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Discussion-Opinion-Editorial

The Coming of Age of Venture Capital Investing in the New Fields of the Emerging MOGI Sectors: Part 1

MOGI: Minerals, Oil and Gas Integrated

1.0 Introduction

Over the years, the organization becomes so focused in a certain type of organizational set up and goal, they cannot look opportunities and even when they can see they find it difficult to venture into new areas because the skill sets, focus and motivation do not match the requirement. Promoting startups is a way to venture into the unknown but promising areas and these are the reasons why large mineral and Oil and Gas companies are promoting startups today.

Venture Capital (VC) is a type of funding for startups and small businesses that comes from a variety of sources, including:

- a. Institutional investors: These include pension funds, endowments, and foundations.
- b. Corporations: These can be a source of VC funding.
- c. Family offices: These can be a source of VC funding.
- d. High-Net-Worth Individuals (HNWIs): These can be a source of VC funding.

VC firms raise money from Limited Partners (LPs) to invest in promising startups and venture funds. VC is a form of private equity that provides funding in exchange for equity in the company.

Over the past 30 years, venture capital has been a vital source of financing for high-growth start-ups. Amazon, Apple, Facebook, Gilead Sciences, Google, Intel, Microsoft, Whole Foods, and countless other innovative companies owe their early success in part to the capital and coaching provided by VCs. Venture capital has become an essential driver of economic value. Consider that in 2015 public companies that had received VC backing accounted for 20% of the market capitalization and 44% of the research and development spending of U.S. public companies¹.

2.0 What is Venture Capital?

Venture Capital (VC) is a type of funding that investors provide to early-stage companies of startups with high growth potential. VCs typically invest in companies that have disruptive business models and are in technology-based sectors^{1,2}.

2.1 Here are Some Things to Know About Venture Capital

Investment Model: VCs typically take a minority stake in a company and expect to lose money on most investments.

Benefits: VCs can provide resources, guidance, and networks to help companies grow.

Exit Strategies: VCs can sell a company to another public company, take a company public, or sell shares on the secondary market.

Fees: VCs generate revenue by charging management and performance fees, typically 2% and 20% respectively.

Funding Rounds: Pre-seed and seed rounds are the initial stages of funding for a startup company.

Expansion Funding: VCs can provide funding for companies expanding their operations, including second-stage funding, bridge funding, and mezzanine funding.

Access: Venture capital funds have traditionally been difficult for individual investors to access.

3.0 MOGI Companies are Slow to Catch Up

Everywhere in the world, MOGI company Equipment, Technology and Service (METS) providers, both large and small, complain how hard it is, not just to develop a new technology or process, but to commercialise and, crucially, operationalise it. Funding plays an important role in achieving that. But, so do the knowledge, skills and contacts that the right investors can bring. As the MOGI industry's fundamental role in the energy transition becomes clearer, a push from the markets for innovation which far outweighs the pull of companies is developing. Is the mining industry ready for this change in dynamic and the disruption that rapid acceleration in innovation will inevitably bring? Because of this underinvestment, until recently, there's been very little VC in the SAM and MOGI sector space. This is a problem because, in mining, as in other industries, most innovations originate from startups. Startups need VC in order to grow and commercialise, and the lack of that has resulted in a stunted startup system where companies tend to stay perpetually small.

If SAM and MOGI companies don't signal to the market that they're interested in innovation and ready to align with macro themes, like the energy transition and environmental sustainability, then investors will likely stay away. And that has been the situation for some time now. "There is finally a change in narrative from the mining industry," said one executive. "That, because of the energy transition and the level of energy, water and waste intensity involved in current extraction practices, mining has to change dramatically. And there's a clock ticking.

There is a dearth of Corporate Venture Capital (CVC) – VC funds created and/or supported by mining companies to foster the industry's startup community. a number of tier one miners, including BHP and Vale, have recently created VC divisions to collaborate with innovative startups. Other organisations have branded their internal innovation efforts – Anglo American's FutureSmart Mining programme is a good example. This type of action demonstrates commitment to innovation and gives stakeholders confidence that these programmes will not be shelved come the next downturn. The combination of greater CVC and both internal and collaborative innovation efforts is slowly starting to signal to the market that mining is in fact an interesting and potentially lucrative place to be. Supply chain pressures are also ramping up. Downstream companies are beginning to realise the inherent risks – whether environmental, climate change or human rights based – associated with an energy system that is mining and metals dependent (Figure 1).

