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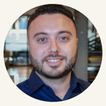
PitchBook Data, Inc.

Nizar Tarhuni Executive Vice President of Research and Market Intelligence

Paul Condra Global Head of Private Markets Research

Institutional Research Group

Analysis



Ali Javaheri
Analyst, Emerging Technology
ali.javaheri@pitchbook.com

Data

Matthew Nacionales
Data Analyst

pbinstitutionalresearch@pitchbook.com

Publishing

Designed by **Chloe Ladwig**

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EMERGING TECH RESEARCH

2024 Emerging Spaces in Review

AI-adjacent technologies propel an acceleration in investment

PitchBook is a Morningstar company providing the most comprehensive, most accurate, and hard-to-find data for professionals doing business in the private markets.

Key takeaways

- **VC investment surges in emerging technologies:** Venture capital investment in Emerging Spaces reached $97.5 billion across 3,833 deals in 2024, marking a 76.7% increase in capital invested despite a 5.4% decline in deal count compared with 2023. Early-stage VC dominated with the highest deal volume, while late-stage deals, though fewer, captured the majority of invested capital. This trend signals growing investor confidence in nascent technologies and aligns with broader market recovery trends.

- **AI and the energy transition led the way:** Generative AI attracted the most capital, with additional strong investment in AI-powered drug discovery, humanoid robotics, and synthetic data. Beyond AI, the energy transition remained a focal point, with significant funding directed toward carbon-offset trading, hydrogen energy, and fusion energy. These trends suggest that investors are increasingly drawn to disruptive technologies with broad applications across industries.

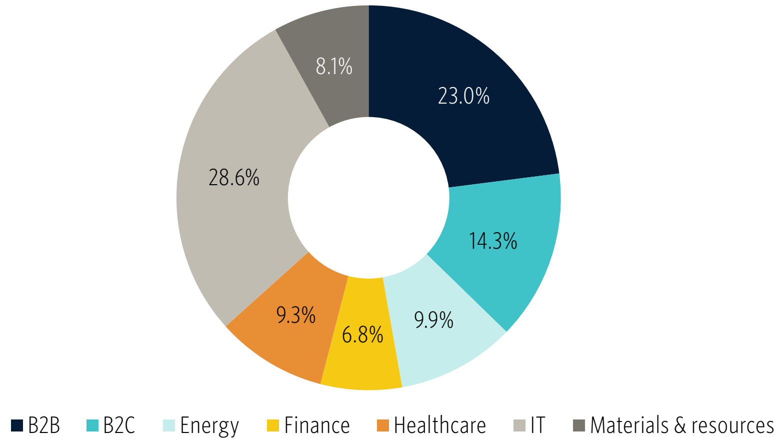
- **Exit challenges persist despite increased activity:** VC-backed exits in Emerging Spaces totaled $16.8 billion across 204 exits, reflecting a 29% decline in exit value but a 4.1% increase in exit count YoY. Acquisitions (comprising 77% of exits) remained the primary exit route, while public listings and buyouts were less common. The dominance of acquisitions indicates that established firms continue to integrate and scale innovations from startups rather than seeing them reach independent maturity.

Introduction

PitchBook's Emerging Spaces tool tracks VC funding trends across several new and innovative technologies. Emerging Spaces provide a perspective on how these emerging technologies are gaining traction in the VC landscape—potentially increasing their growth and disruptive potential, with spaces like humanoid robotics recently gaining popularity, for example. Although these spaces have benefited from growth in investment, they remain immature, with a high risk of not achieving meaningful exit opportunities.

As of the end of 2024, 161 spaces are included in the Emerging Spaces dataset, with 14 added in 2024.

