Bridging the Gap in European Scale-up Funding: The Green Imperative in an Unprecedented Time

In collaboration with KPMG

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In 2019, European innovation looked primed for unprecedented growth. Startup Genome found that 14 of the world’s top 30 innovation ecosystems were European, while Sifted and Dealroom credited the region’s start-ups for creating over 2 million jobs and 10% of job growth. Factors across the board indicated that Europe was finally closing that gap in company valuation, the number of unicorns and even the amount of capital, while political support for both the digital and green agenda had taken priority with the European Commission. But just as new companies were forming at an unprecedented rate, raising 38% of global seed-stage funding, COVID-19 brought unprecedented upheaval. In the first months of 2020, most start-ups have seen fundraising efforts stall and many have had to release full-time staff.

One of the main challenges both before and in the wake of COVID-19 has been Europe’s ability to develop technological innovation in global companies, which requires complex and long-term investments. This is particularly poignant now, as the European Green Deal launched a race towards climate neutrality, but reaching its ambitions relies in large part on new technologies that are just coming out of the lab. These growth companies (or “scale-ups”) should have a strategic advantage given Europe’s legacy of industrial excellence but are in danger of succumbing to the funding “valley of death” as they navigate towards commercialization in what promises to be a very difficult economic environment. Digital Europe’s Innovate Europe report identified innovation funding for such companies as one of the greatest challenges facing European ecosystems and this report builds on that assertion.

In this paper, we address the triple challenge facing European innovation just as it seemed that governments, founders and investors were finally getting aligned – access to growth-stage funding, the ability to channel such funding towards building technology that works toward climate goals, and doing so during the pandemic and economic disruption. We propose four ideas: treating innovators as customers; using new methods of funding; redesigning procurement; and giving founders a voice on regulation. We would like to thank the Digital Leaders community and its board for their invaluable contributions and insights into this report, and KPMG for its thought leadership and enthusiasm in developing these proposals.

The World Economic Forum, as the International Organization for Public-Private Collaboration, is committed to improving the state of the world by providing the platform for multistakeholder engagement and impactful action that shapes global agendas for a sustainable and responsible future. Digital Europe, as part of the Forum’s work, brings together a community of innovators, policy-makers, corporate leaders and academics to promote a pan-European approach to innovation, one that will stand ready to overcome today’s challenges and embrace the opportunity for a global reset that can rebuild for a better and greener tomorrow.
Executive summary

Before COVID-19 put the global economy on hold, the European innovation ecosystem had made remarkable gains, with European tech IPO returns even surpassing those in the United States. European companies still, however, trail their American counterparts in their ability to scale. This is especially true for those involved in developing the new technologies needed to meet Europe’s ambitious sustainability goals.

Recovery from the COVID-19 pandemic will also pose economic challenges. However, Europe has strong fundamentals, from high-quality education systems to engaged regulators, and the COVID crisis has reinforced political ambition to accelerate the twin transitions towards digitization and decarbonization.

The challenge now is to catalyse the policies and programmes needed to lift the European innovation ecosystem to the next level. Building on the Innovate Europe report, this paper looks at systemic and structural issues and proposes four ways to more effectively fund growth-stage start-ups (scale-ups), reaching beyond the common panacea of “more funds”:

1. **Streamline access to public funding for innovation.** Governments want public money to attract the smartest entrepreneurs, but heavy bureaucracy sends the opposite message. Start-ups must invest significant resources to understand the different offers of diverse European and national institutions that provide innovation funding. Their accessibility and efficiency must be streamlined.

2. **Apply blended finance to scale Europe’s industrial transformation.** Start-ups working on cutting-edge technology characterized by a long R&D phase (deep-tech) need long-term funding and in many cases have large capex needs to finance production lines or computing power. European Venture funds alone do not have the size to provide adequate funding amounts and in some cases can’t provide funding for the time periods needed for development. Smarter financing structures are needed to address this mismatch. Blended finance approaches – using a sophisticated mix of public and private investment – remain niche in Europe but are a promising solution to address the funding gap.

3. **Create public and private procurement opportunities.** Procurement processes in both the public and private sectors in Europe favour established corporations, making it difficult for young companies to sell products and services – especially novel technologies. If integrated into COVID-19 support packages, these can have greater impact than direct funding alone and promote closer, ongoing collaboration.

4. **Give European growth companies a voice on policy and standards.** European technology companies need to participate more actively in shaping their political and regulatory environments if they are to evolve into world leaders. Investment in industry associations for scale-ups can build alliances among companies and help decision-makers to understand the potential of new technologies.
Although this report is based on interviews and workshops with founders, corporate executives, investors and policy makers, it is not a research paper. It is intended as a guide for decision-makers in the public sector and an inspiration for corporate and start-up leaders.

