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ENTREPRENEURS IN HEALTHTECH

18<sup>TH</sup> EDITION

FRANCE  
HEALTHTECH  
PANORAMA  
2020

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 **EY** Building a better  
working world

 **QBE**

## "A salutary wake-up call to develop a strong HealthTech industry!"

**T**his 2020 France HealthTech Panorama – and I would like to thank all the participating companies and our partners Bpifrance, Euronext, EY and QBE for their insightful analyses – demonstrates that 2020 was unquestionably a year of unparalleled challenges. The health crisis revealed the importance and dynamism of the health innovation ecosystem.

We witnessed an unprecedented response from entrepreneurs, with more than a hundred medical innovations (in the fields of vaccines, therapeutics, diagnostics, medical devices and eHealth) rolled out to tackle the current and future needs raised by the health emergency. Once again, this demonstrates the remarkable agility, responsiveness and resilience of our ecosystem in providing solutions for patients and the health system.

One of the major lessons learned over this period is also the extraordinary value of working together. Barriers have fallen. Stakeholders from every sector of health innovation – major corporations, startups, private and public hospitals, digital specialists and health professionals, patients, experts and carers – have worked closely together to deliver effective solutions that meet immediate needs. This collaborative approach paves the way for immense progress for patients and our healthcare system.

This recognition of the major role that the industry needs to play, both to protect health and to create wealth for our country, must go hand in hand with a strong industrial policy in the area of health innovation.

Funding remains a major challenge if we are to fulfil our potential. Alongside the efforts



**Franck Mouthon,**

Chairman of



of Bpifrance, various initiatives such as the Tibi scheme and the recent commitment from the French Insurance Federation are encouraging signs that will help boost the competitiveness of HealthTech companies. To consolidate these measures, attract international investors and encourage the technological diversity needed to tackle health challenges, the authorities must guarantee continued funding, from the upstream phase (R&D) to treatment in the health system; foster more efficient high-level expertise at all stages of innovation development; and simplify

administrative and regulatory mechanisms.

As we look ahead to the upcoming Strategic Council for the Healthcare Industries, this is the driving force behind the proposals in the "Health Innovation Plan" – the result of recent collective efforts by the France Biotech committees and working groups. The health crisis has served as a brutal reminder that health and the economy are closely linked. This seismic shock must

**"THIS RECOGNITION OF THE MAJOR ROLE THAT THE INDUSTRY NEEDS TO PLAY [...] MUST GO HAND IN HAND WITH A STRONG INDUSTRIAL POLICY IN THE AREA OF HEALTH INNOVATION."**

prompt us now more than ever to strengthen the bonds between two sectors which may outwardly appear to have different goals. By encouraging collaborative approaches, dialogue with authorities and transparency, we need to take this opportunity to contribute to the ambitions of the healthcare system of the future. It is up to us to work together to build a strong HealthTech sector! ■

# a word from the minister

## "Make France Europe's leading nation for health innovation"



P. Bagéin

**Agnès Pannier-Runacher,**  
Minister Delegate for  
Industry in the  
French Ministry of the  
Economy, Finance and  
Recovery

**T**he period we are currently living through has served as a timely reminder, if one was needed, of the key role and increasing importance of biotech companies – both in meeting patient needs, that goes without saying, but also from an economic viewpoint: estimates suggest that by 2030 they will be generating an annual turnover of €40 billion and will have created 130,000 additional jobs.

France has built up a solid ecosystem, capitalising on high-level training that has provided it with internationally recognised skills and expertise. To ensure the survival of these companies which have such a vital role to play in the current crisis, we have invested unprecedented resources in company support schemes such as the early repayment of the research tax credit and state-guaranteed loans.

But we also need to look to the future. As part of the Recovery Plan, more than €6 billion will be invested in medical infrastructure, and the fourth Investing in the Future Programme will contribute more than €20 billion over a four-year period to support research and innovation ecosystems. We are also focusing on strengthening the competitiveness of our industry: the Recovery Plan provides for a €20 billion reduction in production taxes and financial support to digitalise our production and relocate manufacturing facilities back to France.

We want to support funding for HealthTech companies and encourage innovation. This will be the focus of the latest Strategic Council for the Healthcare Industries (CSIS), which has been renewed for 2021. The objective of CSIS 2021 is clear: "To make France Europe's leading nation for health innovation." To achieve this aim, we will focus on developing basic research characterised by excellence and interdisciplinarity. We will work on strategies to drive innovation, especially by facilitating market access for companies but also by protecting innovations produced in France. We will emphasise the importance of training. The nine funds selected by the "Tibi" initiative in the healthcare sector will open up possibilities for long-term funding for innovative biotech or MedTech companies.

We are also launching strategies to accelerate biomanufacturing and eHealth. The France biomanufacturing alliance (Alliance France Bioproduction) was recently set up with the aim of making France a European leader in biomanufacturing by 2030. In the area of eHealth, we also want to be a global leader. The French President recently inaugurated the Parisanté Campus, a dedicated site for digital health which will help strengthen the attractiveness and competitiveness of health innovation in France, with an investment of €400 million. The digitalisation of the health industry represents a unique opportunity to develop the future of medicine, a medicine that will be personalised, preventive, predictive and participatory. The challenge is threefold: we want to boost the efficacy of the health system, economic growth and health sovereignty.

This roadmap will shortly be laid down in an addendum to the contract with the healthcare industries and technologies sector. I would like to thank France Biotech for its commitment and its willingness to take the initiative in this area. ■

**THE FOURTH INVESTING IN THE FUTURE PROGRAMME WILL CONTRIBUTE MORE THAN €20 BN OVER A FOUR-YEAR PERIOD TO SUPPORT RESEARCH AND INNOVATION ECOSYSTEMS.**

# a word from the minister

"An innovative industry that creates value for patients and for the French health system"



**Olivier Véran,**  
French Minister for  
Solidarity and Health

**T**he health crisis has highlighted the need to guarantee health security to ensure that patients in France have access to the treatments they need. In addition, and this has been one of the priorities of the French President since he came to office, France needs to pursue an ambitious policy to boost its attractiveness for innovation, becoming a country that produces and adopts the innovations of the future. We are committed and determined to make France the leading sovereign nation in Europe in terms of health innovation.

We are pursuing a policy that is more ambitious than anything attempted in decades, one that targets rapid access to innovation for patients while also contributing to France's industrial policy, which plays such a vital role in national sovereignty. Industrial policy and innovation for patients have too often been seen as mutually exclusive, but I disagree. I want a strong industry, an industry that creates value for patients and for the French health system.

Several key initiatives have already been taken: the measures adopted by the 2018 Strategic Council for the Healthcare Industries (CSIS) have been implemented, with significant reductions in the time taken to grant clinical trial authorization, for the French National Authority for Health (HAS) to review medicinal products and for the French Economic Committee for Health Products (CEPS) to negotiate prices. We have adopted the reform of early access to drugs (the "ATU" or temporary authorisation for use reform), a procedure which needed to be simplified if it was to be effective. A framework agreement with the CEPS should lead to further progress in recognising both the therapeutic value of a drug and also the industrial value that it has the potential to create.

When it comes to evaluating medicinal products, I am in favour of a rigorous, pragmatic scientific review process. We will not compromise on the quality of the clinical data that we ask you to provide because we are convinced that this guarantees the quality of the treatment provided in our country, and because patient safety is crucial. We need to step up contacts between your companies and the authorities, so that there is a real mutual understanding. I am in favour of greater dialogue because we share the same aim, namely to improve the health of our fellow citizens! ■

**"WE ARE COMMITTED AND DETERMINED TO MAKE FRANCE THE LEADING SOVEREIGN NATION IN EUROPE IN TERMS OF HEALTH INNOVATION."**



# a word from the minister

## "Research is the driver of health innovation"



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**Frédérique Vidal,**  
French Minister for  
Higher Education,  
Research and  
Innovation

**W**e can learn a lot from the current crisis. First and foremost, it has reminded us that health is our most precious asset. When our health is affected, it is not only lives that are turned upside down, but entire economies and societies.

Health innovation is essential for our resilience and our sovereignty. It brings promise in three areas: better treatments for society and companies that are more competitive, which together will lead to a country that is better prepared for future challenges.

The challenge is huge, but we are lucky in France to have two major advantages: a flourishing HealthTech ecosystem that is agile and committed, and an outstanding academic research community capable of providing companies with the boost in creativity that will make all the difference.

Now more than ever, we need to unite these two pillars, and that is why the government is creating new links between companies and public laboratories. The Recovery Plan offers unprecedented support for employment in R&D, an area that has been severely affected by the crisis, by funding the secondment of private-sector employees in public laboratories for joint projects. It harnesses the fourth Investing in the Future Programme to stimulate the emergence of comprehensive, independent segments in growth industries such as digital health and biomanufacturing by offering support for the entire lifecycle from laboratory to market. It is increasing the innovation grants distributed under the DeepTech Plan, to facilitate groundbreaking innovations, technology transfer and scientific entrepreneurship.

Looking beyond the recovery, the Research Planning Act lays the foundations for stronger relations between academia and industry. It introduces opportunities and simplifies procedures so that ideas and people can move more easily from one to the other, especially on university campuses destined to become major innovation hubs.

The Parisanté Campus project due to be set up on the Val-de-Grâce site in Paris, as announced by the French President in December 2020, is a perfect example. By creating a single dedicated site for public professionals in training and research, major corporations, SMEs, mid-caps, startups and investors in the area of health data production and use, and providing conditions that are conducive for the emergence of synergies, Parisanté Campus will help position France as a global player in digital health and the future of medicine.

This ambition is within reach, and this panorama of the HealthTech industry shows that we are already well on the way to achieving it. ■

"THE PARISANTÉ CAMPUS PROJECT ANNOUNCED BY THE FRENCH PRESIDENT IN DECEMBER 2020 WILL HELP POSITION FRANCE AS A GLOBAL PLAYER IN DIGITAL HEALTH AND THE FUTURE OF MEDICINE."

# a word from the minister

## "Global trade boosting growth of the French biotech ecosystem"



Judith Litvine

**Franck Riester,**  
Minister Delegate  
for Foreign Trade  
and Economic  
Attractiveness in the  
Ministry of Europe and  
Foreign Affairs

**T**he health industry is a heavyweight in our country's exports: medicines and medical devices currently account for nearly €100 Bn in turnover, 40% of that on the export market, and the pharmaceutical industry represents our fourth highest trade surplus. This French ecosystem thrives because of its open approach to global trade. The challenges facing industry, exports and health are all closely intertwined. More so than in other sectors, our economic diplomacy in the area of healthcare, our health diplomacy and our health sovereignty form a tightly woven, mutually supportive web, as clearly illustrated by the pandemic we are currently experiencing.

In this respect we can draw two major lessons from the current crisis. First, our French health ecosystem proved to be highly resilient when faced with unprecedented levels of pressure, especially on hospitals, and exports of medical equipment withstood the crisis better than others. This reflects the quality and competitiveness of what France has to offer. Second, the crisis revealed shortcomings in some of our value chains, especially in the field of health, and therefore the need to guarantee – in some cases even to "rebuild" – our health sovereignty.

In view of these observations, we are more determined than ever to support companies in the health sector as they seek to develop at international level. Under the export section of the France Recovery Plan, we have introduced specific measures to meet their needs. With the personal exporter account and a "Live Health Info" map, companies will have access to sector-by-sector information, updated in real time, to help them identify export opportunities. We are also supporting companies in their prospecting efforts, with an "export recovery grant" that will cover up to 50% of support services at international level. The grant can be used to cover expenses incurred by SMEs and mid-caps for participation in international trade fairs like MEDICA in Düsseldorf.

We are also encouraging companies to harness young talent, by offering a €5,000 VIE booster grant in connection with the VIE international internship programme for companies wishing to recruit international interns, and with the planned introduction of a dedicated VIE sector for the health industry. At the same time we are boosting the public funding solutions available for our exporters, especially prospecting insurance, which provides guarantees for companies looking to develop export business in an economic climate still beset by uncertainty. Finally, we are aware of the importance of attracting more talent to French biotech companies. Our ambition is twofold: we want to bring French talent back to France, and we want to attract foreign talent to support the challenges raised by the rapid growth of HealthTech. A series of specific, unprecedented measures will be taken in this area in spring. This strategy will be boosted by our efforts to promote France internationally, and in particular our healthcare sector, by providing new visibility for French companies.

Together with the regions and all the stakeholders in Team France Export, the government is determined to make sure that our biotech and health companies take full advantage of the export measures in France's Recovery Plan. I hope that 2021 will be a year of optimism, hope and, of course, success! ■

**"THE GOVERNMENT IS DETERMINED TO MAKE SURE THAT BIOTECH AND HEALTH COMPANIES TAKE FULL ADVANTAGE OF ALL THE MEASURES IN THE EXPORT SECTION OF FRANCE'S RECOVERY PLAN."**

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## METHODOLOGY

Each year, **France Biotech** produces the France HealthTech Panorama, a report drawn up on the basis of a dedicated survey and publications by companies in the sector. It does not provide an exhaustive picture. The information was collected from 5 October to 30 November 2020 on the basis of 405 companies. The companies included in the survey meet the following criteria:

► Their core business is in the area of life sciences and their registered office is in France;

► Their research and development spending represents at least 15% of their total costs;

► They have fewer than 250 employees.

In addition to the data from the questionnaire, a detailed analysis was compiled from other sectoral and financial studies, as well as previous publications and reports by France Biotech, cited in this report.

The survey was carried out in partnership with Bpifrance, EY, Euronext and QBE.

# summary

## How the pandemic reminds us that health is a vital asset

**T**he French HealthTech industry is a dynamic sector providing highly skilled jobs. The success of these startups paves the way for state-of-the-art treatments and innovative solutions for patients. In the long term, over and above the benefits for public health, the growth of these companies should strengthen France's industrial fabric and generate

significant economic value through French mid-caps and exports. By encouraging the emergence of new industry leaders, France will consolidate its international position and its scientific and technological excellence, while protecting its health sovereignty, especially when it comes to highly innovative products with significant added value.

### FRENCH HEALTHTECH COMPANIES

**1.** The French HealthTech industry is a dynamic, diverse and increasingly coordinated sector, composed of startups that are mostly spin-offs from public research



- **More than 2,000 French HealthTech companies**, including **750 biotech**, **1,100 MedTech** and **200 eHealth** companies.
- More than 60 new biotech companies each year.
- High growth in the number of eHealth companies spanning biotechnology, medical devices and digital technologies.

**2.** The sector is growing in maturity and economic value



- Growing proportion of mid-caps.
- The sector has doubled its turnover in five years.
- The e-Health industry represents an additional growth driver.

**3.** It is an outward-looking sector, with the United States and Europe as its main markets



- Innovations that target domestic and international markets.
- Market access for these innovations remains complex and requires upstream support for companies.

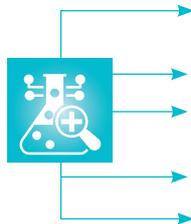
**4.** HealthTech is an industry that provides jobs



- The HealthTech industry represents **50,000 direct and indirect jobs**, and **by 2030 could generate an additional 130,000 jobs in France**.
- Because of the highly technical nature of the sector and the need for specific skills, HealthTech is part of a flourishing ecosystem of experts and suppliers.
- **85% of HealthTech firms outsource services**, thereby generating a significant number of indirect jobs.
- Highly promising prospects for employment: **84% of HealthTech companies are intending to recruit in 2021**, mainly for R&D positions.

# summary

## 5. R&D, a key activity for companies



- Excellence of French research; **52% of HealthTech companies are spin-offs from public or academic research** (two-thirds of biotech companies).
- More than 35,000 patents** filed by French HealthTech companies.
- Companies **spend more on R&D than anything else**, and half of the workforce is employed in R&D.
- Spending on R&D has doubled in 5 years.** **Research is collaborative and international.** Most agreements are concluded with European partners (academic partners or research institutions) and are collaborative R&D agreements.

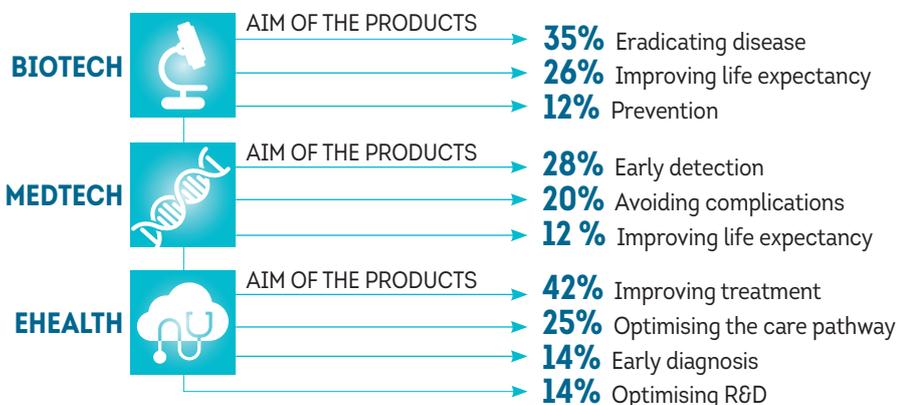
## HEALTHTECH TECHNOLOGIES

## 6. Patients and the health system: what drives entrepreneurs



- 78% of entrepreneurs** are doctors, researchers or scientists.
- More than 4,000 medical innovations** in development or brought to market, including **1,900 biotechnology products**, **2,200 medical devices** and **400 digital health products**.

## 7. Innovations that will transform patient treatment, the care pathway and the health system as a whole



## 8. Health and medical innovation, key trends in 2020



- Although the industry has been affected by the crisis, its agility, innovative culture and resilience have enabled it to adapt.**
- Impact on the entire business development chain. R&D is the area that has been most affected by the health crisis.
- Three-quarters of companies experienced major delays or had their clinical programmes suspended in the first half of 2020.
- Delays expected in companies' clinical deal flow.**
- Contribution of digital health in 2020**
  - 2020 was characterised by inventive digital health solutions in areas such as health system optimisation, patient flow management, patient monitoring and teleconsultation.

# summary

## FUNDING: HEALTH WAS A TOP PRIORITY IN 2020

### WORLD



**€39.1 Bn**

raised through venture capital and IPOs by European and US companies in 2020, **an increase of 15%** compared with 2019.

**€52.06 Bn**

raised through IPOs on the Nasdaq from 2010 to 2020, including **€15.5 Bn in 2020** compared with €8.1 Bn in 2019.

### EUROPE



**€11.3 Bn**

raised in 2020, including **€5.9 Bn in venture capital** in the 7 leading European countries (1)

**20% increase** in venture capital raised compared with 2019.

With 9 transactions worth more than €100 M in 2020 as opposed to 5 in 2019.

#### France in 2nd place in Europe

In cumulative capital raised from 2018 to 2020, behind the United Kingdom.

(1) Belgium, France, Germany, Netherlands, Sweden, Switzerland, United Kingdom.

### FRANCE



**€1.5 Bn** raised in 2020

in capital by French HealthTech companies.

**€886 M**

raised in venture capital, the leading source of HealthTech funding in France.

**€836 M**

of debt (**140% more than 2019**)

raised by listed HealthTech companies in 2020 compared with €475 M in capital refinancing.

## STRONG GOVERNMENT SUPPORT

### bpi**france**

- Support for companies with state-guaranteed loans.
- **Increase in innovation funding: €420 M for health in 2020**, nearly three times more than in 2019.
- **New programmes introduced to support R&D projects:** vaccines and therapies with strong government support for clinical trials in France.
- **Funding for increased production capabilities or relocation** for curative and preventive therapies and also for molecules used in COVID-19 treatment that were in short supply.
- **Innovation capital: €126 M invested in 2020** in 32 transactions.
- **Health is one of the key sectors of the Recovery Plan launched in 2020**, which supports industrialisation and relocation to promote national sovereignty.

# summary

## Euronext, Europe's leading stock exchange for health



**117 European HealthTech companies** (68 based in France) are listed on the Euronext markets (Amsterdam, Brussels, Dublin, Lisbon, Paris and Oslo), making Euronext the leading stock exchange for the European healthcare industry. The growing market capitalisation

of this strategic sector (€42 billion in late 2020) should be analysed in the context of a year in which HealthTech found itself a focus of investment priorities. **In just one year, the market capitalisation of French HealthTech companies rose from €8.3 billion to €12.9 billion!**

## Markets supporting HealthTech funding: a health crisis, but not a financial one

**T**hroughout the COVID-19 crisis, stock markets have continued to play a key role in HealthTech funding, firstly by withstanding volatility and record trading volumes, which has enabled high turnover of managed assets – aimed at listed biotech/ MedTech companies –, and then

by allowing companies to raise the funds needed to pursue clinical and industrial development. Over the entire year 2020, Euronext saw 6 IPOs, mainly in northern Europe (raising €363 million), and nearly 400 secondary transactions to raise funds, raising nearly €2 billion.



## Raising funds in Europe and also from US and Asian investors

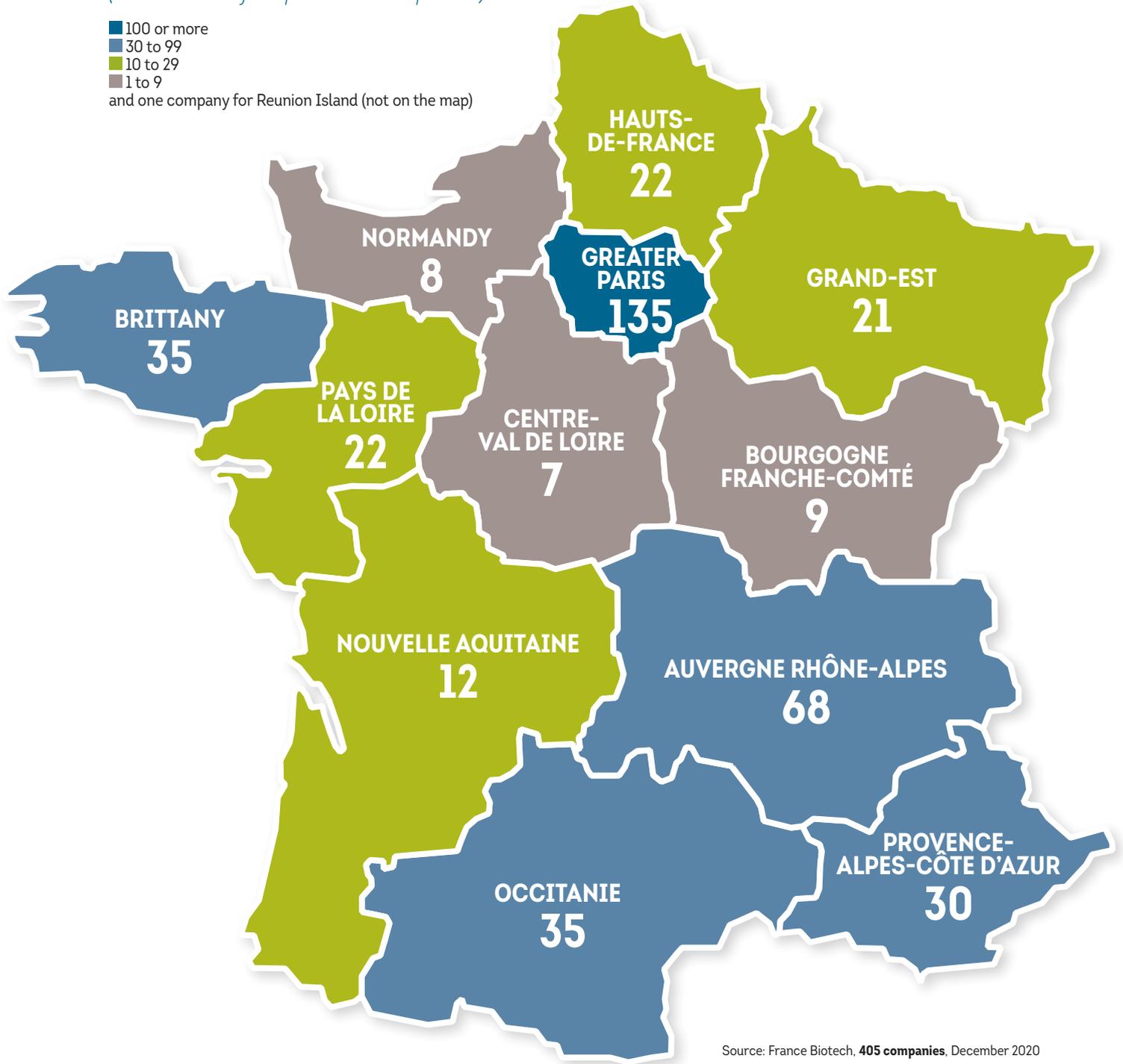
**T**he leading European HealthTech companies also have profiles that naturally encourage them to extend their industrial and financial coverage to the US and Asia. From this perspective, a Euronext listing offers access to a wide range of investors worldwide, which in 2020 led to several successful Europe/

US dual listings. Inventiva (which specialises in NASH) and Nanobiotix (nanotechnologies for cancer treatment) raised €71 million and €81 million respectively from their dual listing in the United States, after securing funding of a total of €300 million for the two companies following their IPOs on Euronext.