Share of Emerging Spaces startup count by sector

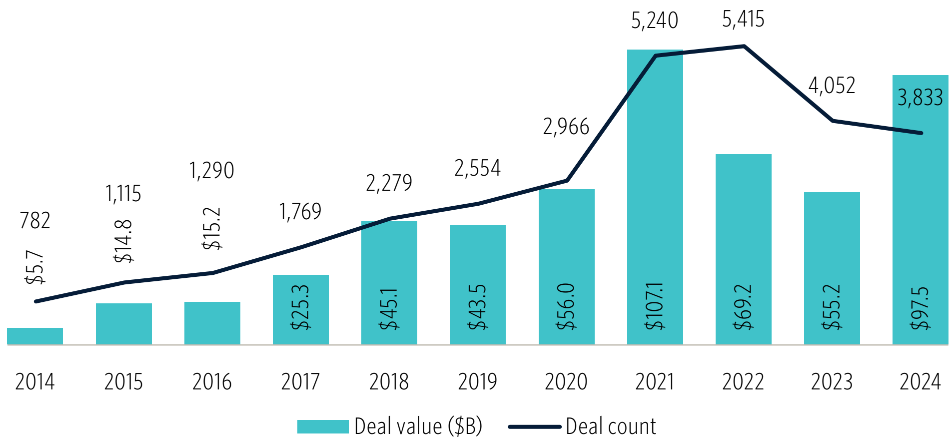


Source: PitchBook • Geography: Global • As of February 11, 2025

The Emerging Spaces universe includes 39,905 startups, with the majority at the early-stage funding level.

In 2024, $97.5 billion of venture capital was invested in Emerging Spaces through 3,833 deals. Relative to 2023, this was a 76.7% increase in capital invested and a 5.4% decline in deal count. This is close to the 2021 peak in Emerging Spaces activity, which suggests investors are increasingly comfortable with more nascent technologies, and the trend aligns with a broader market recovery outlined in the PitchBook-NVCA Q4 2024 Venture Monitor.

Emerging Spaces startups VC deal activity



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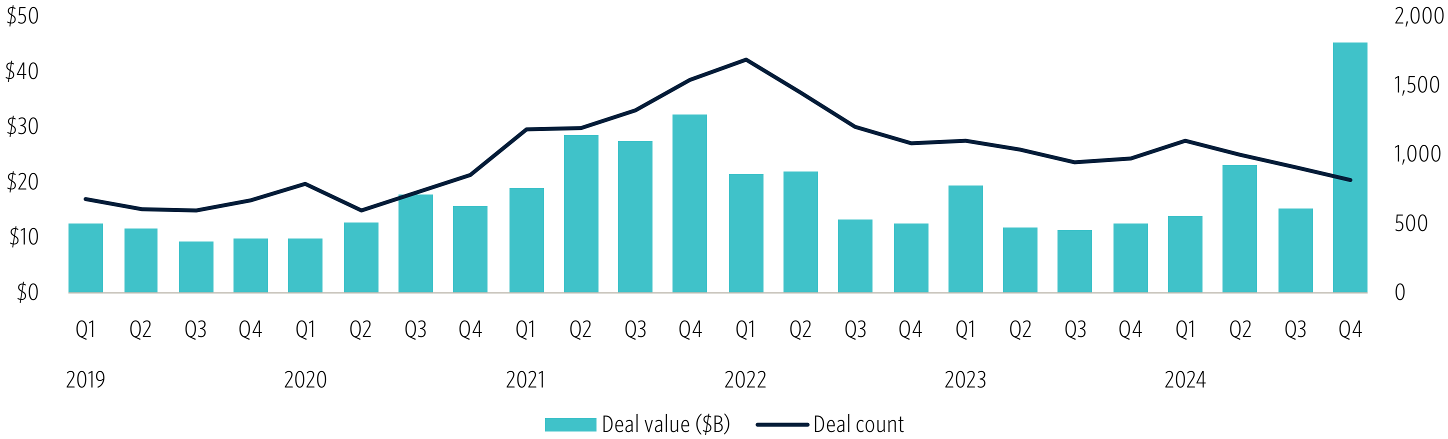
Emerging Spaces startups VC deal activity by quarter