The report does not aim to list all barriers to VC investment in Europe; it proposes solutions to the overarching themes that recurred in interviews, workshops and literature. Its aim is not to propose short-term regulatory changes or programmes but to build knowledge and long-term capacities in the European innovation ecosystem.
The Crisis: Europe wants to go digital and go green, but struggles to scale

Before COVID-19 put the global economy on hold, investment in European tech companies was growing. According to the State of European Tech 2019 report, capital invested in Europe had more than doubled in five years to €32 billion. European start-ups achieved greater deal sizes and higher valuations: 53 raised more than €92 million and more than six – including GetYourGuide, Northvolt, Greensill, Deliveroo, UiPath and Checkout.com – raised over €462 million. These successes are usually known as scale-ups or growth-stage companies. While there is no universal definition, scale-ups are start-ups that have demonstrated a product-market fit and are on an accelerated growth pathway, seeing revenues rise in double digits over several years, and growing increasingly through profits rather than solely via funding rounds. In 2019, the number of European scale-ups or “unicorns” – valued at $1 billion – rose to 99, hailing from 20 countries, and was set to double in the next few years. While London, Paris and Berlin led the way, unicorns from Lithuania to Spain attracted €100 million+ rounds as well. In the past six years, Europe produced more tech IPOs than the US; and while their market valuations were smaller, they delivered better returns. In the UK, the tech sector has been growing six times faster than the rest of the economy. Across Europe, start-ups provided 2 million jobs.

Despite the current crisis, Europe has all the fundamentals for innovation, growth and prosperity. European policy-makers have proven capable of forward thinking and innovation. For example, the General Data Protection Regulation (GDPR) is being adopted globally. The European Commission’s Sustainable Finance Action Plan is set to transform the financial sector, while the Green Deal aims to decarbonize the European economy by 2050 through decisions taken in the next five years.

The twin transitions to tackle climate change and adapt to a digital future can offer companies of all sizes the chance to become more productive and competitive. It’s also one where the waves of new technology will come ever faster – so our ability to innovate will make the difference between taking the lead and falling behind. The great task that we face today is to […] help get European industry ready to grasp those opportunities.

Margrethe Vestager, Executive Vice-President for a Europe Fit for the Digital Age, European Commission
Achieving a climate-neutral and circular economy requires the full mobilization of industry. It takes 25 years – a generation – to transform an industrial sector and all the value chains. To be ready in 2050, decisions and actions need to be taken in the next five years.

European Green Deal

However, European start-ups still trail their American counterparts in ability to scale and exit. Start-up investment in the US remains 3.4x the level in Europe. Only one in eight European companies scale compared to one in four in the US. The greater liquidity offered by the New York Stock Exchange (NYSE) and NASDAQ means the US has seen 2.8x more billion dollar tech IPOs than Europe since 2015. This is also due to the strong participation of US institutional investors in the sector, which have traditionally been more willing to engage in VC: US pension funds have just 2.7x more assets under management than European institutional investors but make 11x the commitments to VC.

Europe’s natural market fragmentation still hinders growth and the VC ecosystems differ in maturity; about a quarter of capital comes from the mature London ecosystem while other regions are less developed. At the moment, foreign investors provide access to capital, networks, expertise and markets that local VCs cannot – especially in smaller hubs such as Tallinn and Bucharest. But dependence on primary foreign investors can lead to relocation and they can prove to be less committed when times get hard. Due to the distribution of their network, foreign investors also make an exit to a foreign buyer more likely. The best-performing companies have a mix of foreign and domestic investors. Therefore, Europe needs to mobilize domestic investors to participate more actively in the European VC market.

Deep-tech’s need for higher levels of investment over a longer period has made foreign funding inevitable. The “valley of death” between development of promising new technologies and its application at scale is particularly dangerous for deep-tech innovation and many technologies relevant to achieving Europe’s Green Deal ambitions are precisely...
Start-ups and scale-ups have less political power than established companies – which today can access billion-euro loans to stave off mass layoffs – but they are precisely the industries that could employ a majority of tomorrow’s workers. European Commission President Ursula von der Leyen has called for recovery to involve more investment in digital technologies, infrastructure and innovation to build “a more modern and circular economy that […] will make us less dependent and boost our resilience”.31

Some European countries are supporting start-ups and scale-ups in their stimulus packages. Germany, for example, includes a €2 billion allocation for VC and start-ups, deferred taxes and social security payments, and the state paying up to 60% of salaries when employees are not working.32 Another potentially very effective programme is the UK’s Future Fund that will provide convertible loans to scale-ups.33 However, even more support might be needed. After the 2008-2009 financial crisis, VC investments in late-stage ventures declined by almost 50% and took another 10 years to reach pre-crisis levels across Europe;34 and there are concerns that the support provided is, in some cases, not tailored appropriately to the needs of scale-ups.35 European countries without the fiscal power of Germany, the UK, or France may also require greater cross-European solidarity to secure the survival of their innovation ecosystems and to return quickly to a pre-crisis trajectory.