# summary

Map of regions in the sample  
(in numbers of respondent companies)

■ 100 or more  
■ 30 to 99  
■ 10 to 29  
■ 1 to 9  
 and one company for Reunion Island (not on the map)



Source: France Biotech, **405 companies**, December 2020

With 135 respondent HealthTech companies, or 33% of the panel, the Greater Paris region has the highest concentration of companies. Auvergne Rhône-Alpes is increasingly represented; 17% of the companies are based in this region, with the majority in Lyon and Grenoble. In third place, Occitanie and PACA are also

well represented, with a total of 16% of the sample for the two regions. Finally, with 14% of respondent companies, the Grand-Ouest, which comprises Brittany and the Pays de la Loire, is also one of the country's most dynamic HealthTech regions.



**#1**

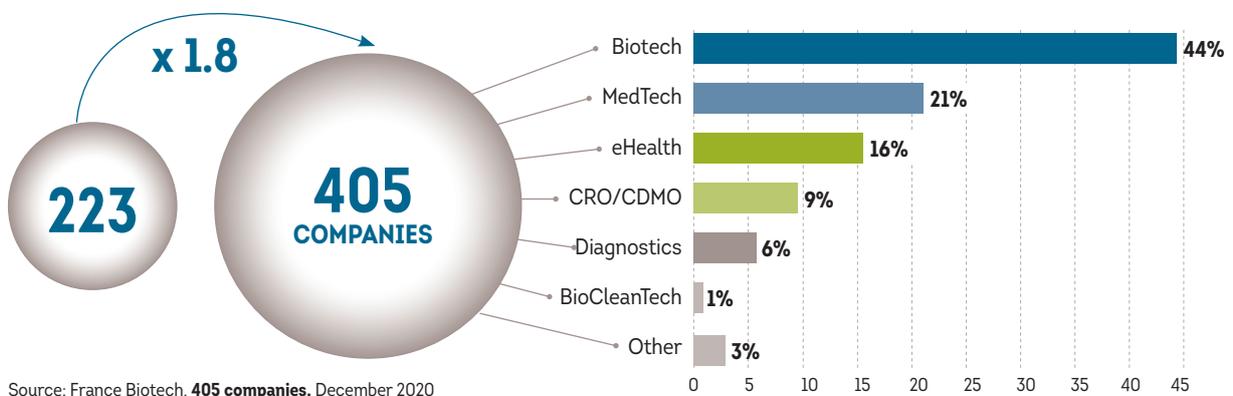
THE  
HEALTHTECH  
INDUSTRY IN  
FRANCE



# Companies, startup dynamic and profile of entrepreneurs

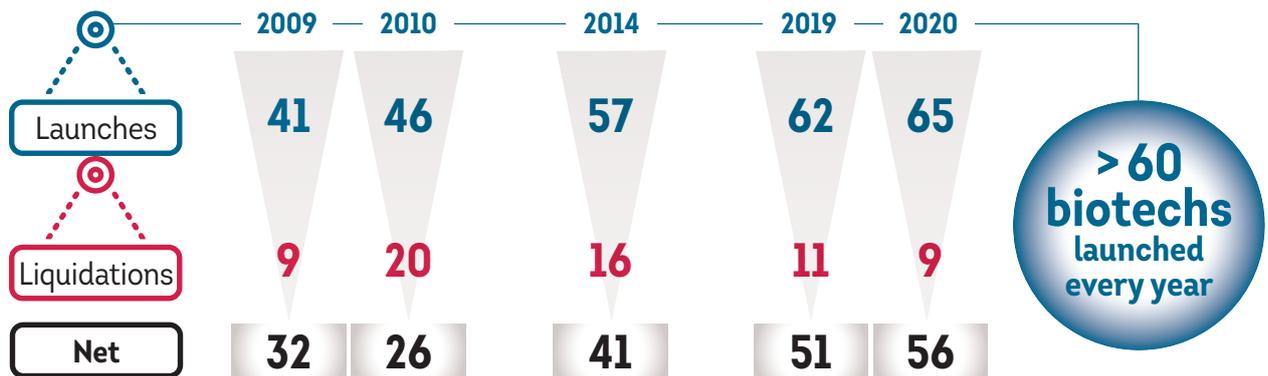
French HealthTech is characterised by a high concentration of companies, mostly VSEs, with dynamic growth in startups.

Number of HealthTech companies surveyed for the Panorama



Source: France Biotech, 405 companies, December 2020

## Biotech company launches and liquidations



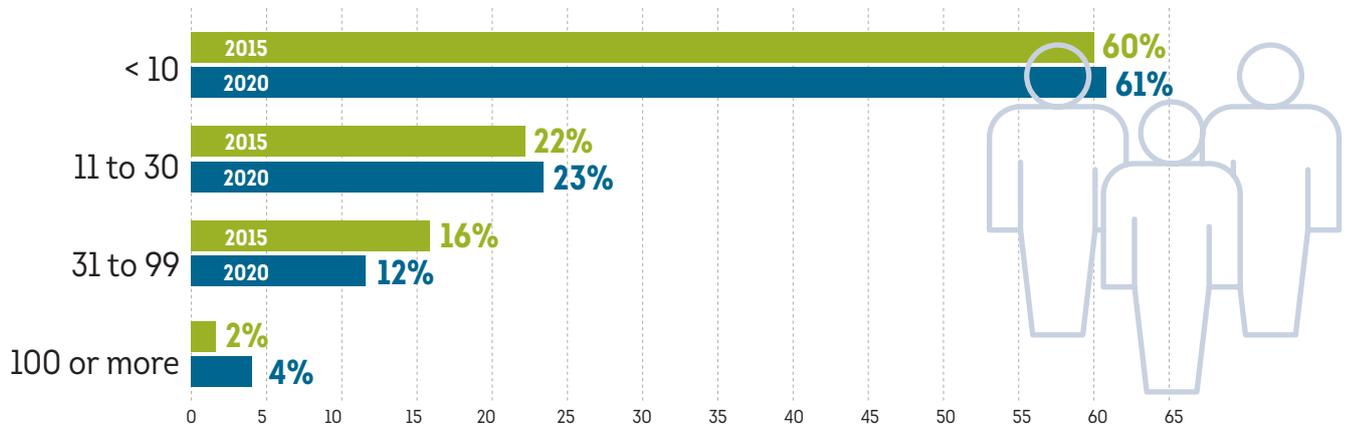
France has an extensive web of innovative companies in the health industry (biotechnology, medical devices and diagnostics, eHealth, etc.). The panel of participating companies has almost doubled in 5 years, reaching a total of 405 companies in 2020. The sector has a strong startup

dynamic, with around 60 new companies launched each year. The number of launches has been on the rise for the past ten years (+ 41%), while the number of liquidations has fallen (- 55%).

Source: INSEE; verif.com; 2013 France Biotech Panorama



### Workforce numbers

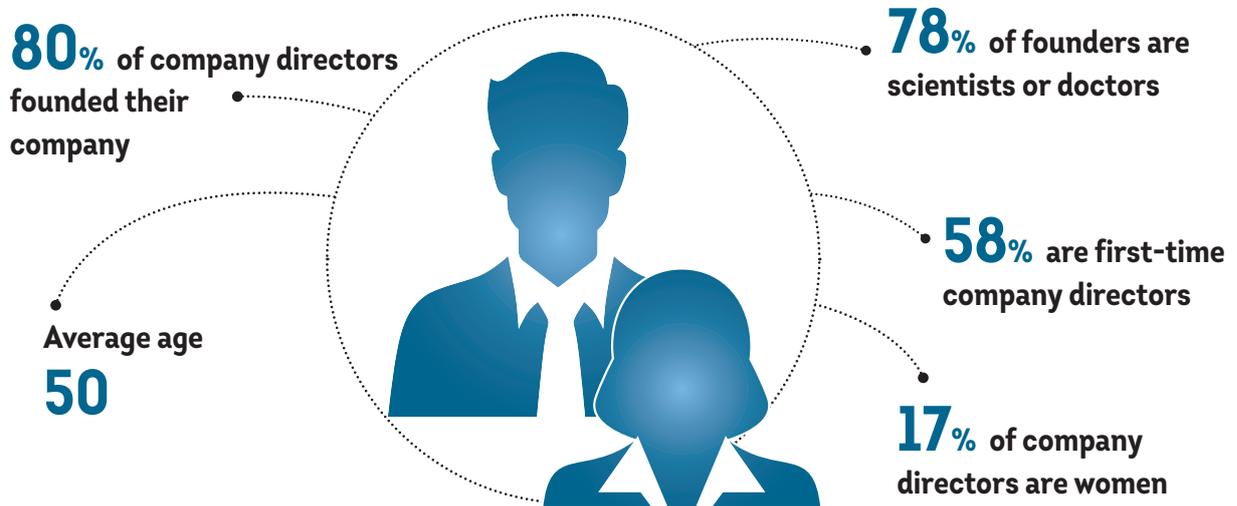


Source: France Biotech, 397 companies, December 2020

The French HealthTech ecosystem is characterised by a **large number of startups**. 61% of companies are VSEs (very small entities) with fewer than 10 employees. This figure is similar to the situation 5 years ago (60% of VSEs in 2015).

But in 2020, there were 15 companies with more than 100 employees, compared with just 5 in 2015, reflecting the gradual development of companies to the status of mid-caps.

### Profile of company directors



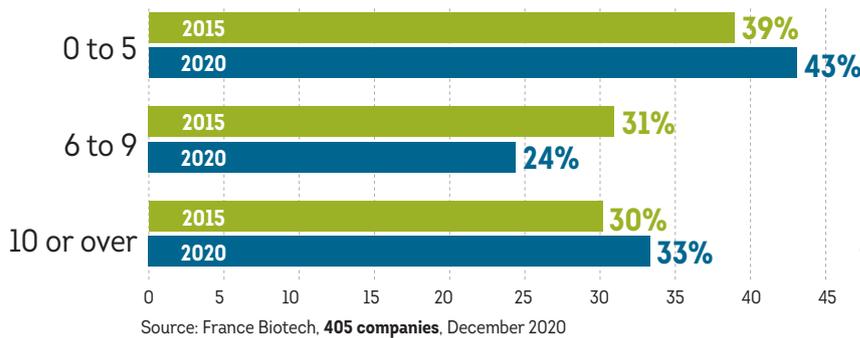
Source: France Biotech, 405 companies, December 2020



## A sector growing in maturity and economic strength

As a sector that creates value, French HealthTech is growing in maturity and has enormous economic potential.

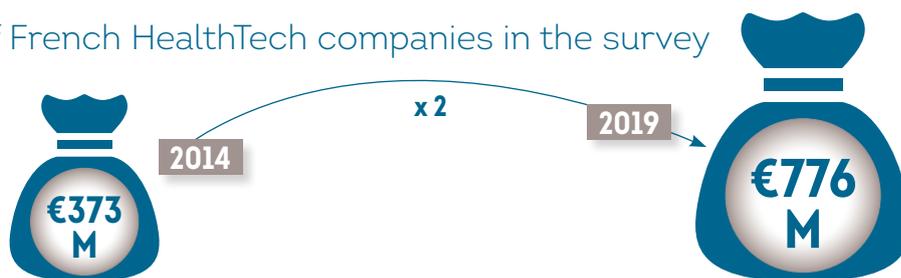
### Age of companies (years)



Out of the 405 respondent companies, the majority (43%) are startups launched less than 5 years ago, with an average of 11 employees. The more mature companies, set up more than 10 years ago, represent a third of the panel and 49% of jobs generated by the industry. **The average age of companies is 8 years.** Over the past 5 years, the sector has seen a significant increase in the number of companies set up, leading to a rise in the number of startups launched

less than 5 years ago. This trend has been partly driven by companies in the field of digital health. 71% of eHealth startups were set up less than 5 years ago. The proportion of companies aged 10 years or over, mainly biotech companies, has also increased, representing a third of the panel in 2020. **The sector is therefore growing in maturity, while maintaining a strong startup dynamic.**

### Turnover of French HealthTech companies in the survey



Source: France Biotech, 348 companies, December 2020

Innovative HealthTech companies in the sample generated **nearly €800 million in overall turnover in 2019**, more than twice the figure of five years ago. This represented an average turnover of €2.2 M per company in 2019. This turnover may partly be attributed to MedTech companies (medical devices and diagnostics), half of which already have products on the market, and also to eHealth companies. Since drugs and biopharmaceuticals require longer development cycles than those for medical devices (10 to 15 years as opposed

to 3 to 5 years for MedTech), biotech companies are still only generating very low turnovers. Most of their revenue comes from partnerships with industry.

According to research conducted by the Boston Consulting Group and France Biotech in 2017, **the French HealthTech industry could be generating an overall turnover of more than €40 billion by 2030.\***

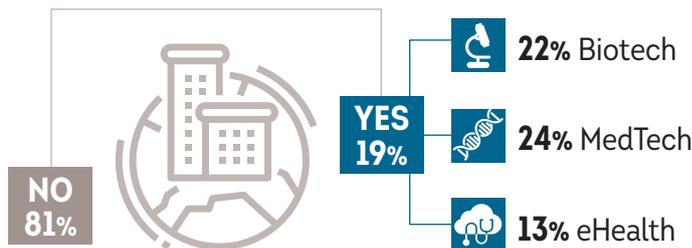
(\*) Source: BCG, France Biotech, *La French HealthTech: faire de la France un leader mondial de la santé*, 2017.



# HealthTech, an industry with an international outlook

In terms of both target markets and international presence, French HealthTech companies have determinedly global ambitions.

## International subsidiaries



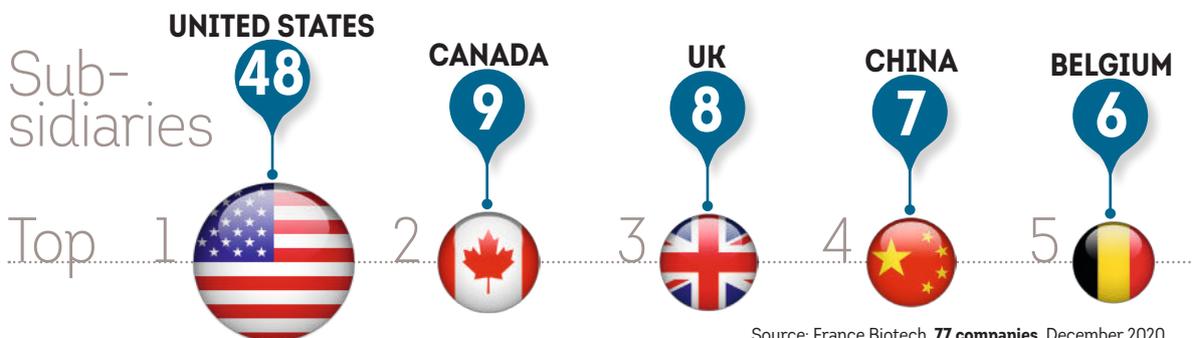
Source: France Biotech, 405 companies, December 2020

Health products and technologies are aimed at global markets. Even though most HealthTech companies are still VSEs, they have international ambitions, often at a very early stage in their development. Around a fifth of companies have one or more subsidiaries abroad. For MedTech companies this proportion is higher (a quarter of companies), and half of MedTech companies already have products on the market.

## Distribution of subsidiaries abroad (% of subsidiaries)



## Top 5 countries for setting up a subsidiary abroad



Source: France Biotech, 77 companies, December 2020

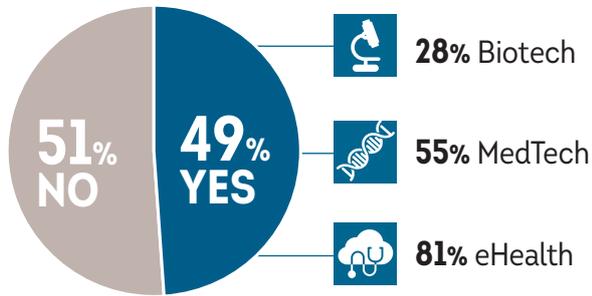
Of the various countries in which companies choose to set up a subsidiary, the United States – the world's largest pharmaceutical market – remains the favourite destination (42% of subsidiaries). The world's second largest market,

Europe, accounts for 32% of the subsidiaries of French companies, with the United Kingdom (8) and Belgium (6) being the countries of choice. 11% of subsidiaries are set up in Asia, mainly China, which has 7 subsidiaries.



# FRENCH HEALTHTECH COMPANIES

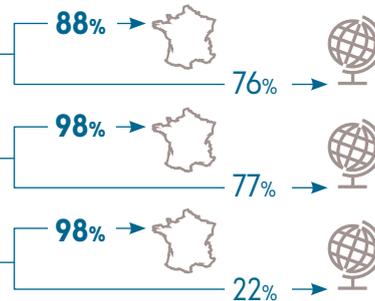
## Products and solutions on the market



Source: France Biotech, 405 companies, December 2020

Half of HealthTech companies already have products on the market. This proportion is higher for eHealth companies (81%), which generally have quicker market access. Because of their business model, only 28% of biotech companies currently have products on the market. Most are either research products or services. Very few biopharmaceuticals have already been brought to market.

## Target markets (% of companies)



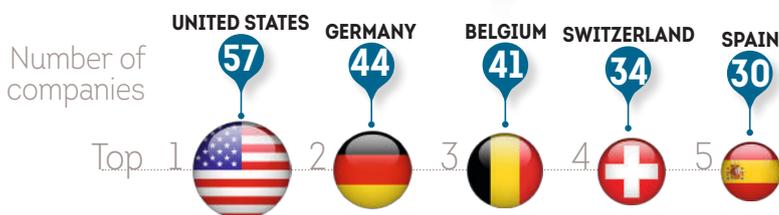
Source: France Biotech, 199 companies, December 2020

The domestic market is favoured by HealthTech companies. But **international markets are particularly attractive for biotech and MedTech companies**, three-quarters of which also have products on foreign markets. Conversely, eHealth primarily targets the domestic market, and only 22% of companies have products on foreign markets.

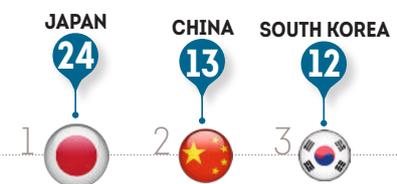
## Target international markets (% of target countries)



### Top 5 target countries at international level



### Top 3 in Asia



Source: France Biotech, 107 companies, December 2020

In contrast to the top destination for subsidiaries, **Europe remains the primary target market** for HealthTech companies, ahead of North America. But **the United States is once again the leading country targeted**, with Germany coming in second place. Although their markets may seem smaller, Belgium and Switzerland are also attractive

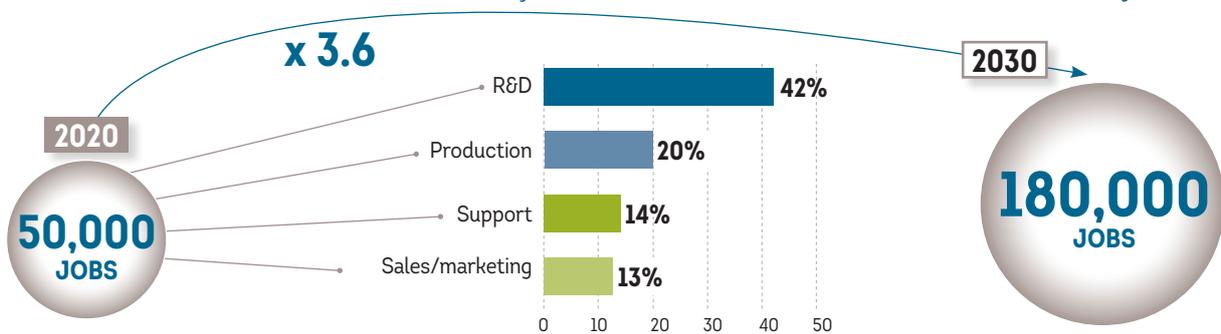
destinations for France's HealthTech companies in their sales strategies in Europe. **Japan, the world's third largest market, is the main Asian market targeted.** With a growing presence in China, some HealthTech companies have ambitious designs on this vast emerging market, although access remains complex.



# HealthTech, an industry that generates direct and indirect employment

French HealthTech companies represented a total of nearly 50,000 direct and indirect jobs in 2020, the vast majority of which were highly qualified. Virtually all the companies intend to recruit new staff in 2021.

## Number of direct and indirect jobs in the French HealthTech industry



Source: France Biotech, 397 companies, December 2020. Boston Consulting Group (2017)

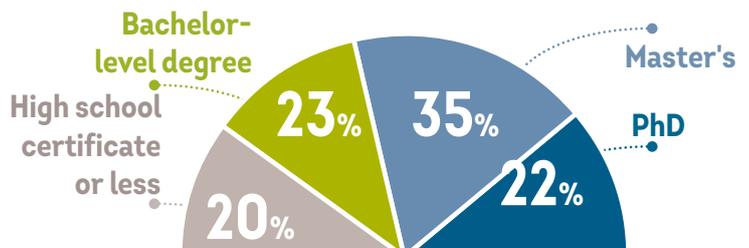
**With more than 50,000 direct and indirect jobs in 2020, HealthTech could generate an additional 130,000 jobs over the next decade.** The sector also creates highly qualified

jobs, especially in R&D (42% of jobs) and production (20%), positions which require highly specific, advanced skills and expertise (skills in biomanufacturing, for example).

