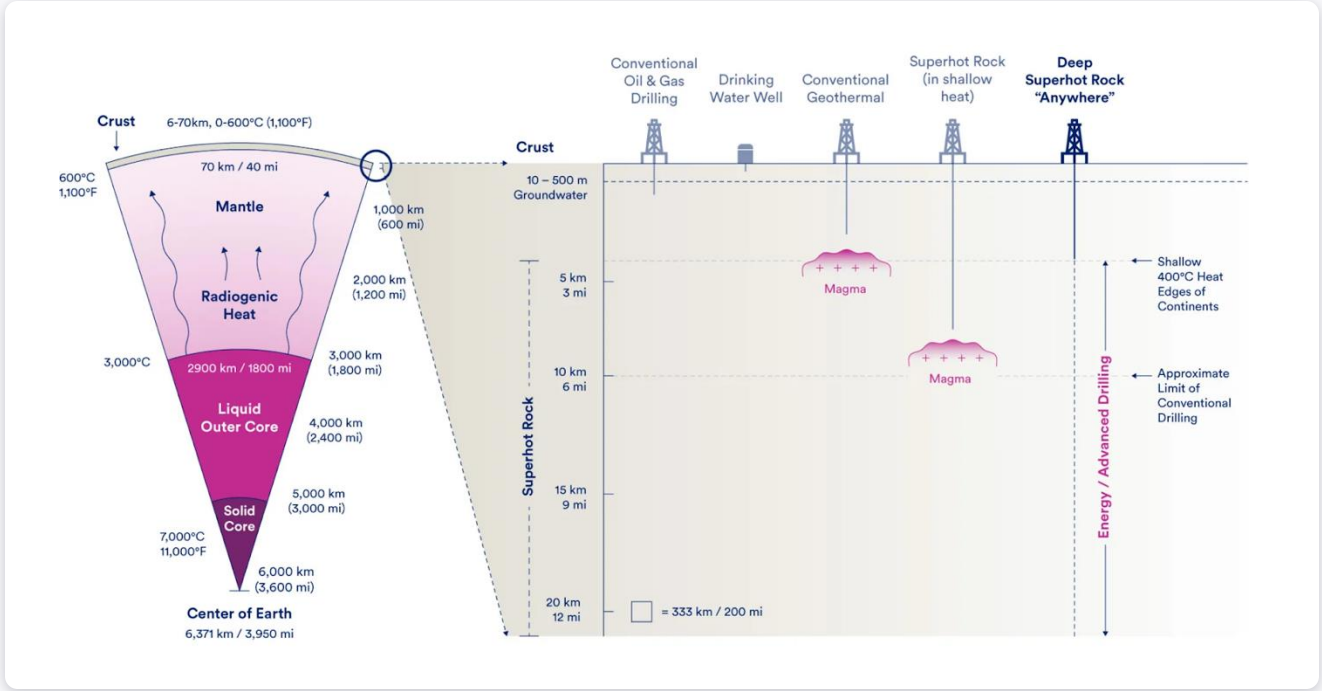


Source: CB Insights market — Geothermal power providers

Next, ultra-deep drilling technology could unlock superhot rock energy — available everywhere, 24/7

Conventional drilling rigs can typically drill to depths of 2-4 miles. Innovation in advanced drilling techniques is necessary to go past depths of 6 miles in the Earth's crust to where temperatures are ~750°F and water turns "supercritical" — holding 5-10x the energy of steam in conventional wells.





Source: Superhot Rock Energy (Clean Air Task Force)

Startups are pioneering energy drilling techniques using plasma and millimeter waves to go deeper, faster

Projects are still in the development phase — for example, Quaise is targeting generating deep geothermal energy from pilot wells in 2026.

Millimeter wave drilling

QUAISE

Latest funding: $21M Series A-III (December 2023)

An MIT spinout leveraging gyrotrons — a type of high-powered microwave device — to generate millimeter waves that can vaporize rock.

Plasma drilling

GA Drilling
Geothermal Anywhere

Latest funding: $15M Series C (April 2024)

A Slovakia-based company developing drills that emit plasma, using extreme heat energy to pulse through rock.

GA Drilling is backed by a leading oil & gas drilling contractor

Funding 4 Fundings / $27.72M

Uncover insights about GA Drilling's funding with our AI. Generate Insights

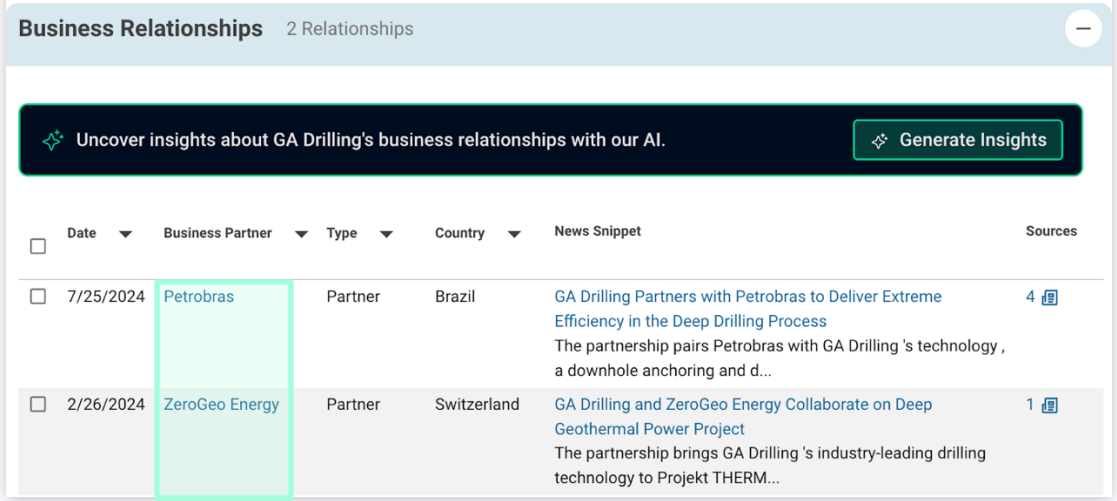
Date	Round	Amount	Investors	Valuation	Sources
4/18/2024	Series C	$15M	Nabors Industries, Neulogy Ventures, and 3 more		2
3/30/2022	Series B	$8M	Nabors Industries		1
3/29/2019	Series A	$4.72M	Lead Ventures		1
10/21/2016	Seed VC		Neulogy Ventures		

Source: CB Insights company profiles — Quaise Energy, GA Drilling

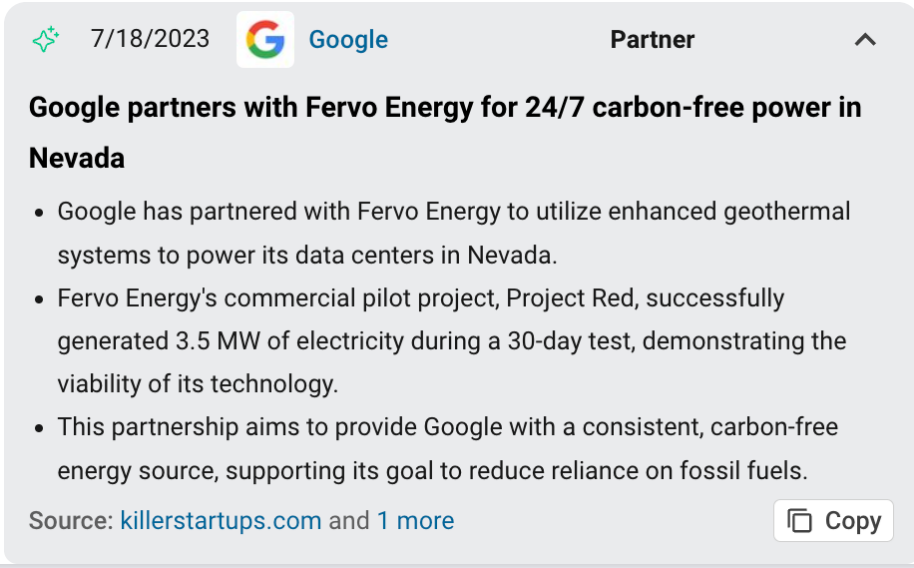
As demand for clean power increases, corporates are buying into the potential of geothermal & ultra-deep drilling systems

Expect additional O&G involvement as well as corporate activity to meet net-zero commitments — especially from big tech — as energy-hungry data centers proliferate.

GA Drilling partners with industry leaders



Google agrees to buy 115 MW of energy from Fervo and NV Energy to power its data centers in Nevada (June 2024) following earlier partnership



Source: CB Insights — GA Drilling and Fervo business relationships data & instant insights