The COVID-19 pandemic makes it more urgent to support Europe’s advanced technologies focused on sustainability. Companies’ plans to launch or scale products have been thrown off-track. Supply chains have been disrupted. Curtailed travel is limiting fundraising and sales activities making fast-growing companies especially vulnerable.27 Their costs are largely locked in, while new sales and funding opportunities are constrained.28,29 Over a third of growth-stage start-ups have less than six months’ worth of cash and are running out of time if they don’t get adequate support to outlive the crisis.30

These – that is, they build on scientific discovery in engineering, mathematics, physics and medicine.24 These companies need more time and capital to reach market maturity, which makes them a poorer fit for the business model of traditional European VC funds.25 American VCs reach larger fund sizes and have more experience funding deep-tech companies and their assets, financing successes such as Tesla, Beyond Meat, and Impossible Foods. Funding and experience make them an attractive partner for European deep-tech start-up founders as well.
Digital deep-tech is critical to achieving the green transition. For example, virtual and augmented reality can reduce business and leisure travel, blockchain can help track carbon emissions, and robotics is a requirement for vertical indoor farms that help us adapt to climate change.

Deep-tech companies, in general, are more difficult to scale than traditional start-ups. Their need for more time and capital makes them a poor fit for VC investors, who typically seek exit after three to five years. Most start-ups go to market at the seed stage and use series A, B, C and D to grow sales, market share, or product range (see Figure 2). Deep-tech start-ups often still develop their technology through series A funding and use series B, C and D to build “pilot plants” – first-of-their kind factories to manufacture new and innovative products or factories that use innovative machines.

Figure 1: Six objectives of the EU taxonomy defining sustainable economic activities and focus sectors defined by the European Commission

Source: European Commission

The Challenge: Surviving the “valley of death” to contribute on sustainability

“Green-tech” companies exist across a range of sectors, including energy, electricity, raw materials, transport, agriculture, textiles, chemistry and pharmaceuticals, offering products, technologies or services that contribute to environmental goals. The EU Taxonomy on Sustainable Finance defines six environmental objectives (see Figure 1). Sustainable products, services or infrastructure investments need to contribute to at least one of these objectives and must not significantly harm others.

Companies that offer products, technologies, or services that contribute to environmental goals are green-tech companies.

German Startup Monitor
Figure 2: Comparing the pathway to maturity of traditional start-ups and deep-tech start-ups

<table>
<thead>
<tr>
<th>Stage</th>
<th>Traditional start-up focused on digital services and products</th>
<th>Deep-tech start-ups that provide B2B and B2C digital and non-digital services and products</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-seed stage / bootstrapping</td>
<td>Product idea &amp; first prototype ready</td>
<td>Product idea &amp; first prototype ready</td>
</tr>
<tr>
<td>Seed stage</td>
<td>First product launch; further developing product-market-fit</td>
<td>Second prototype &amp; further research</td>
</tr>
<tr>
<td>Early-growth / Series A</td>
<td>Commercialized product with consistent revenue flow</td>
<td>Third prototype &amp; demonstration lab, consumer testing</td>
</tr>
<tr>
<td>Growth or scale-up stage / Series B &amp; C</td>
<td>Increasing market share and expanding to new markets, returning a profit</td>
<td>Pilot plant, early test customers</td>
</tr>
<tr>
<td>Late-stage growth or scale-up / Series D</td>
<td>Building on B &amp; C</td>
<td>First commercial stage plant, first commercial customers</td>
</tr>
</tbody>
</table>

Investor:
- Founder
- Friends and family
- Angels
- Government

Amounts:
- <€50,000
- €5 million-€15 million
- €30 million-€50 million
- ~€100 million

Figure 3: Example for financing sources of a company and its pilot plant
or procedures to produce existing products. While these companies take longer to achieve their first revenue than B2C start-ups or those that rely on existing technologies, they can ultimately disrupt established markets and are more competitive due to their underlying IP or non-replicable technology.