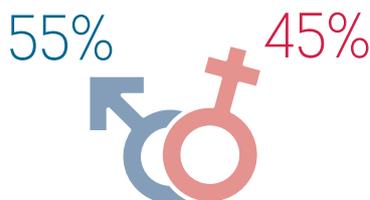
## Qualifications of staff

The majority of staff (57%) have at least a Master's degree, and nearly a quarter have a PhD.

Source: France Biotech, 244 companies, December 2020



## Gender parity



HealthTech companies are nearly at gender parity, with an average of 55% men and 45% women.

Source: France Biotech, 403 companies, December 2020

## A few figures

**30%** of companies have PhD students under the **CIFRE** co-funding scheme in their teams.

**1 company in 3** has recruited recent PhD graduates (an average of 3 per company).

**43%** of HealthTech companies use apprenticeship contracts.

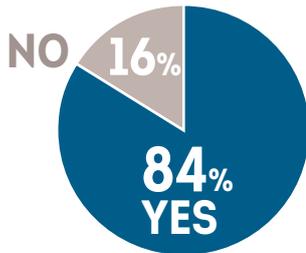
Use of the **VIE** international internship programme is still relatively rare: **just 5%** of companies have a VIE intern in their teams.

**26%** of HealthTech companies have staff with disabilities in their workforce.



## Good prospects for employment in HealthTech in 2021

Do you intend to recruit new staff in 2021?



Despite the difficult economic context, HealthTech companies are demonstrating their resilience to the crisis. **84% of HealthTech companies intend to recruit new staff in 2021**, with an average of 5 jobs per company. In the short term, the most sought-after positions are in R&D (36% of jobs), production (19%) and support functions (18%).

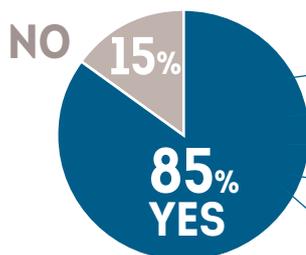
Source: France Biotech, **360 companies**, December 2020

In 2021, **73%** of companies **intend to recruit apprentices and 13% VIE interns**.

## Outsourcing, a characteristic of the sector

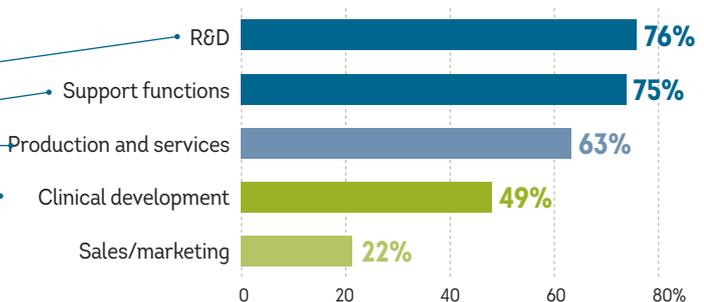
The HealthTech ecosystem is composed of multiple research and production companies that support companies in developing and producing their products.

Proportion of companies outsourcing services



Source: France Biotech, **405 companies**, December 2020

The most outsourced functions in HealthTech companies



Among companies outsourcing some of their business processes, **the most frequently outsourced functions are in R&D**, which is outsourced at least in part by three-quarters of the companies, followed by support functions (HR, accounting, etc.) and production. HealthTech companies are part of a flourishing ecosystem composed of CROs (contract

research organisations) and CDMOs (contract development and manufacturing organisations) with specific expertise in research, development and production in the area of drugs, biopharmaceuticals and medical devices.

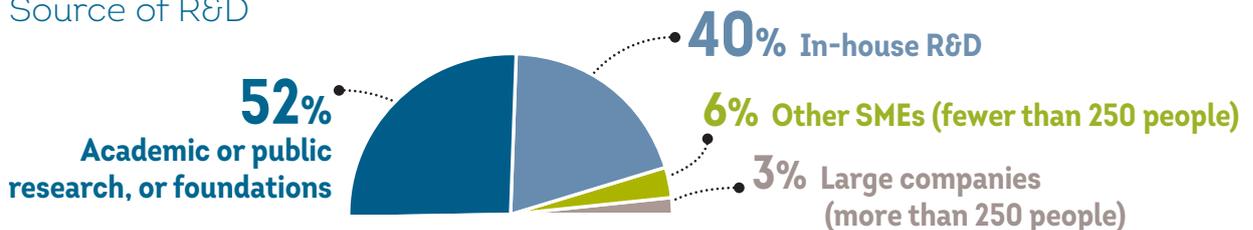
Source: France Biotech, **274 companies**, December 2020



## Major efforts in R&D

HealthTech companies are mostly spin-offs from public research. They are highly innovative – more than half of their spending is on R&D and they have filed more than 30,000 patents.

### Source of R&D

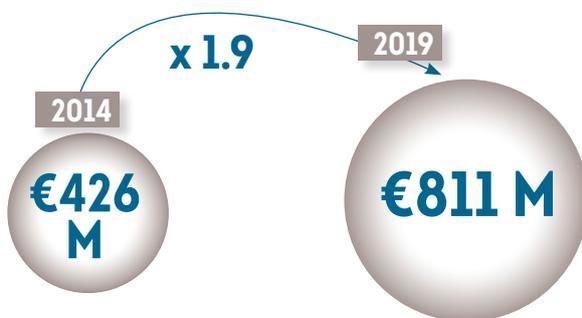


Source: France Biotech, 400 companies, December 2020

Public and academic research plays a vital role in the establishment and development of the HealthTech industry. More than half of companies (52%) were spin-offs from

public research. For biotech companies, this number is even higher (two-thirds), whereas three-quarters of eHealth companies developed their R&D from in-house research.

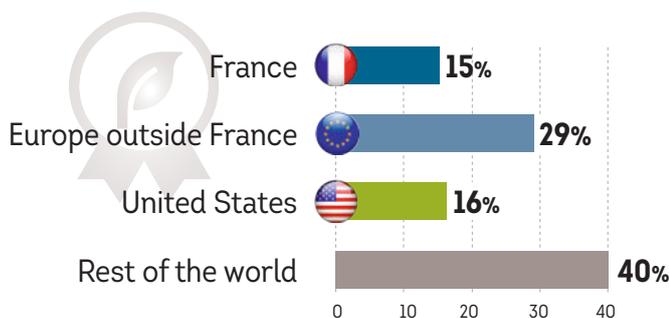
### Amounts invested in R&D by companies in the sample



Innovative companies in the field of health invested more than €800 M in research and development in 2019 – almost twice as much as the total amount invested in 2014. The R&D budget is the biggest expense item for companies, accounting for 58% of their total expenditure on average. Companies invest an average of €3 M each year in this area, but once they embark on clinical development the amount can soon reach tens of millions of euros. Nearly half of all staff in the companies work in research and development.

Source: France Biotech, 284 companies, December 2020

### Geographical distribution of patent applications



Source: France Biotech, 263 companies, December 2020

Intellectual property is one of the key strengths and challenges of the HealthTech industry. 70% of companies overall and 83% of biotech companies have protected discoveries by filing national and international patents since inception. A total of 6,817 patents have been filed by the companies in the sample (an average of 24 patents per company). The HealthTech sector as a whole has filed more than **30,000 patents**, more than half (56%) outside Europe. Intellectual property protection takes place at an early stage; 53% of companies set up less than 5 years ago have filed at least one patent.

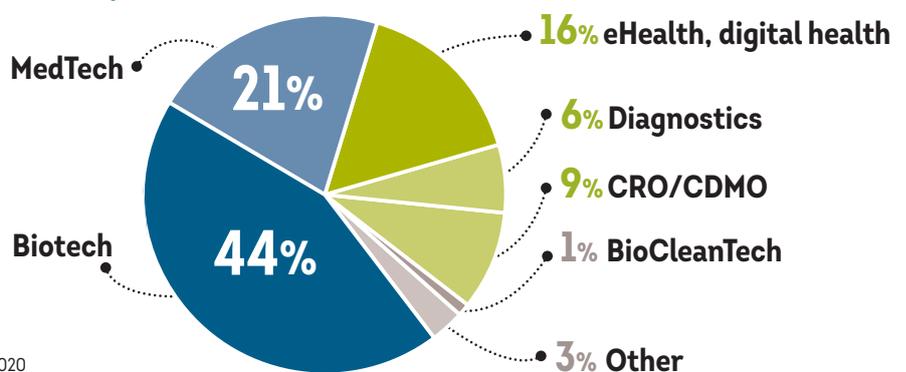


## Varied technologies and application areas

The majority of companies in the survey are biotechnology companies, followed by MedTech companies. eHealth and bioinformatics are continuing to grow year on year.

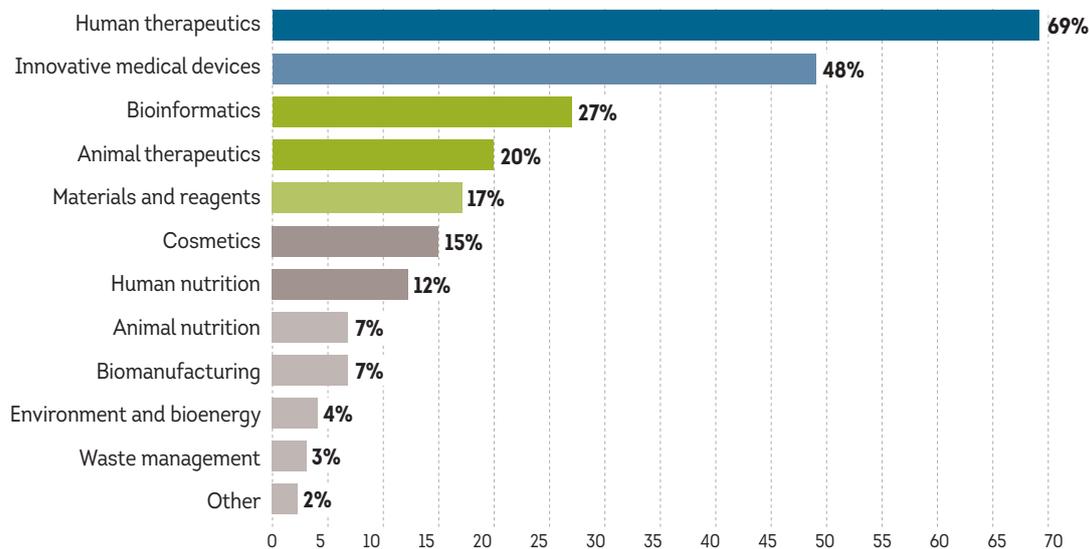
### Types of companies under study

Biotech companies represent nearly half the sample in the survey, followed by companies developing medical devices and diagnostics (a quarter of companies). eHealth continues to grow, with around 60 companies in the sample (16%, up from 13% in 2019).



Source: France Biotech, 405 companies, December 2020

### Business areas of the panel



Source: France Biotech, 403 companies, multiple choice questions, December 2020

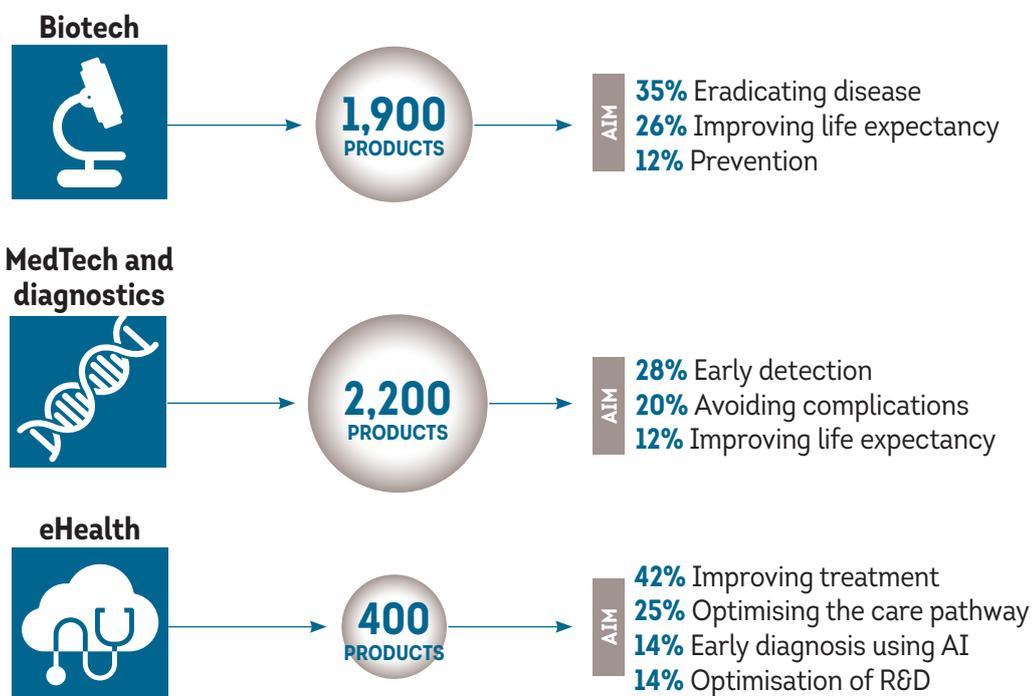
The French HealthTech industry is highly varied in its fields of application, although two-thirds of companies are developing therapeutic products and solutions for use in humans. Innovative medical devices, whether purely MedTech or diagnostic products or devices incorporating artificial intelligence, are also strongly represented and are

increasing year on year. Bioinformatics, which also includes software, is now one of the top three business areas of the companies in the survey. This reflects the growth in these technologies, which are used both as products and services in their own right and to support research by biotech companies.

## Innovation potential that meets crucial medical needs

Over and above the dynamic growth, job creation and economic potential of HealthTech, the sector is currently developing more than 4,000 biotech products and medical and digital innovations to meet medical and logistical needs.

Number of products in development and marketed by French HealthTech and product aims



Source: France Biotech, 359 companies, December 2020

With an average portfolio of 2 to 3 products per company, the HealthTech pipeline is gaining strength, reflecting the companies' growing maturity. The remarkable diversity of the assets developed by these companies represents a major pool of innovation potential.

The aim of most of the products is to make significant progress in terms of treatment and optimisation of the patient care pathway, thereby improving the health system as a whole. **A third of biotech products are curative treatments aimed at eradicating a disease.** These include gene and cellular therapies, antiviral treatments and small molecules. A quarter of products aim to improve life expectancy (immunotherapies, antibodies,

etc.) and 12% offer preventive solutions (prophylactic vaccines, etc.).

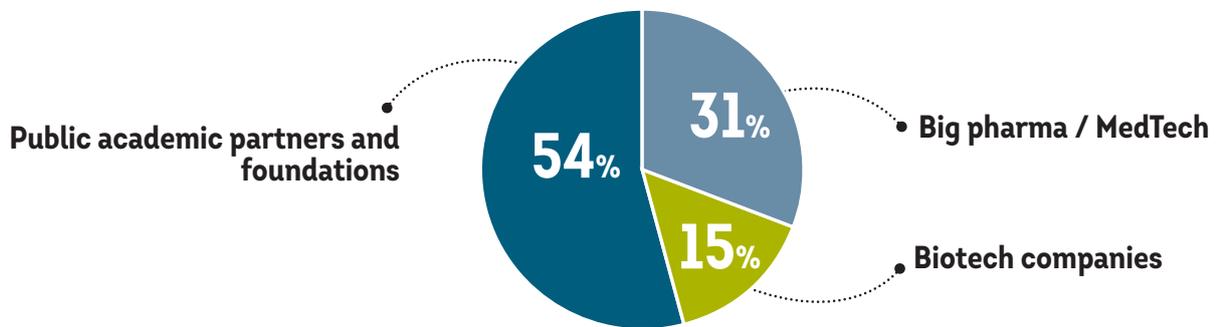
A third of the medical devices developed by MedTech companies are already on the market; the aims of these products include **early diagnosis** (*in vitro* diagnostics, imaging, etc.), **avoiding the complications associated with some diseases** (20% of products) and improving life expectancy.

Most eHealth solutions are already on the market, thanks to a shorter development cycle. These solutions have a variety of applications; their aim is to improve patient treatment, optimise the care pathway and facilitate earlier diagnosis. (*see the eHealth section*).

## Collaborative international research

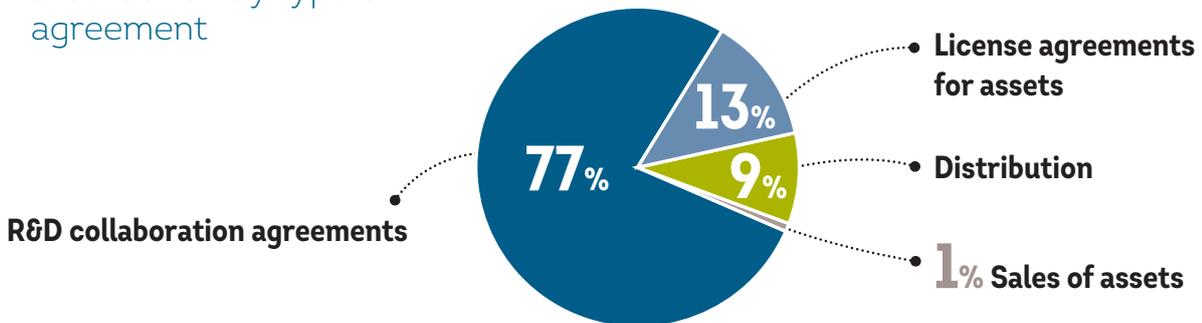
Public research institutions and universities are the leading partners for innovative French companies. Most collaboration agreements are in the area of R&D. Research is conducted on an international basis, with most cooperation taking place with European and US partners.

### Distribution by type of partner



Source: France Biotech, 260 companies, December 2020

### Distribution by type of agreement



Source: France Biotech, 140 companies, December 2020

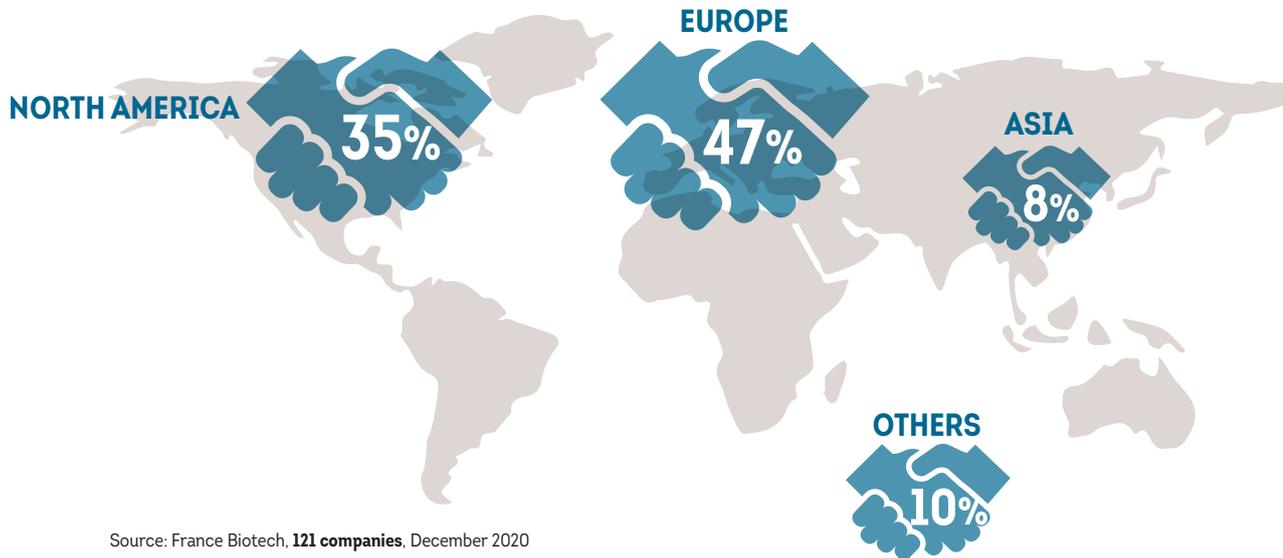
With **71% of companies engaged in ongoing partnerships**, collaboration is an integral part of the HealthTech business model. **More than half of these partnerships are with academic teams**, public research teams or foundations. Since companies' R&D primarily comes from academia, most companies continue working in cooperation with the public sphere when it comes to technology transfer (asset purchases and licensing) or developing R&D collaboration. Partnerships with industry players such as pharmaceutical

laboratories or MedTech manufacturers are also very frequent and represent a third of all collaboration. They are mainly set up for advanced clinical phases, although laboratories are increasingly also involved in upstream research, for example in the case of consortia involving public research teams and biotech companies. **Most agreements concluded by HealthTech companies are in the area of R&D**, representing three-quarters of partnerships, while licensing deals for assets account for 13% of agreements.

# TECHNOLOGIES DEVELOPED BY THE FRENCH HEALTHTECH INDUSTRY

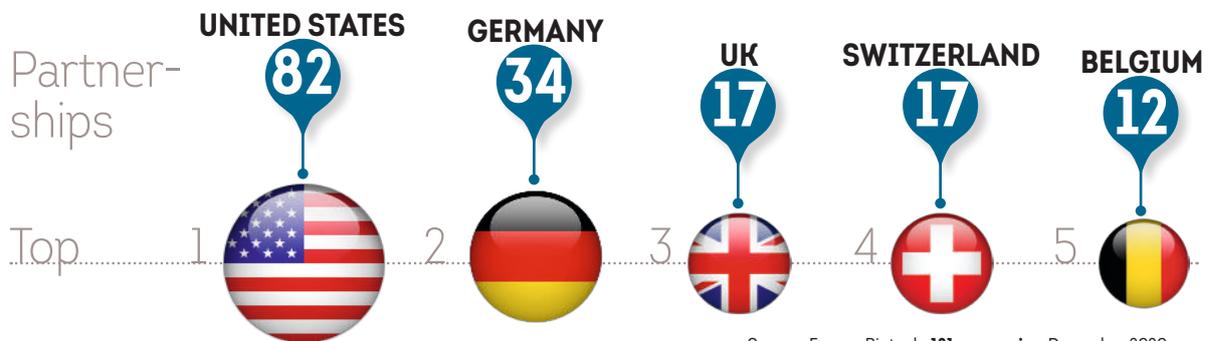


## Geographical origins of international partnerships (% of agreements)



Source: France Biotech, 121 companies, December 2020

## Top 5 nationalities of partners



Source: France Biotech, 121 companies, December 2020

**A third of partnerships are concluded with foreign stakeholders.** European research teams and companies are among the leading partners of French companies, closely followed by those from North America. In terms of numbers of agreements, **the United States comes in first place**, followed by France's close neighbours in Europe: Germany,

the United Kingdom, Switzerland and Belgium. The countries most represented in partnerships are also those with a strong research dynamic, whether in the university sphere or in industry. On the Asian continent, China and Japan top the ranking, with 8 and 7 partnerships respectively.