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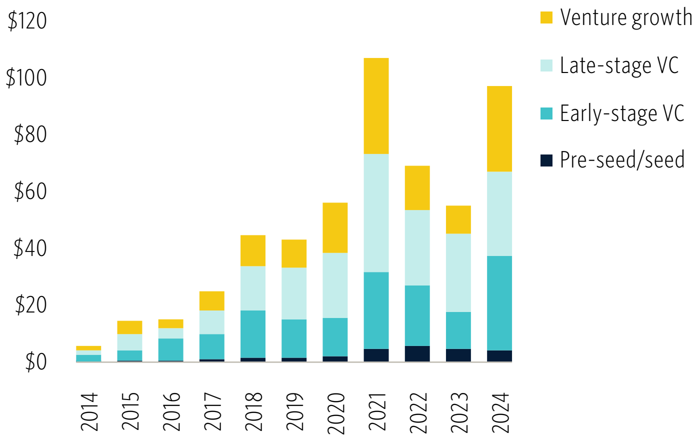
Early-stage VC deals saw the most activity, with 1,524 deals amounting to $33.4 billion in capital invested. This represents 39.8% of total Emerging Spaces deal count and 34% of invested funds. Pre-seed/seed followed closely with 1,136 deals and a smaller capital investment of $4.2 billion for 29.7% of deal count and 4% of capital. Late-stage VC had fewer deals, 937 total, and lower levels of capital investment at $29.8 billion, accounting for 31% of total capital invested. Venture growth had only 231 deals totaling $30.1 billion, which is 31% of overall capital invested. This is an increase relative to 2023's share of venture-growth activity, which could indicate that some Emerging Spaces are maturing. Given the nature of Emerging Spaces as an identifier of new technologies, we expect most deal activity to center on early-stage opportunities. However, while late-stage VC deals had fewer transactions, they captured most of the capital invested in 2024.

2024 Emerging Spaces VC deal value ($B) by stage



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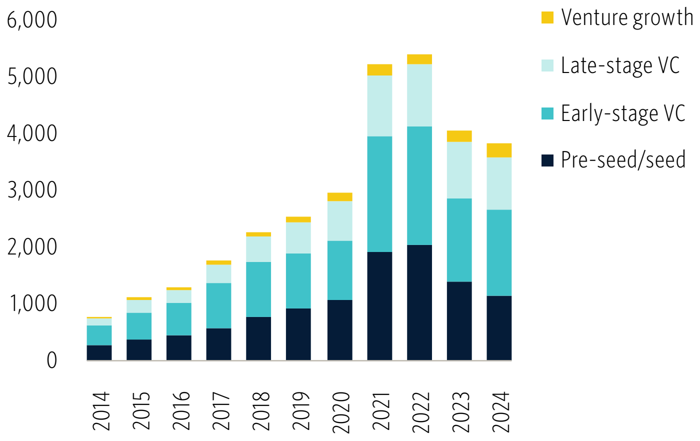
2024 Emerging Spaces VC deal count by stage



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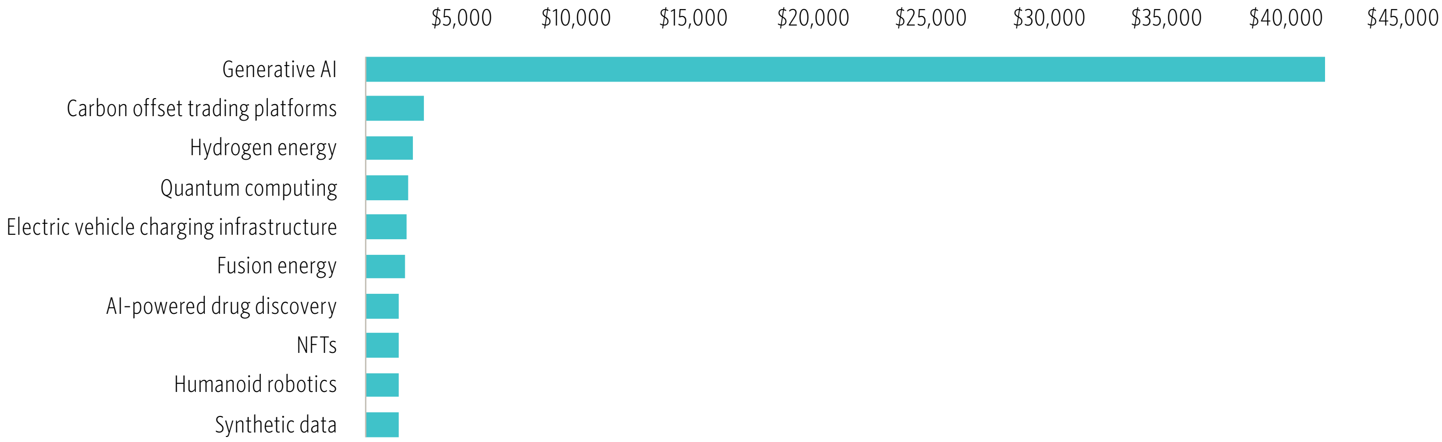
Top Emerging Spaces

Unsurprisingly, Generative AI captured the overwhelming bulk of capital invested in Emerging Spaces in 2024. Other popular AI-adjacent spaces include AI-powered drug discovery, humanoid robotics, and synthetic data—demonstrating that a wide variety of applications have garnered investors' interest. Additionally, carbon-offset trading platforms, hydrogen energy, and fusion energy accounted for large shares of capital invested, which suggests that many elements of the energy transition are still of interest to investors.

