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The Case for Building Corporate Ventures Using Deep Tech

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**DEEP TECH MAY BE
A CHALLENGE, BUT IT'S
ALSO A **REMARKABLE**
OPPORTUNITY FOR
LAUNCHING CORPORATE
VENTURES.**





Introduction

Deep tech offers a compelling opportunity for corporate investors, but it is one that is often overlooked due to fear of complexity, aversion to risk, and hesitation around appropriate domain knowledge. Addressing this reluctance is critical to unlocking the greatest value of investment in these powerful and potentially lucrative technologies.

Deep tech investments accelerated significantly in the period from 2016-2020, with research by Boston Consulting Group (BCG) in partnership with Hello Tomorrow demonstrating deep tech investment quadrupled from [USD15 billion to over USD60 billion during this period](#).

This seismic shift is equally apparent in Southeast Asia, with major investment firms such as [Singapore-owned Temasek committed to investing a significant SGD1 billion across a range of deep tech domains in 2022](#). This investment is in addition to Singapore's Research, Innovation and Enterprise 2025 plan, which includes pledges to invest SGD25 billion into cutting-edge technology.



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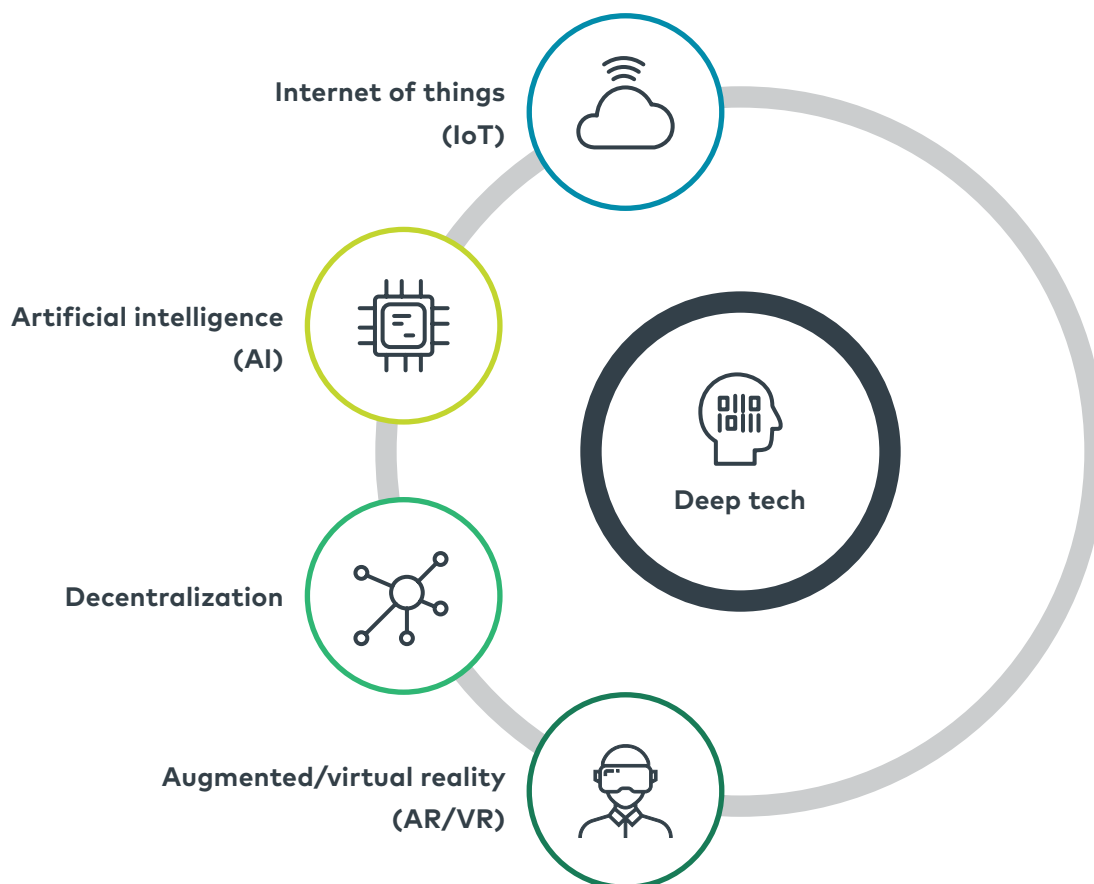
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01