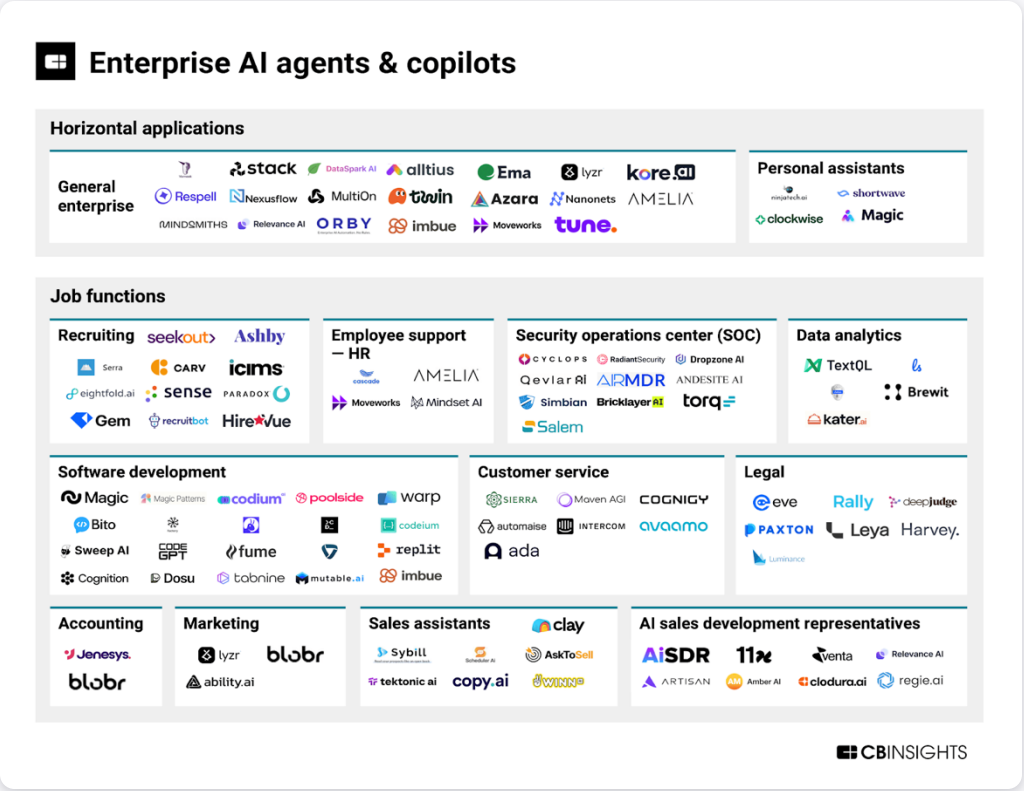
Enterprise Tech

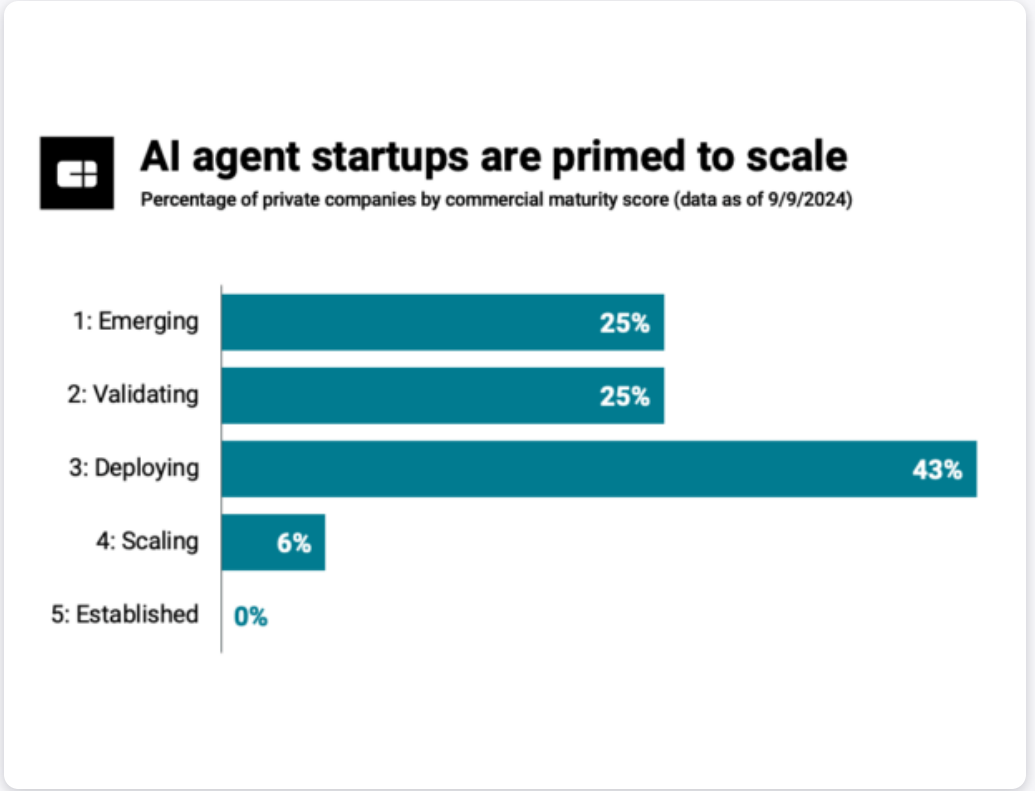
AI agent marketplaces

CBINSIGHTS

The AI agent & copilot space has exploded as businesses race to tap into productivity gains

Over 300+ startups have emerged in the space thanks to genAI advances. AI agents mark another evolution beyond copilots: these LLM-based bots can tackle complex tasks on a user's behalf with minimal intervention.



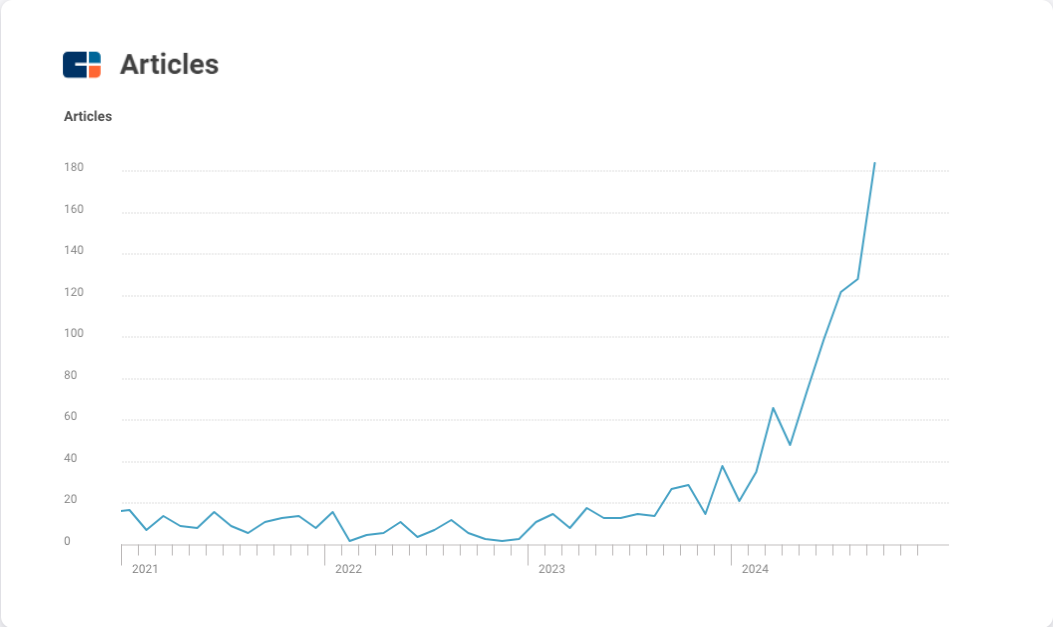


Source: CB Insights research — The enterprise AI agents & copilots market map (August 2024); Expert Collection; Enterprise AI agents are on the cusp of broad commercialization

Increasingly complex levels of agent interaction will transform the software landscape in the coming years

Future software applications will be defined by their agent architectures, dynamically creating new AI agents as needed and facilitating interaction between internal and external agents to accomplish tasks. Software companies will offer specialized agents as plug-in solutions.

Multi-agent AI is seeing a surge in media attention



Select multi-agent frameworks & infrastructure

Project	Description	Momentum
AutoGen	Open-source framework for building AI agents with conversational capabilities	Released by Microsoft, Penn State University, University of Washington in August 2023
LangGraph	Package that supports multi-agent workflows	Launched in January 2024 by LangChain (raised $25M Series A in February)
CrewAI	Startup developing framework for orchestrating agents in “crews” (teams)	Emerging (1 out of 5 on Commercial Maturity scale)

Source: CB Insights — news mentions search of articles mentioning multi-agent AI; The multi-agent AI outlook

Agent marketplaces will emerge, enabling dynamic integration and collaboration between specialized agents across platforms

These marketplaces may feature dynamic agent "subcontracting" based on specialization, latency requirements, budget, specific integration capabilities, and more — at a fraction of the cost of human work.

Startups like Emergence ($100M+ in funding) are targeting agent orchestration and routing

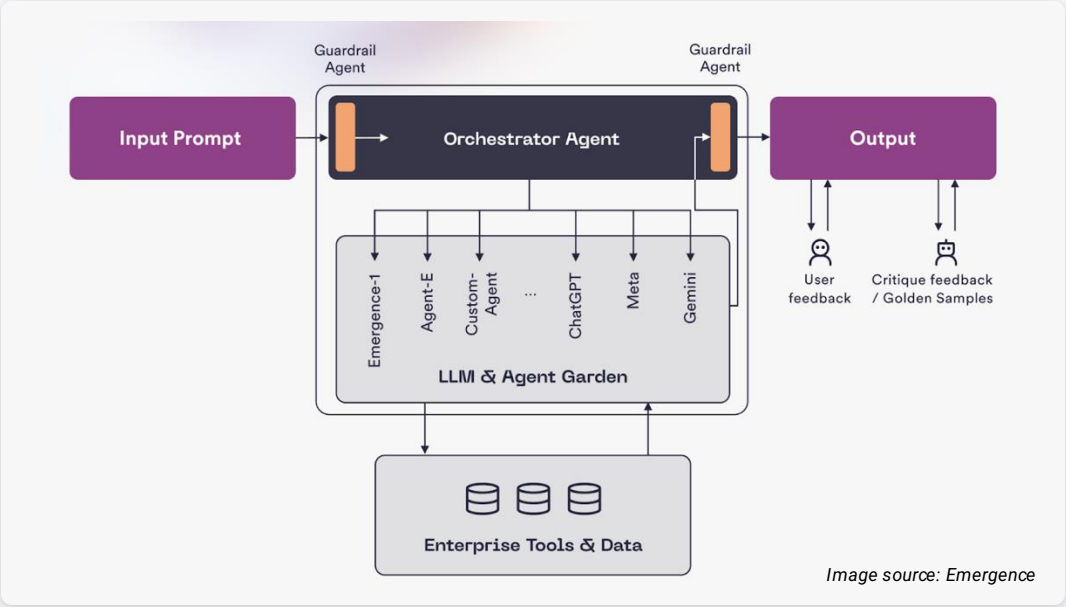


Image source: Emergence

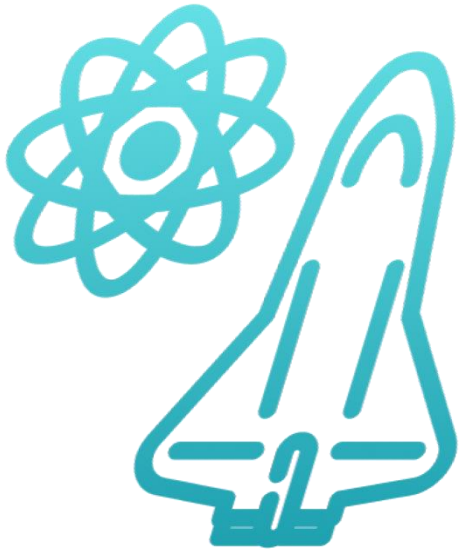
Companies' proprietary AI agents will seamlessly integrate with platforms like:

- **Microsoft Copilot** — currently offering a limited preview of API plugins to interact with external tools; launched Copilot agents (September 2024)
- **Slack** – launched an "agent hub," integrating AI agents from Salesforce as well as third-party partners like Adobe, Anthropic, Cohere, and Perplexity (September 2024)

Source: CB Insights research — The multi-agent AI outlook; Company releases

Aerospace

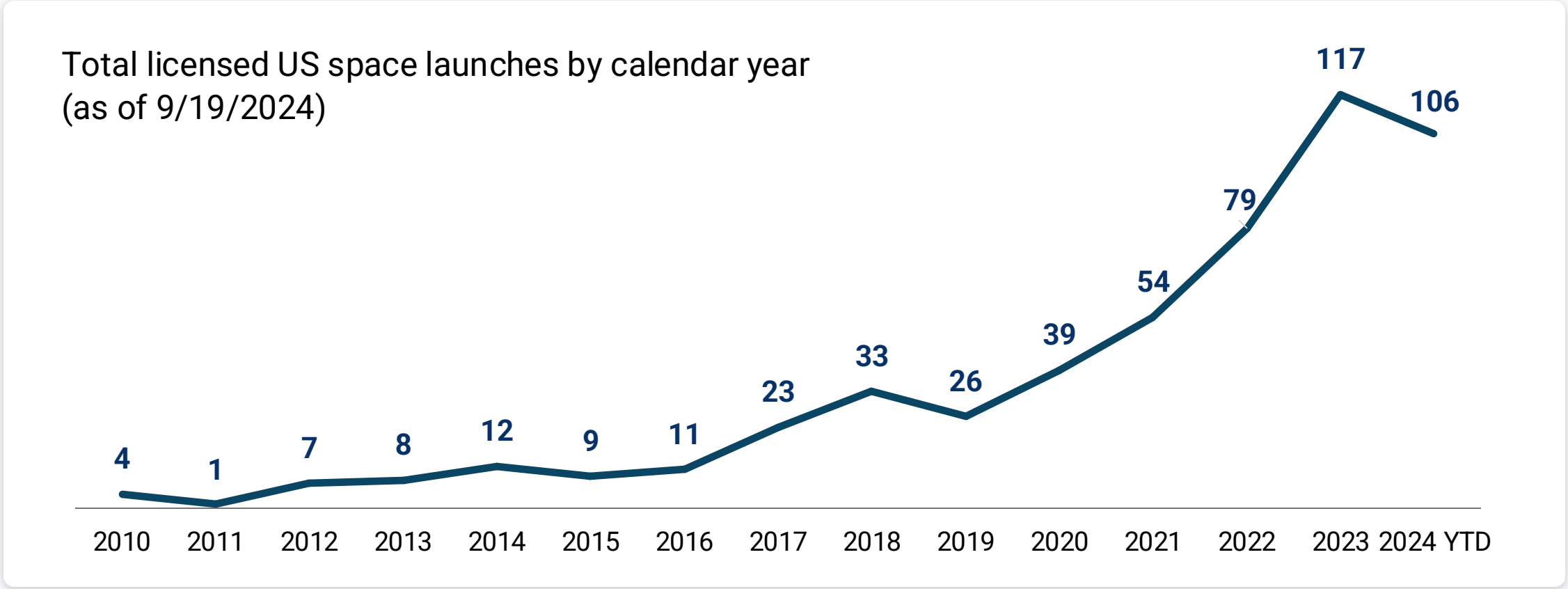
Advanced nuclear propulsion



CBINSIGHTS

Space launches are accelerating as demand for launching satellites and other cargo increases and costs come down

SpaceX (valued at $200B) has 7x the number of licensed launches as its competitors



Source: FAA

Advanced propulsion techniques will be necessary to go deeper into space, enabling faster interplanetary travel & resource extraction

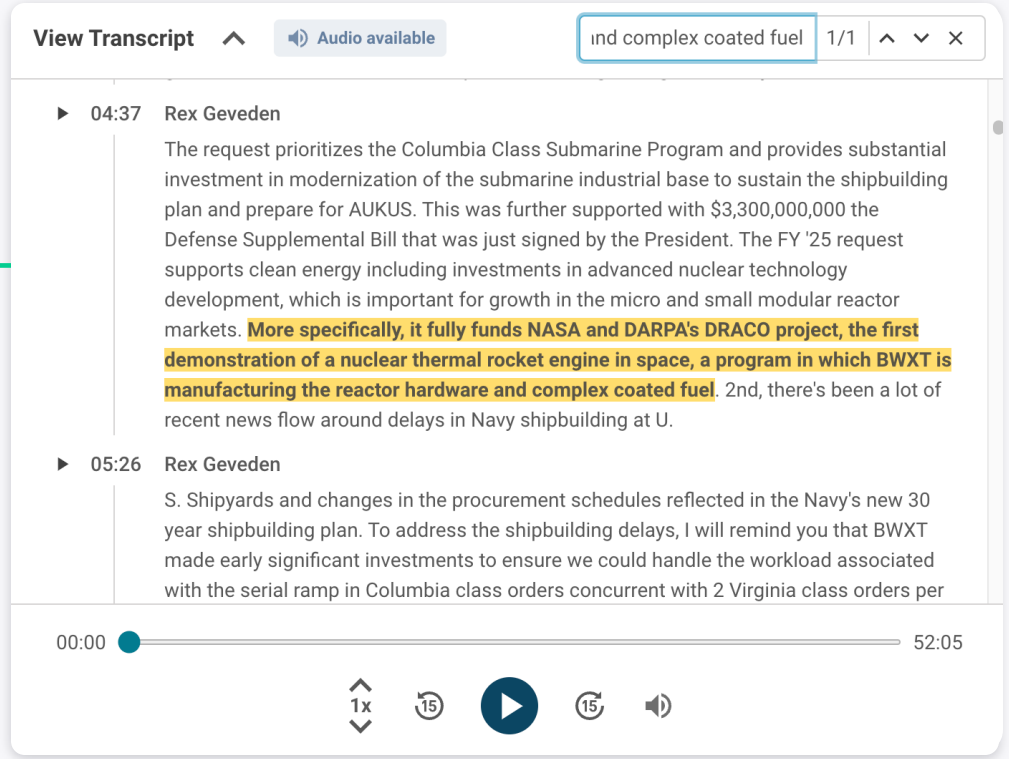
Conventional chemically powered rockets — which use chemical reactions to produce the thrust needed to move through space or the atmosphere — have limited efficiency for long-distance space travel due to their fuel mass requirements and maximum velocity. While Elon Musk's SpaceX is betting on simply getting more propellant into space in the near term to make it to Mars, nuclear power approaches could open the door to deep space exploration.

July 2023

NASA and DARPA select Lockheed Martin and BWX Technologies to test a nuclear thermal rocket (using a nuclear reactor to heat propellant), promising 2-3x more efficiency than chemical propulsion, with plans for 2027 launch

October 2023

Ultra Safe Nuclear awarded $5M contract by NASA to develop nuclear thermal propulsion systems in collaboration with Blue Origin



Source: CB Insights — Lockheed Martin business relationships, BWX Technologies Q1'24 earnings transcript, Ultra Safe Nuclear business relationships

While experimental, startups exploring fusion propulsion for faster, more efficient travel see industry backing

Fusion propulsion for spacecraft is still largely theoretical and less mature than nuclear thermal propulsion (NTP) — but it promises more energy with less fuel than NTP.

Generated by CB Insights on 08/28/2024 11:37 am

Helicity Space Scouting Report

helicityspace.com
California, United States
Founded in 2018

Stage: Seed VC - II | Alive
Last Funded: 4/2/2024
Total Raised: $5M

Helicity Space develops fusion propulsion engines for deep space exploration and transportation.

Key Takeaways

- **Strategic backing fuels development**: Secured funding from aerospace giants Lockheed Martin Ventures and Airbus Ventures in 2024 and 2023, respectively, signaling industry confidence in fusion propulsion technology. This strategic backing provides not only capital but potential pathways to market and defense sector opportunities. [1][2]

"Secured funding from aerospace giants Lockheed Martin Ventures and Airbus Ventures…signaling industry confidence in fusion propulsion technology."

Source: CB Insights scouting report — Helicity Space

AI Infrastructure

Biocomputing

CBINSIGHTS

The human brain is incredibly efficient

To perform an exaflop (1 billion-billion calculations in a second) requires the...