Top Emerging Spaces by deal value ($M)



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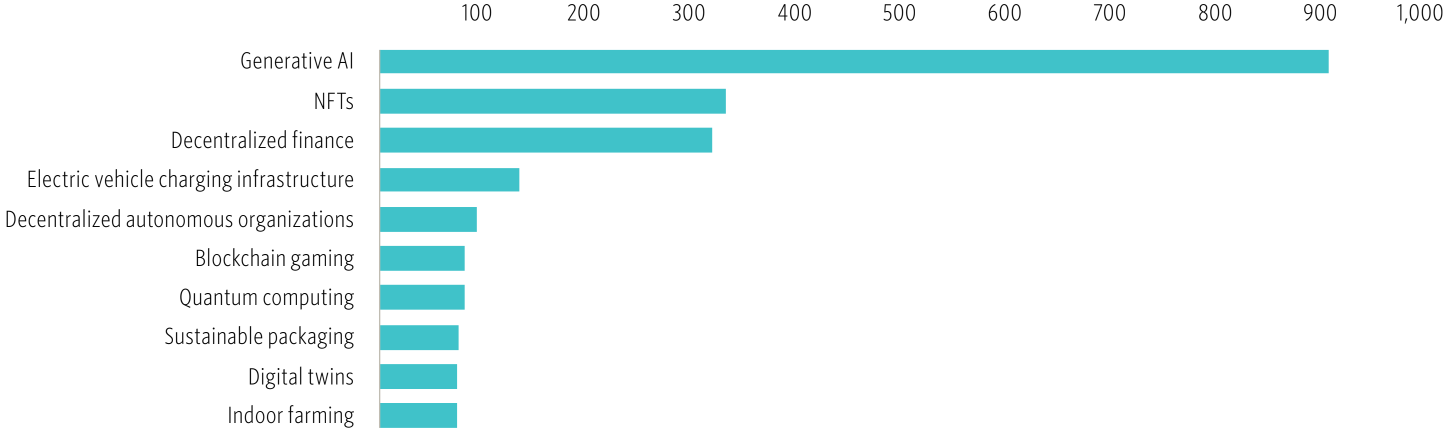
Top Emerging Spaces by deal count



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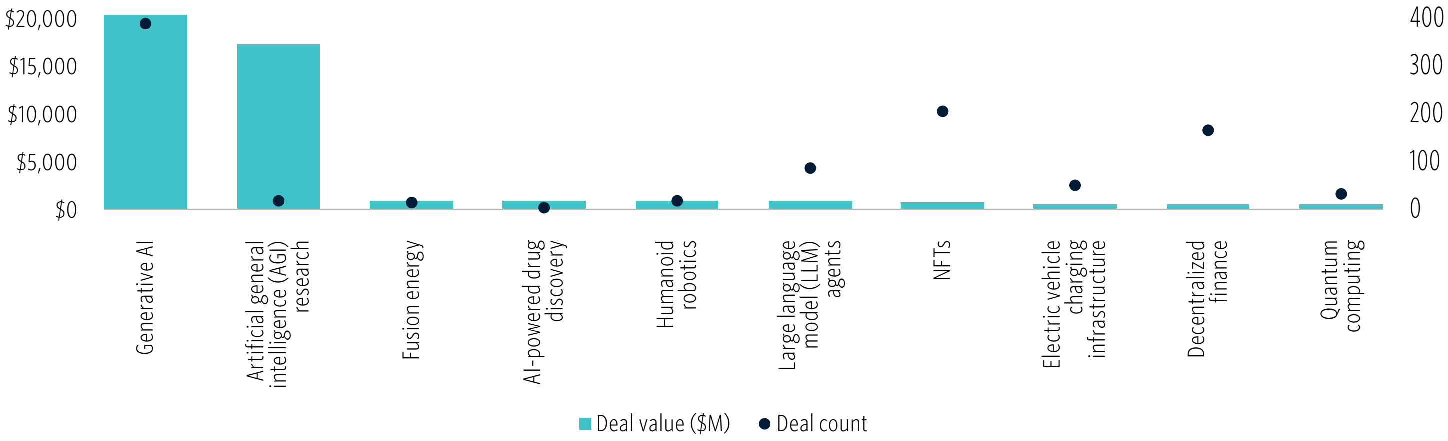
Top Emerging Spaces by stage