Commoditized tech vs deep tech

Commoditized tech represents those technologies that have proven use cases and an ability to deploy at scale. Some examples include mobile applications and web technologies. Digital builds using solely commoditized tech often find themselves in an overcrowded market space.



Deep tech, on the other hand, refers to cutting-edge technologies that have recently emerged from scientific and engineering advances. Some deep tech categories are the internet of things (IoT), artificial intelligence (AI), decentralization and augmented/virtual reality (AR/VR). Deep tech builds carry more technical risk, but provide opportunities to gain a genuine competitive advantage. Successful deep tech-enabled businesses will still rely on proven commoditized tech for non-differentiating parts of their product offering.



02

Deep tech is particularly challenging but still relevant for corporates

The rapid evolution of these technologies presents a major challenge for corporates seeking to invest in the space. Accessing opportunities in this fast-paced landscape requires a fundamental agility that many corporates struggle to realize. At the same time, the inherent risk of these disruptive deep tech solutions often presents an uncertain proposition, and one that clashes with the desire for defined cost-benefit analyses of many corporates.

These risks should be balanced against the significant value that successful deep tech investment can deliver. When done right, deep tech ventures can add pivotal new dimensions to corporate business capabilities, unlocking new opportunities while fostering a disruptive mindset within a business. It also offers the chance to develop domain understanding and skills that can provide an invaluable knowledge base prior to adopting deep tech solutions within a corporate's core business operations.

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There is a lack of visibility and transparency on what actually goes on in industrial work operations.

Alister Leong, Sol-X VP of Product

Maritime technology company Sol-X offers a prime example of how innovation can unlock improved business operations. Headquartered in Singapore, [and backed by shipping giant MISC](#), Sol-X successfully integrated wearable IoT technology to improve outcomes in ship safety.

“There is a lack of visibility and transparency on what actually goes on in industrial work operations,” said Sol-X VP of Product, Alister Leong. “The crew is given lots of forms that they must complete before, during, and after work. Another crew member comes to the site to observe and sign off on the safety forms. Finally,

these forms get submitted to another person who validates the paperwork. It's a very manual process riddled with lots of loopholes. With Sol-X, we are hoping to provide visibility by digitizing forms, using IoT to map, monitor, and automate the process.”

Having seen the benefits of introducing IoT wearable deep tech solutions, the company is now going further to assess the use of predictive AI to anticipate and perform digital interventions to achieve even better crew safety and health outcomes, demonstrating the journey towards enhanced value generation that deep tech can deliver.



03

Realizing value from deep tech

Recognition of the transformative potential of innovation has been prominent in recent years, apparent in the remarkable intervention of mRNA technology in the global fight against the COVID-19 pandemic. Yet transferring this recognition into realization of deep tech value remains challenging—an area BCG has explored in [Meeting the Challenges of Deep Tech Investing](#). If corporates are to realize the value of deep tech investment, they need to learn to think beyond simple short-term goals, and instead embrace a long-term vision of growth.

BCG Digital Ventures has significant experience of working with both corporates and startups across Southeast Asia and around the world to turn deep tech potential into win-win opportunities for businesses. That requires a focus on three key pillars of a successful deep tech investment strategy.

Pillar 1: Choosing the right technology enablers

The deep tech landscape is vast, and can be challenging for corporates to keep up with the pace of change, creating an early barrier to investment.