Deep-tech start-ups depend on a more diverse set of funding sources. Deep-tech start-ups typically need to make large capex investments before scaling their revenue as they invest in physical production lines before moving from the “lab” to economies of scale. These “pilot plants” for new technologies usually cannot access commercial debt because banks are unfamiliar with the technology’s risk structure and do not yet allow for balance sheet financing. Thus, these companies need additional venture debt or debt from public banks at commercial rates. Public banks such as the EIB, KFW and Epifinance provide loans for such factories or infrastructure projects if they are seen as strategic by the local government. Figure 3 shows the funding flows for a start-up and its pilot plant. Start-ups innovating on business model rather than technology are less complex to finance as they do not have to raise the financing for their pilot production lines, while deep-tech start-ups usually need a consortium of investors to cover this.

European deep-tech scale-ups face different regulatory and sales barriers than traditional start-ups. Businesses can sell to retail customers (B2C), other businesses (B2B), or through intermediaries (B2B2C). Table 1 provides examples for traditional tech and deep-tech companies, and an overview of the most important challenges for deep-tech start-ups in each category. B2B and B2B2C scale-ups in Europe, for example, struggle with public and corporate procurement processes that can take up to 18 months, when most start-ups have a runway of only three to six. While regulation can be a barrier or opportunity for any company, it is fundamental to B2B2C businesses, which often operate in the medical tech space, for example.

### Table 1: Examples of traditional and deep-tech start-ups in B2C, B2B and B2B2C

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Traditional/existing technology (business model innovation)</td>
<td>Online commerce, food delivery, carsharing, streaming, etc.</td>
<td>Customer service software, AI-based advertising, data-mining solutions</td>
<td>Companies, predominantly in health tech, providing, for example, telemedicine services</td>
</tr>
<tr>
<td>Deep technology (scientific innovation)</td>
<td>Alternatives to animal-based foods, VR solutions, consumer AI (e.g. speech recognition and automated translation)</td>
<td>Cybersecurity, alternative energy, electric batteries, vertical (indoor) farming, robotics, sensors (e.g. water efficiency)</td>
<td>Companies, predominantly in health tech, providing new medical treatments based on AI, VR, new drugs, etc.</td>
</tr>
<tr>
<td>Challenges for deep-tech companies that need to be addressed</td>
<td>Capex investments in large production facilities that are not usually financed by VC investors</td>
<td>Lack of sales to/procurement from corporates and the public sector in Europe</td>
<td>Lack of sales to/procurement from corporates and the public sector in European regulations (e.g. standards)</td>
</tr>
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Digital Europe’s 2019 Innovate Europe report describes 10 fundamental building blocks for the competitiveness of the European innovation ecosystem. Among others, it highlights the need for increased innovation funding, more corporate-start-up collaboration, harmonized legislation and standards, and enabled government and public institutions. The report also defines four catalysts to achieve scale: (1) leverage industrial assets, funding digital platforms and technologies for strategic European industries; (2) change data dynamics, leading on governance for data access and trust; (3) boost talent, competing with digital skills and diversity; and (4) create demand at scale, leveraging public-sector leadership in procurement and standardization. These ideas build on those recommendations to discuss four viable proposals for more effectively funding scale-ups whose technological innovation is critical to achieving environmental sustainability in Europe.

They aim to accelerate top start-ups and increase connectedness within Europe: not simply to increase the number of transactions, but to foster greater expertise and sophistication in the continent’s entrepreneurial ecosystem with each round of funding. Successful mechanisms will need to be strategic, supporting the objectives of the Green Deal in how they mobilize private investment for scale-ups. They need to promote a pan-European approach and business expansion to increase the effectiveness of public funding. They are also in line with the EC’s new SME strategy for a sustainable and digital Europe.

1. Streamline access to public funding for innovation

Governments providing public money hope it will attract the smartest and quickest entrepreneurs, yet heavily bureaucratic methods and overlapping programmes send precisely the opposite message. A diverse set of European and national institutions provide innovation funding to start-ups – but to find the right offer, start-ups need specialized skills such as grant-writing, and time to put into interacting with multiple agencies to understand their criteria. It is a tough choice for founders to dedicate staff to understanding processes instead of building technology.

Europe aims to make its economy carbon-neutral by 2050, but green start-ups have no clear pathway from early-stage funding to growth-stage investment. Europe has pledged to reach carbon neutrality while creating sustained economic growth and high-quality jobs. This requires support for innovative green technologies at the scale-up stage, but consistency and continuity among various funding mechanisms are still missing.