Many are also concerned about security of supply given that the average time taken to develop a new mine is over 12 years and peak production of metals like copper, nickel and lithium is required by 2035^{2,3}.



Figure 1. How VCs work.

4.0 Funding Series

4.1 Pre-Seed Funding

Pre-seed funding is the earliest stage of funding for a startup, when the founders are trying to turn their idea into a real business. Pre-seed funding is often used for^{1,2}:

1. Company formation.
2. Early product development.
3. Market research.
4. Customer identification.
5. Finding a Minimum Viable Product (MVP).
6. Making early hires.
7. Achieving early milestones.

4.2 The Initial Investment- Also Known as Seed Funding- is Followed by Various Rounds, Known as Series A, B, and C

A new valuation is done at the time of each funding round. Various factors, including market size, company potential, current revenues, and management determine valuations. Venture Capitalists (VCs) provide funding to startups in different series, each with a different focus:

Series A: Focuses on improving the product and market fit.

Series B: Focuses on scaling the business.

Series C: Focuses on expanding, scaling operations, and preparing for an exit like an IPO or acquisition.

VCs also provide seed capital and early-stage capital, depending on the maturity of the business.

Other types of funding for startups include:

Angel Investors- Provide management experience and guidance to startups, and receive dividends when the company takes off.

Accelerators- Provide financing to a limited number of startups through annual or semi-annual programs.

Crowd Funding- A way for businesses to raise smaller amounts of investment from a larger number of individual investors.

Corporate Venture Capital (CVC)- A type of strategic investor that invests directly from a large operating company's balance sheet.

Startup Grants- Non-repayable funds that provide support to entrepreneurs and early-stage businesses.

4.3 Venture Capital Activity in the Minerals Sector

By the records as can be seen BHP Ventures, Equinor Ventures, Fourstones Papermill Co. Ltd., Freeport-McMoRan Inc, and Guoxin Capital Co., Ltd. are among the top 5 venture capital investors in the mining industry in the world in 2021 by deal volume. In terms of the geographic split, 2 out of 10 of the world's top 10 venture capital investors in the mining industry are headquartered in North America, while 5 are based in Asia, 2 are based in Europe and the remaining 1 is based in Oceania. They employed a total of 106,428 people in 2021. Jetti Resources Series C financing deal was one of the major VC deals in the mining sector in 2021. Jetti Resources LLC, a US-based natural resources company that has developed a novel hydrometallurgical technology to extract metals, has secured \$50 million in Series C venture funding led by Mitsubishi Corporation. Other investors in the round include Freeport-McMoRan Inc, BHP Ventures, Orion Resource Partner, and others. The deal was completed in Q2 2021. Lithium de France's series A financing was another major VC deal in the mining sector in 2021. Lithium de France (LDF), a lithium company, has raised EUR8 million (\$ 9.27 million) in Series A financing funding from Equinor Ventures along with participation from Langa SAS, Fourstones, and others. The deal was completed in Q4 2021. While there are quite a few dedicated venture capital funds, we talk of investments of BHP ventures (Table1).

BHP Ventures (<https://www.bhp.com/about/our-businesses/ventures>): BHP Ventures is a corporate venture capital arm of BHP Group based in Melbourne, Australia. The firm prefers to invest in information technology, advanced manufacturing, artificial intelligence, clean technology, climate technology, infrastructure and SaaS. BHP Ventures has made 26 investments as on date. BHP Ventures's latest investment was on 13-Jul-2024 in SiTration, a company within the Commercial Products industry.

Why did BHP Ventures Invest Boston Metal?

Operator of a global metal technology company intended to commercialize molten oxide electrolysis for high-volume steel production. The company's technology utilizes an electrolytic cell to process raw iron ore and produce ferroalloys, a margin material used to produce certain grades of steel, enabling the metal industry to have an efficient, low-cost, and greener aid for the production of a wide variety of metals and alloys from a wide variety of feedstocks^{3,4}.