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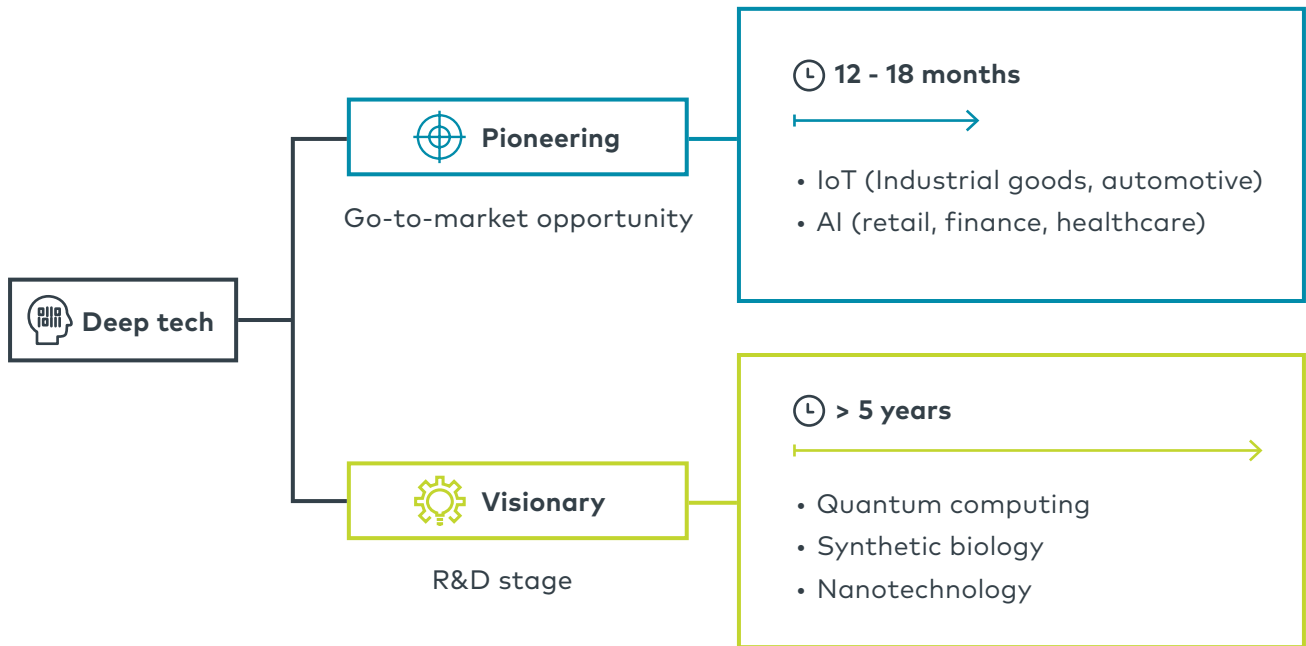
Corporates sometimes don't have the ability or agility to take risks, with changes taking time to trickle down the organization. They should identify the technologies they strategically need to push and the ones they can just watch.

Hanno Stegmann, Managing Director and Partner, BCG Digital Ventures, Singapore

Defining the right opportunities is critical. That includes aligning a corporate's own strategic opportunity with the potential of a given deep tech solution across three key enablers.



Enabler 1: Go-to-market time horizons

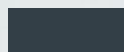
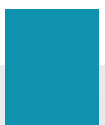


Not all deep tech is equal, and the journey from inception to commercial asset can vary significantly. At Digital Ventures, we broadly classify deep tech into two categories; 'pioneering' and 'visionary'.

Pioneering technologies have established use cases and are already disrupting existing markets, providing go-to-market opportunities within 12 - 18 months. Current examples are the use of IoT in the industrial goods and automotive industries, and AI within retail, finance, and healthcare.

Visionary technologies are those that are still generally at the R&D stage and are not yet ready for commercialization. They can have time horizons over five years, with significant capital needs. Examples of these technologies include quantum computing, synthetic biology, and nanotechnology.