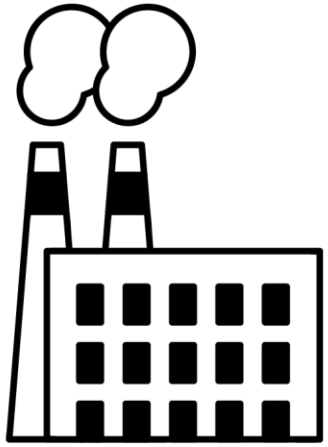
Human brain

20 watts of power

1 LED light bulb

Leading supercomputer

20 megawatts of power — or 1 million times the power required by the human brain



Small power plant

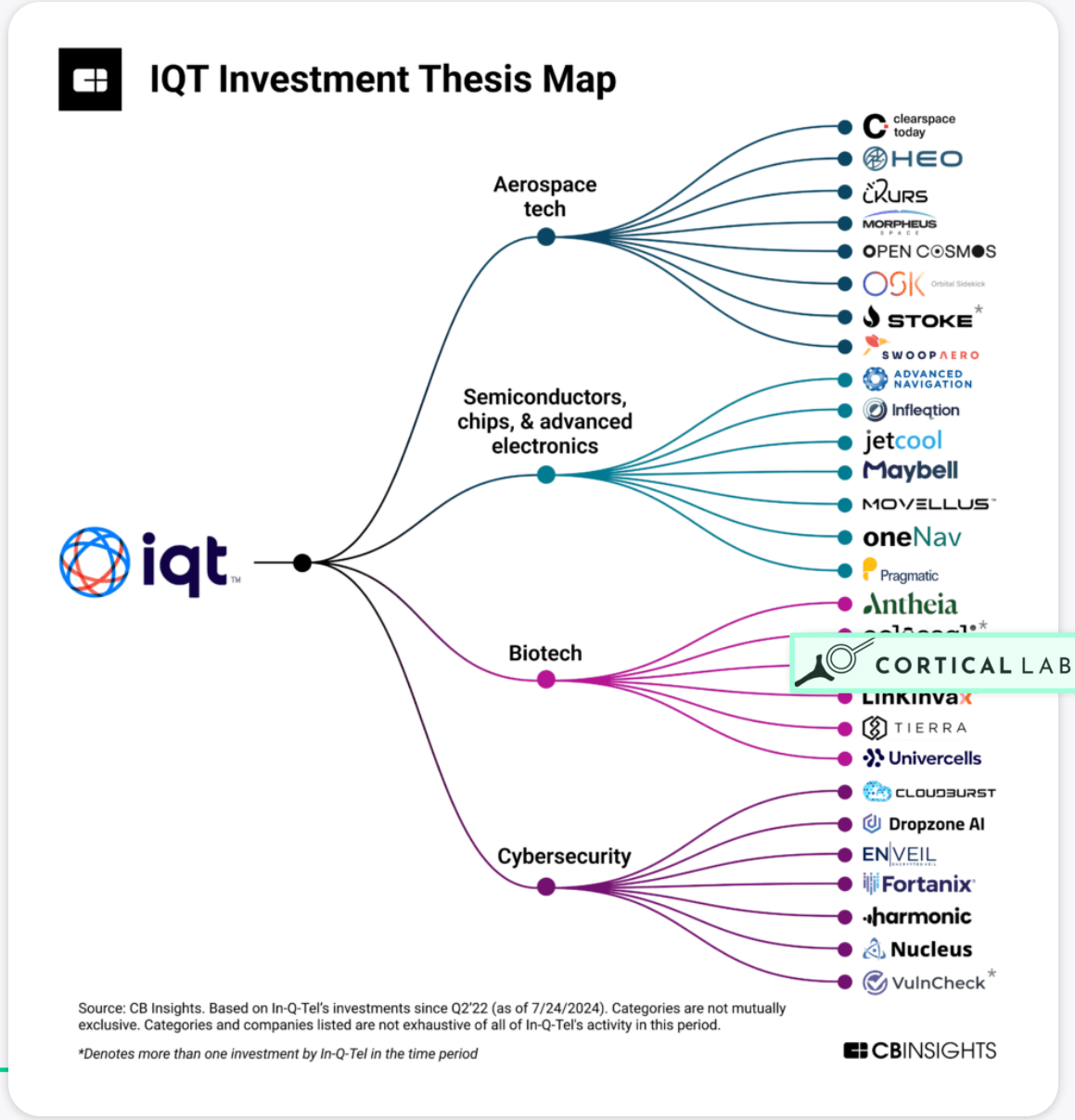
Source: NIST

Biological computing — or biocomputing — could unlock the efficiency of the human brain for computers

"Biological intelligence" involves combining human neurons with silicon chips to support computational tasks. While biological computing is still a nascent technology that needs to prove its ability to perform more complex tasks, investors and government agencies have their eyes on its potential benefits — including improved energy efficiency compared to conventional silicon-based processors.

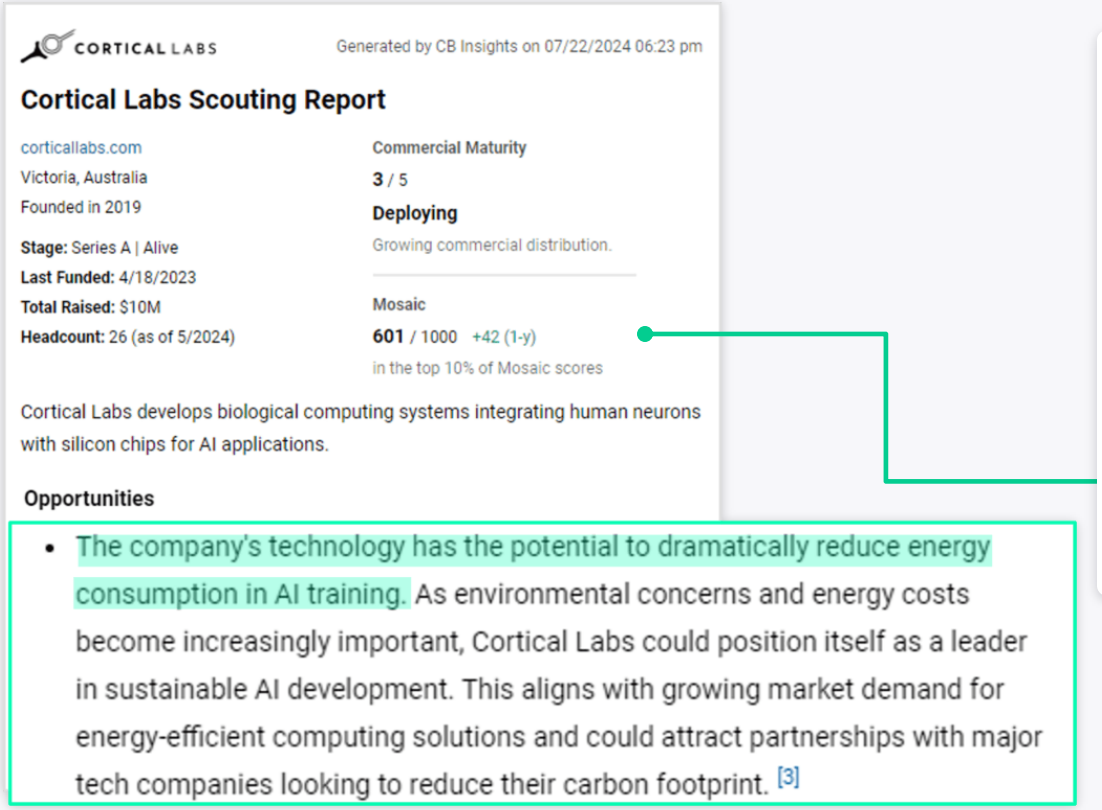
August 2024: NSF invests $14M in bioengineered systems and ethical biocomputing research

April 2023: In-Q-Tel — a US-based strategic intelligence and defense investor — backs Australia-based Cortical Labs



Source: CB Insights research — In-Q-Tel Investment Thesis Map; National Science Foundation

Startups are building “biological computers” that consume less energy and produce less heat than traditional systems — which could bring down the energy costs of AI training



CORTICAL LABS

Generated by CB Insights on 07/22/2024 06:23 pm

Cortical Labs Scouting Report

corticallabs.com
Victoria, Australia
Founded in 2019

Stage: Series A | Alive
Last Funded: 4/18/2023
Total Raised: $10M
Headcount: 26 (as of 5/2024)

Commercial Maturity
3 / 5
Deploying
Growing commercial distribution.

Mosaic
601 / 1000 +42 (1-y)
in the top 10% of Mosaic scores

Cortical Labs develops biological computing systems integrating human neurons with silicon chips for AI applications.

Opportunities

- The company's technology has the potential to dramatically reduce energy consumption in AI training. As environmental concerns and energy costs become increasingly important, Cortical Labs could position itself as a leader in sustainable AI development. This aligns with growing market demand for energy-efficient computing solutions and could attract partnerships with major tech companies looking to reduce their carbon footprint. [3]

Company	Milestone
FINALSPARK	Launched “Neuroplatform,” connecting 16 human brain organoids to create a biocomputer (May 2024)
CORTICAL LABS	Partnership with VERSES AI to develop algorithms leveraging Cortical Labs’ chips (November 2023)

Source: CB Insights — Cortical Labs scouting report, Biological computing market profile

Healthcare & Life Sciences

Brain manipulation tech

CBINSIGHTS

Brain-computer interfaces are approaching commercialization

Investors are betting on brain-computer interfaces (BCIs) — devices that allow direct communication between the brain and an external device like a computer — to initially help motor-impaired patients. Human trials have kicked off.

Company	Mosaic score*	Commercial Maturity**	Total funding	Latest funding round/date	Recent milestone
NEURALINK	790	2 (Validating)	$680M	$323M Series D (8/7/2023)	Implanted second trial patient (August 2024)
synchron	726	2 (Validating)	$136M	$75M Series C (12/15/2022)	Preparing large-scale clinical trial (April 2024)
Paradromics	625	2 (Validating)	$121M	$17M Series A-II (11/1/2023)	Accepted into FDA regulatory accelerator program (July 2024)
Precision	731	2 (Validating)	$81M	$28M convertible note (4/2/2024)	Announced record number of electrodes placed on human brain (May 2024)

Source: CB Insights research — Tech Trends 2024. Note: Select companies visualized. *Mosaic score (out of 1,000) measures a company's health (as of 9/24/2024). **Commercial Maturity (out of 5) measures a company's ability to acquire customers today.

Driven by AI, researchers are making leaps in personalizing “brain pacemakers”

AI is improving the interpretation of neural signals — vastly enhancing the potential of BCIs and deep brain stimulation tech to support rehabilitation and communication for individuals with movement and neurological disorders.

Researchers developed individualized algorithms to spot and react to changes in patients’ brain activity, cutting the duration of their worst Parkinson’s symptoms in half.


nature medicine

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nature > nature medicine > articles > article

Article | Published: 19 August 2024

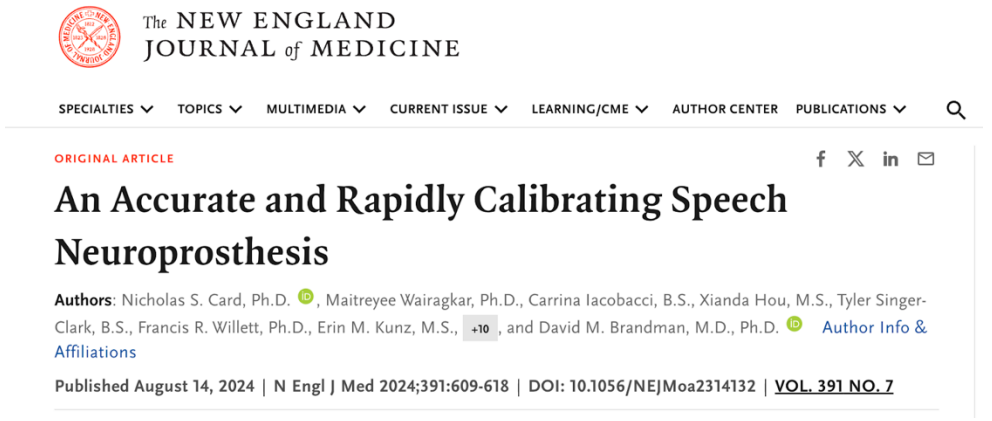
Chronic adaptive deep brain stimulation versus conventional stimulation in Parkinson’s disease: a blinded randomized feasibility trial

Carina R. Oehrn, Stephanie Cernera, Lauren H. Hammer, Maria Shcherbakova, Jiaang Yao, Amelia Hahn, Sarah Wang, Jill L. Ostrem, Simon Little & Philip A. Starr

Nature Medicine (2024) | Cite this article

5045 Accesses | **1001** Altmetric | Metrics

Device implanted in an ALS patient sustained 97.5% accuracy in translating his neural activity to speech — vs. ~75% in prior studies — using AI to help predict the words & sentences most likely to correspond to the activity.