Table 1. BHP ventures investments

Company Name	Deal Date	Deal Type	Industry	Company Stage
SiTraction	13-Jul-2024	Seed Round	Other Commercial Products	Generating Revenue
ZwitterCo	09-Jul-2024	Seed Round	Other Commercial Products	Generating Revenue
Ascend Elements	15-Feb-2024	Seed Round	Other Materials	Generating Revenue
Antora Energy	23-Jan-2024	Seed Round	Electrical Equipment	Generating Revenue
Boston Metal ¹	06-Sep-2023	Seed Round	Other Metals, Minerals and Mining	Generating Revenue
Allonnia	21-Jun-2023	Seed Round	Environmental Services (B2B)	Generating Revenue
Ceibo	23-May-2023	Seed Round	Other Metals, Minerals and Mining	Generating Revenue
Summit Nanotech	18-Jan-2023	Seed Round	Energy Production	Generating Revenue
Electra (Iron and Steel Mining)	11-Dec-2022	Early Stage VC	Iron and Steel Mining	Generating Revenue
Jetti Resources	24-Oct-2022	Later Stage VC	Other Metals, Minerals and Mining	Generating Revenue

Boston Metal Overview

Year Founded: 2013 Status: Private Employees: 250 Latest Deal Type: Series C2

Latest Deal Amount: \$20M Investors: 27

Ceibo

Year Founded: 2007 Status: Private Employees 69 Latest Deal Type: Series B

Latest Deal Amount: \$30M Investors: 11

Why did BHP Ventures Invest Ceibo?

Operator of an industrial biotechnology company intended to provide science-based solutions for the mining industry supporting the production of critical minerals for the clean energy transition and sustainable mining operations. The company's technology development pipeline is currently focused on scaling a proprietary copper leaching technology to improve the recovery from primary and secondary sulfide ores rich in chalcopyrite, while exploring its performance into other critical minerals, enabling mining industry clients to optimize processes, reduce costs, and ensure the conservation of the environment with zero waste activity.

Lilac Solutions-Mercuria Energy deal was another major VC deal in the mining sector in 2021. T. Rowe Price Associates Inc served as the financial advisor to Lilac Solutions. Lilac Solutions Inc, a US-based lithium extraction

company, has secured \$150 million in venture funding in venture funding led by Lowercarbon Capital with participation from Mercuria Energy Trading, Valor Equity Partners, Breakthrough Energy Ventures, and The Engine. The deal was completed in Q3 2021.

5.0 Why do the Oil and Gas Majors Invest in Start-Ups?

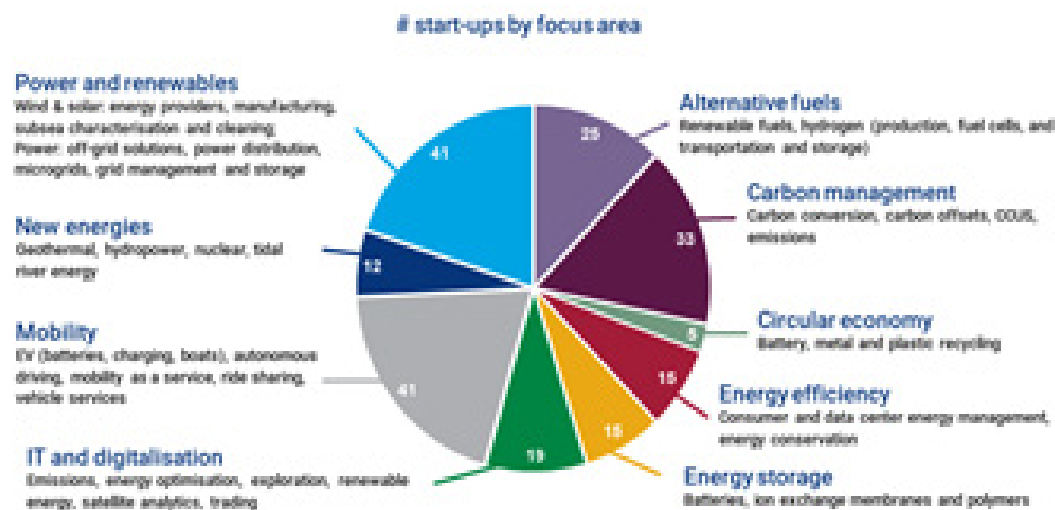
The Majors benefit in multiple ways from investing in start-ups with new technologies. They gain insight into where innovative new technologies can be applied directly to their business to build new revenue streams. They get an inside view of new and emerging technologies that could lead to a competitive advantage ahead of their peers. And investment in start-ups gives them a seat at the table in new technology development, without having to take on a lot of risk. This creates a win-win for both the Majors and the start-up companies. The journey though is full of challenges and phases (Figures 4-7)

5.1 What Technologies are of Interest?

The Majors are invested in start-ups focused on nine areas of the energy transition: power and renewables, new energies, mobility, IT and digitalisation, alternative fuels, carbon management, circular economy, energy efficiency and energy storage (Figure 2).