In the past, the European Innovation Council (EIC), for example, supported potential scale-ups through access to high-profile mentors such as Jim Hagemann Snabe, Chairman of Siemens, and Ingmar Hoerr, Chief Executive Officer of CureVac, a company currently developing a coronavirus vaccine. The European Commission designated at least €300 million for breakthrough Green Deal innovations under the EIC.
The EIB is the largest of these institutions. Beyond loans, it provides venture debt, invests in private equity funds, and provides guarantees to improve the costs of financing for strategic projects or sectors. Direct funding from the EIF and EIB into companies usually provides ticket sizes of €50 million and under, but tickets over €100 million are needed for scaling. The conditions of these instruments may also be more restrictive than typical VC funding.

The European Commission recently launched the successor to its popular Horizon 2020 programme that focused mostly on innovation and early-stage start-ups with Horizon Europe (2021-2027), which will specifically address scale-up funding. As part of the new Horizon Europe concept, the EIC will become a one-stop shop to help innovators create markets, leverage private finance and scale-up their companies. Some 70% of the budget is earmarked for SMEs. While some of their offerings overlap, these institutions are designed to complement each other across the start-up’s life-cycle (see Figure 4).

Meanwhile, the European Institute of Innovation & Technology (EIT) nurtures companies that address societal challenges. It accelerates seed-stage start-ups by organizing events such as roadshows in the US and Israel and knowledge and innovation communities (KICs) that help start-ups within strategic areas such as climate, food and energy. The EIT often lays the groundwork for proof-of-concept in deep-tech companies, getting them ready to raise funding from the European Investment Fund (EIF), EIB and private investors.

The EIF invests in European VC funds, provides venture debt directly to start-ups and connects investors with start-ups. The Venture Centre of Excellence (VCoE) is a new initiative driven by EIF and EIT-Health to foster networking between corporates and start-ups in the life sciences sector. Corporates that want to participate in the programme need to participate in a life-sciences VC fund managed by the EIF and get the opportunity to work directly with promising start-ups. Start-ups, on the other hand, receive access to the value chains of corporates and benefit from their experience in navigating the regulatory requirements in life-sciences.

The EIC & EIT: Advice, networks, smaller funding amounts

EIF: Equity & venture debt starting at Round A

EIB: Support for large-scale investments

Figure 4: European public funding providers for innovation funding and how they fit into the start-up lifecycle (Illustrative)
European public funding institutions have shown they can lead green innovation excellence. The EIC, EIT, EIF and EIB have proved they can effectively support the deep-tech development that Europe needs to achieve its sustainability goals. EIT’s Climate Knowledge and Innovation Community (Climate-KIC), for example, supported the proof of concept of Lilium, a company that develops electric airplanes (see Box 1). EIB provided a €350 million loan to Northvolt to finance Europe’s first green battery plant (see Box 2). However, European public funding for commercialization of new technologies and scale-ups still lags behind the US. The US Department of Energy Loan Program Office provided Tesla with a €430 million ($465 million) loan to build its EV car manufacturing plant in 2010 – before the company had ever made a profit. In 2019, the Defense Advanced Research Projects Agency (DARPA) alone had a budget of $3.427 billion to fund technology research and scale-ups at all stages. No European institution provides tech funding at that scale. Investing public money in growing private sector companies is still controversial in Europe, with electorates preferring to support traditional enterprises and existing jobs. However, to achieve Green Deal ambitions, Europe needs to finance hundreds of Liliums and Northvolts across all phases of development.

Public funders have diverse requirements and start-ups must spend valuable resources navigating the system. European public-funding institutions provide a broad range of services and types of financing to start-ups – which may also have different options for support from national institutions such as KfW in Germany and Bpifrance. Navigating this wide array of options is resource-intensive. Application processes for each institution can take six or more months. Requirements vary and application materials cannot easily be reused – especially for deep-tech start-ups concerned with IP where technical descriptions are vital. Founders spend valuable resources on specialized staff or consultants to seek public funding instead of growing sales. Another complication is that public institutions regularly replace reviewers. Although intended to ensure neutrality, this makes adapting rejected applications based on a committee’s recommendations difficult as the new group may also have new preferences. These inefficiencies are especially critical for start-ups in the green space, with business models that rely on public funding for longer periods, as they cannot be commercialized as quickly.

Box 1: European green deep-tech success stories: Lilium

Lilium built the world’s first electric vertical take-off and landing jet, laying the groundwork for emissions-free aviation. Founded in 2015 by former TU Munich students, the company closed a €224 million funding round in March 2020. Private air travel is growing due to COVID-19 fears, creating an opportunity as the company initially targets high-income individuals and business travellers. Climate-KIC helped the company to demonstrate the viability of its technology.