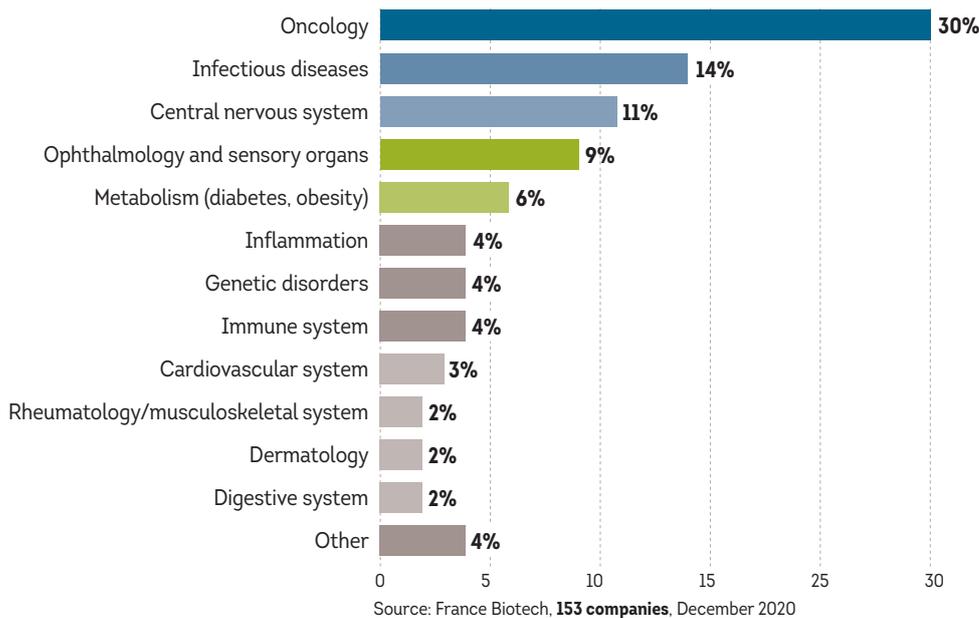


# TECHNOLOGIES DEVELOPED BY THE FRENCH HEALTHTECH INDUSTRY

## Focus on biotech companies

A biotechnology pipeline that is gaining strength, with nearly 2,000 products in development, a third of those in clinical trials.

### Therapeutic areas

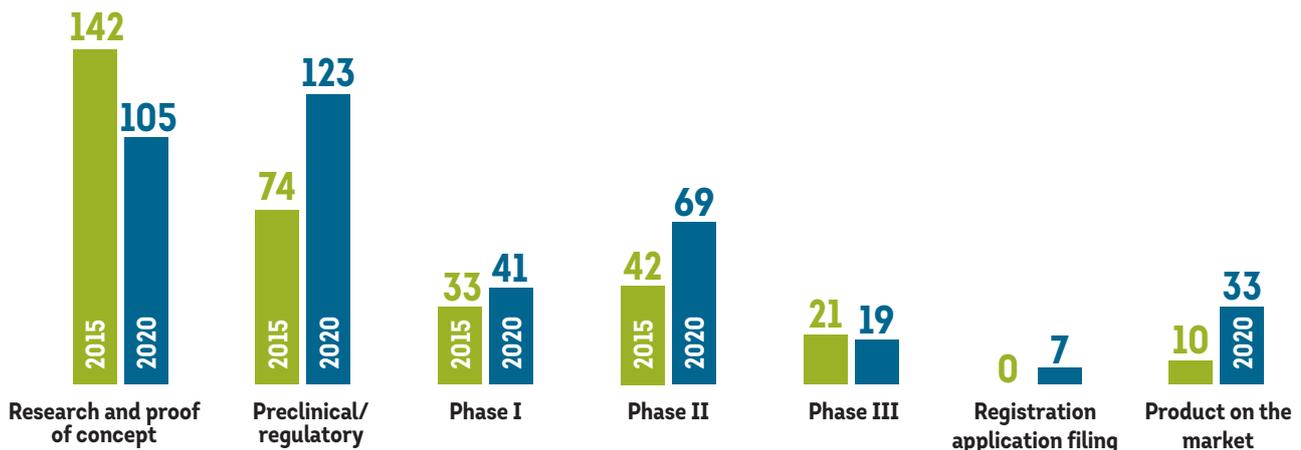


French biotechnology companies are developing products in all areas of therapeutics. Oncology is the treatment area that attracts the most research, representing 30% of R&D programmes (121 products). Many companies also focus on infectious diseases (14%) and the central nervous system (11%), fields in which there are still many unmet medical needs.

Some specialist French biotech companies also have extensive expertise in specific genetic disorders, including rare and orphan diseases.

**14%** of products developed by French biotechnology companies have orphan drug designation.

### Development phases of products created by the biotech companies in the sample

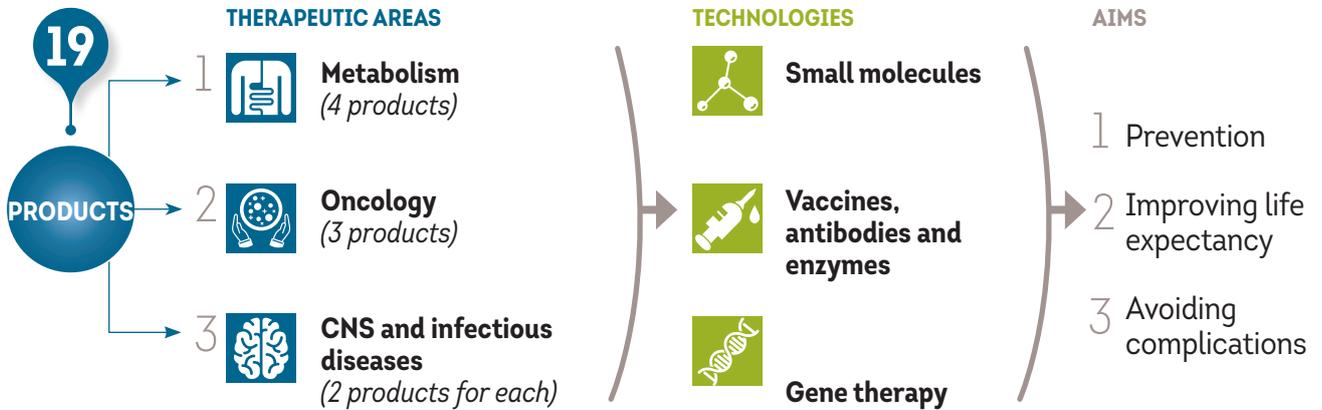


Source: France Biotech, 153 companies, December 2020; 2015 France Biotech Panorama

Despite a high attrition rate for biopharmaceuticals, the strong pipeline of French biotech companies means that we are seeing biotech products gradually advancing to market. The companies' R&D pipeline reflects France's scientific productivity in a broader sense. In 2020, 57% (228 products) of research programmes were focused on early phases

(proof of concept and preclinical), compared with 67% for these same phases in 2015. 22% (88 products) were in more advanced phases (Phase II and Phase III), compared with 19% (63 products) in 2015. Most products currently on the market are ophthalmology or dermatology products or vaccines.

Focus on Phase III products in the sample



Source: France Biotech, 17 companies, December 2020

The 19 most advanced products (Phase III) in the biotech company pipeline have been developed to target metabolism, oncology, the central nervous system and infectious diseases. They are primarily designed for prevention (vaccines), improving quality of life and avoiding the complications associated with such conditions.

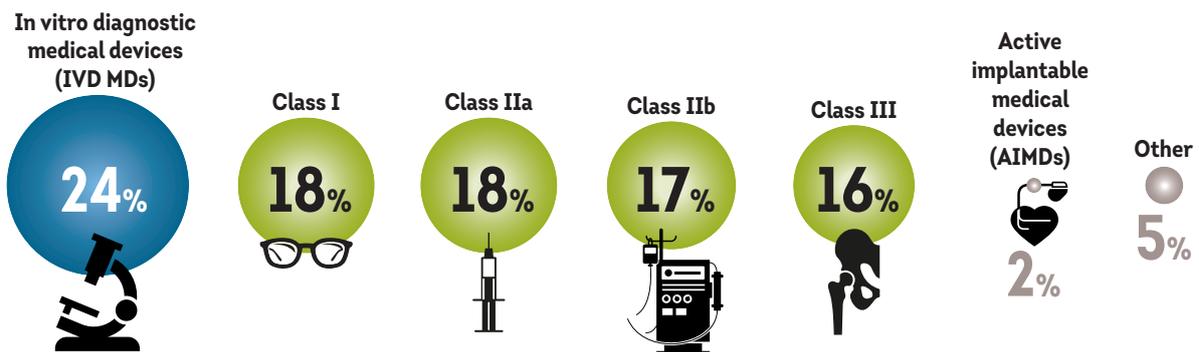
These innovative products are based on a variety of technological approaches, with as many biologics as small molecules. The most frequent products are vaccines, antibodies, enzymes and gene therapy products.

Bringing the products to market will help improve treatment for patients with these serious diseases.

## Focus on MedTech companies

Medical technologies are well represented, whether technologies in class I or classes II and III, IVD MDs or AIMDs. Half of the products developed are already on the market.

### Classification of medical devices



Source: France Biotech, 129 companies, October 2019

#### EXAMPLES OF TECHNOLOGIES:

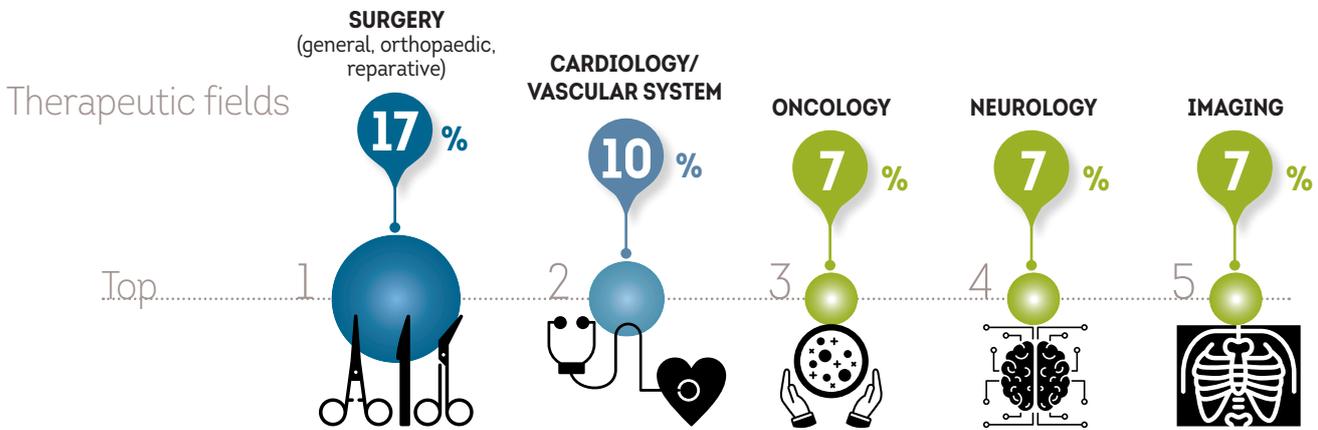
- **IVD MDs.** Self-tests, tumour markers, assay reagents, etc.
- **Class I** (the class with the lowest risk). Dressings, glasses, crutches, etc.
- **Class IIa** (moderate/measured potential risk). Syringes for infusion pumps.
- **Class IIb** (high/significant potential risk). Anaesthesia or dialysis machines.
- **Class III** (the class with the highest risk). Breast implants, stents, hip implants, etc.
- **AIMDs.** Pacemakers, defibrillators, cochlear implants.

The technologies developed by MedTech companies draw on wide-ranging know-how and expertise in an equally wide variety of therapeutic fields. The leading category is in vitro diagnostic medical devices (IVD MDs), representing a quarter of all products. Medical devices (MDs) in classes I to III are being developed by the companies in the sample in equal proportions.



# TECHNOLOGIES DEVELOPED BY THE FRENCH HEALTHTECH INDUSTRY

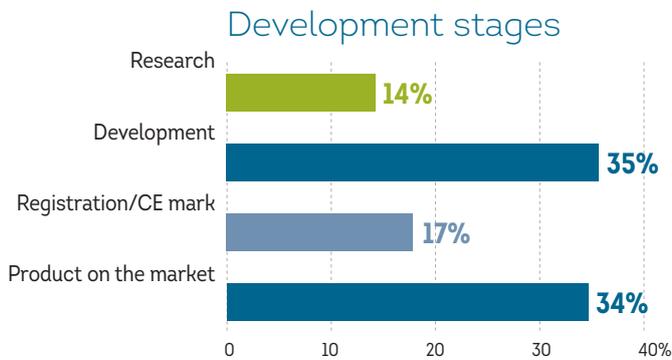
Therapeutic areas of the medical devices on the market or in development (% of products)



Source: France Biotech, 129 companies, December 2020

In total, the 177 MedTech companies in the survey are developing and marketing **304 products, with an average of 2 products per company**. Taking the French MedTech sector as a whole, **this represents more than 2,000 devices in development or on the market**. All therapeutic fields of medicine are represented in the panel of companies in the

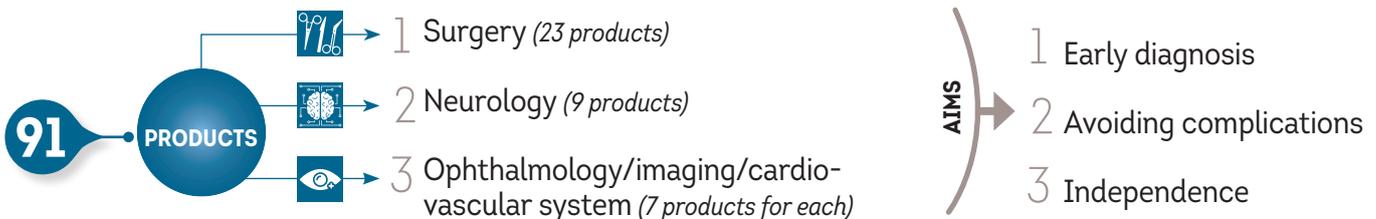
survey, with more than 18 categories of applications. The most frequent application is surgery (general, orthopaedic and reparative), with 44 products (17% of products), followed by the cardiovascular system, imaging, oncology and neurology.



Source: France Biotech, 129 companies, December 2020

Half of the medical devices developed by French MedTech companies are at an advanced stage of development, either in the process of obtaining a CE mark (45 products) or already on the market (91 products). The maturity of the sector can be explained by the fact that development times are shorter than for biopharmaceuticals (3 to 5 years vs. 10 to 15 years for biopharmaceuticals). **The number of products on the market has also grown by 15% compared with 2019**, a sign of the growing maturity of the MedTech sector.

## Focus on MDs on the market in the sample



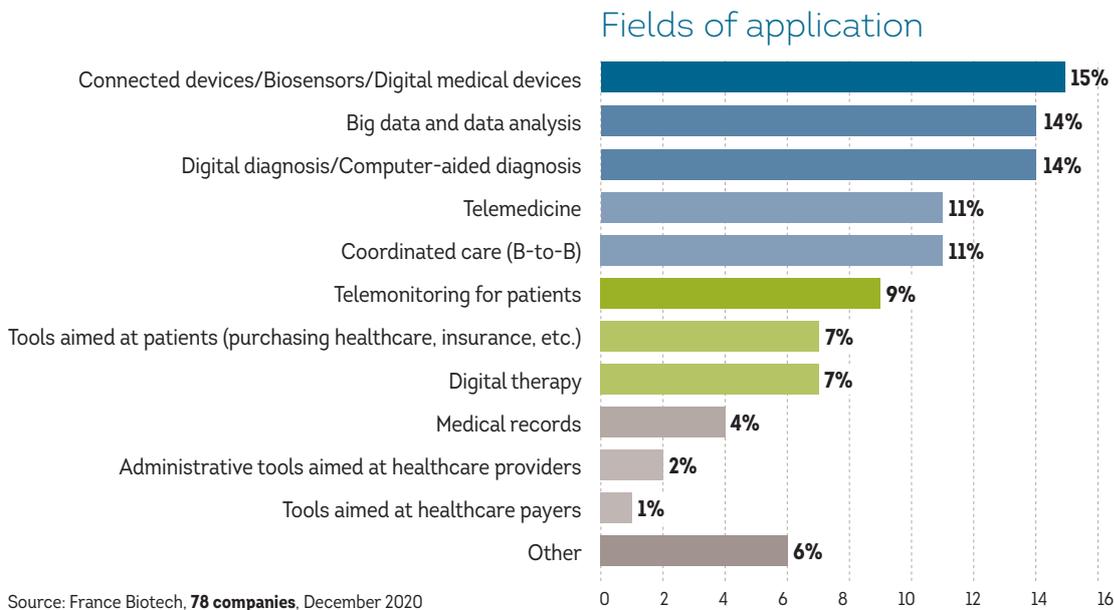
Out of the companies in the sample, 91 medical devices, aimed at a variety of different conditions and fields, are already on the market. MDs for surgery and neurology represent the highest number of products. The main aims of the innovations developed by MedTech companies are

early diagnosis, avoiding the complications associated with some diseases, and improving patient autonomy. Over and above the undoubted benefits for patients, these products also lead to savings in treatment costs for the health system and enable a faster return to independent living for patients.



## Focus on eHealth companies

eHealth technologies and solutions are increasingly being adopted in the health system.

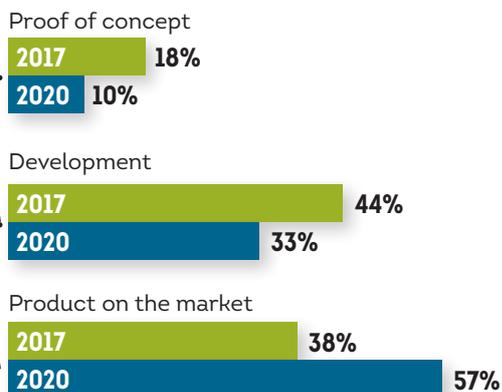


At a time when digital transformation is resulting in major changes for companies, the health innovation sector is taking advantage of this technological progress. A total of 154 products are being developed or marketed by the eHealth companies in the sample. eHealth, also known as digital health, has a role to play throughout the entire patient care pathway. Its applications are wide-ranging and are aimed at a variety of users: laboratories and biotechnology companies, patients, healthcare professionals, clinical

organisations and payers.

Big data in health represents a major opportunity for the future of healthcare. While only 8% of products fell within that field of application in 2017, this year the figure has almost doubled, propelling big data to second place among the fields of application for connected health products. Connected devices, biosensors and digital medical devices remain in top place.

## Development phases



The digital health market is growing in maturity; the number of products on the market has increased significantly in just three years. In 2017, just 38% of the products developed by digital health companies were on the market, compared with 57% in 2020. The adoption of these tools by health systems has partly been prompted by the health crisis, with telemedicine and patient telemonitoring solutions proving particularly useful and relevant in a difficult health and clinical context. Despite the regulatory obstacles, the eHealth sector has a very promising future.



## TECHNOLOGIES DEVELOPED BY THE FRENCH HEALTHTECH INDUSTRY

### 3 QUESTIONS FOR...

**Maximilien Levesque**, co-founder and CEO of Aqemia

"We are inventing drugs based on artificial intelligence and disruptive quantum-inspired algorithms."



Emmanuelle Martiano and Maximilien Levesque, co-founders of Aqemia

**Maximilien Levesque** A former researcher who spent periods at Oxford and Cambridge, Maximilien Levesque was recruited by the **ENS/CNRS**. A decade of research in theoretical physics led him to develop an algorithmic platform that could predict quickly and precisely whether a small molecule, a potential drug candidate, was likely to be effective on a therapeutic target.

## AQEMIA

**Aqemia** was founded in June 2019 by Maximilien Levesque, a researcher at the École Normale Supérieure (ENS), and Emmanuelle Martiano, an engineer at CentraleSupélec who previously worked as a consultant in the Boston Consulting Group (BCG). Aqemia, a spin-off from the ENS and the CNRS, **invents drugs based on artificial intelligence and disruptive quantum-inspired algorithms**. Based in the Agoranov incubator in Paris, **Aqemia raised €1.6 million** in July 2019 from Elaia, Bpifrance and business angels, and it now has **13 employees**.

**Aqemia, a DeepTech startup, recently announced an agreement with Sanofi aimed at facilitating the discovery of effective treatments for COVID-19**

**Before we turn to the signing of your agreement with Sanofi, could you explain a little about your disruptive innovative approach?**

We specialise in the discovery of small therapeutic molecules using artificial intelligence (AI) and quantum-inspired theoretical physics. We have designed generative AI algorithms combined with disruptive proprietary algorithms to calculate the affinity between a therapeutic target and small molecules (an essential property of drug candidates). Our algorithms for calculating affinity are as precise as the market leader but 10,000 times faster. We are inventing new molecules that are effective against a therapeutic target.

**What is the specific therapeutic target in your agreement with Sanofi?**

Under the partnership agreement concluded with Sanofi, the therapeutic target is the main protease of the SARS-CoV-2 virus which causes COVID-19. This protease is what causes the virus to reproduce in cells, enabling it to spread throughout the body. Aqemia's aim is to tackle this "lock", the protease, by identifying and creating small molecules that act as "keys" against the coronavirus and can prevent it from replicating.

With this first agreement signed with Sanofi, a world leader in drug research, Aqemia has taken a new step in its development. This first collaboration is an endorsement by industry of the efficacy and unique nature of our technology. It is also a valuable seal of approval in commercial terms.

**What is your business model?**

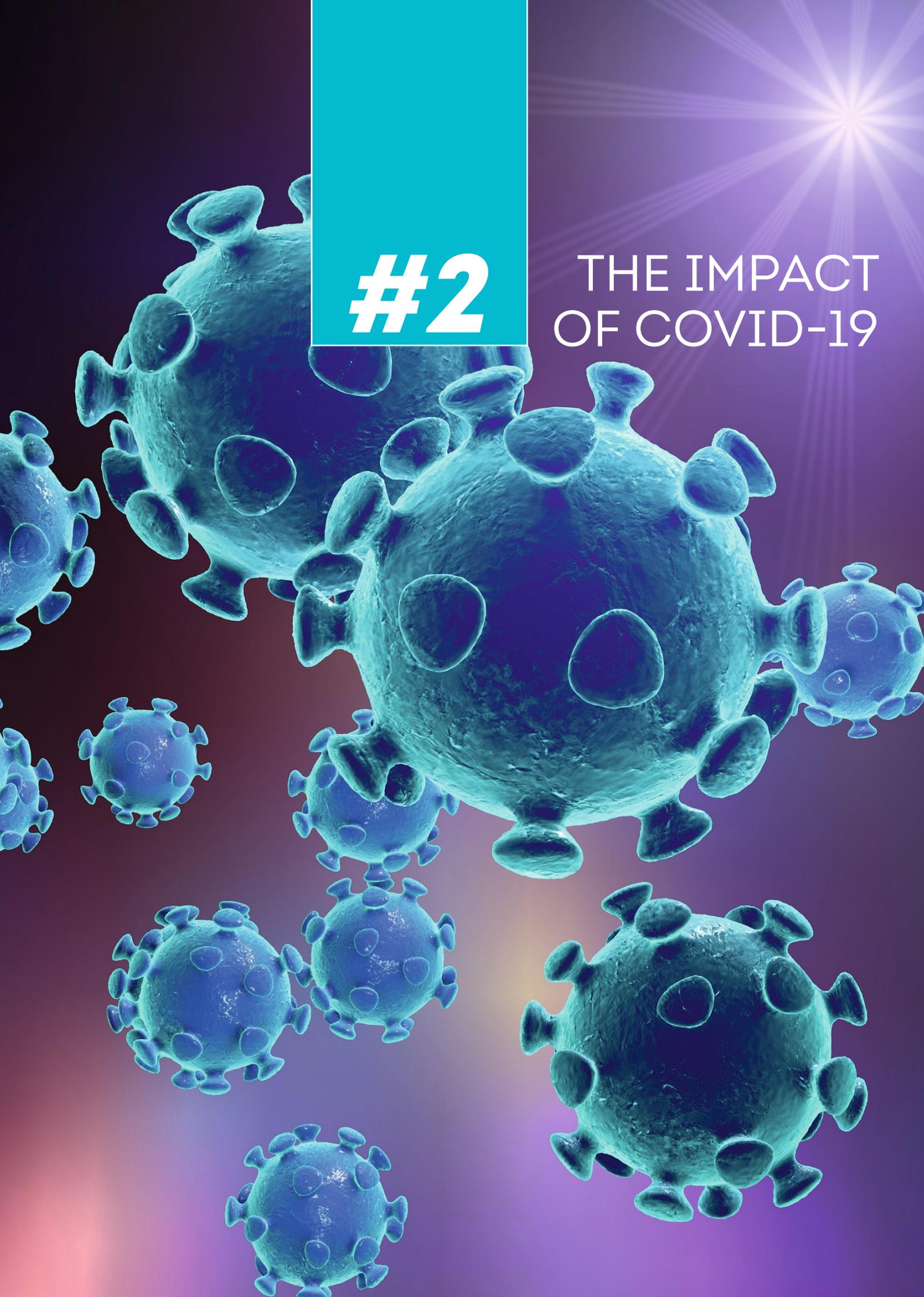
Our business is currently based on a collaborative model. We work on a project basis in partnership with pharmaceutical companies to invent small molecules that are effective on specific therapeutic targets.