The NEW ENGLAND JOURNAL of MEDICINE

SPECIALTIES | TOPICS | MULTIMEDIA | CURRENT ISSUE | LEARNING/CME | AUTHOR CENTER | PUBLICATIONS

ORIGINAL ARTICLE

An Accurate and Rapidly Calibrating Speech Neuroprosthesis

Authors: Nicholas S. Card, Ph.D., Maitreyee Wairagkar, Ph.D., Carrina Iacobacci, B.S., Xianda Hou, M.S., Tyler Singer-Clark, B.S., Francis R. Willett, Ph.D., Erin M. Kunz, M.S., +10, and David M. Brandman, M.D., Ph.D. Author Info & Affiliations

Published August 14, 2024 | N Engl J Med 2024;391:609-618 | DOI: 10.1056/NEJMoa2314132 | VOL. 391 NO. 7

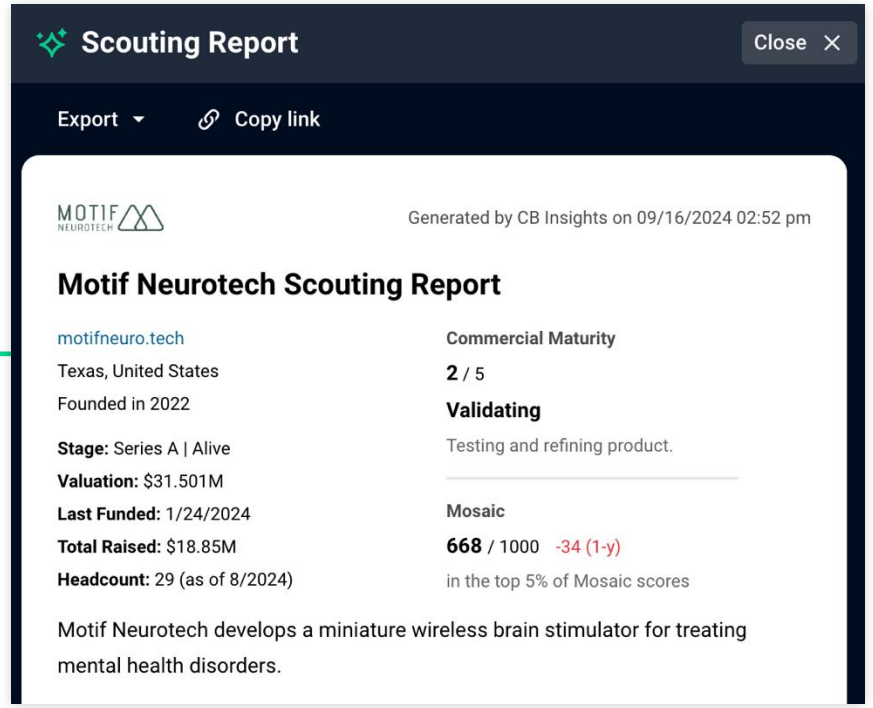
Source: Nature Medicine and The New England Journal of Medicine (August 2024)

The stage is set for a massive new category of medical and consumer brain manipulation technology to emerge in the next 10–15 years

Researchers have shown that brain activity data — collected without a brain implant — can now be coupled with AI to "read minds" with eerie accuracy (March 2023). Looking ahead, cheaper and less risky minimally-invasive (not penetrating brain tissue) or non-invasive devices will help tackle depression, OCD, ADHD, and more.

Select startups funded in 2024 YTD

MOTIF NEUROTECH	Depression
Forest Neurotech	Neurological disorders
neurode	ADHD
Cognixion	Paralysis-impeded communication



Source: CB Insights company profiles — Motif Neurotech, Forest Neurotech, Neurode, Cognixion

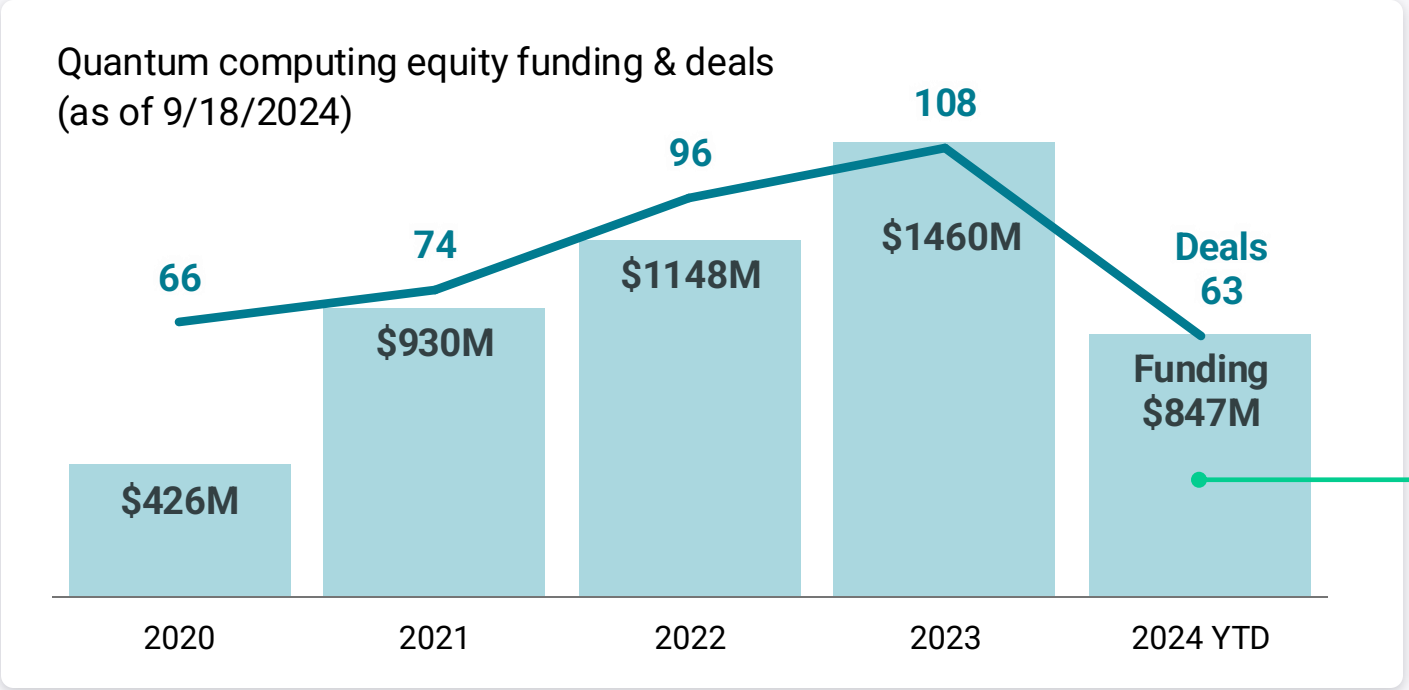
Financial Services

Quantum-optimized portfolios

CBINSIGHTS

While still a nascent technology, quantum computing is becoming an investor darling

Quantum computers process information in a fundamentally different way than today's conventional computers.* This allows them to conduct new types of calculations that otherwise wouldn't be possible — driving interest from financial institutions, which must wrangle extensive datasets to reveal and react more quickly to market opportunities than competitors.



J.P.Morgan

led $300M round to Quantinuum at $5.3B valuation (January 2024)

"Financial services has been identified as **one of the first industries that will benefit from quantum** technologies."

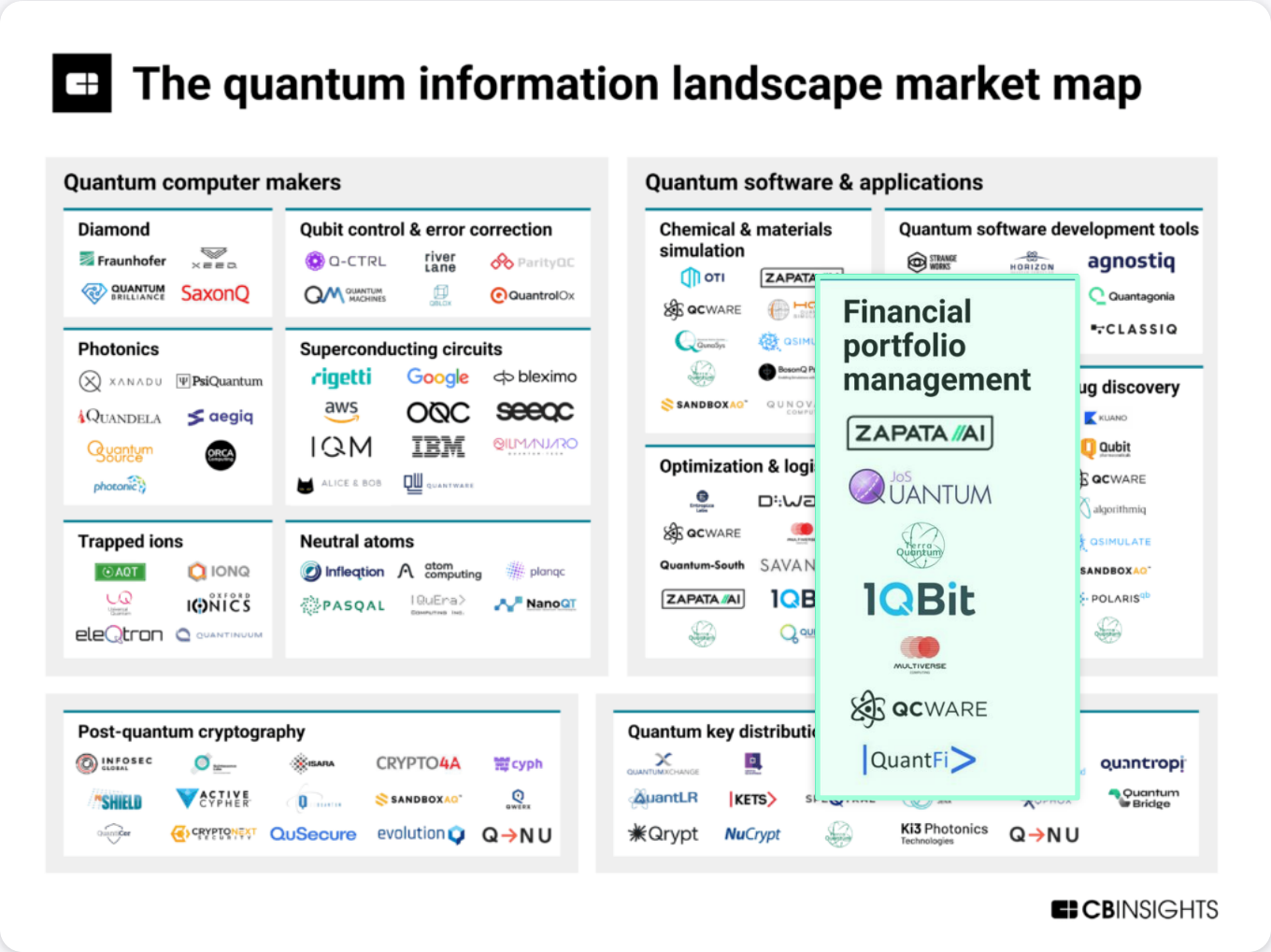
— Lori Beer, Global Chief Information Officer at JPMorgan