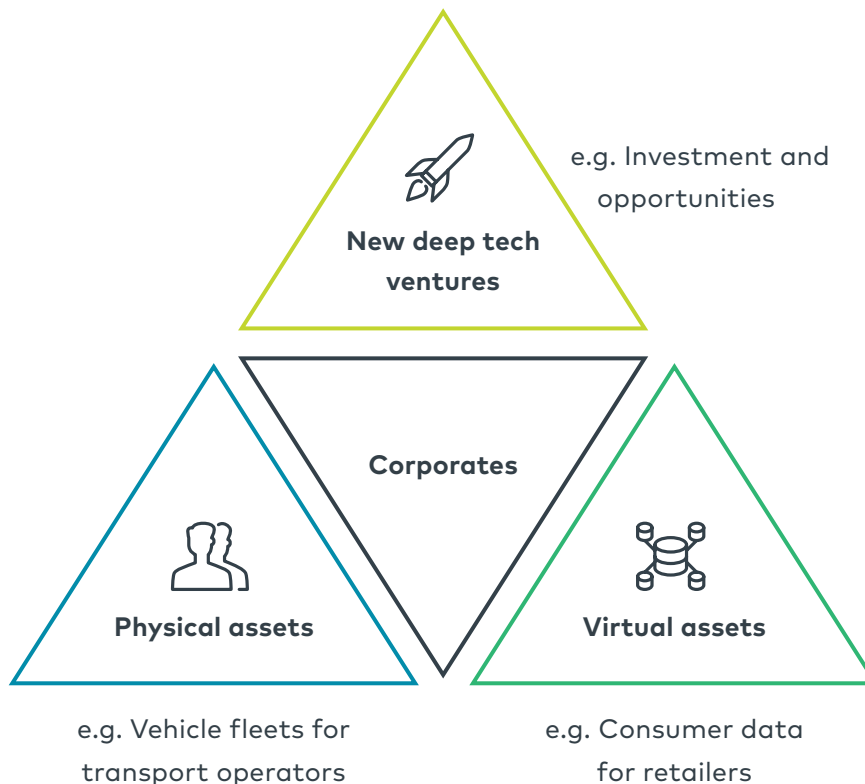
As technology evolves, the category that they fall into also constantly evolves. It's essential to continually assess the technologies that fall within the boundaries of the pioneering technologies bucket - a term we call the [deep tech shoreline](#) - as they are probably most suited for production and scaling.





Enabler 2: Existing privileged assets

“The biggest advantage of having a corporate company backing us has been the ability to have access to ships and subject matter experts who work closely with us to design and develop the product.” Sol-X VP of Product, Alister Leong.



Corporates likely already hold significant advantages over startups in the form of existing privileged assets, providing an important platform to leverage to inform appropriate deep tech investment.

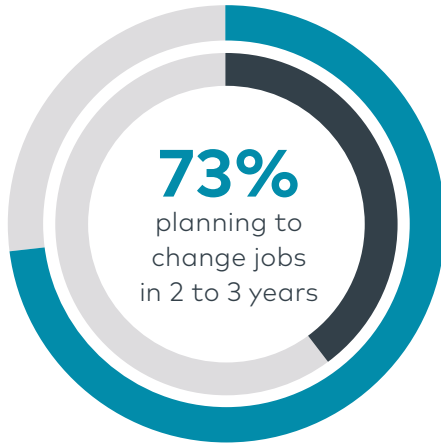
Both physical assets, such as vehicle fleets for transport operators, and virtual assets, like consumer data for a retailer, provide opportunities to expand business operations through deep tech from a position of strength.

In our experience, data consistently appears as a powerful enabling asset of new deep tech ventures for corporates. This aligns with the fundamental nature of deep tech, which is often built on corridors of intelligent automation or platform success, supported by a backbone of data. Uncovering valuable datasets that already exist in your business, then leveraging them for deep tech opportunities is a lucrative starting point when strategizing new venture ideas.