"IN THE MEDIUM TERM, AQEMIA'S AIM IS TO DEVELOP ITS OWN PORTFOLIO OF INTERNAL PROJECTS, IN OTHER WORDS TO INVENT MOLECULES THAT ARE EFFECTIVE ON ITS OWN THERAPEUTIC TARGETS."

In the medium term, Aqemia's aim is to select its own therapeutic targets for which it will invent effective molecules.

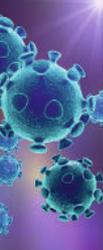
These molecules will then be developed in Aqemia spin-offs: our software platform is scalable and will select the best molecules so that single-product biotech companies can be set up and generate industrial value.

We are currently raising funds to speed up the development of this second part of our business model. ■



**#2**

THE IMPACT  
OF COVID-19



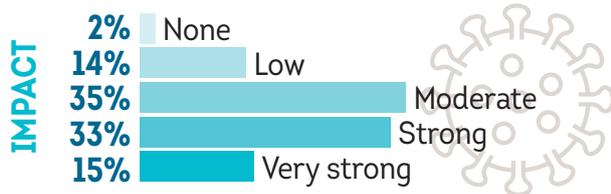
# How the pandemic reminds us that health is a vital asset

The health crisis has strongly impacted HealthTech companies throughout their value chains. The medical innovations pioneered by these HealthTech companies have proved how important and promising they are in fighting the emergence of new diseases.

**2020** was a year like no other. The pandemic has pushed healthcare systems to the limit and sorely tested every economic sector on a global scale. This unprecedented health crisis has reminded us of the importance of health and well-being. Although healthcare industries have been less affected than other business sectors (hospitality, etc.), they have

felt the impact all the same. Innovative SMEs were able to bounce back thanks to unprecedented aid from the French government. The diagnostic, therapeutic and organisational innovations of these companies could play a key role in enabling healthcare systems, patients and the economy to get back on their feet again.

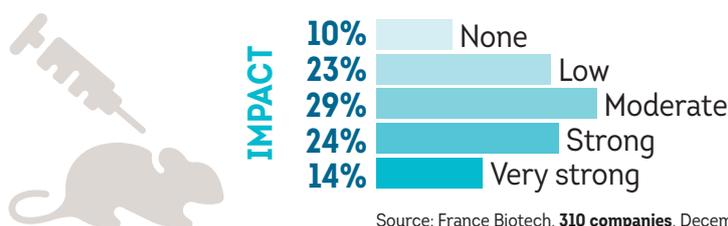
## Impact of the health crisis on business as a whole for HealthTech companies



Source: France Biotech, 405 companies, December 2020

In 2020, the COVID-19 pandemic had a strong to very strong impact on half of the companies surveyed. The impact was felt to varying degrees according to the business sector of the various companies. Whereas 60% of biotechs were slightly or moderately impacted, 65% of MedTechs declared they were strongly or very strongly impacted.

## Impact on upstream research and preclinical development activities



Source: France Biotech, 310 companies, December 2020

The R&D of companies has felt the impact of the health crisis, throughout the product development cycle. The overall effect on the research and preclinical activities of companies in 2020 has not been the same for everyone: a third of companies were barely or not affected at all, a third were moderately impacted, and the remaining third were strongly or very strongly impacted.

During a survey carried out in April 2020, at the height of the first lockdown, most of the companies (59%) declared

a steep decline or even a complete halt in research and preclinical activities (source: *Crise sanitaire COVID-19, Impact sur les sociétés HealthTech françaises [The COVID-19 health crisis: the impact on French HealthTech companies], May 2020, France Biotech*).

Many research laboratories and animal facilities were closed, which halted cell cultures and preclinical research. Business only gradually picked up again during the second half of 2020, with a moderate overall impact for 2020.



# Focus on clinical trials

Impact of the health crisis on the clinical activities of HealthTech companies



**BETWEEN FEBRUARY AND SEPTEMBER 2020**



Source: France Biotech, **219 companies**, December 2020

Between February and September 2020, just over a quarter of companies (28%) had a clinical trial in progress. Three-quarters of the companies faced major disruptions to their clinical trials:

- Either significant delays (45% of companies)
- Or a complete halt in clinical trials (32%)

The events of 2020 led to much heavier workloads in hospitals, which meant that clinicians were less available and it was more difficult to enrol patients. Regulatory agencies were also affected, as they received an increasing number of applications for research programmes for tackling COVID-19, which impacted response times for

other research applications.

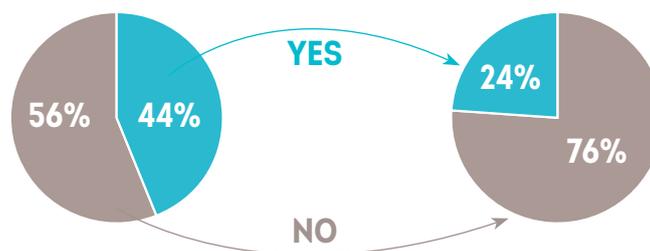
With the gradual decrease in hospital admissions for patients with COVID-19 and the easing of health restrictions during May, hospital-based research activities were able to resume. As a result, during the second half of 2020, the situation improved overall and **70% of companies were able to take up their clinical trials again**. Despite this, the delays experienced in clinical research programmes (3 to 6 months on average) will have slowed down the publication of clinical findings and set back the objectives of some biotechnology companies.

# Production and marketing

Procurement and supply chain issues

**Between February and September 2020**

**November 2020**

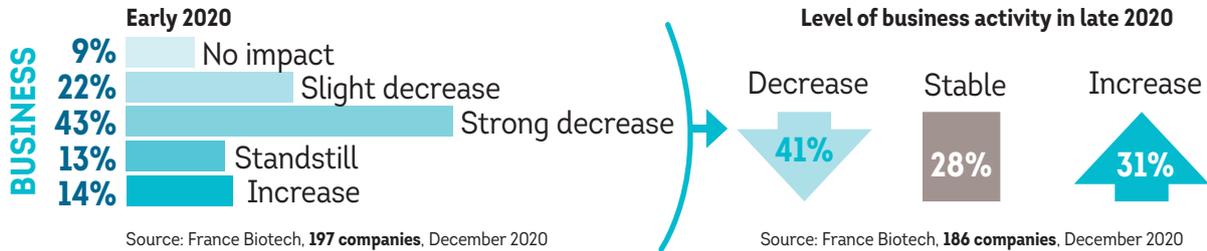


Source: France Biotech, **347 companies**, December 2020

Almost half of the companies (44%) encountered procurement and supply chain issues during the second and third quarters of 2020. The situation seemed to improve overall by the end of 2020.

However, a quarter of companies were still experiencing delays, with some seeing a gradual pick-up in activity albeit in stops and starts.

### Impact of the health crisis on the business of HealthTech companies

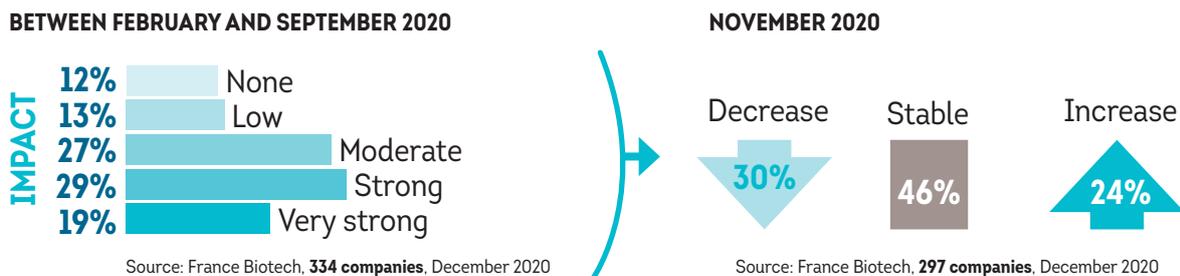


The business activity of companies was also strongly affected by the crisis. More than half of companies saw their business activity plunge or come to a standstill. Companies mainly put this down to manufacturing issues resulting from difficulties in sourcing raw materials, export problems and a decline in orders. The impact was felt differently according to the business sector. Companies developing medical devices were hardest hit (two-thirds of them saw a steep drop or total halt in activity), whereas a third of digital health

or diagnostics sector companies actually witnessed an increase in activity, especially where teleconsultation and remote patient monitoring services were concerned. By late 2020, the manufacturing and sales of healthcare products picked up again for most companies. Nevertheless, the consequences of the crisis were still being felt at the end of the year, with a persistently lower level of activity for 41% of companies.

## Partnerships

### Impact of the health crisis on business partnerships



The different lockdowns combined with the restrictions on travel, including abroad, severely impacted the business development activities of healthcare companies, as in other sectors. To begin with, the major annual events were cancelled (BioSpring in March, Vivattech in May), postponed, or transformed into digital gatherings (BIO). The global pandemic profoundly changed the way in which companies communicated with partners or potential business leads. According to HealthTech companies, although half of them

were strongly or very strongly impacted, the onus was on adapting to new practices rather than stopping business development altogether. In fact, a large number of existing partnership ventures continued to develop, and new ones were even set up. As for business development, and despite the difficulties, some biotechnology companies actually managed to raise capital during the first lockdown. Today, partnerships are at a stable level or on the increase for 70% of companies.

## The impact of COVID-19 on HealthTech funding

The health crisis strongly impacted the activity of companies in 2020, notably by pushing back publication dates for research findings and by affecting fundraising and cash flow.

In early April 2020, three weeks after restrictions were put in place during the first lockdown, half of the companies had declared that they were facing financial difficulties and 60% were facing cash flow problems. For a third of the companies in difficulty, they only had enough cash flow for three months at most. MedTech companies were hardest hit, with 71% of them in difficulty. This is because they are more reliant on their sales than biotechnology companies, which take longer to start generating income in most cases (source: *Crise sanitaire COVID-19, Impact sur les sociétés HealthTech françaises [The COVID-19 health crisis: the impact on French HealthTech companies]*, May 2020,

*France Biotech*).

With an intense and recurring need for capital, almost a third of companies were in the process of raising funds in April 2020. For some, the situation led to difficulties in securing funds, with investors preferring to have more visibility before signing.

The economic crisis caused by numerous business activities having to be put on hold, and the financial hardships encountered by all sectors encouraged the French government to set up compensatory schemes to boost the cash flow of companies and avoid layoffs and divestitures.

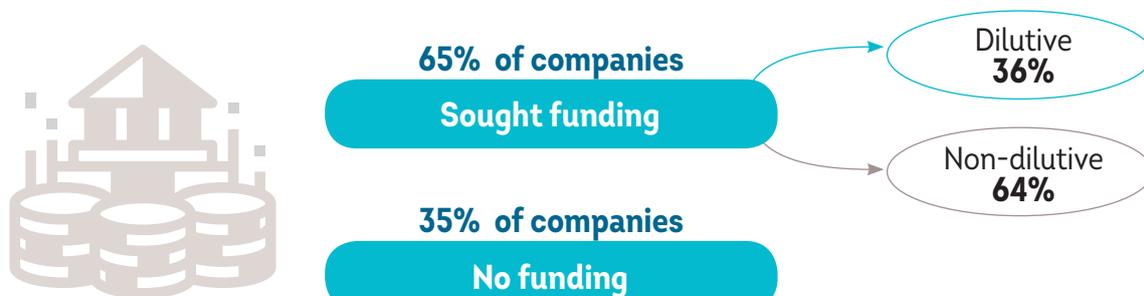
As a result, numerous HealthTech companies applied for **state-guaranteed loans**, the government's flagship initiative rolled out in 2020.

- **76%** of companies were **eligible for state-guaranteed loans** in 2020.
- Among those eligible, **66%** were granted a loan.

The **European Investment Bank (EIB)** also played an important role during this period:

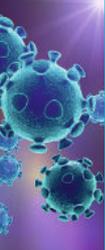
- In 2020, **19 companies** applied for EIB funding or loans.
- **7 companies** had their **applications accepted** in all.

### Types of funding sought by HealthTech companies in 2020



Source: France Biotech, **337 companies**, December 2020

Significant cash needs meant that **65% of companies sought funding** in 2020. Most of the financing was non-dilutive as companies opted for loans over capital increase.



# Human resources

Beyond research activities, partnerships, marketing and financing, the health crisis also had a profound impact on human resources management in HealthTech companies.

• **1 out of 2 companies resorted to short-time working between February and September 2020**, for 46% of employees on average

-> **R&D was the job sector most affected by this measure**

• **92% of companies had employees working from home** during this period

In November 2020, working from home continued for almost all companies (87%)

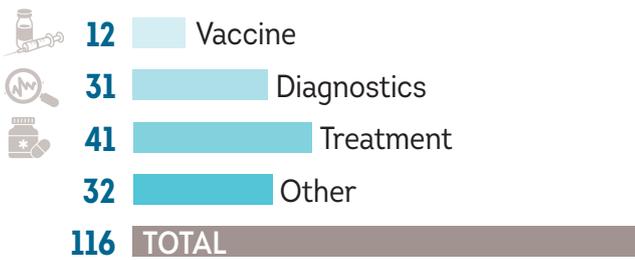
# The French HealthTech industry committed to tackling COVID-19

HealthTech companies responded to the health emergency by developing innovative prophylactic, diagnostic, therapeutic and digital solutions.

**T**hanks to their expertise in all kinds of areas (diagnostics, inflammation, immunology, viral infections, etc.), biotech and MedTech companies have been quick to put their knowledge to good use and

join the fight against COVID-19. Where France HealthTech Panorama companies are concerned, **26% of them launched at least one research programme**, and 86% of the programmes were still ongoing at the end of 2020.

## Type of products developed by HealthTech companies to fight COVID-19



Source: France Biotech, **405 companies**, December 2020

As soon as the pandemic started, HealthTech companies sprang into action to find vaccine, diagnostic and therapeutic solutions. **More than a hundred products have been developed** by HealthTech companies to tackle the health crisis.

Most of the products developed are treatments. By strategically repositioning themselves, some biotechnology companies, such as those developing molecules with anti-inflammatory properties, were able to realign some of their research objectives towards tackling COVID-19. A large number of such molecules are now at the clinical trial phase and the results are promising. Similarly,

diagnostics companies also got to work on finding solutions, which included developing SARS-CoV-2 PCR test kits or antigen kits, and using biomarkers to identify potentially severe forms of the disease before they develop in patients. A dozen programmes focusing on vaccine development are also underway.

In 2020, numerous digital healthcare (eHealth) companies provided solutions to healthcare professionals, patients and healthcare systems. Several solutions, such as monitoring solutions for patients with chronic diseases, teleconsultation solutions and care pathway management solutions for hospitals, proved invaluable for managing the influx of COVID-19 patients and ensuring care continuity for other pathologies, such as long-term conditions and chronic diseases.

Faced with this unprecedented health crisis, all these solutions have shown that as well as being agile and responsive, HealthTech companies have an incredible potential for innovation. These technologies highlight the value and advantages of innovative approaches for patient health.

# The Health Innovation Coalition: a response to the health crisis

A public-private coalition launched in response to the health emergency to help chronic disease patients.

**T**he **Health Innovation Coalition (CIS)** was launched in March 2020 by **France Biotech, France Digitale, MedTech in France and AstraZeneca**, with the participation of the Paris Public Hospital Network (AP-HP) and the support of Bpifrance and EIT Health.

The most vulnerable people, such as those suffering from chronic diseases (cancer, diabetes, COPD, asthma,

heart failure, etc.), are particularly at risk in the context of the COVID-19 pandemic, where an overburdened healthcare system threatens continuity of care. The purpose of this coalition was to **relieve congestion in the healthcare system to ensure chronic disease patients could continue receiving treatment**. A dedicated platform was set up to identify the specific needs of care teams and propose a solution.

## CIS in figures

**50+** public and private healthcare stakeholders, including professional associations, patient associations, pharmaceutical laboratories and competitiveness clusters.

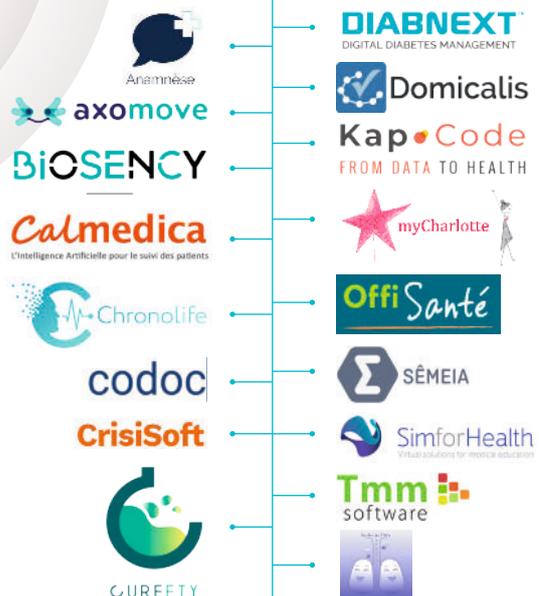
Rolled out in **40 hospitals**, public and private.

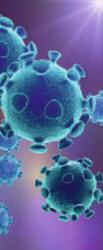
**60,000** patients have benefited from these eHealth solutions.

**>€2,000,000** raised to finance project roll-out.

**350** eligible projects and over a hundred requirements identified by healthcare establishments and patient associations.

### 17 projects chosen and financed





# #2

## THE IMPACT OF COVID-19

# bpifrance



# Bpifrance, a key player in HealthTech funding

Bpifrance plays a leading role in the development of French HealthTech through its various operations, which include financial backing via innovation grants, capital investment for companies, and its fund of funds investment activity. 2020 was also marked by support and financing specifically aimed at tackling the COVID-19 pandemic.

### Support provided in 2020

**€420 M OF FUNDING**

**€266 M OF DIRECT AND INDIRECT INVESTMENTS**

#### Support for innovation

**€170 M\***

- Support for innovation in R&D
- PSPC Region
- Support for DeepTech
- I-Lab
- Grands Défis
- i-Nov Innovation competition
- Mental Health
- Managing emergencies
- Ultra-rapid diagnostics

#### In partnership

**€120 M**

- PSPC
- €36 M for 2 projects
- **PSPC COVID**
- €84 M for 7 PSPC COVID projects

#### Industrialisation

**€130 M**

- **Capacity Building CEI\*\***
- €103 M for 10 projects
- **Recovery plan**
- €30 M recovery plan

#### Equity

**€126 M**

- InnoBio fund
- Patient Autonome fund
- PSIM fund
- French Tech Seed

#### Fund of funds

**€140 M**

- Seed funding
- Venture capital
- Growth capital
- To specialist healthcare funds

**3 programmes launched following the health crisis**

\* Estimation.  
\*\* Bpifrance decision, January 2021.

## Investing in the Future and "Grand Défi" programmes

In connection with the Investing in the Future programmes, several initiatives have been launched by Bpifrance's innovation department: funding for collaborative public/private R&D projects (key competitiveness-boosting projects or "PSPC"), national competitions (I-Nov) on 3 themes (managing emergencies, mental health, and rapid mobile diagnostics). Funding for DeepTech projects has also been granted to support high potential technological R&D by academic spin-offs.

The French government's Innovation Council identified two major challenges, or "Grands Défis", in the health sector, to tackle societal issues in strategic areas with outstanding technological barriers to be overcome. These Grands Défis received funding of €30 M from the "Innovation and Industry Fund" and were implemented

by Bpifrance in 2020.

**1. The Grand Défi – Bioproduction**, a call for proposals entitled "Biopharmaceuticals – improving efficiency and controlling production costs", was launched in 2020. The aim of this CFP was to provide solutions to the challenges met by the pharmaceutical industry in developing new biological molecules, with two clearly defined points of focus: "on-line controls" and "modular manufacturing facilities".

**2. The Grand Défi – "Using artificial intelligence to improve medical diagnosis"**: 10 projects were selected under the CFP "AI to improve experience of the healthcare system". The winners received support from the Health Data Hub and funding in the form of a grant (ref. with List of winners).



## Support for innovation in 2020

**B**y granting more than **€400 M of funding in 2020, Bpifrance has almost tripled the total annual amount of innovation and investment support provided to HealthTech companies.** Almost €250 M was additionally invested in 2020 in response

to the health crisis, to back research on COVID-19 (PSPC COVID-19) and investment in manufacturing (Capacity Building CEI), as well as the recovery plan for strategic sectors.

## Specific schemes to bolster companies and research on COVID-19

Specific funding mechanisms were launched in 2020 with the backing of two new European Commission temporary framework schemes. Firstly, projects concerning the treatment of COVID-19 patients were eligible for aid covering up to 80% of the investment or R&D project costs (SA.57367). The government has therefore shouldered much of the risk alongside the innovative healthcare companies. It may also enforce a repayment clause in the aid agreement. Secondly, the SA.56985 scheme was introduced to help companies and support the economy, with up to €800 in aid per company.

### "Capacity Building" Call for Expressions of Interest

In light of the health crisis, the French government decided to help companies – and their public partners – offering therapeutic solutions to tackle the current pandemic, as well as any similar future pandemics. The crisis highlighted the need to reconsider drug production value chains. The French government's ultimate objective is to reduce Europe and France's reliance on third countries by supporting investment in the manufacturing of healthcare products related to the COVID-19 crisis and, more specifically, the manufacturing of drugs, or their active ingredients, used to treat infected patients. The funding is targeted at developing new production capacities, or adapting current lines to improve their flexibility, which will make it much easier to ramp up production capacity in the event of a health crisis.

Two companies that received funding are **Carelide**, which is planning to modernise its paracetamol IV bag production line, and the **Seqens Group**, which is installing or relocating its active ingredient and intermediate compound production capacity at five French sites.