Source: CB Insights — Quantum Tech Collection, Quantum computing is a venture bright spot

*Quantum computers encode information in quantum entities called "qubits" — which have a probability of being either 1 or 0, as opposed to traditional bits that can only be one or the other.

Financial services is an early fit for quantum computing – tech that could unlock new efficiency in optimizing portfolios and more

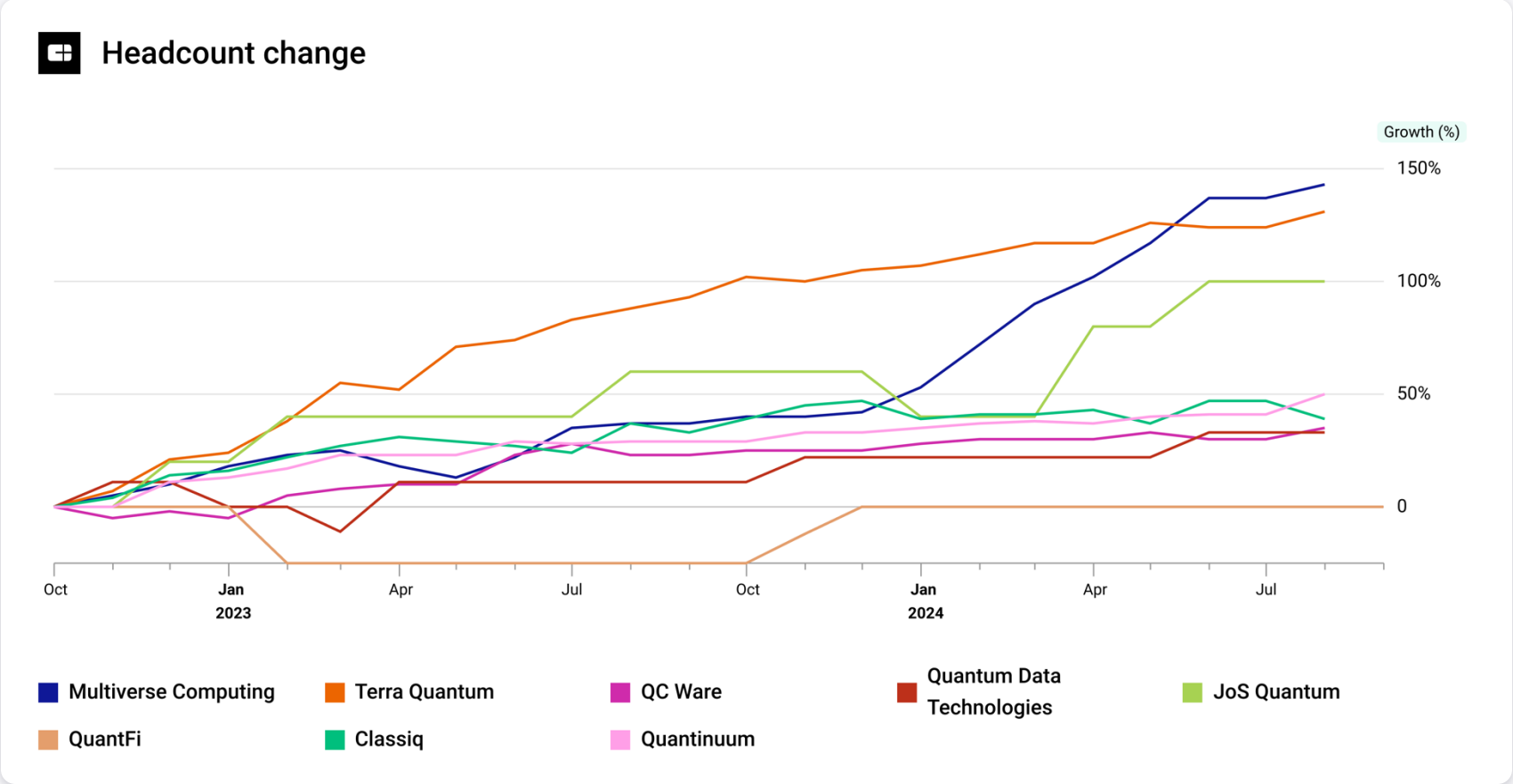
Banks rely on many mathematical tasks well-suited to quantum computing's strengths, such as Monte Carlo simulations (used to make predictions that better account for randomness) and optimization problems. **Quantum computers could help banks build higher-performing portfolios**, identify fraud, improve credit scoring, and more. More powerful quantum computers are needed for this to be applied broadly, but early pilots have showcased potential advantages.



Source: CB Insights research — The quantum information market map (May 2024)

Startups offering quantum computing solutions for finance are growing

Investors and incumbents are betting on the tech to play an increasingly big role in the next 5–10 years.



Source: CB Insights market profile — Quantum computing for financial portfolio management

Banking incumbents are readying themselves for an emerging arms race as the tech matures

Select quantum companies & partnerships with financial services incumbents

Company	Mosaic score*	Commercial Maturity**	Total funding	Select investors	Select finance partnerships
QUANTINUUM	N/A	3 (Deploying)	$300M	JPMorgan, IMB Ventures, Honeywell	JPMorgan (May 2024)
CLASSIQ	752	3 (Deploying)	$60M	HSBC Venture Capital, NTT Finance	Citi Innovation Labs & AWS (February 2024)
MULTIVERSE COMPUTING	785	3 (Deploying)	$54M	Columbus Venture Partners, Quantonation	Moody's Analytics (December 2023)
QCWARE	470	3 (Deploying)	$34	Citigroup, GS Growth, Airbus Ventures	JPMorgan (March 2023)

Source: CB Insights company profiles — Quantinuum, Classiq, Multiverse Computing, QC Ware. Note: Includes client relationships. *Mosaic score (out of 1,000) measures a company's health (as of 9/24/2024). **Commercial Maturity (out of 5) measures a company's ability to acquire customers today.