Box 2: European green deep-tech success stories: Northvolt

Northvolt is a Swedish green battery company founded in 2016 by two former Tesla engineers. The company is building the first European commercial-scale battery plant in Sweden and raised €1.2 billion in financing in June 2019. EIT supported the company to put together a consortium of investors and access EIB funding: the €350 million loan from EIB is accompanied by €886 million from VW, BMW, Goldman Sachs, AMF, Folksam Group and IMAS Foundation. After the first plant in Sweden, Northvolt plans a joint venture with VW to build a battery plant in Germany. The EIB loan was critical to ensure the participation of the private investors, according to Northvolt co-founder Peter Carlsson.
tech for high capex and long investment cycles. In Europe, however, it remains niche. Mainstreaming blended finance tools is critical to funding deep-tech companies that provide green technologies.

Deep-tech start-ups face a financing “valley of death”. Defined by a need for higher amounts of capital and longer time periods to commercialization, they are not naturally aligned with the traditional VC model. While such companies may be prime candidates for public investment in initial R&D, their funding opportunities at the scale-up stage from public and private investors are more rare in Europe due to smaller VC fund sizes and less experience with the sector than in the US.

Rather than direct grants or subsidies, deep tech needs blended finance – but expertise in structuring deep-tech deals is scarce in Europe. Blended finance is a structuring approach which uses public funding to de-risk private funding and, by doing so, acclimatize private investors with a new technology, sector, region or asset class. The objective is to create a financial track record for the new investment area, enabling private investors to assess their risk more accurately and increasingly invest without public support. Convergence, the global network for blended finance, outlines four common structures:

1. Public or philanthropic investors provide funds on below-market terms as protection to private investors. For example, a government might provide a €10 million junior equity investment that is used as the first-loss tranche in a €100 million fund. Private investors lose their investment only if the €10 million first-loss is used up. However, if the venture is successful, the government tranche can be the first repaid or even repaid at a premium.

2. Apply blended finance to scale Europe’s industrial transformation

Smart financing structures are needed to address the mismatch of the VC model and deep-tech investment. Blended finance uses a mix of public and private investment to meet the needs of deep-tech for high capex and long investment cycles. In Europe, however, it remains niche. Mainstreaming blended finance tools is critical to funding deep-tech companies that provide green technologies.

Green start-ups need a clear public funding pathway from early-stage innovation funding to growth-stage investment. European public funding institutions would benefit from a common platform through which start-ups can access their offerings. They – and possibly also national institutions – should be able to place their offerings on one website with one application portal for start-ups to apply to several programmes by providing the same financial documents and other information. The European Commission’s website for funding and tender opportunities is a step in the right direction but needs to become more user-friendly. Effectiveness in public funding could also be improved by collecting growth data on start-ups. Verified private investors or banks could then view these numbers with greater confidence in their legitimacy, potentially mobilizing additional private investment.

Overall, clear communication is needed to create greater access to growth-stage funding. European public funding institutions could work together to streamline a pathway for companies similar to Northvolt and Lilium, preparing companies vetted at early stages to receive scale-up funding from EIB and private investors when the time comes.

Box 3: Definitions

Public investment: Investment provided by government and through public-funding institutions such as EIB, KfW, Bpi, EIF, etc.

Private investment: Investment by all types of private investors such as institutional investors (pension funds, insurance), banks, VCs, corporates, angel investors, etc.

Effectiveness in public funding could also be improved by collecting growth data on start-ups. Verified private investors or banks could then view these numbers with greater confidence in their legitimacy, potentially mobilizing additional private investment.
2. **Public or philanthropic investors provide credit enhancement through guarantees or insurance on below-market terms.** For example, a government might provide a guarantee for a pilot plant when a start-up does not have collateral and banks do not know how to assess the plant’s value. The guarantee ensures debt payments to the bank in case of failure. No public money is used in case of success.

3. **A grant-funded technical assistance facility strengthens commercial viability and development impact.** Such a facility could provide in-kind support for legal services, product testing, access to research facilities, or adapting the business model for underserved communities.

4. **Grants fund transaction design or preparation.** For example, the government funds legal costs to structure the first bond of a start-up, aiming to reduce its long-term cost of finance.

Figure 5 provides an overview of typical blended finance mechanisms and structures.