**See the full list of winners at:**

<https://tinyurl.com/Capacity-Building-laureats>

### Key competitiveness-boosting projects (PSPC) programme targeting the COVID-19 health crisis

This programme offers support for key collaborative research and development projects aimed at developing preventive or curative therapeutic solutions to tackle COVID-19. Direct economic and technological benefits are expected in the shape of new products, services and technologies. All therapeutic strategies were eligible (vaccines, antivirals, combination therapies, etc.) as well as all types of technology (chemistry, biotechnology, artificial intelligence, use of big data, and medical devices, where relevant).

→ 7 projects were funded in 2020 for an overall total of €85 M.

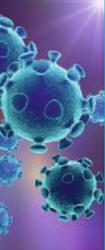
One company that received funding was **Innate Pharma**, for Phase II of its FORCE and ImmunONCOVID-20 programmes. Another was **Abivax**, which received funding for its Phase IIb/III clinical trial involving patients with COVID-19, as well as for increasing the production of its drug candidate ABX-464.

**See the full list of winners at:**

<https://tinyurl.com/pspc-laureats>

### Recovery plan for industry – strategic sectors

In light of the COVID-19 crisis, the French government has pulled out all the stops to provide financial support for investment in manufacturing and modernising production. This particular call for proposals has enabled the French government to back the best investment projects, to strengthen the autonomy and resilience of French manufacturing sectors. The ultimate aim is to reduce reliance on non-European suppliers, while also developing promising sectors, to foster value creation in France and across Europe.



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THE IMPACT OF COVID-19

bpi**france**

→ **HealthTech sector projects received overall funding of €30 M in 2020. The call for proposals has been renewed for 2021 with significant earmarked funding.**

Two of the companies that were awarded funding in 2020 are: **Haupt Pharma**, which has invested in a 30% production capacity increase for anaesthetic ampoules for patients with COVID-19 in intensive care, and **Rovipharm**, which has also invested in a production capacity increase for consumables to meet the explosion in demand for medical testing linked to the health crisis.

### State-guaranteed loans in 2020

In response to the economic shock caused by the

coronavirus crisis, the French government introduced a €300 Bn loan guarantee scheme, known as the "PGE", to secure bank loans to businesses. The purpose of the "Innovation Support PGE" has been to help consolidate the cash flows of innovative startups, SMEs and mid-caps with a turnover of under €1.5 Bn in France hit by the health crisis. This dedicated innovation loan facility is secured by the state guarantee scheme and available to meet cash flow requirements related to the current economic situation and/or one-off working capital requirements.

Numerous HealthTech companies benefited from this scheme to ease cash flow, which was hit hard by the health crisis.

### Direct and indirect investments in 2020

**B**pifrance injected €126 M into the capital of the sector's innovative companies via 11 new investments, including six biotechs. Bpifrance has several funds reserved for the healthcare sector: the Innobio 2 and Patients Autonome (**Lucine, Nouveal and Mila**) funds, as well as more general funds, such as Large Venture (**Owkin, Dynacure**), PSIM and the French Tech Seed fund for supporting DeepTech startups in their post-maturation phase.

Bpifrance also indirectly invests in companies via its fund of funds vehicle. By the close of 2019, Bpifrance had underwritten more than €9 Bn in partner funds which raised a total of €48 Bn. The dry powder of partner funds totaled €20 Bn, with €4 Bn earmarked for the healthcare sector. In 2020, Bpifrance invested €140 M in healthcare sector funds, representing an overall total of €600 M in funds, including Jeito, Biodiscovery 6 and Kurma Diagnostic 2.

### Support for HealthTech startups in 2020

**B**pifrance also provides solutions to support businesses in general. This can include advice on going global and information about ecosystems and markets. We organise strategic seminars with the various ecosystem stakeholders, as with our France Biotech partnership.

Moreover, the Hub team provides a comprehensive, tailored programme to support the development of startups that have received venture-capital investments from Bpifrance.

The Hub's HealthTech programme was specifically designed to complement Bpifrance's investment in healthcare sector companies – Biotech, MedTech and Digital Health startups – and help them meet the requirements and challenges of the sector: long development cycles, regulatory requirements, the scientific, technical and medical stakes involved,

substantial financing needs, etc. A dedicated team provides personalised support, with the specifics of each business and its needs in mind. This service includes practical operational support, access to expert knowledge (technical advice and privileged access to major players), peer-to-peer sharing, and targeted networking.

Since its launch in 2018, the HealthTech Hub has supported 27 startups – eight of which in 2020 – such as **Diotheris**, a biotech which develops skin microbiome-based anti-infective therapies to tackle the emergence of antimicrobial resistance; **Incepto Medical**, which produces and markets AI applications for medical imaging; and more recently, Lucine, which has developed a digital therapy application to measure and relieve chronic pain.

# COVID-19, a game changer in terms of liability for company directors?

The COVID-19 crisis has led to an increase in all kinds of financial, operational, legal and regulatory risks for company directors. Although their liability remains unchanged, there is reason to be vigilant during the current crisis.

**T**here is no existing statutory or regulatory text defining a company director (or *dirigeant*) in France. The only roles described are those of company representatives: chair, Chief Executive Officer, Chief Operating Officer, manager, executive board member, supervisory board member or director. We need to turn to case law or articles of association to find definitions of the role of company directors.

Over time, a number of indications on what being a company director means have been derived largely from corporate case law. A distinction is made between *de jure* directors, who are formally appointed by company representatives and invested with the power to manage the general affairs of the company, and *de facto* directors, who have an independent, proactive managerial, director or administrative role without officially holding a corporate office.

The legal situation surrounding director liability has significantly changed in recent years. Although liability has been reduced in the event of insolvency, directors still carry the burden of numerous obligations to the company, partners or third parties, which has led to the professionalisation of the role of director. On 4 May 2020, with the easing of lockdown measures, the French Prime Minister, Edouard Philippe, gave a quick reminder of the issues surrounding the criminal liability of directors: *"The issue of liability with regard to COVID-19 is no small matter."*

Director liability, however, is not limited solely to criminal liability for the physical safety of employees. **COVID-19 has not changed the basis of director liability as such. Instead, it has heightened the risks faced by companies.**

## COVID-19 – an increasing number of risk factors

COVID-19 and the subsequent lockdown has had a major impact on risk factors. Rather than list them all here, we have singled out the most salient COVID-19 risks in terms of director liability.

### Financial risks

According to several surveys such as those commissioned by the Banque de France and France Biotech, the health crisis has had a significant impact on the business of companies, with a knock-on effect on their financial needs.

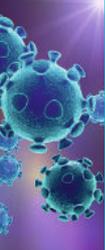
Two-thirds of the companies surveyed considered that COVID-19 had severely impacted on their business, and to varying degrees according to the sector: 24% of companies shut down their sites and 41% reported partial suspension of business. These figures are in line with the findings of France Biotech's survey: 45% of companies fully or partially suspended operations, with businesses in the R&D and clinical trial sectors hardest hit.

All the company directors surveyed acknowledged that COVID-19 had given rise to financial difficulties, such as:

- An average decline in turnover of 10%. This financial indicator holds little relevance for most biotechs, which generate little or no turnover.
- Negative earnings for 33% of companies, compared with 18% in 2019.
- An increase in debt for 31% of companies.
- A 10% reduction in cash flow for 21% of the companies surveyed: for the biotech sector, 60% of companies notably experienced cash flow problems.
- An increase in indirect costs related to home working, health protocols and handling production line disruptions, etc.

### Operational risks

Working from home has become the norm since lockdown, resulting in an increase in psychosocial risk factors related to a feeling of isolation, addictive habits (drinking, smoking, eating), a deterioration in working conditions and a lack of clear boundaries between private and professional life. All the surveys conducted on the issue reported an increase



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in stress, depression, work overload, physical and verbal violence, disinterest in the company and musculoskeletal disorders, etc.

To maintain economic momentum, the French government issued a national health protocol, and updated it several times. This protocol has no statutory or regulatory force. However, in an emergency proceeding on 19 October 2020, the French Council of State stated that the protocol "is a set of recommendations for ensuring employers meet their health and safety obligations to employees in the context

of the COVID-19 epidemic, recalling existing obligations under the French Labour Code." In an atmosphere of urgency and uncertainty regarding the understanding and interoperability of the different standards, companies are under obligation to take measures to protect their employees and to adhere to procedures on implementation of such measures. We noted a direct impact on work organisation, employee training and information, and dialogue with staff representative bodies, etc.

**Moreover, given that working from home is the new norm, companies have also been increasingly exposed to cybersecurity risks.** Here are a few figures illustrating this:

- **350 cyber attacks** in April 2020 as compared to the usual 100-150.
- **47%** of people fall for **phishing scams** when working from home.
- The average cost of a data breach is **\$137,000**.

**Over half a million video conference users** have had their **personal data stolen** and sold on the dark web.

### Statutory and regulatory risks

The health crisis has added yet more layers of statutory and regulatory requirements, with over 400 texts being issued

and updated daily. We have sensed a growing anxiety among directors on how to ensure organisational aspects, business continuity and future prospects.

The French Emergency Act of 23 March 2020 authorised the government to take temporary measures by way of ordinances, with repercussions on corporate law relating in particular to the approval of accounts and calling of general meetings: (I) the period for management boards to present annual accounts to members is extended by three months, (II) documents presented at a general meeting for accounts approval can be sent to members electronically, and meetings can be held behind closed doors with members maintaining their right to vote, to information, to ask questions in writing or to have items added to the agenda, (III) the rights of listed company shareholders have been extended where general meetings held behind closed doors are concerned, (IV) video conferencing can be used to enable shareholders to attend general meetings, (V) the board may adopt its decisions through written consultation.

The French Financial Markets Authority recalled best practices concerning financial information for listed companies in connection with the COVID-19 crisis: (I) under continuing disclosure requirements, the issuer should communicate any significant impact the pandemic

has on business, performance, or prospects, and which may influence stock prices; (II) under periodic disclosure requirements, the issuer should outline the main risks and uncertainties the company faces in its management report.

### Risks in terms of director liability

By way of reminder, becoming a company director requires no formal qualifications or extensive special skills, and no knowledge of regulations applicable to company management. Upon appointment, directors are presumed to have the competencies for the job. As representatives of the company, directors have extensive powers to act in the interest and on behalf of the company. Consequently, they owe a legal duty of care and loyalty to the company and agree to undertake non-compete obligations, provide honest and fair information, guarantee transparency and not use their

position improperly. Directors are not only responsible for keeping members, shareholders and employees informed. Today, they are increasingly held liable for all management actions that affect company life.

**Directors can find themselves personally liable for any failure to perform these obligations. Liability can be civil, criminal or administrative. The company cannot assume the burden of these liabilities which put directors' personal assets directly at risk.**

Current circumstances have led us to look more closely at some of the liabilities that are directly linked to COVID-19:

#### **Criminal liability: failure to perform health and safety obligations**

The health and safety obligations of employers are governed by the provisions of Articles L. 4121-1 and L. 4121-2 of the French Labour Code, which set out the legal duties of employers in terms of protection:

Article L. 4121-1: *"The employer shall take all necessary measures to guarantee the safety and protect the physical and mental health of employees. These include: 1) measures to prevent occupational hazards; 2) information and training initiatives; 3) establishment of appropriate organisational arrangements and resources. The employer shall ensure that these measures are adapted to reflect changing circumstances and serve to improve existing conditions."*

*Since the Air France ruling of 25/11/2015, the employer's health and safety obligation has become an enhanced best-efforts obligation. This means that the employer can be exempt from liability by proving that they took all necessary measures to safeguard the health and safety of their staff.*

#### **Civil liability: breaches of corporate law and mismanagement**

Article 225-251 of the French Commercial Code stipulates that directors are individually or jointly and severally liable to the company or to third parties either for breaches of the laws or regulations or of the articles of association, or for mismanagement.

*A simple breach of a statutory provision by a director implies presumption of fault. Directors are therefore held to an obligation of performance, and the onus of proof that mismanagement did not occur is needed to relieve them of liability.*

*In the event of force majeure the director may also be exonerated from all liability. Can COVID-19 be considered a force majeure event? On 28 February 2020, French finance minister Bruno Le Maire declared that the coronavirus would be considered a force majeure event for companies. Can application of the provision be extended to director liability?*

*We don't think so. The Emergency Act of 23 March 2020 and its amendments have enabled the French government to relax corporate law, to allow general meetings and management boards to continue operating despite lockdown measures, while still protecting public interests. Consequently, directors will still be liable for any breach of these new provisions governing accounts approval and calling of general meetings.*

#### **Mismanagement is the most common reason for director liability lawsuits.**

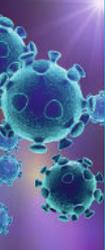
Under French statutory law, there is no definition of mismanagement. The decision is at the judges' sole discretion on the basis of an in concreto analysis of the situation. **Any act or omission by a director that is contrary to corporate interest could constitute mismanagement.** Indeed, case law requires directors to manage corporate affairs **with care, diligence and active engagement.** In case law, mismanagement mainly involves **inappropriate investment decisions, expenditure commitments that are disproportionate to company resources**, negligence in supervising collection of receivables, underestimation of financial risks, careless management of everyday business, delays in presenting annual accounts, etc.

How will courts assess mismanagement in the light of the COVID-19 pandemic? The 2008 financial crisis provided a testing ground for considering the issue of mismanagement in such a context.

If a company experienced cash flow problems, it was ruled that the director was not liable for mismanagement, as the financial difficulties were related to the financial crisis and not management errors, and measures had been taken. Similar rulings were made concerning shortages of raw materials during the crisis. However, the charge of mismanagement was made if a company lost its main client and the director decided to pay out dividends regardless. Similarly, charges of mismanagement were confirmed if a board of directors abided by the decision to maintain significant development investments despite the impending economic crisis.

**In light of the above case law examples, we consider that in the COVID-19 climate, no charges of mismanagement will be made in the following cases:**

- **Cash flow problems**, if company directors took advantage of support measures such as state-guaranteed loans, deferment of tax and social security liability payments, direct tax rebates and renegotiation of bank loans, etc.
- **Cyber attacks** – particularly targeting sensitive data (e.g. medical data of patients in clinical trials) – if company directors have implemented cybersecurity best practices (e.g. antivirus protection, cybersecurity and phishing awareness training, etc.) and built a cybersecurity strategy.



# #2

## THE IMPACT OF COVID-19



**And what about the thorny issue of dividend payouts recommended by the board of directors?** Could this decision taken by company directors be considered as mismanagement if the payment of dividends renders a company ineligible for state-guaranteed loans? This is highly likely given current case law on mismanagement in liability proceedings for asset shortfalls.

### Director liability for asset shortfalls

Despite the sharp decline in corporate defaults (29% for SMEs) in mid-November 2020 as compared with 2019, many commentators project a rise in insolvency proceedings for 2021.

We will limit our study to director liability for shortfall of assets in a company in liquidation under Article L651-2 of the French Commercial Code, which is one of the founding texts on director liability:

*"In the event of insufficient assets under a court-ordered liquidation, if the shortfall is attributed to mismanagement the courts can decide that the cost of the shortfall is borne, in full or in part, by all or some of the de jure and de facto directors who contributed to company mismanagement. If there are several company directors, joint and several liability may be imposed by substantiated decision. However, in the case of*

*mere negligence on the part of de jure or de facto directors in managing the company's affairs, they may not be held liable for the shortfall. The limitation period is three years from the liquidation decision by court ruling."*

There is a **presumption of liability** - once the shortfall is recognised the court can hold a director liable. **The onus is on directors to prove that they were not guilty of mismanagement.** It is noteworthy that director liability will be recognised if mismanagement led to a shortfall of assets, regardless of whether it was the sole or main cause. Regarding the health crisis, it is highly likely that the following will be characterised as mismanagement by the courts: failure to seek financing or take steps to secure government aid, a lack of a business continuity plan, undue investments with regard to the financial situation, and payment of dividends considered excessive.

### Best practices for limiting director liability

In the face of COVID-19, directors need to be able to take the right decisions, plan ahead, and communicate in a clear and transparent manner, while also navigating through a complex environment, often within very short time frames.

In this context, we advise companies and their directors to have systems in place enabling them to meet their legal obligations and limit liabilities.

- Establish a governance framework - corporate governance is not only for listed companies.
- Roll out tools and realign your strategies: establish a crisis management centre and risk mapping (update the risk map to include pandemic risk and new risk emergence, evaluate impact on organisational and financial performance), develop business continuity plans (reset priorities, safeguard stakeholder resilience, rethink your supply chain, etc.), review strategic plans, your business plan and related financial needs, and all internal and external communication plans (for shareholders, banks, suppliers, regulators, etc.).

#### Focus on best practices for health and safety obligations:

In the event of litigation, the courts will endeavour to

check whether effective and adequate measures were taken. **Directors will therefore need to prove that all the necessary prevention and protection measures were taken** so as to exempt them from liability if an employee is exposed to a health or safety hazard or such a hazard arises. **To limit liability, companies and their directors should document all procedures to justify the measures implemented,** and notably undertake risk reassessments as part of unique risk assessment document updates.

We also advise companies on reviews of existing delegations of authority to ensure that effective health and safety delegation procedures are in place. Their purpose is to ensure that the powers naturally exercised by the director (to whom a presumption of liability for unintentional criminal misconduct applies) are indeed delegated to persons who, in the field, are best able to exercise these powers and to ensure the effective implementation of health and safety rules.

Our final word of advice is to have a director liability policy in place that covers civil liability, criminal defence fees and civil penalties.



**FINANCE**

**#3**

FUNDING OF  
HEALTHTECH IN  
FRANCE AND AT  
GLOBAL LEVEL



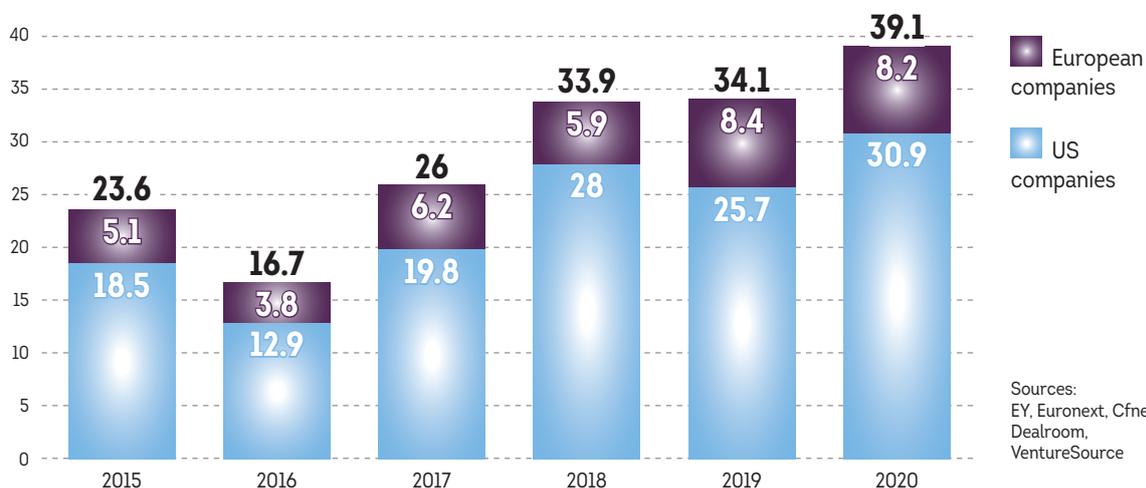
## 2020: health takes centre stage

The health crisis and its demands have proved a real challenge for many companies in a sector faced with a constant race against time, pressure on the R&D phase due to the imperative of achieving results, and the critical importance of the funding timetable as a key success factor. Time stood still for several weeks while the whole world adapted to lockdown rules and turned to the health sector for solutions. In stark contrast, an injection of pace was required from those involved in fighting COVID-19. Biotechnology companies geared up to identify a vaccine or treatment, while diagnostics companies produced tailored tests to meet demand. Governments and health authorities stepped in, with both public and private funding in abundant supply. Contrary to previous economic crises, there has been no liquidity crisis in this sector, which has benefited all HealthTech companies. **CÉDRIC GARCIA, PARTNER AT EY**

**U**nsurprisingly, companies involved in the vaccine race raised record funds. Moderna raised almost \$1.9 Bn in 2020 through two refinancing transactions on the financial markets, while in Europe, BioNTech raised \$877 M (including \$651 M in capital). However, other companies also benefited from this flow of funding. Towards the end of the first half of the year, significant funds were raised in other therapeutic areas. The largest sum of venture capital raised in the United States in 2020 was not used to finance a COVID-19 vaccine, but an innovative technology for modifying and repairing damaged genes. In June, SanaBiotechnology, a company based in Seattle, announced that it had raised over \$700 M to finance its gene therapy development platform. It also **proved a very active year in terms of IPOs for biotechnology companies, especially in the**

**United States with an over 80% increase in sums raised** (€9.2 Bn raised vs. €5 Bn in 2019). In particular, record funds were raised in June and July by Legend Biotech (€430 M) and Relay Therapeutics (€400 M), two companies specialising in oncology. This reflects unprecedented levels of support from the financial markets for these innovative companies. **In Europe, Euronext-listed companies were also active on the financial markets.** They raised €2.4 Bn to finance their growth, including €2 Bn in secondary financing raised by 73 HealthTech companies, with key deals struck by ArgenX (€829 M) in immunology, Sensorion (€30 M) and Gensight (€25 M), proving the increasing appeal of companies involved in gene therapy. In addition to these sums, €363 M was raised through 6 IPOs in 2020 (2 in Belgium and 4 in Norway).

### History of fundraising by US and European HealthTech companies (IPOs and venture capital) (€Bn)



The medical devices sector also drew the markets' attention, proof of renewed investor confidence. In particular, the market capitalisation of listed companies shot up 50% between January 2019 and August 2020, exceeding the rise in the general composite indices. The increase for eHealth companies alone was 65% (source: EY pulse report 2020). The medical devices sector was boosted by the strong growth of China. While Chinese companies dominated the entry-level medical devices market, the premium market was still controlled by foreign companies, mostly from the US. The Chinese government introduced new provisions to speed up the process for issuing marketing authorisations and the development of healthcare digitalisation. **Chinese champions have thus**

**emerged in cutting-edge technologies including genomics, digital technology and artificial intelligence.** This process is reflected in financing transactions including the \$1 Bn series B funding secured by Chinese company MGI Tech, a genome sequencing equipment manufacturer.

**In the eHealth sector, the crisis has accelerated the digitalisation of care with the development of teleconsultation platforms and patient monitoring tools.** Lockdown has removed some practical and psychological barriers. It has also profoundly changed practitioner and patient behaviour and the methods used to communicate medical information. The contribution made by artificial intelligence in terms of identifying treatments and cases, and diagnosing the virus has also been welcomed.