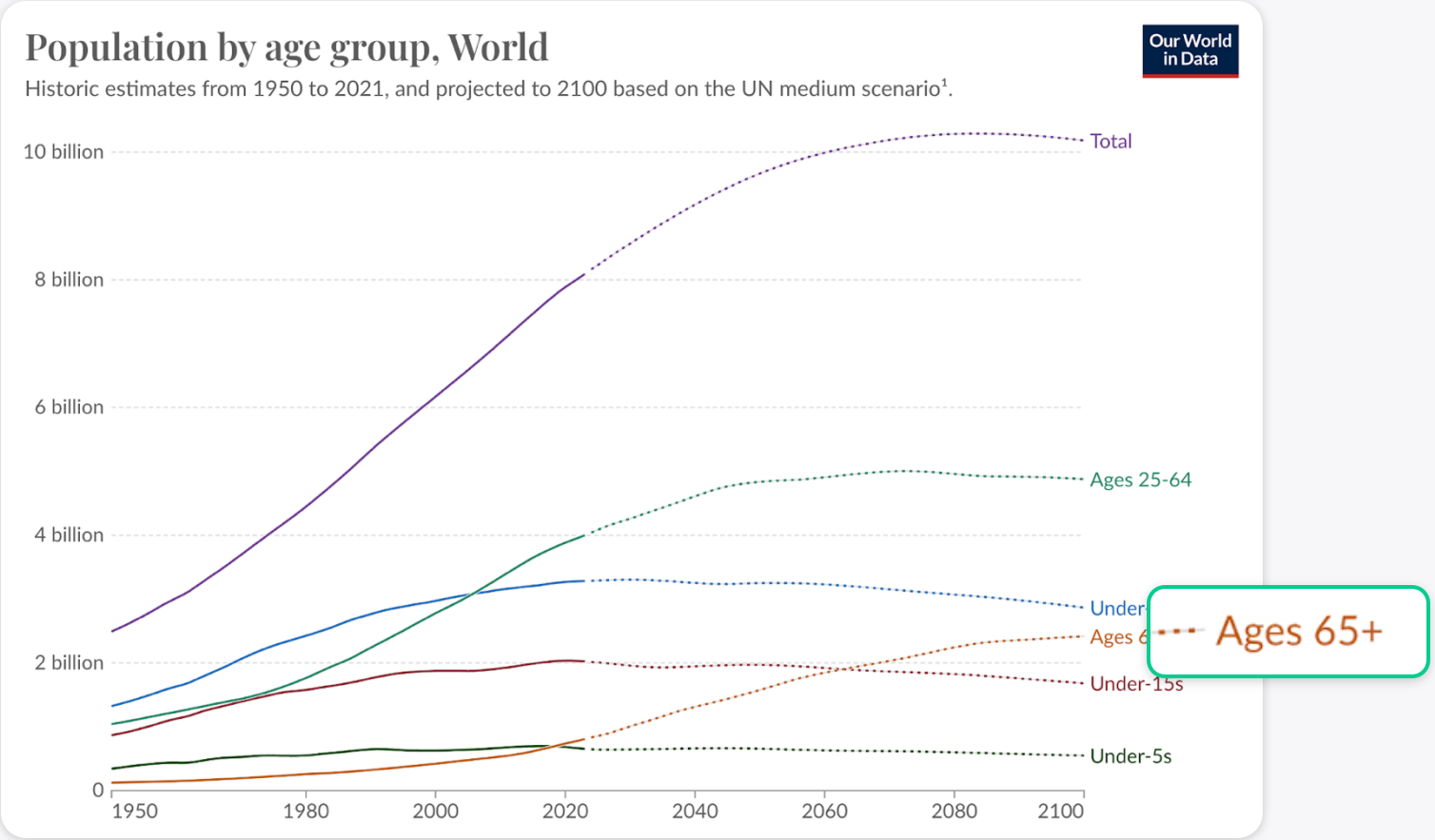
Healthcare & Life Sciences

Cellular & epigenetic reprogramming

CBINSIGHTS

Populations are rapidly aging

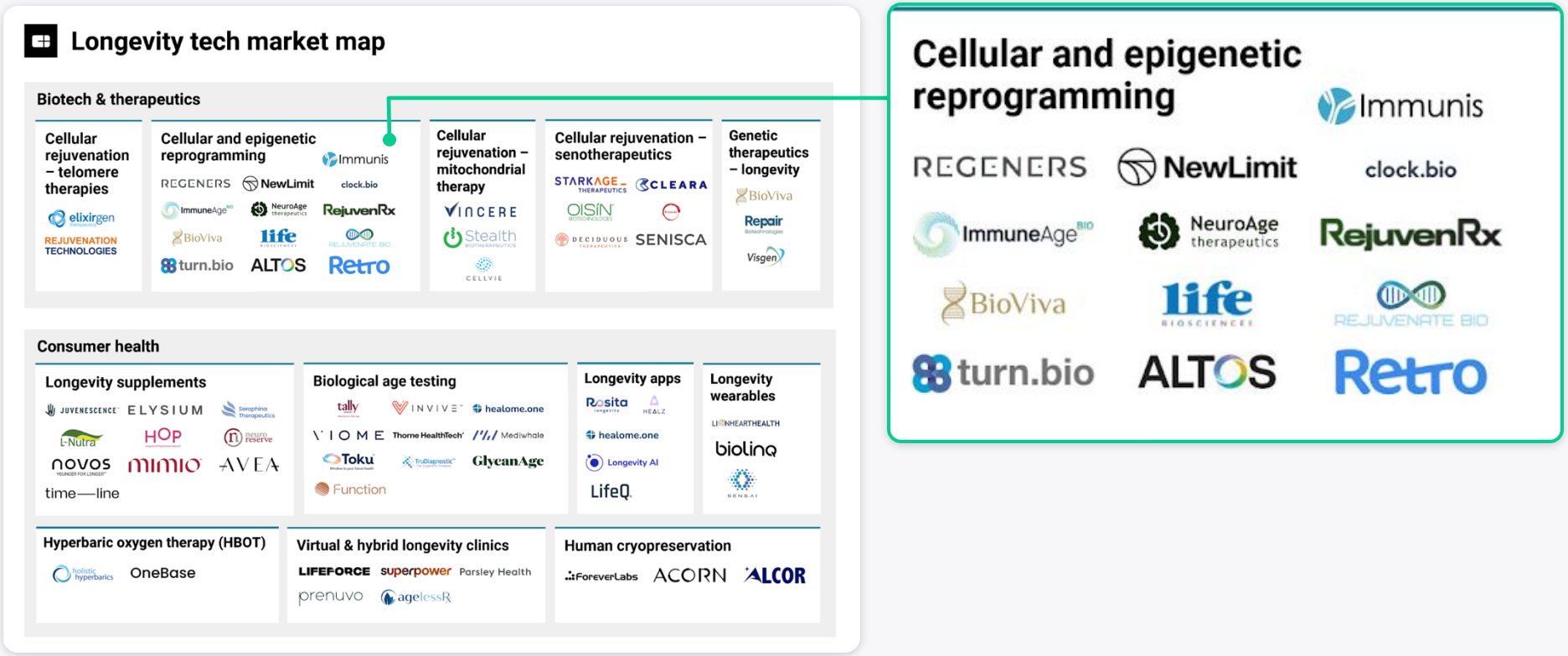
In 2018, estimates suggest there were more people aged 64+ than children under 5 for the first time ever



Source: Our World in Data

Longevity tech is on the rise, with epigenetic reprogramming emerging as a leading approach to extending the human lifespan

Cellular and epigenetic reprogramming companies are reprogramming the identity of cells to reverse the effects of cellular aging. Epigenetic reprogramming alters the gene expression of cells without changing the genes themselves.



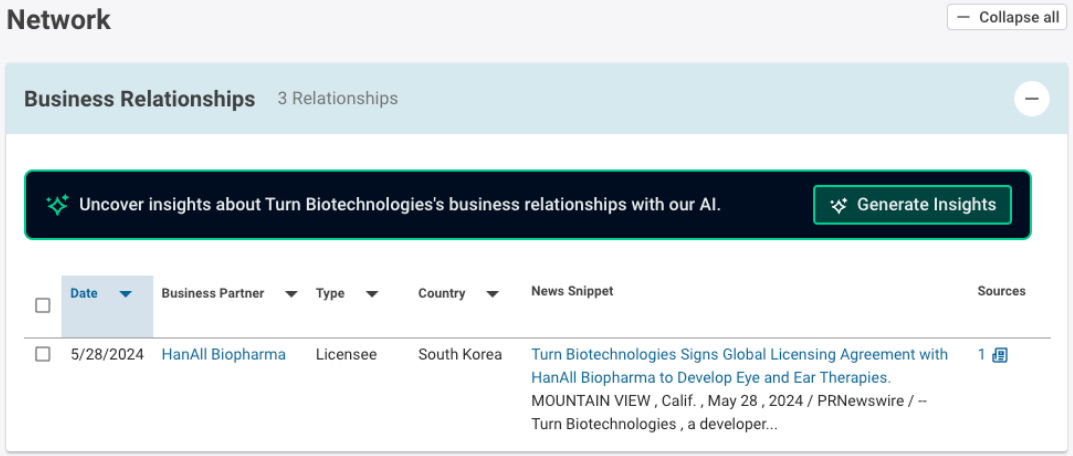
Source: CB Insights research — The longevity tech market map: 64 startups racing to defy death (August 2024). Note: Longevity tech refers to technology that helps individuals live healthier for longer periods of time, including tools that help reverse aging and/or treat age-related diseases.

Prolonging healthy lifespans would help reduce massive healthcare spend

Chronic diseases are responsible for 90% of the US' $4.5T in annual healthcare expenditures. Epigenetic reprogramming technologies promise new treatment approaches for age-related conditions and will attract additional pharma involvement as they mature.

turn.bio

Signed licensing agreement valued at $300M+ in May 2024 to develop medicines for age-related conditions (focusing on eye & ear conditions), leveraging its epigenetic reprogramming tech with Korea-based pharma company HanAll Biopharma.



5/28/2024 HB HanAll Biopharma Licensee

Turn Biotechnologies enters $300M licensing deal with HanAll Biopharma for age-related therapies

- Turn Biotechnologies has signed an exclusive global licensing agreement with HanAll Biopharma valued at over $300 million for the initial product to develop mRNA-based medicines targeting age-related eye and ear conditions.
- The collaboration will leverage Turn Bio's Epigenetic Reprogramming of Age (ERA) technology and its eTurna™ delivery platform to restore gene expression and combat aging effects at the cellular level.
- This agreement expands HanAll's investment in Turn Bio from 2022 and aims to accelerate the development of transformative therapies, potentially enhancing treatment options especially for aging-related diseases.

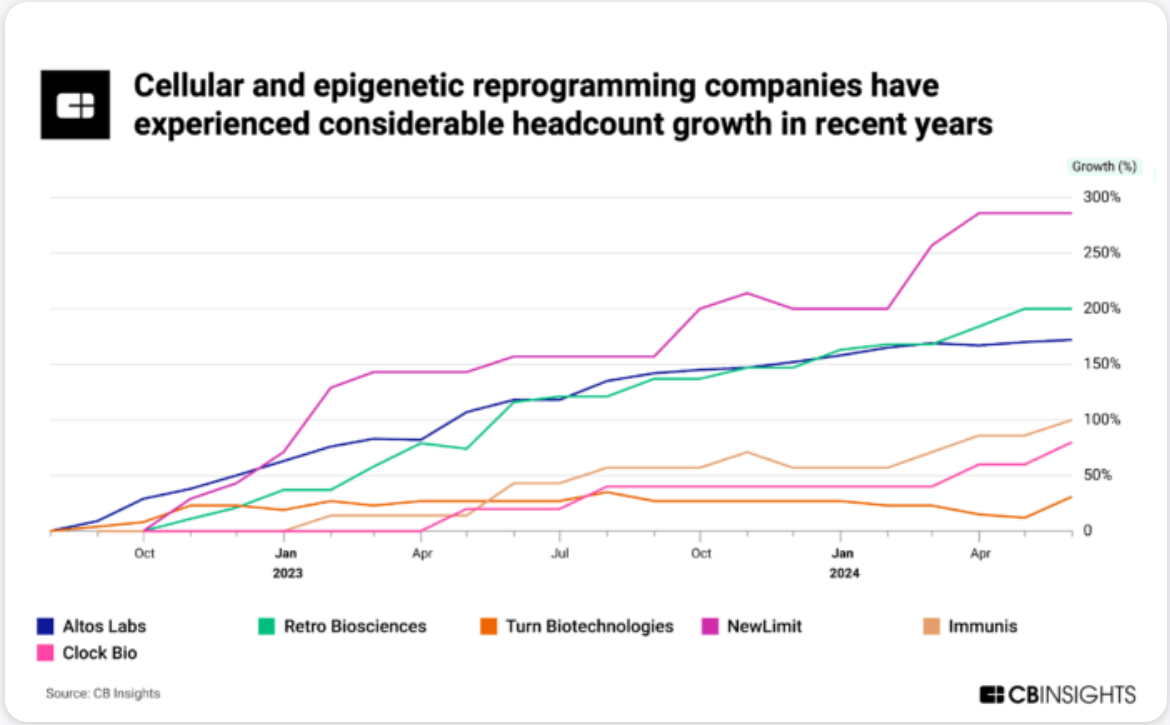
Source: prnewswire.com Copy

Source: CB Insights — TurnBio business relationship insights (generated by combining CB Insights data and AI)

Startups looking to extend the human lifespan gain big-name attention — and headcounts

Prominent Silicon Valley figures have been active in cellular and epigenetic reprogramming, generating buzz about solutions in the space.