Early-stage VC deal activity by top Emerging Spaces in 2024



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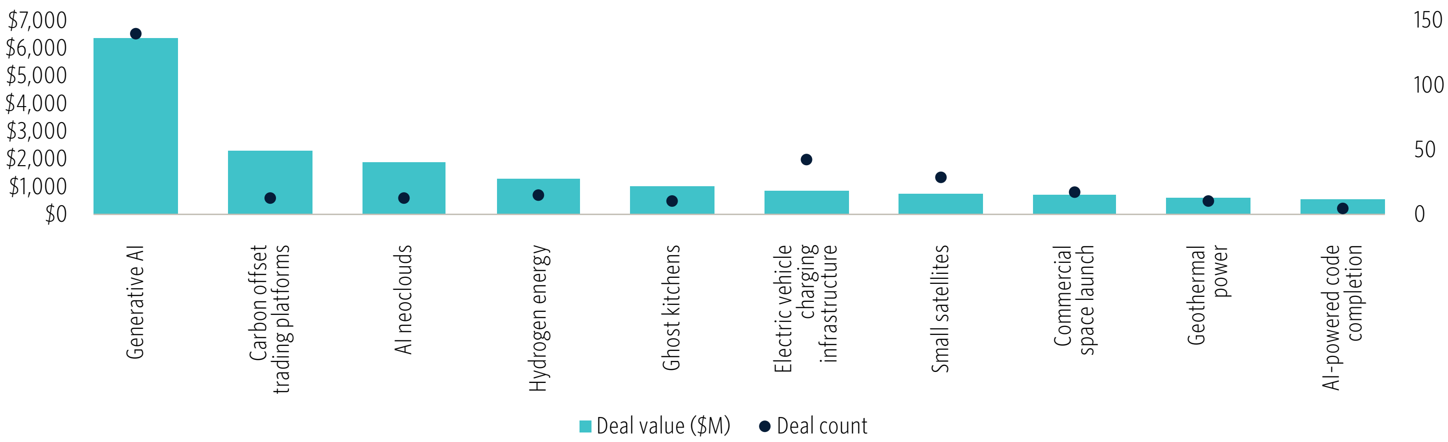
Late-stage VC deal activity by top Emerging Spaces in 2024



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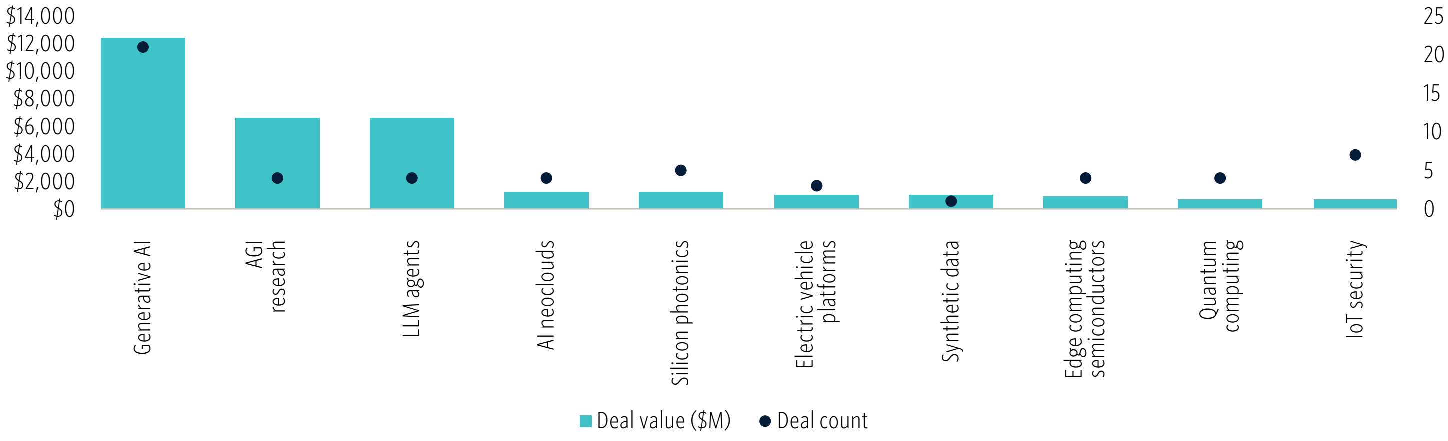
Venture-growth VC deal activity by top Emerging Spaces in 2024