Enabler 3: Talent availability

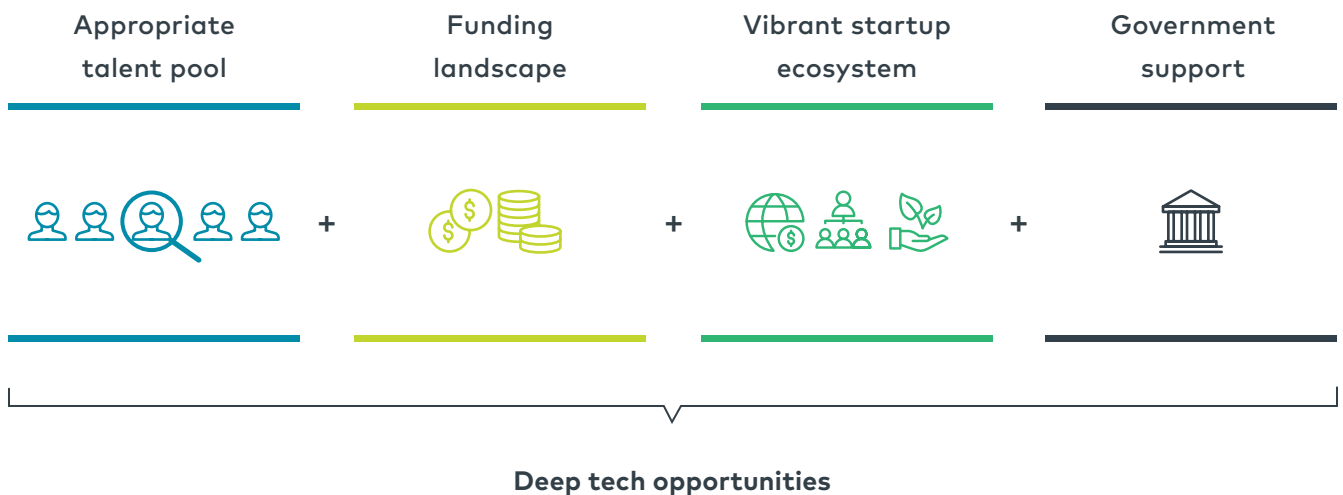
Job search status



- 73% planning to change jobs in 2 to 3 years
- 40% actively looking for a new job

Access to technology talent remains challenging. Corporates will be competing with other startups and tech giants to acquire the same in-demand talent. The global mobility of digital talent creates a complex dynamic for workforce retention, with analysis in [Decoding the Digital Talent Challenge](#) revealing 73% of global digital workers expect to switch positions within the next two to three years. This creates a particular challenge in the Southeast Asia region, with only Singapore represented in the top ten preferred countries for working abroad.

The funding landscape in a given geography can also influence availability of talent, as preferred deep tech corridors create a nexus of talent within a specific area. According to research from BCG's [Meeting the Challenges of Deep Tech Investing](#), deep tech investment is geographically focused, with almost 75% of global investment focused in the United States.



Government support can also be crucial for enabling R&D efforts across the deep tech landscape. Favorable economic pushes can help develop a reliable conveyor belt of suitable talent. [Singapore's Smart Nation](#) strategy represents an encouraging sign of such commitments in the Southeast Asia region. Corporates need to weigh the availability of an appropriate talent pool, influenced by the funding landscape, a vibrant startup ecosystem, and government support in a region before choosing the right technology to target.



Pillar 2: Choosing the right opportunity area

Corporates need to identify the right opportunity areas, leveraging gaps in the market rather than competing within a crowded space. Identifying untapped potential in a rapidly evolving technology area can deliver valuable returns.

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New technology innovations can solve an existing problem more efficiently or make a previously unsolved problem solvable.

Robin Weston, Engineering Director, BCG Digital Ventures, Singapore

Solving an old problem in a better way.

Businesses are always looking to improve the efficiency of existing processes to enhance productivity while reducing costs and emissions intensity. Inefficiencies in the value chain can result from lack of data or oversight, often requiring human intervention. IoT, and AI and machine learning offer deep tech solutions to these fundamental problems.