Shell leads the majors in the number of start-up companies invested in. Its broad start-up investment strategy gives it exposure to a wide range of new technologies. This does not include investments in start-ups in incubators and accelerators.

The Majors have focused investment in nine areas of the energy transition



Source: Wood Mackenzie

Figure 2. Where are the majors focused?

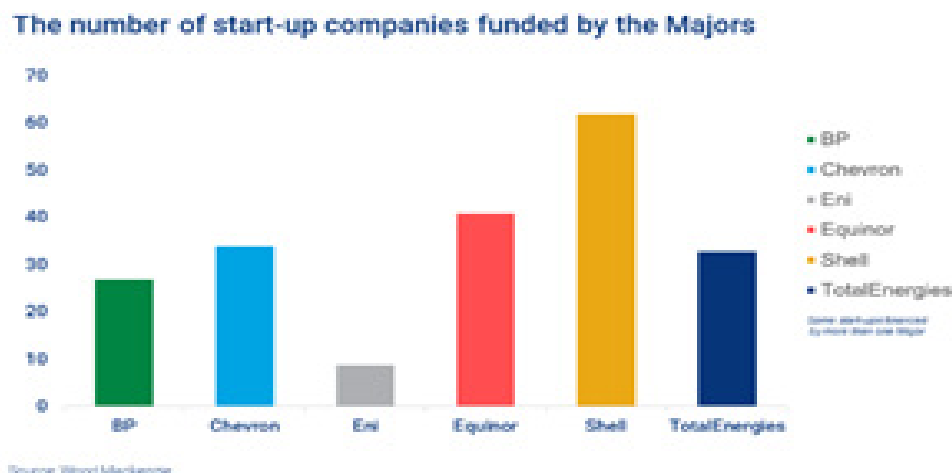


Figure 3. The number of startup companies the mining and oil majors funded.

5.2 Top 10 Private Equity Firms for Oil and Gas (Table 2)

(<https://www.joinleland.com/library/a/the-top-10-private-equity-firms-for-oil--gas>)

The Carlyle Group: Known for its diverse portfolio, Carlyle's energy investments extend into the oil and gas sector. The firm's global reach and extensive network can offer career seekers a chance to work within a dynamic and impactful environment.

Warburg Pincus: With a history of energy investments, Warburg Pincus emphasizes operational expertise and long-term value creation. Professionals looking for a role in fostering sustainable growth may find opportunities here.

KKR & Co.: KKR's energy division focuses on strategic investments and innovation. Aspiring professionals can contribute to the transformation of the oil and gas industry through KKR's forward-looking initiatives.

Blackstone Group: Blackstone's energy investments include oil and gas, making it an appealing choice for job seekers interested in strategic investments and operational excellence.

Apollo Global Management: Apollo's diverse energy portfolio offers career opportunities across different aspects of the oil and gas sector. The firm's global reach and emphasis on value-driven investments can be attractive to job seekers.

Riverstone Holdings: As a specialist energy-focused firm, Riverstone exclusively targets investments within the energy sector, including oil and gas. This specialization offers focused opportunities for aspiring professionals.

EnCap Investments: EnCap's specialization in upstream oil and gas investments provides a chance for professionals to contribute to exploration and production efforts, shaping the future of the industry.

First Reserve: With a longstanding history in energy investments, First Reserve's commitment to responsible resource development aligns with those seeking meaningful contributions to the sector.

Lime Rock Partners: Lime Rock's exclusive focus on the energy sector, combined with a collaborative approach, offers job seekers a chance to closely engage with companies in the oil and gas space.

Post Oak Energy Capital: Post Oak Energy Capital's focus on innovation and growth aligns with individuals interested in contributing to the evolution of the oil and gas sector through a diverse portfolio of middle market energy investments.

The Carlyle Group: As a global investment firm Carlyle work together to create long-term value for its investors, companies, shareholders, people and communities. With 29 offices across 4 continents and more than 2,200 professionals worldwide, they leverage their global network to deliver our best thinking and drive positive change. They manage \$435

Table 2. Recent oil and gas companies with seed funding

Announced Date	Organization Name	Transaction Name	Money Raised
Sep 15, 2024	Crosstown H2R	Seed Round - Crosstown H2R	CHF3M
Aug 15, 2024	Decarice	Pre Seed Round - Decarice	—
Aug 5, 2024	Elmnts	Pre Seed Round - Elmnts	\$2M
Jun 27, 2024	Woodford Horizontal Project 75	Seed Round - Woodford Horizontal Project 75	\$400K
Jun 27, 2024	EE Partners	Seed Round - EE Partners	

billion in assets, spanning 3 business segments and 606 investment vehicles, investing wisely and responsibly over the long-term.