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Key Emerging Spaces deals

Key Emerging Spaces pre-seed/seed VC deals in 2024

Company	Close date	Segment	Deal value ($M)	VC raised to date ($M)	HQ location	Lead investor(s)
H Company	May 9	LLM agents, generative AI	$220.0	$220.0	Paris, France	Accel, FirstMark Capital
EvolutionaryScale	June 25	Generative AI	$142.0	$182.0	New York, US	Daniel Gross, Lux Capital, Nat Friedman
Type One Energy Group	November 22	Fusion energy	$82.4	$82.4	Knoxville, US	Breakthrough Energy, Doral Energy Tech Ventures, TDK Ventures
Arch	April 1	NFTs	$75.0	$77.8	New York, US	Castle Island Ventures, Morgan Creek Capital Management
Physical Intelligence	March 12	AGI research	$70.0	$70.0	San Francisco, US	Thrive Capital
Arbelos Markets	May 8	Decentralized finance	$56.0	$56.0	N/A	Dragonfly Capital
Relation	January 19	AI-powered drug discovery	$51.7	$60.7	London, UK	DCVC, Magnetic Ventures, NVentures
Blue Laser Fusion	March 7	Fusion energy	$37.8	$62.8	Goleta, US	Itochu, Jafco, Maezawa Fund, SPARX Group Company, SoftBank Group, Waseda University Ventures
GalBot	March 13	Humanoid robotics	$33.1	$46.9	Beijing, China	N/A
Qualified Health	October 21	LLM agents, generative AI	$30.0	$30.0	San Carlos, US	Frist Cressey Ventures, Healthier Capital, SignalFire, Town Hall Ventures

Source: PitchBook • Geography: Global • December 31, 2024

Key Emerging Spaces early-stage VC deals in 2024

Company	Close date	Segment	Deal value ($M)	VC raised to date ($M)	HQ location	Lead investor(s)
xAI	May 26	Generative AI, AGI research	$6,000.0	$6,134.7	Palo Alto, US	Andreessen Horowitz, Sequoia Capital, Valor Equity Partners
Safe Superintelligence	September 4	AGI research	$1,000.0	$1,000.0	Palo Alto, US	Andreessen Horowitz, GV, Sequoia Capital
Xaira Therapeutics	April 23	AI-powered drug discovery	$1,000.0	$1,000.0	San Francisco, US	ARCH Venture Partners, Foresite Labs
Moonshot AI	February 19	AGI research, generative AI	$1,000.0	$1,370.0	Beijing, China	Alibaba Group, HongShan Capital Group
Pacific Fusion	October 25	Fusion energy	$900.0	$900.0	Fremont, US	General Catalyst
Figure AI	February 29	Humanoid robotics	$675.0	$745.0	Sunnyvale, US	Bezos Expeditions, Microsoft
Mistral AI	June 11	AGI research, generative AI	$650.6	$1,194.9	Paris, France	DST Global, General Catalyst
MiniMax AI	March 4	Generative AI, AGI research	$600.0	$850.0	Shanghai, China	Alibaba Group
Poolside	October 2	Generative AI	$500.0	$626.0	Paris, France	Bain Capital Ventures, Rashmi Gopinath
Mistral AI	February 26	AGI research, generative AI	$431.3	$544.3	Paris, France	Andreessen Horowitz, General Catalyst, Lightspeed Venture Partners

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Key Emerging Spaces late-stage VC deals in 2024