Startup	Mosaic score*	Commercial Maturity**	Total funding	Notable people
Retro Biosciences	725	2 (Validating)	$180M	Sam Altman (investor)
NewLimit	718	2 (Validating)	$60M	Brian Armstrong (co-founder)
ALTOS	738	2 (Validating)	$3B	Jeff Bezos (investor)



Source: CB Insights — Retro Biosciences, NewLimit, Altos Labs company profiles, Cellular & epigenetic reprogramming market profile
Note: Select companies visualized. *Mosaic score (out of 1,000) measures a company's health (as of 9/24/2024). **Commercial Maturity (out of 5) measures a company's ability to acquire customers today.

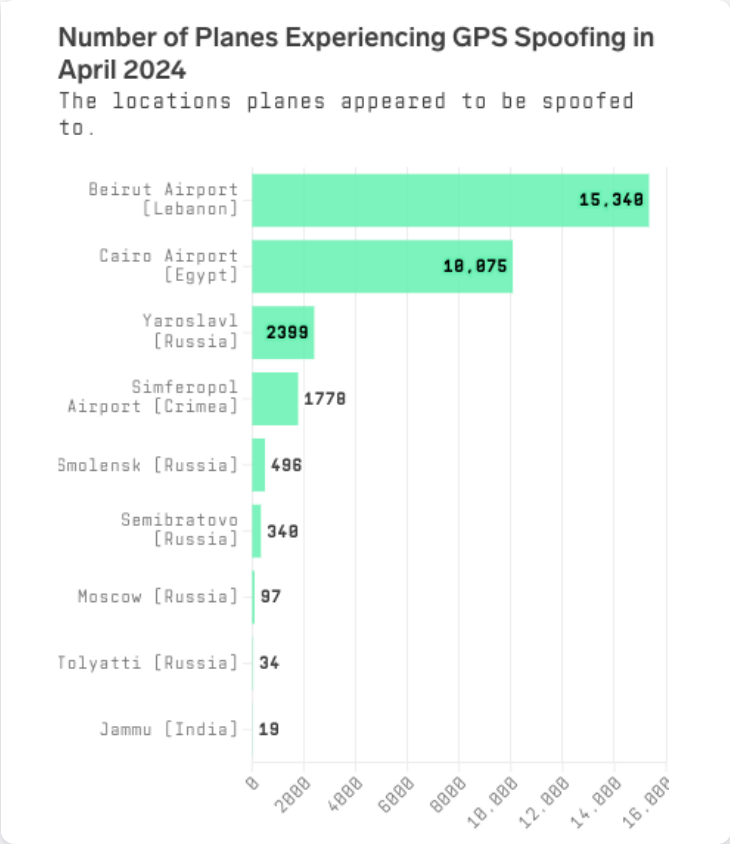
Aerospace & Defense

GPS-less navigation systems

CBINSIGHTS

GPS disruptions are a threat to modern navigation and defense systems

GPS/GNSS* jamming and location spoofing — attacks that can make these systems inoperable, by either interfering with signals or sending false signals to impede navigation — are increasing amid conflicts in Ukraine and the Middle East.



"As the world increasingly has come to realize, the prevalence of **GPS jamming and location spoofing during conflicts and for general mischief is on the rise** and is **impacting critical infrastructure, military operations, aircraft and shipping navigation**, and other important functions for governments and enterprises around the world."

Iridium Communications Q1'24 Earnings Call

Source: CB Insights — earnings transcripts; WIRED
*GNSS (Global Navigation Satellite System) describes satellite constellations providing positioning, navigation, and timing (PNT) services. GPS (Global Positioning System) is US-owned and the most widely used GNSS.

While GPS alternatives have been in the works for years, new approaches will be key to boosting resiliency

Government agencies have been exploring Alternative Positioning, Navigation & Timing (AltPNT) systems for at least the past decade. In August 2024, SpaceWERX, the US Space Force's innovation arm, ran its AltPNT challenge and selected 20 companies to receive funding.

Alternative space-based

Commercial satellite constellations, such as those at low Earth orbit (LEO), may offer higher-precision PNT services than medium Earth orbit (MEO) GNSS satellites.

Non-radio frequency PNT

Alternative methods to traditional radio frequency (RF) signals used by GPS include magnetic, inertial, gravimetric, visual (e.g., using cameras for navigation), and celestial.

Multi-sensor fusion

Integrating multiple independent PNT sources, such as cellular network signals and internal and external sensors (e.g., lidar), to create more robust positioning systems.

Source: SpaceWERX Alternative Positioning, Navigation, & Timing (AltPNT) Challenge. Note: Alternative PNT refers to technologies that provide positioning, navigation, and timing information without relying solely on GNSS like GPS. These alternative systems may complement or serve as backups to satellite-based navigation.

Startups are building tech to fill in GPS' gaps

Applications range from autonomous vehicle navigation to guiding military equipment

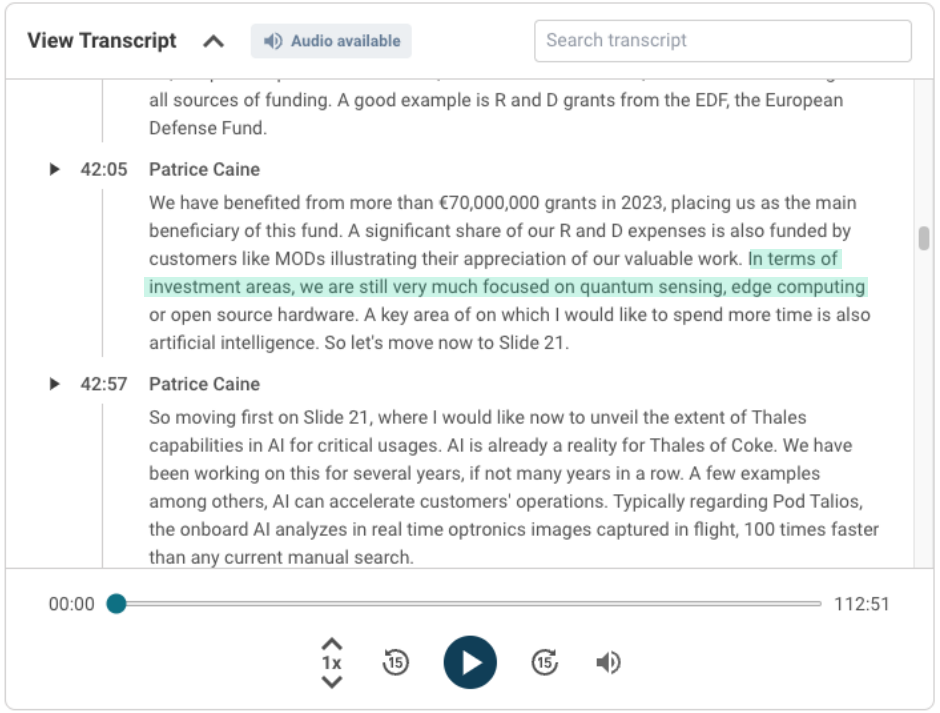
Company	Approach	Stage	Total funding	Notable milestone
mesaquantum	Quantum sensing*	Seed (9/5/2024)	$6M	Awarded Space Force contract ($1.9M) for AltPNT applications in August 2024
Satelles	LEO satellites	Acquired (3/4/2024)	$29M	Acquired by Iridium for $115M in March 2024
Xona space systems	LEO satellites	Series A (5/3/2024)	$46M	Launched demonstration satellite in 2022; production-class satellite to launch June 2025
Q-CTRL	Quantum sensing	Series B (7/25/2023)	$73M	Working with Airbus to use quantum sensors as a GPS backup for commercial aircraft (July 2024)
TRUSTPOINT	LEO satellites	Seed (3/1/2023)	$2M	Awarded SpaceWERX contracts ($3.8M) for AltPNT applications in August 2024

Source: CB Insights company profiles — Mesa Quantum, Satelles, Xona Space Systems, TrustPoint, Q-Ctrl; Media mentions. Note: Select companies visualized. *Quantum sensing refers to super-sensitive quantum devices that measure tiny changes in gravity or motion, allowing precise positioning without satellite signals.

Alternatives will be a key failsafe against GPS outages that the US estimates would incur $1B a day in damages

Watch for continued partnerships & investments from aerospace & defense companies and government agencies

Thales Q4 FY 2023 Earnings Call



"**GPS today drives our entire economy** and drives our entire international financial markets. **We want to make sure** that if that signal ever becomes attacked, or something nefarious happens, **that we have alternative ways to get that PNT signal.**"

General Michael Guetlein, vice chief of space operations, US Space Force

Source: CB Insights — Thales earnings transcript; SpaceNews

Appendix

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Methodology

How we selected the 9 game-changing tech categories:

We looked at recent moonshot investments and tech developments, focusing on companies trying to address major issues impacting societies and economies, using the following CB Insights platform features:

- **Commercial Maturity,** which measures a company's ability to acquire customers today.
- **Company Mosaic Score,** which evaluates startup health, based on our National Science Foundation-backed algorithm.
- **Financing rounds & valuations**, to understand where high-profile investors are placing their bets across the tech space in our comprehensive database.
- **News Mentions Tool,** which mines and organizes millions of media articles to quantify media attention.
- **Earnings Transcripts Search Engine & Analytics,** to understand what corporates are saying about company strategy and the future of their respective industries.
- **Business Relationships,** which track a company's competitors, partners, and more.

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