## Venture capital

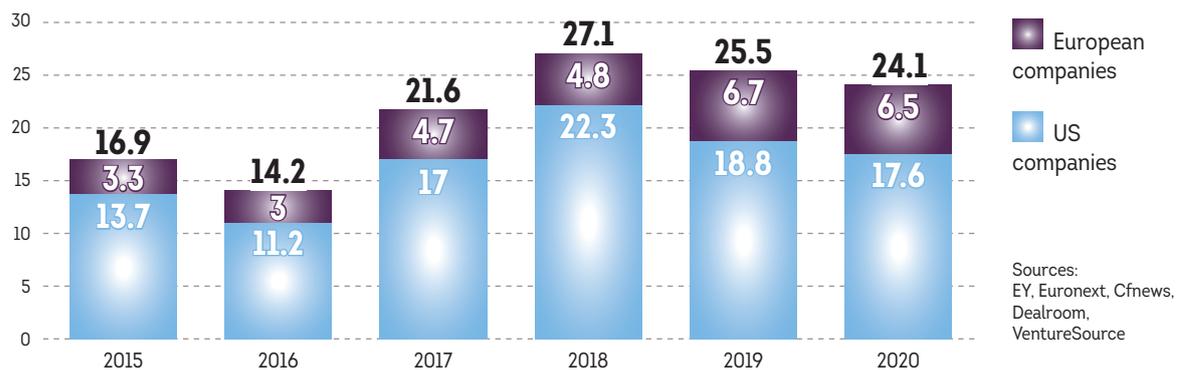
While the health crisis limited the number of transactions in the first half of 2020, it also shone a light on companies in the sector, thus attracting more funding. **As such, 2020 saw the return of institutional and general funds, and, in Europe and Asia, contributions from public funds.**

In the United States, funds raised by SanaBiotechnology (\$700 M), Lyell Immunopharma (\$493 M) and Thrive Earlier Detection (\$257 M) are among the top ten venture capital fundraising transactions completed in the past decade. These series A and B transactions confirm a trend observed since 2017, namely the interest shown in companies in the early stages of growth. The SanaBiotechnology capital increase also confirms venture capitalists'

appetite for companies that succeed in developing several treatments in the early stages of their growth, thus offering investors a more attractive risk profile. It is worth noting that none of these companies were involved in tackling the pandemic. A total of six US companies completed transactions amounting to over \$200 M in 2020, all for series A and B funding to finance early phases of research and development.

In Europe, only two companies raised over €200 M in 2020: the German company CureVac involved in COVID-19 vaccine research, which was granted German and Qatari public funding, and the British company Bioneb, which completed a private placement with the Global Emerging Markets group's alternative investment funds.

History of venture capital fundraising by US and European HealthTech companies (€Bn)





# #3.1



Building a better working world

In the medical devices and eHealth sector, the sums raised were lower than results observed since 2017, particularly in the United States, where venture capital transactions in the medical devices sector amounted to €4.5 Bn compared to €5.2 Bn in 2019, despite interest in the development and marketing of diagnostic tests during the pandemic and digitalisation of healthcare. This fall was particularly pronounced in Q2 2020 and may be attributed to a slowdown in operational activity due to companies' more limited access to their customers (clinics, hospitals, etc.),

production sites (reduced access to production lines and subcontractors in Asia or the United States, slowdown in logistics flows, etc.), and financial activity, with funds initially redirected to pharmaceutical and biotechnology companies in order to meet more significant requirements.

Besides financing of companies in the sector, **specialist investment funds also raised record levels of capital in 2020, particularly in Europe.** This phenomenon is an indicator of confidence, suggesting that the number of financing transactions is set to increase in future years.

## Financial markets

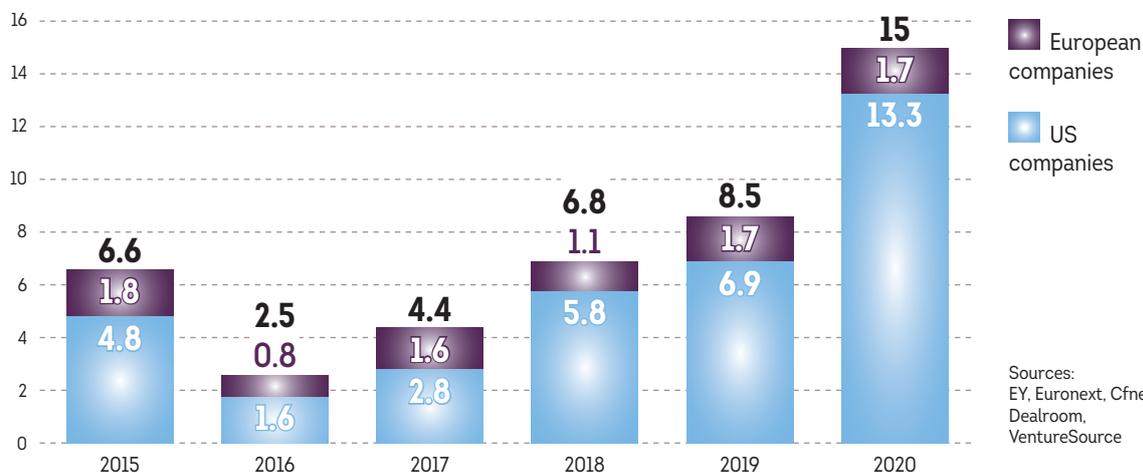
**D**espite share price volatility due to the health and economic crisis and uncertainties related to the US election and Brexit in Europe, the IPO market has never been so dynamic, continuing its growth initiated in 2016.

In particular, this growth is linked to the rise in transaction numbers and the appetite shown by institutional and private investors. For instance, in the United States, no fewer than 70 companies completed IPOs, including six transactions exceeding \$400 M, confirming the sector's dynamism on the markets. These companies include two biotechnology companies in the oncology sector (Legend Biotech and Relay Therapeutics) and two companies that develop medical

devices, one of which is Maravai LifeSciences Holdings, which specialises in devices used in vaccine research, particularly for COVID-19.

In Europe, the situation was more nuanced, with little change in the number of transactions compared to 2019, a fall in the sums raised, and companies increasingly turning to US investors. For instance, one of the largest transactions was the German company CureVac's IPO in the United States. The number of transactions performed by European companies has changed little, although trends in late 2019 suggested that several companies had initiated the IPO process in 2020.

### History of IPOs by US and European HealthTech companies (€Bn)



Summary of HealthTech IPOs throughout the world between 2010 and 2020

MARKET	COUNTRY	NUMBER OF TRANSACTIONS	SUMS RAISED (€Bn)
Nasdaq US	United States	573	52.06
Shenzen Stock Exchange (SZSE and Chinext)	China	123	11.67
Euronext including Euronext Paris	Europe	82	2.27
	France	61	1.29
Nasdaq OMX Stockholm	Sweden	78	1.72
Shanghai Stock Exchange (SSE and STAR)	China	65	7.78
South Korea Stock Exchange (Kosdaq and KRX)	South Korea	58	2.21
Hong Kong Stock Exchange (HKEK)	China	50	11.44
London Stock Exchange (AIM and LSE)	United Kingdom	43	3.9
Australia Stock Exchange (ASX)	Australia	41	0.79
New York Stock Exchange (NYSE)	United States	32	5.69

Sources: EY, Euronext, Cnews, Dealroom, VentureSource

### FOCUS ON SPACS (Special Purpose Acquisition Companies)

The number of SPACs (special purpose acquisition companies) has increased to mitigate factors causing failure due to market conditions. These investment vehicles structured by a sponsor investor complete an IPO and subsequently merge with an operational company seeking to go public. The IPO process is similar to the standard procedure. Once the investment vehicle has been set up and its IPO completed, one or more target companies are identified and a merger-acquisition performed. During this final stage, the operational company is not exempt from the legal due diligence required for a standard IPO in accordance with

local market authority requirements. However, the special relationship established between the sponsor and the operational company, and the fact that the merger takes place post-IPO limits uncertainties regarding the situation of the financial markets at the effective time of the IPO. In September 2020, 17 of the 133 SPACs active throughout the world (i.e. those that had completed an IPO and were seeking an operational target) were dedicated to the health sector, making health the second most targeted sector after telecommunications, media and new technologies.



# #3.1

### 3 QUESTIONS FOR...

**Frédéric Cren**, Chief Executive Officer and co-founder of Inventiva

## "With the planned launch of the Phase III trial for NASH, 2021 looks set to be a very important year in clinical terms."



**Frédéric Cren** has held several key posts in the pharmaceutical industry including General Manager of Research at **Abbott** between 2010 and 2012. Through his various roles as VP of Strategic Marketing, VP of US Operations and executive committee member for **Laboratoires Fournier** between 2001 and 2005, he proved his expertise within the fields of research, development, marketing, strategy, and commercial operations. In 2005, he was appointed Head of Strategy and Portfolio Management, Senior VP for Research and Executive Committee Member for **Solvay Pharmaceuticals**. Before joining the pharmaceutical industry, he worked for eight years as a consultant and manager in the health wing of the **Boston Consulting Group**. He holds an MBA from INSEAD, an MA from Johns Hopkins University and a bachelor's degree from Paris IX Dauphine University.



**Inventiva**, co-founded by Frédéric Cren and Pierre Broqua (Chief Scientific Officer) in Dijon in 2012, is a **biopharmaceutical company specialising in the clinical development of small molecules administered orally for the treatment of non-alcoholic steatohepatitis (NASH), mucopolysaccharidosis (MPS), and other diseases with significant unmet medical needs.** Inventiva is developing **two drug candidates and a large portfolio consisting of several programmes in the preclinical phase.** The company's scientific team comprises approximately 70 individuals with significant expertise in biology, medicinal and computational chemistry, pharmacokinetics, pharmacology and clinical development.

**2020 was a landmark year for Inventiva with the publication of positive results for the Phase IIB clinical trial of lanifibranor for the treatment of NASH in June and its IPO on Nasdaq in the United States for a total of \$107 M in July.**

#### Could you explain your reasons for the IPO on Nasdaq?

In anticipation of positive Phase IIB results being announced and to get a head start on preparations for the pivotal Phase III clinical trial, which would require considerable funding, we began to prepare our documentation for the IPO on Nasdaq in early 2020. As soon as the positive results were published on 15 June, we were therefore ready to begin this venture on the stock exchange by filing the F-1 registration document on 19 June. There were two good reasons for this decision: firstly the fact that recognised US investors have an approximately 35% stake in our company, and secondly, of course, the outstanding clinical results of our drug candidate, lanifibranor, for treating NASH, a very severe liver disease, which is highly prevalent in the United States with one in every 10 Americans affected, for which a liver transplant is the only current therapeutic alternative.

#### What are the benefits of this IPO in the United States?

The US market is a major target for us and the IPO on Nasdaq was a real catalyst for Inventiva in terms of visibility and appeal to the financial community and beyond. It makes it easier for us to recruit talent and work with opinion leaders, while also bringing us closer to our shareholders.

#### What are your milestones for 2021?

We have recently finalised the design of our pivotal Phase III

clinical trial of lanifibranor, which we plan to launch in the first half of 2021, with centres largely in the United States and Europe. We will be aided by the "Breakthrough Therapy" status granted by the FDA to our drug candidate lanifibranor last October. This programme is designed to accelerate development and regulatory assessment in the United States for promising drug candidates designed to treat severe and fatal diseases. At the same time, we are putting together a clinical team in the United States under the supervision of our new Chief Medical Officer, Dr Michael Cooreman.

**"THE US MARKET IS A MAJOR TARGET FOR US AND THE IPO ON NASDAQ WAS A REAL CATALYST FOR INVENTIVA IN TERMS OF VISIBILITY AND APPEAL TO THE FINANCIAL COMMUNITY AND BEYOND."**

Encouraged by lanifibranor's success, we decided to focus our clinical activities on developing treatments for NASH and are in the process of assessing various options for optimising the development of odiparcil, our second drug candidate in the clinical phase, which is a mucopolysaccharidosis (MPS) treatment. Moreover, we are looking forward to our partner AbbVie completing the Phase I clinical trial of ABBV-157 for treating moderate to severe forms of psoriasis in Q1 2021. As regards our YAP-TEAD oncology programme focused on the Hippo signalling pathway, we are also planning to select a preclinical candidate this year to be eventually investigated in relation to lung cancer or mesothelioma. 2021 looks set to be just as important in clinical terms as 2020! ■

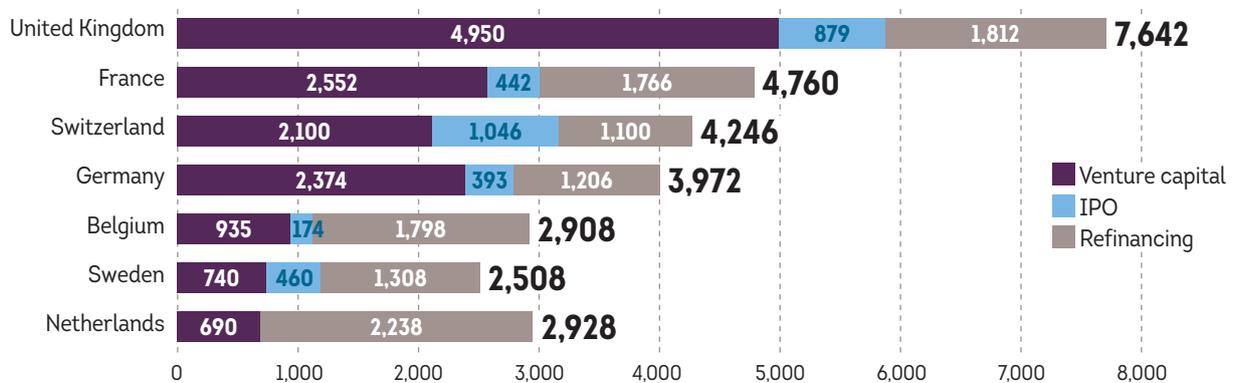
# Europe: outperforming during the crisis

In 2020, over €14 Bn of capital was raised in Europe including €11.3 Bn in the market's seven most dynamic European countries (the United Kingdom, France, Germany, Switzerland, Belgium, Sweden and the Netherlands). Despite the health and economic crisis, the sector has remained dynamic and a liquidity crisis has been avoided. This growth has been supported by new private and public funding. It has benefited companies involved in tackling the pandemic as well as other innovative companies in the sector.

In 2020, European HealthTech companies have benefited from structuring of funding at European level through both private and public channels. Firstly, the health sector has attracted new funding, which has been successfully collected by funds operating at European level. For instance, the Dutch fund Life

Sciences Partners raised almost \$600 M in March 2020, enabling it to invest in companies including DNAScript, Amolyt Pharma and Imcheck, proving both its ability to invest outside the Netherlands and the appeal of French companies. Conversely, Jeito Capital, a fund based in France, raised €200 M, selecting a Dutch company, Neogene Therapeutics, for its first investment. The European Union subsequently raised funds under the Horizon 2020 research and innovation programme and set up the **European Innovation Council fund, which, by late 2020, had already made equity investments of €178 M in innovative companies**, including an initial investment of €15 M in the French company CorWave as part of a €35 M funding round. The structuring of specialist funds and the significant proceeds raised in 2020 are indicators of investor confidence and future growth in Europe.

Total sums raised between 2018 and 2020 by country of incorporation and by type (€M)



Sources: EY, Euronext, Cfnews, Dealroom, VentureSource

Although sources of funding are abundant enabling investments across national borders, marked contrasts exist among the countries observed. **The United Kingdom is still in first place both in terms of completed transactions and amounts.** The country draws on a dynamic network of companies supported by partnerships with universities, recognised investment funds including Wellington Partners, and an English-speaking environment facilitating participation from US investors and ultimately IPOs in the United States, leading to significant fundraising in

this market.

**France is in second place at European level in terms of amounts raised and total numbers of financial transactions between 2018 and 2020.** French companies have access to highly dynamic venture capital, which has increased in the past 4 years. French companies are well-known for their innovativeness and, like their British neighbours, are able to draw on recognised research organisations. However, financing from IPOs is down.



# #3.2

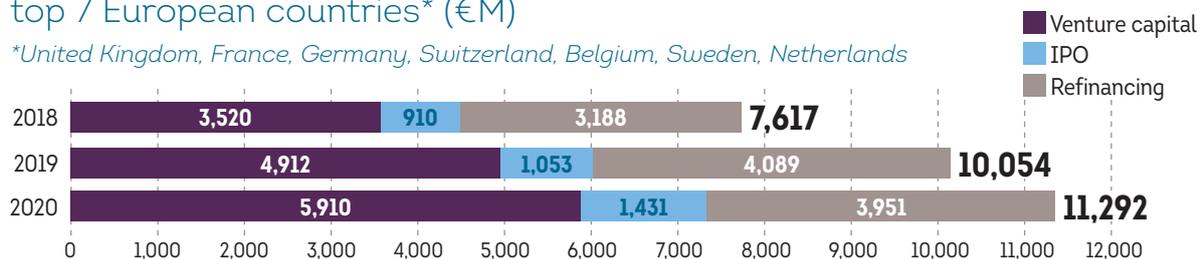
# WORLD EUROPE FRANCE

## HEALTHTECH FUNDING



### Amounts raised in 2020 by companies from the top 7 European countries\* (€M)

\*United Kingdom, France, Germany, Switzerland, Belgium, Sweden, Netherlands



Sources: EY, Euronext, Cfnews, Dealroom, VentureSource

European countries can be divided into two categories. In Switzerland, Germany and Belgium, large sums were raised, but the number of fundraising transactions was low. Conversely, in the United Kingdom and France, larger numbers of companies in the sector were able to access financing, although the individual sums raised were lower. Consequently, three of the ten largest fundraising transactions in 2020 in the top seven European countries were completed by German companies, CureVac, Evotec and BioNtech, with all types of financing taken into account. They alone raised €1.2 Bn, which is over 60% of the total funds raised in 2020 by German companies (€2 Bn). Similarly, the main corporate financing transactions in Switzerland

were the refinancing of CRISPR Therapeutics AG and the ADC Therapeutics IPO, respectively worth €560 M and €216 M, which accounts for almost 40% of funding received by Swiss companies. It was possible to raise such significant sums largely due to support from a national pharmaceutical laboratory, which assumed the role of sponsor, and from US investors who supported the companies in the lead-up to their IPO.

Finally, Sweden and the Netherlands both have a dynamic network of small companies and local financing operators. Consequently, while smaller sums are raised, the number of transactions is proportionally higher at over twenty per country.

## VENTURE CAPITAL: a record year for Europe

Although 2019 was an outstanding year for venture capital in Europe, due largely to the dynamism of specialty funds, it has been surpassed by 2020 despite the crisis. All companies in the sector benefited from the continued dynamism of specialty funds, which took on a pan-European dimension, and the return of general funds in the context of tackling the pandemic.

The largest sums were raised by CureVac and Oxford Nanopore Technologies, which respectively developed a COVID-19 vaccine and diagnostic tests. The trajectory taken by the German company CureVac is representative of the vaccine race triggered in early 2020 and the joint effort that this race prompted, which in its case, led to financial support from the German state, GSK and Qatar, followed by support from US funds during the company's IPO on Nasdaq in August 2020.

Besides helping tackle COVID-19, **European specialty funds' participation in series A and B**

**fundraising was a positive indicator of the value placed in innovation**, even though some biotechnology companies were unable to launch their clinical trials on time due to the pandemic. This dynamism is set to continue in 2021, with specialty funds completing significant fundraising transactions in late 2020. These include the BioInnovation Institute, financed by the NovoNordisk Foundation, the Dutch fund Forbion, and the French fund Jeito Capital. One common thread linking these three operators is the fact that they all invested in Dutch companies in 2020, attracted by this increasingly appealing market, driven by local operators such as Forbion and the Danish fund, Lundbeckfonden Ventures, which is highly exposed in the Netherlands. For instance, the Dutch group Neogene Therapeutics, a company involved in preclinical phase research on cell therapies for solid cancers, completed an initial funding round of €93 M involving UK funds and Jeito Capital.

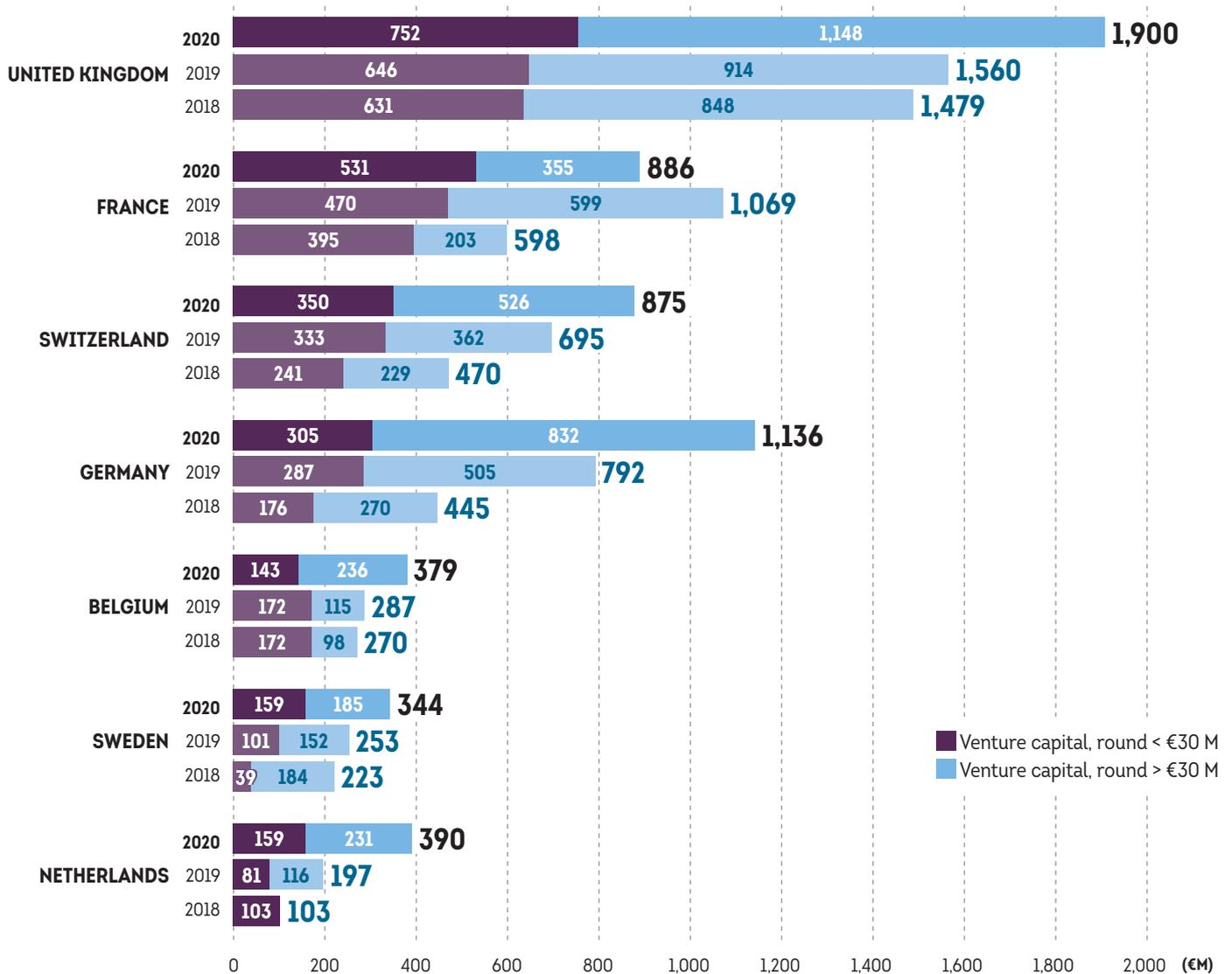


Finally, while 2020 has been dominated by biotechnology companies, one digital health company also experienced major success – the Swedish company Kry, a competitor of Doctolib, which raised

almost €140 M from a Canadian pension fund and European funds with a view to accelerating its business development in Europe.