Company	Close date	Segment	Deal value ($M)	VC raised to date ($M)	HQ location	Lead investor(s)
Waymo	October 25	Autonomous trucking	$5,600.0	$11,100.0	Mountain View, US	Alphabet
Mobii Green Energy Group	September 29	Carbon offset trading platforms	$2,000.0	$2,000.0	Taipei, China	N/A
China Hydrogen Energy Technology	August 8	Hydrogen energy	$1,000.0	$1,000.0	Beijing, China	N/A
Wonder Group	November 13	Ghost kitchens	$950.0	$1,800.0	New York, US	N/A
Crusoe	December 12	Generative AI, AI neoclouds	$685.7	$1,393.8	Denver, US	Founders Fund
Groq	August 5	AI neoclouds, generative AI	$640.0	$1,048.6	Mountain View, US	BlackRock, Cisco Investments, Samsung Catalyst Fund, Type One Ventures
Perplexity	December 1	Generative AI	$500.0	$913.7	San Francisco, US	IVP
Fervo Energy	December 19	Geothermal power	$499.0	$676.2	Houston, US	Capricorn Investment Group, Devon Energy
Highview Power	June 13	Next-generation battery technology	$381.9	$485.6	London, UK	Centrica, National Wealth Fund
Vultr	December 17	AI neoclouds, generative AI	$333.0	$333.0	West Palm Beach, US	AMD Ventures, LuminArx

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Key Emerging Spaces venture-growth deals in 2024

Company	Close date	Segment	Deal value ($M)	VC raised to date ($M)	HQ location	Lead investor(s)
Databricks	November 14	Generative AI	$10,000.0	$14,181.9	San Francisco, US	Andreessen Horowitz, DST Global, GIC Private, Insight Partners, MGX, Thrive Capital, WCM Investment Management
OpenAI	October 2	LLM agents, AGI research	$6,600.0	$19,910.0	San Francisco, US	Thrive Capital
CoreWeave	May 1	AI neoclouds	$1,100.0	$1,589.6	Roseland, US	Coatue Management, Magnetar Capital
Scale AI	May 21	Generative AI, synthetic data	$1,000.0	$1,602.7	San Francisco, US	Accel, Nvidia
Tenstorrent	December 2	Edge computing semiconductors	$700.0	$1,033.7	Toronto, Canada	AFW Partners, Samsung Catalyst Fund, Samsung Securities, Samsung Venture Investment
Neta Auto	April 15	Electric vehicle platforms	$693.3	$3,667.5	Shanghai, China	N/A
PsiQuantum	June 14	Silicon photonics, quantum computing	$624.6	$1,289.6	Palo Alto, US	N/A
Lightmatter	October 16	Silicon photonics	$400.0	$821.3	Mountain View, US	T. Rowe Price Group
Axonius	March 5	IoT security	$400.0	$594.6	New York, US	Accel, Lightspeed Venture Partners
Skydio	November 15	Autonomous flight	$400.0	$739.7	San Mateo, US	Linse Capital

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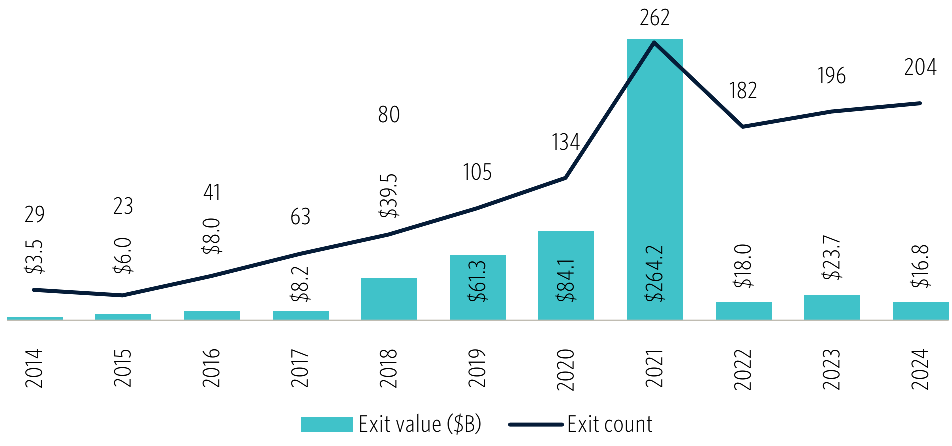
Exit activity

Emerging Space VC exits in 2024 totaled $16.8 billion among 204 exits, marking a decline of 29% in exit value and a 4.1% increase in exit count YoY. By exit type, acquisitions led with 157 deals, constituting 77% of total exits. Public listings, though less frequent, were executed 25 times, accounting for 12.3% of the total exit activity. Buyouts were the least common exit, with 22 occurrences, comprising 10.8% of exits.