Telematics company [MachineMax](#), whose parent company is Shell, works with construction industry partners to track the productivity of construction fleets through

smart IoT sensors that provide real-time measurement on utilization, performance, and idling times of vehicles. The platform includes a user-friendly dashboard that provides access to this data along with actionable insights to increase productivity. By capturing data and providing transparency in this way, IoT and AI help humans make strategic decisions and optimize processes.

Solving a previously unsolvable problem. Many challenges lack existing technology solutions, often relying on human-driven decision making for complex problems. With limited access to data, these decisions can be poorly informed. IoT and AI can provide solutions which leverage growing datasets to inform critical decision making. This functionality was utilized in the COVID-19 pandemic to provide predictive analytics to identify the possibility and trajectory of outbreaks, helping improve government decision making.

Decentralization or distributed networking through blockchain technology offers another example of this opportunity, providing trustworthy end-to-end supply chain tracking for a wide range of industries. [Tracr](#) is a decentralized platform used for tracking in the diamond industry, tracing diamonds from source through to end-consumer, providing valuable provenance as to the authenticity and sustainability of the diamond supply chain. Backed by The DeBeers Group, Tracr was recently named one of the top 50 blockchain companies by Forbes.

Whether deep tech solutions improve the solution to an old problem, or create new solutions to the previously unsolvable, leaders within an existing industry are uniquely positioned to understand gaps which could be valuable to address.



Pillar 3: Adopting a lean mindset

Deep tech is a powerful platform to build solutions upon, but ultimately customers are concerned about results that positively impact their lives rather than the foundations beneath them.

Design thinking is a strategic process that helps challenge our assumptions quickly through rapid prototyping and iterative improvements. This ability to experiment and receive swift feedback is a powerful tool. Building a product in an agile manner allows corporates to pivot in new directions more rapidly when required, instead of wasting years on a single product at the risk of unfavorable customer response with no way to adapt.

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Our experience highlights the value of a minimal viable product (MVP) solution that delivers a product into the hands of customers as early as possible. This could include a lean strategy where a product's early smart capabilities are powered by humans operating in the background, eschewing the need for a fully-realized and trained AI model in favor of simpler rule-based approaches in the initial deployment.

Berlin-based integrated urban mobility platform [Mobimeo](#), backed by Deutsche Bahn, developed a machine learning model to predict if a particular user had utilized recommended alternative transport options. The model leverages phone sensor data such as the magnetometer rather than relying on GPS, with the first-release model incompletely trained. While it worked well for the data types it had seen before, it was unable to optimize delivery with data it hadn't seen.

However, deploying this model on a mobile app as soon as possible was key to addressing several technological risks. Despite initial poor performance, the model allowed Mobimeo to assess the reliability of phone sensors as inputs, and understand how to deploy and update on a mobile device with minimal disruption, as well as assess differences between sensor data from Android and iOS. This was also a great way to provide visibility of the model within the app to various stakeholders for testing. Eventually, after successfully lowering the technological risk of the product build, the team iterated the model and added more rules to improve predictions.



04

Devising the right deep tech strategy in partnership

Deep tech offers far-reaching opportunities for value generation. Corporates must now think about how to incorporate this into their long-term investment strategy. While there are early entry challenges with risk profiles outside traditional comfort zones, deep tech ventures offer enabling opportunities which unlock systemic value through agile mindsets, innovative solutions, and improved ways of working for the long term.

BCG Digital Ventures partnership with Singapore Economic Development Board provides a platform to propel companies in Southeast Asia through this deep tech investment journey. This is backed by the ambitions of the Corporate Venture Launchpad and its SGD10 million investment fund designed to support corporates launching new ventures in Singapore.

This article is written as part of the Corporate Venture Launchpad program. The SGD10 million pilot program by EDB New Ventures aims to enable large, established companies new to corporate venturing to launch a new venture in Singapore within six months, supported by venture studios experienced in corporate venture building.

Start your corporate venturing journey with us through the [Corporate Venture Launchpad](#) - learn more on their site or get in touch at DVInfoSG@bcgdv.com.

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