

The rise of deeptech investments speak to an industry brimming with possibility

The combined value of European-founded deeptech companies now exceeds \$845B, and counting. Since 2010, the percentage of European venture capital being funnelled into deeptech companies has more than doubled, and 2020 saw investments into the sector surpass €10B.

The final figures for 2022 are set to be higher still. At the same time, the number of companies receiving investment – particularly in Series A+ – is low in comparison to the behemoth that is the SaaS industry. This highlights how much scope and potential there is for growth in this sector.

However, the ‘deepness’ of deeptech can also make it more challenging when it comes to commercialisation. Deep technologies typically touch and overlap vast numbers of sectors. This means they may intuitively seem to have mass appeal and impact, but finding product or market fit particularly with early adopter markets may be less obvious and thus adds complexity when it comes to route to market.

While investments *in deeptech* can be hugely rewarding, they often do require

much more patience and a willingness to take different kinds of risks – an investment style that doesn't suit the vast majority of VCs.

For people outside of this space, its unique setup can make it notoriously tricky to pinpoint the next big deeptech trends, but our work with a number of leading companies within this sector has revealed some interesting insights.

Precision cancer medicine

Ever since the development of next generation sequencing (NGS), we have long been promised the age of precision cancer medicine. Within this utopian view, doctors and oncologists would be able to rapidly diagnose patients before treating them with targeted therapies for better outcomes. However, the complex interplay of human genetics and cancer biology, along with the practical real-world difficulties in delivering precision diagnostics, has hampered progress – until now.

One significant and hugely impactful deeptech trend we're seeing is the arrival of precision cancer medicine. Instead of being beholden to the slow, complex and expensive use of NGS for patient diagnosis, there are now a host of different molecular assays that enable us to accurately detect actionable molecular or genetic markers in a rapid, multiplexed and cheap way. This is coupled with the fact that our repertoire of targeted therapies is expanding to include new treatments like checkpoint inhibitors, PARP inhibitors, and antibody-drug conjugates. In comparison to the blunt effect of chemotoxic agents, these new tools can empower us with scalpel-like molecular precision.

With each new successful treatment pathway, we gain a better understanding of the different routes by which we can target cancer.

This is leading to novel treatments that are steadily leaving labs and clinical centres, like those at University College London, and increasingly attracting investment.

The use of incredibly powerful and novel research tools like CRISPR screens, multiplex single-cell analysis and advanced bioinformatic pipelines will only increase the speed at which we identify and test novel targets. As well as faster

target discovery, we're also getting much better at running cheaper and more effective clinical trials. All of this has helped this area of deeptech to reach a turning point, and one that is set to be literally lifesaving.

Hydrogen is finally living up to its hype

At the heart of the deeptech surge is the need for new solutions to the climate crisis. Battery and electricity generation technology have already benefited from this, but 2022 will be the year when hydrogen finally lives up to the hope and hype of a previous generation of innovators and investors.

Having experienced a few false dawns in the past, the world has been slowly waking up to the role hydrogen can play in averting a climate disaster – not as a competitor to batteries, but as the perfect partner. Its energy density makes it perfect to work with battery technology to power the future of cars and homes through planet-friendly fuel cells. These fuel cells create electricity by combining hydrogen and oxygen, and the only by-product is water.

In August, the UK committed to becoming a hydrogen economy, outlined as part of the government's first-ever hydrogen strategy.

According to this strategy, a “booming, UK-wide hydrogen economy could be worth £900M and create over 9,000 high-quality jobs by 2030.”

Some estimates even claim this could rise to 100,000 jobs and worth up to £13B by 2050, while government analysis suggests as much as 35% of the UK's energy consumption could be hydrogen-based in the next 20 years.

To make this happen, we need bigger and better electrolyzers and this is the first deeptech trend where we're seeing increased investment. We're also seeing investments in this space going to the fuel cell designers, engineers and manufacturers to help fund innovations in the hardware itself. This is an area we recently invested in with Bramble Energy, and is one in which the startups and technologies being built could have significant impact on the fate of our planet.

There are lots of reasons to be excited about 2022 and we expect to see an

even bigger leap forward in the use of data and computing power within the biotech field. We're confident that the handful of recent UK deeptech unicorns is just the start as investment grows in the sector most critical to creating the future.

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