These figures show that most exits in these nascent technology sectors are through acquisitions, suggesting a strong interest from established firms in integrating or scaling innovative technologies from emerging companies. The top exits in Emerging Spaces in 2024 highlight a strong convergence of AI, decentralized finance, and advanced mobility solutions, with significant traction in generative AI, neurotechnology, and electric vehicle infrastructure, indicating investor confidence in cutting-edge automation, connectivity, and digital finance innovations.

Emerging Spaces startups VC-backed exit activity



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VC-backed exit activity by top Emerging Spaces in 2024

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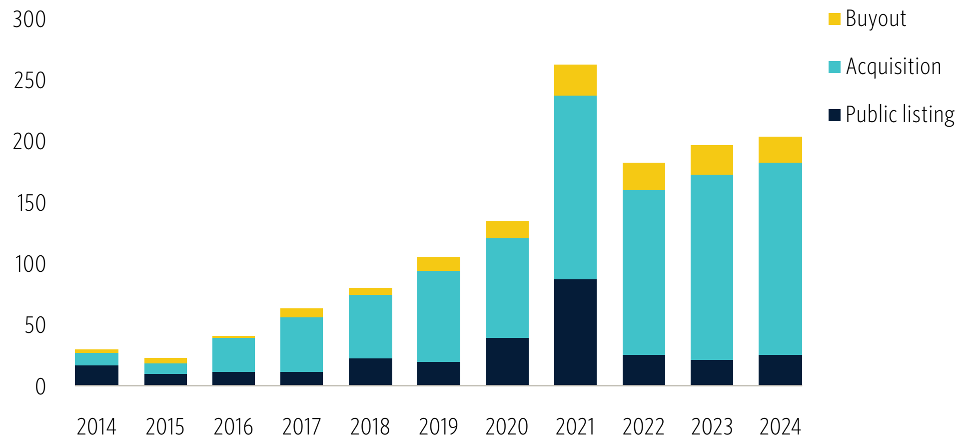
2024 Emerging Spaces exit count by type



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Key Emerging Spaces VC exits in 2024

Company	Close date	Segment	Exit value ($M)	Post-money valuation ($M)	Exit type	Acquirer(s)	Valuation step-up
Cadre	January 22	Real estate crowdfunding	$500.0	$500.0	Acquisition	YieldStreet	N/A
Autonomix	January 26	Neurotechnology	$80.6	$91.8	Public listing	N/A	N/A
Good Chemistry	January 5	Quantum computing	$75.0	$75.0	Acquisition	SandboxAQ	2.8x
Elfin Metaverse	February 7	Blockchain gaming	N/A	N/A	Acquisition	Merdeka Financial Group	N/A
E8ight	February 23	Digital twins	N/A	$142.0	Public listing	N/A	N/A
Windsor	January 25	Generative AI	N/A	N/A	Acquisition	Front	N/A
RealBlocks	February 6	Blockchain real estate	N/A	N/A	Buyout	BlockchainK2	N/A
Noteable	December 1	Generative AI	$10.0	$10.0	Acquisition	Confluent	0.1x
Proof Holdings	February 16	NFTs	N/A	N/A	Acquisition	Yuga Labs	N/A
Spirii	February 27	Electric vehicle charging infrastructure	N/A	N/A	Acquisition	Edenred	N/A
Next Trucking	February 8	Digital freight brokerage	N/A	N/A	Acquisition	CDL 1000	N/A

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Top Emerging Spaces investors

Top Emerging Spaces investors in 2024

Investor	Deal count	Pre-seed/seed	Early-stage VC	Late-stage VC	Venture growth	Investor type
Andreessen Horowitz	9	0	7	1	1	VC
European Innovation Council Fund	6	0	2	3	1	VC
NxGen Ventures	6	2	4	0	0	VC
Sequoia Capital	5	2	2	1	0	VC
High-Tech Gründerfonds	5	0	4	1	0	VC-backed company
Lightspeed Venture Partners	5	1	2	2	0	VC
Stratified Capital	4	1	3	0	0	VC
Quantonation	4	0	2	2	0	VC
Contango Digital Assets	4	2	2	0	0	VC
Hashed	4	1	3	0	0	VC

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