**Figure 5: European public funding providers for innovation funding and how they fit into the start-up lifecycle (Illustrative)**

**Blended finance structures could also incentivize patient capital from the private sector.** While patient capital has a high tolerance for risk, a longer time horizon than traditional risk capital, and is more flexible to meet the needs of entrepreneurs, it is still return-oriented. Patient capital from the private sector has been primarily used in development funding, where social private investors such as church pension funds and foundations will take lower returns in blended structures to crowd in commercial investors. The public sector could incentivize foundations or other private investors with social missions to participate in deep-tech funds as patient investors. In this case, the funds can be more impact and mission focused, seeking a triple bottom line of financial, environmental and social return. Such scale-up impact funds aligned with the Green Deal could be incentivized by the public sector through tax incentives on the returns for the patient share classes in these blended impact vehicles.

**Blended finance is scarcely used in Europe, but it is a highly effective tool to mobilize private investment.** Public financing has typically been used to save struggling corporates or has been focused in R&D and early-stage financing.
Box 4: European green deep-tech success stories: Ÿnsect

The French company Ÿnsect farms mealworms to produce ingredients for crop fertilizers and animal feed, a market worth €462 billion. Founded in 2011, it raised €115.5 million in its series C funding in 2019. Ÿnsect is using these funds to move from a pilot production facility to build the largest insect farm in the world. The company is funded by a mix of public and private investors, including Bpifrance.

Box 5: Testbeds to accelerate product uptake

“Testbeds” are facilities used to test new machinery or services, especially in the medical sector. An Ontario hospital set up a 34-bed innovation unit to test novel technologies, such as smart beds and video communication stations. The solutions that work are rolled out to the rest of the hospital and potentially other facilities. The Nordic Test Beds (NoTeB) project developed guidelines for testing solutions in hospitals. Nordic university hospitals often replicate hospital premises for healthcare device-testing purposes.

where public funding can be spread across a large number of innovative companies. Now, larger investments are needed in a smaller number of growth companies. While there are successful examples of public-private co-financing (see Boxes 1, 2 and 4), there is not yet any systematic effort to pursue such opportunities. At least €260 billion of additional annual investment is needed through 2030 to achieve the goals of the Green Deal and the Paris Agreement and blended finance can be much more effective in mobilizing private finance than traditional public investment. The Green Investment Fund, for example, reached a leverage ratio of 0.6 to every €1 invested through regular public investment, while the leverage on blended projects was 6.30. Blended finance structures are better than subsidies or grants in that the public investment is not automatically lost. If the project is successful, the public investor either does not have to mobilize any funding at all (guarantee) or recovers full funding from the return (first loss). The public provider only “loses” the investment if the project or company fails – and, even then, it may recover up to half of the investment through tax revenue, while generating valuable institutional learning within the new sector or technology.

Some public initiatives are testing the water for blended finance. Germany is creating the €10 billion Zukunftsfonds (“future fund”) with Allianz Global Investors and KfW. It will invest in VC funds and could co-invest directly in start-ups. In discussion is a vehicle where the German government takes on the “first loss” position, inspired by similar funds in Denmark and Belgium. President Emmanuel Macron has also announced that French institutional investors will create a late-stage €5.5 billion VC fund, though it is not yet clear if and how it will use blending tools. The UK’s start-up stimulus package includes a £500 million fund for high-growth companies, made up of funding from government and the private sector. This first generation of blended finance funds provide an opportunity to increase familiarity with these type of funding vehicles in Europe.

The EIC Accelerator Pilot and Fast Track to Innovation also provides blended finance. However, the funding amounts for the 2018-2020 period were small at about €3 million and scaling Europe’s deep-tech companies will require substantially higher amounts. Proposals also exist for a European sovereign wealth fund, which would anchor funds managed by the private sector focused on energy, transport, agriculture, food...
France's Arianespace as the global leader for satellite launches. DARPA also supports deep-tech start-ups to win procurement opportunities across a wide range of public institutions.81

The European Commission has laid out a new framework for public procurement that can be a first step into the right direction. Among other recommendations, the new procurement framework recommends that governments divide larger contracts into smaller lots, expand strategic procurement, leave intellectual property rights with SMEs so they can commercialize it, and digitize procurement processes.82 The Commission is also launching new initiatives to facilitate private procurement for sustainable products as part of the new SME strategy: the Big Buyers and Networks Initiative will collaborate with the private sector to stimulate private procurement, while an “SME-friendly” label aims to spread adoption of new procurement-relevant standards.83

Post-COVID stimulus can create procurement opportunities for sustainable technologies as well as promote the pan-European approach to innovation. The crisis has highlighted insufficient digitalization in the public and private sector, creating pressure on outdated systems and risk-averse managers to adopt new technologies. It has also created opportunities for start-ups to prove they can play a key role in response. For example, healthtech start-ups across Europe are providing critical support to government actions, like British unicorn Babylon Health’s symptom-tracking app and Swedish Kry’s free web-based platform for healthcare professionals to keep in touch with patients.84