5.3 The Kind of Oil and Gas Related Firms Getting Funding

Crosstown H2R: is a product-focused company that provides customized H2R® burners for gas turbine decarbonization and NOx reduction. The H2R® Burner can convert gas turbines to zero carbon emission systems with Ultra Low NOx



Figure 4. Sulzer and crosstown H2R redefine the future of energy with advanced hydrogen combustion.



(a)



(b)

Figure 5. DeCarice | Hydrogen retrofit technology for decarbonizing oil and gas fleet.

emissions. It operates with any proportion of Natural gas and Hydrogen (in Dry Low NO_x Dual Fuel mode). The H2R[®] Burner can be adopted immediately as a solution to reduce NO_x, and CO₂ at a later stage once hydrogen becomes more readily available.

Decarice: is a Climate Tech Product Manufacturing firm that focuses on clean fuel transition by reducing carbon output. It aims to accelerate the clean fuel transition by providing a practical, real-world option for fleet decarbonisation. Dual-fuel direct injection retrofit reduces the carbon output of existing fleet beyond 50%-by-2030 targets while assuring uptime through the ability to revert to diesel without operator intervention. The retrofit approach controls up-front capital expenditure and provides flexibility in adjusting operating expenditures to prevailing hydrogen supply conditions and sources.

Elmnts: is a blockchain-based tokenized commodity ecosystem for oil and gas royalties. Founded in 2024, Elmnts (pronounced “elements”) is the first tokenized commodity ecosystem providing investors access to mineral rights and royalties. Elmnts is with the goal of providing access to oil and gas mineral rights and royalties. Its a commodities tokenization and lending ecosystem for real-world assets, with its first product launching in the coming weeks. Users will

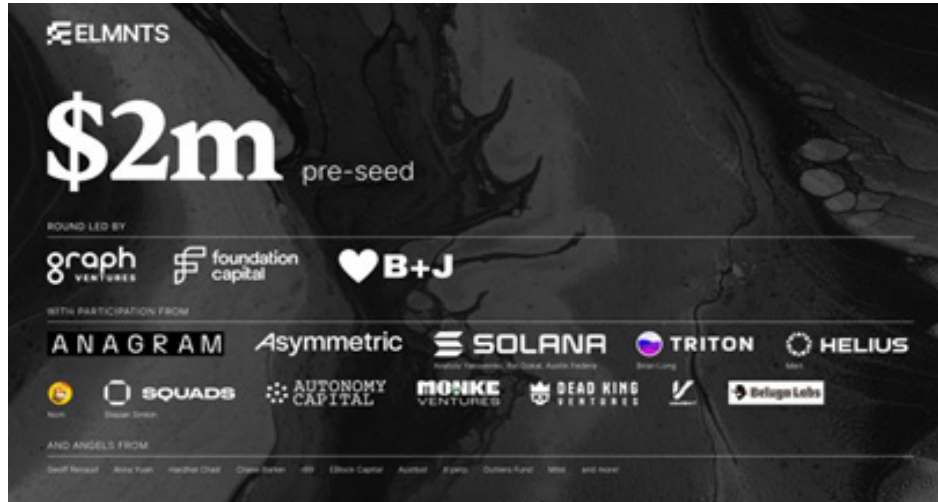


Figure 6. Elmnts, the first tokenized commodities ecosystem providing investors access to mineral rights and royalties has raised over \$2 million in pre-seed funding.



Figure 7. The journey of a Startup: Example Airbnb.

be able to invest in these assets and harness the power of DeFi to amplify their portfolio yields, with more commodities added to the ecosystem in the future.

Mineral interests by their very nature are illiquid and hard to access. Elmnts was launched with the goal of bringing access to oil and gas investments and providing a platform to buy, sell and borrow without intermediaries facilitated by tokenization.

Woodford Horizontal Project 75: is an oil and gas company. Woodford Horizontal Project 74 is an oil and gas company that operates in stealth mode. Woodford Horizontal Project 74 was founded in 2024 and is based in Dallas, Texas⁶⁻⁹.

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