Even without a pandemic, European governments would have to ramp up public spending to achieve Green Deal ambitions. The COVID support packages, if applied to procurement of green solutions, can contribute to job growth and technology adaptation in sustainable sectors. Furthermore, if applied at a pan-European level, public procurement can serve as a way to build up the Digital Single Market, supporting innovation across Europe.85
4. Give European growth companies a voice on policy and standards

European technology companies need to understand and participate in shaping the political and regulatory environment in which they operate if they are to evolve into world leaders of their industries. The use of funding to form industry associations can have a multiplier effect for building alliances and fostering competition within evolving industries. Companies can work together on common objectives, develop new markets and agree on common operating standards. This tried and tested format could help sustainable sectors in Europe to grow.

European companies face industry-specific barriers related to regulation and standardization. The right regulatory framework can be an industry’s foundation for success. For example, Europe boasts a highly cohesive regulatory framework for the financial sector. Fintech companies in Europe need only one licence for the EU market, while in the US, they need a licence for every state. This has helped fintech companies raise more funding than any other sector in Europe.

The European Commission’s 2019 Rolling Plan for ICT Standardization also defines a roadmap for setting quality standards and minimum requirements which would allow consumers to compare products, with many of the listed priorities relevant for deep-tech and green-tech companies. Other policy efforts pertinent to entire industries include the taxation of employee shares in start-ups (Box 6), which poses an ongoing challenge to attracting and retaining niche technical talent.

SMEs and growth-stage start-ups rarely participate in policy-making and standardization processes. Other obstacles for SMEs when operating in the Single Market are complex administrative procedures, different national rules and lack of access to information on policies. These barriers deter cross-border business and scaling. The Commission’s SME Strategy launched in March 2020, for example, provides an opportunity for start-ups to participate in addressing these issues and creating a regulatory framework that works for them. However, even growth companies do not usually see participation as a priority. Although these are powerful tools for corporates to improve their competitiveness, it is time-consuming and requires expertise that start-ups, even during growth stage, may lack. This challenge is particularly significant for deep-tech companies in highly regulated sectors such as energy, health, food and transport. VC investors do not generally finance participation in regulatory processes and policy-makers can find conversations with consolidated industry players to be more efficient.

Box 6: Policy challenges

The European Commission’s Rolling Plan for ICT Standardization defines priority areas including environmental impact, advanced manufacturing, smart cities, smart grids, robotics and autonomous systems, and water management digitization. Developing standards will increase private and public demand for these technologies by setting quality benchmarks for what buyers can expect.

Taxation of employee stock options comes up when the European talent pool is discussed. Talent with deep-tech scaling experience is especially hard to attract and retain. Index Ventures highlights Estonia, Israel and Canada as best-practice examples of fostering the use of stock options by start-ups for employee compensation at all stages of growth.
Public funding for industry associations could prove excellent value for money. Even relatively small funding – up to €500,000 – could significantly support competition by enabling start-ups with similar interests to connect with policy and standardization authorities, countering the bias towards incumbents. Building decision-makers’ capacity to understand deep-tech sectors could create long-term sustainable change. To create the ICT Roadmap for Europe, the EU funded the participation of 239 individuals across the EU, who were able to build capacities in cybersecurity, big data, IoT, and other themes essential to Europe’s competitiveness.\(^\text{104}\)

Individuals working at start-ups that are able to participate through public funding will also develop new skills and be able to provide ongoing value for the European innovation ecosystem as a whole. Some best practices for innovative industry associations could include: (1) limiting membership to growth-stage, not early-stage, companies already active in the market; (2) setting criteria for technical excellence, to assure engagement from the best-in-class companies; (3) aligning interests and common objectives that are specific to the particular industry; and (4) ensuring member companies are represented directly by their founders for a real-world understanding of business needs.
Concluding Remarks

Europe has the opportunity to create a strong and sustainable post-COVID recovery by prioritizing green technologies. This means finding better ways to support scale-ups through sophisticated funding – an area in which Europe continues to lag behind the US. Investors, entrepreneurs and policy-makers must all work together in exploring innovations in finance, procurement and regulations that assure vital technologies are able to develop and reach scale.

This report has identified four possibilities: streamlining access to public funding for innovative start-ups; applying blended finance models; making it easier for new companies to partake in public and private procurement; and improving the voice of European growth companies in policy-making and standardization. Europe’s ambition to decarbonize by 2050 depends on it.
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