### Venture capital transactions\* per country between 2018 and 2020 (€M)

*\*This analysis only includes valued transactions*



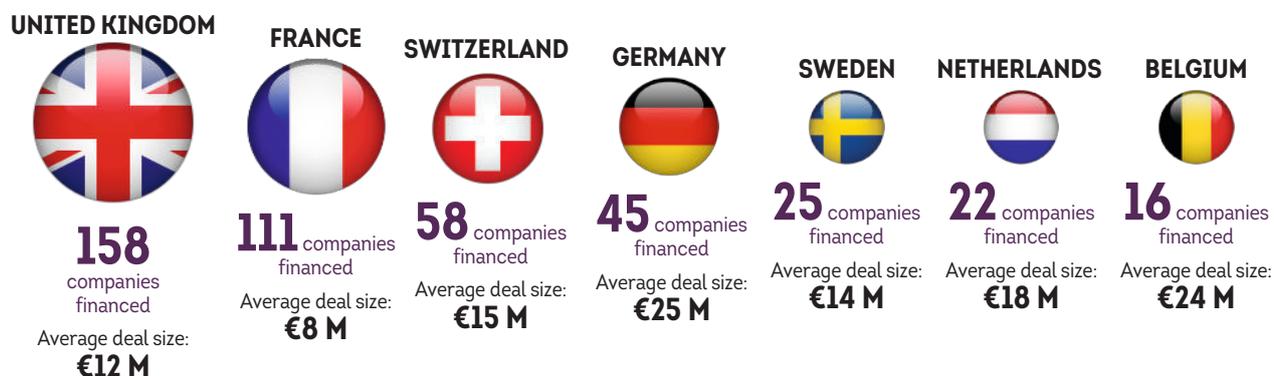
Sources: EY, Cfnews, Dealroom



# #3.2



### Companies financed\* and average deal size per country in 2020 (€M)



Sources: EY, Cfnews, Dealroom - (\*) This analysis only includes valued transactions.

European companies increased their capacity to perform major transactions in 2020. **As such, 9 companies raised over €100 M in 2020, compared to just 5 in 2019.** Three of these companies were British, confirming the United Kingdom's position as European leader, both in terms of transaction numbers and amounts raised. These transactions were largely supported by foreign funds, since European companies offer better investment opportunities with lower valuations than US HealthTech companies.

**France remains in second place in the European ranking in terms of the number of companies financed by venture capital in 2020,** although its average deal size is lower than in neighbouring countries, notably due to a lack of major

fundraising transactions. Consequently, there are no French companies in the top 10 fundraising transactions for 2020. Conversely, the CureVac transaction inflated the German average deal size to €25 M, while it would only have been €13M if this transaction had not been taken into account (compared to €16 M in 2019). Similarly, Belgium's figures were impacted by iTeos Therapeutics' €114 M fundraising round with US and European investors. This financing should enable the Belgian company to develop two immunoncology drug candidates. While this transaction increased the average deal size, the number of transactions fell (16 fundraising transactions reported in 2020 compared to 22 in 2019).

### Top 10 venture capital transactions in 2019-2020 completed by the top 7 European countries

RANKING	COMPANY	COUNTRY	AMOUNT (€M)	YEAR	INVESTORS' COUNTRY OF ORIGIN
1	CureVac	Germany	560	2020	Germany, United Kingdom, Qatar
2	BioNTech AG	Germany	289	2019	Asia, Europe
3	Oxford Nanopore Technologies	United Kingdom	277	2020	United Kingdom, United Arab Emirates
4	CMR Surgical	United Kingdom	218	2019	Europe, Asia, United States
5	Arvelle Therapeutics	Switzerland	160	2019	France, Europe
6	Doctolib	France	150	2019	Europe, United States
7	Kry	Sweden	140	2020	Canada, Europe
8	Pharvaris	Switzerland	136	2020	United States
9	VectivBio	Switzerland	123	2020	Europe
10	Achilles Therapeutics Ltd.	United Kingdom	108	2019	Europe, United States, Asia

Sources: EY, Cfnews

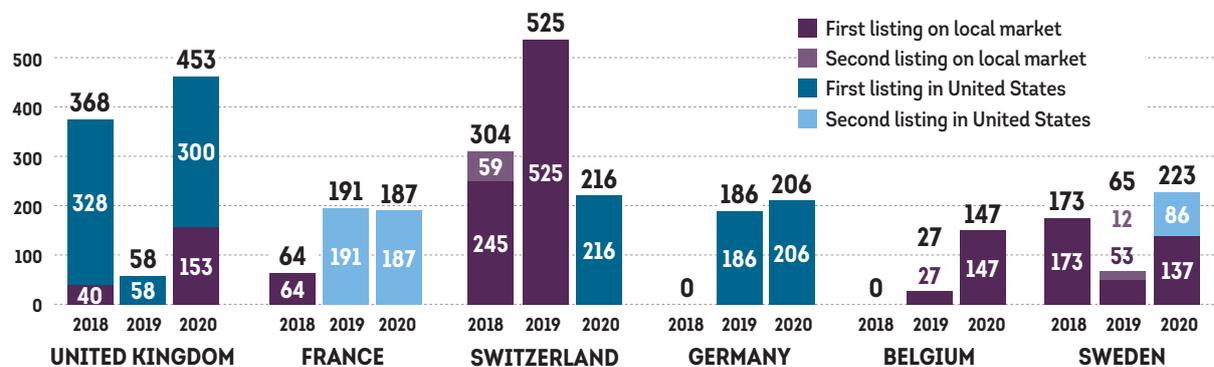
# IPOs: increasing involvement of US investors

**E**ight of the sixteen European companies that completed IPOs in 2020 decided to access the US market through Nasdaq or the New York Stock Exchange. British and German companies have focused on this market since 2017, largely due to the potential for directly accessing more substantial fundraising opportunities. CureVac mainly accessed funds earmarked for tackling COVID-19 when it raised over €200 M for its IPO on Nasdaq. In the rest of Europe (excluding the UK and Germany), the majority of HealthTech companies often opted for primary listing on Euronext before pursuing funding on the US markets. In France, two new companies, Nanobiotix and Inventiva, both successfully completed double IPOs.

Many European companies therefore still have their sights set on the United States. Accessing this market nevertheless incurs a financial and operational cost that is not negligible, and therefore must be weighed up against the sums raised. This cost may also present a significant barrier to innovative companies that are not

yet sufficiently well-structured. However, companies are more interested in the potential for refinancing and their visibility for US funds than the funds raised by IPOs. Two alternatives emerged in 2020. The first is the reverse merger, enabling companies to complete IPOs by acquiring listed companies, as demonstrated by the British company F-Star Therapeutics, which merged with the Nasdaq-listed US company Spring Bank Pharmaceuticals. The second relates to SPACs (special purpose acquisition companies), listed investment vehicles enabling IPOs through mergers with target companies. Although these transactions are currently more widespread in the United States, they have begun to be adopted in Europe with the IPO of the German company Immactis through its merger with the US investment vehicle Arya Sciences Acquisition Corporation in July 2020. These transactions offer the benefit of reducing the degree of uncertainty and risk of volatility, since companies negotiate directly with qualified investors.

## IPOs in the top 7 European countries\* between 2018 and 2020 (€M)



\*The top 7 includes the Netherlands, which reported no IPOs between 2018 and 2020. Sources: EY, Euronext, Cfnews, Dealroom, VentureSource.

Like other Nordic countries, Sweden has continued to benefit from dynamic local stock markets including Nasdaq Nordic and the Spotlight Stock Market, which attracted five companies for IPOs in 2020, thus becoming the sector's most dynamic markets in Europe in terms of IPO numbers. This situation contrasts with the Dutch market, which has seen no IPOs for health sector companies in the past three years.

In Belgium, there were two IPOs on Euronext Brussels in 2020: Nyxoah, a company that develops medical devices

for the treatment of obstructive sleep apnoea, which raised €85 M and Hyloris Pharmaceuticals, a specialist in reconditioning existing pharmaceutical products, which raised €62 M.

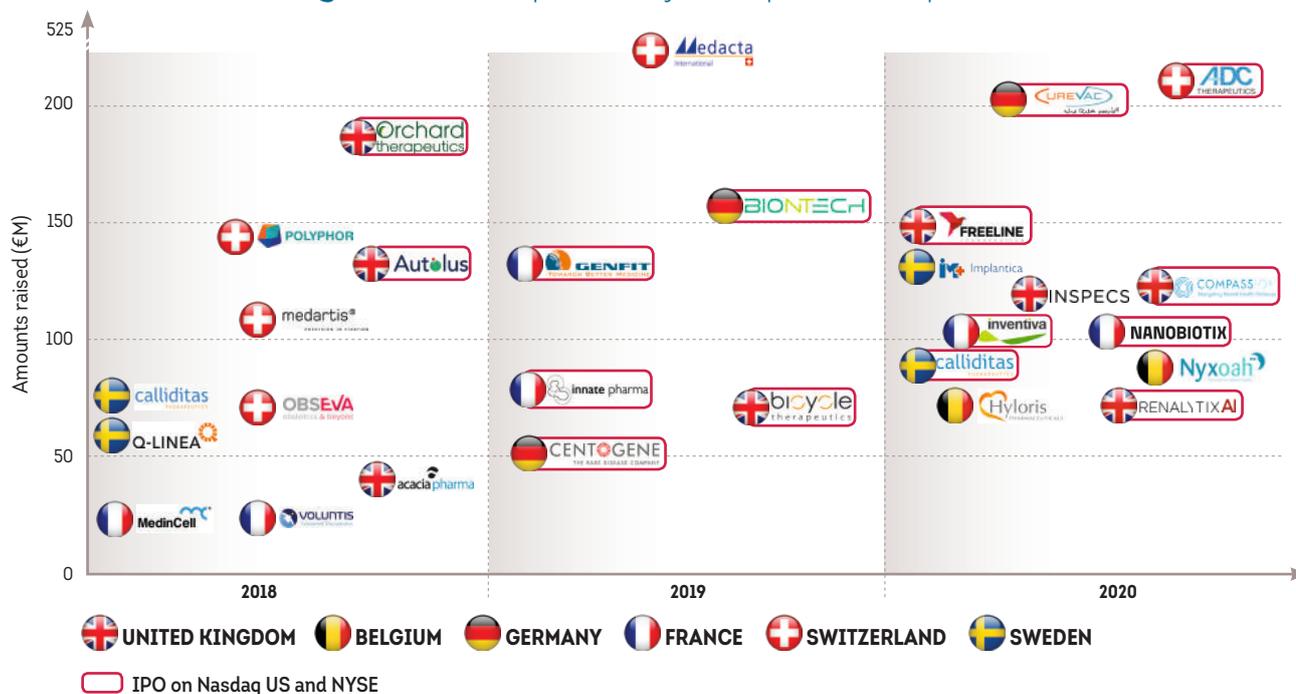
Finally, in Switzerland one significant IPO occurred per year. Following Medacta International's record transaction on the Six Swiss Exchange, ADC Therapeutics, a company with a pipeline of anti-cancer conjugates in an advanced stage of development, completed an IPO on the New York Stock Exchange as its first listing.



### Top 10 IPOs for European companies in 2019 and 2020

COMPANY	COUNTRY	AMOUNT (€M)	YEAR	SECTOR	STOCK MARKET
Medacta International	Switzerland	525	2019	MedTech	SIX (Zurich)
ADC Therapeutics	Switzerland	216	2020	Biotech	NYSE (New York)
CureVac	Germany	206	2020	Biotech	Nasdaq (New York)
BioNTech SE	Germany	136	2019	Biotech	Nasdaq (New York)
Freeline Therapeutics	United Kingdom	125	2020	Biotech	Nasdaq (New York)
Implantica	Sweden	122	2020	MedTech	Nasdaq First North (Stockholm)
Genfit	France	120	2019	Biotech	Nasdaq (New York)
Inspecks Group	United Kingdom	113	2020	MedTech	LSE (London)
Compass Pathways	United Kingdom	101	2020	Biotech	Nasdaq (New York)
Inventiva	France	94	2020	Biotech	Nasdaq (New York)

### IPOs exceeding €30 M completed by European companies



Sources: EY, Euronext, CNews, Dealroom

The number of IPOs exceeding €30 M increased twofold between 2019 and 2020, suggesting that the stock markets are potentially reopening for HealthTech companies following a more sluggish 2019. Transactions were notably concentrated in the €50-150 M bracket, both on the European and US markets.

Swedish companies in particular raised larger amounts both on a local stock market, Nasdaq First North, in the case of Implantica, a company that develops innovative medical devices (implants), and on Nasdaq in the case of Calliditas Therapeutics.

In 2020, 8 of the 12 IPOs exceeding €30 M completed

by European companies occurred in the United States, with 3 following listing on a local market. The majority of these companies were British and German, mirroring the situation in 2018 and 2019. Their profiles vary, including CureVac, whose valuation skyrocketed with the development of a COVID-19 vaccine, Freeline Therapeutics, which is developing a gene therapy based on adeno-associated viruses, Compass Therapeutics, whose auto-immune therapy is used to treat solid tumours and haematological malignancies, and Renalytix, an in vitro diagnostics company demonstrating the increasing use of artificial intelligence in the health sector.

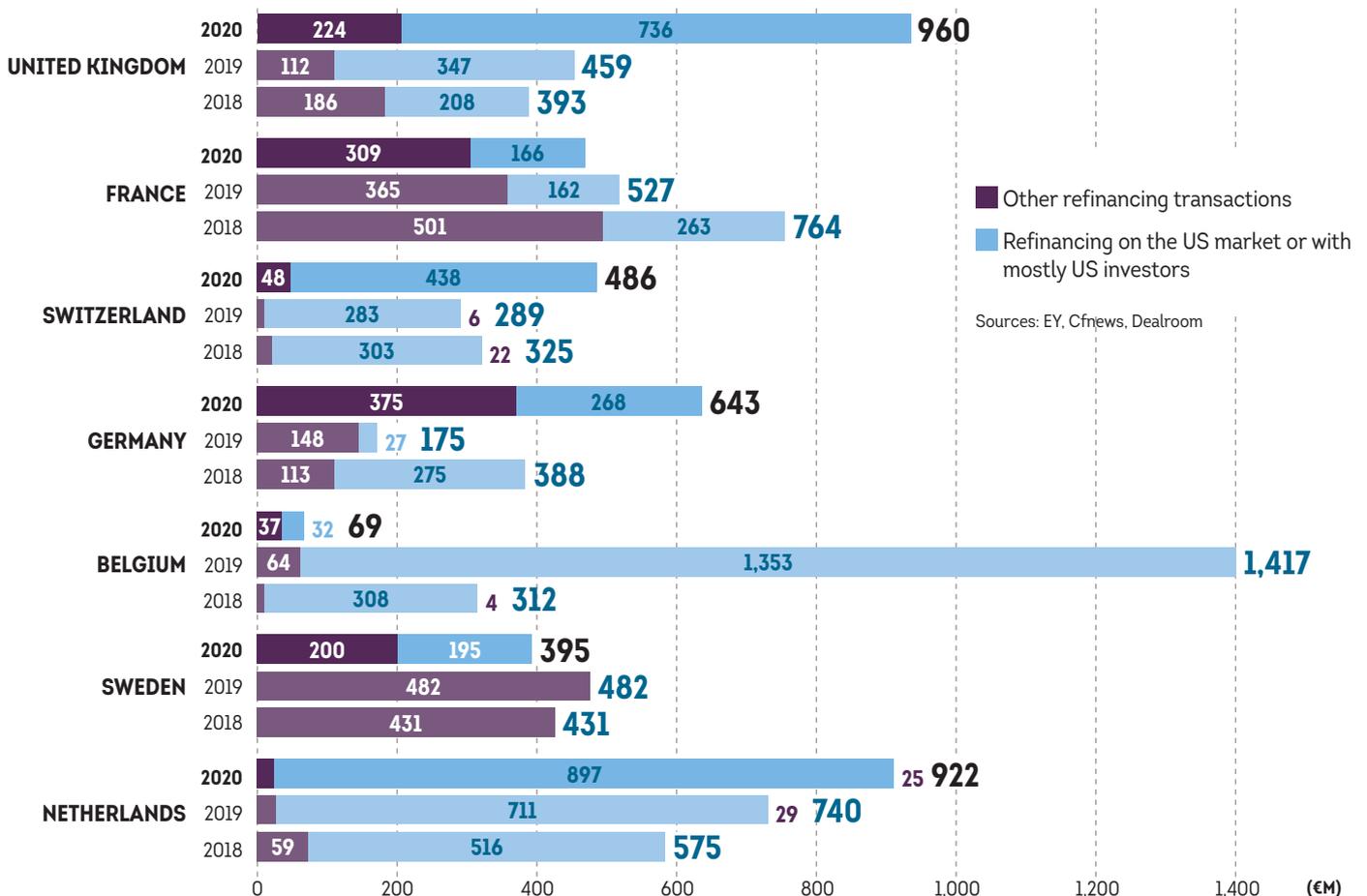
# REFINANCING IN EUROPE: Cross-border transactions predominant

Nasdaq-listed companies' dominant position is also evident in terms of refinancing transactions. In 2020, eight companies raised over €100 M through refinancing transactions. Seven of these companies are Nasdaq-listed: the Dutch-based ArgenX, which raised €829 M and the Swiss-based CRISPR Therapeutics AG, which raised €402 M (each accounting for over 85% of refinancing sums raised by Dutch and Swiss companies), the British-based Adaptimmune Therapeutics and Abcam, the German-based BioNtech involved in developing a COVID-19 vaccine, the French-based DBV Technologies, and the Swedish-based Oncopeptides. The only exception is the German company, Evotec. This firm, listed on the Frankfurt Stock Exchange, raised €250 M with a Qatari fund and the Novo Nordisk investment vehicle with a

view to developing its research platform for innovative new therapies in partnership with pharmaceutical companies. In addition to this €250 M, Evotec was also granted an undisclosed amount of funding by the Bill & Melinda Gates Foundation for the purposes of identifying a COVID-19 treatment.

This prevalence of Nasdaq-listed companies raising funds both in the United States and their local markets in Europe has led to concentration of funding. In Belgium, almost all refinancing activity is managed by Galapagos BV, which raised €1.4 Bn in 2019 and €32 M in 2020. The same situation can be seen in the Netherlands, with ArgenX raising €729 M in 2020. German and Swiss company funding was also highly concentrated due to the low number of listed companies and their status.

Refinancing transactions (€M) between 2018 and 2020



Sources: EY, Cfnnews, Dealroom



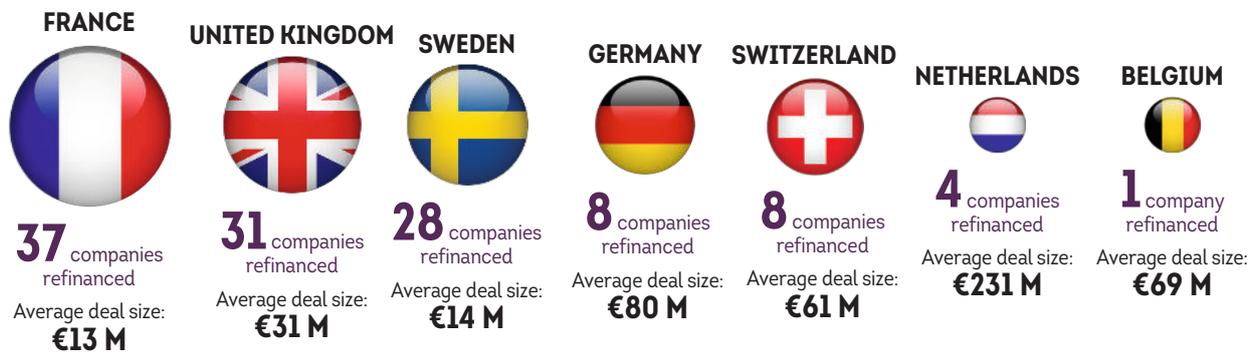
# #3.2



The number of listed companies in the United Kingdom, France and Sweden was higher, although the sums raised were lower. The trend for refinancing transactions in France and Sweden in particular provides a more nuanced view of financial markets' appetite for health companies given the lack of record fundraising transactions. Refinancing of non-Nasdaq-listed companies was down in these two countries and lower in the United Kingdom, where companies have easier access to Nasdaq. The decrease in local refinancing

can largely be attributed to risk-averse financial markets in an uncertain climate, financing being focused on tackling the pandemic, and companies increasingly resorting to debt (bank or bonded debt). In 2020, €4 Bn was raised through refinancing by companies in the sector in the seven assessed countries, including €1.5 Bn by Euronext-listed companies\* (compared to €2.7 Bn in 2019). (\*) Excluding Norwegian companies listed on Euronext Oslo, which are not included within the scope of the seven assessed countries.

### Refinanced companies and average deal size per country in 2020 (€M)



Sources: EY, Euronext, Cfnews, Dealroom, VentureSource

# Euronext: the leading listing venue for HealthTech companies in Europe

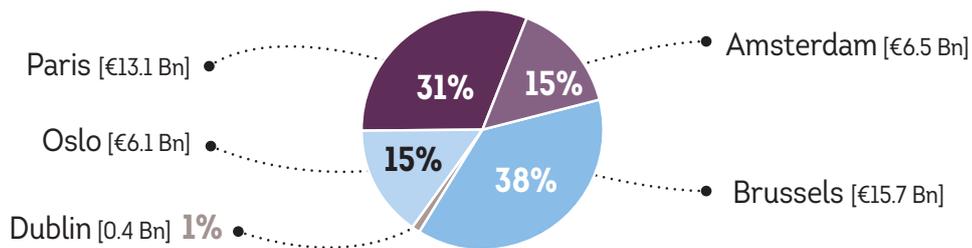
**E**uronext, which now includes the Amsterdam, Brussels, Dublin, Lisbon, Paris and Oslo stock exchanges is a key market for listing of HealthTech companies in Europe, whether they are based in these countries or elsewhere (Switzerland, Spain, Italy, England, China, etc.).

**In late 2020, 117 HealthTech companies (68 of which French) were listed on Euronext markets,**

**with a total market capitalisation of €41.8 Bn.**

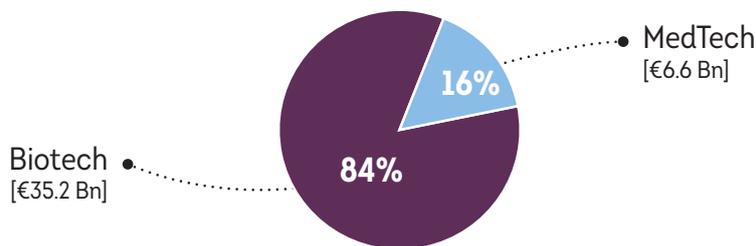
The trend in market capitalisation for this strategic sector should be assessed in light of the focus on HealthTech for investment in 2020 (excluding Norway, the sector's market capitalisation was €24 Bn in late 2019). **In just one year, the market capitalisation of French HealthTech companies has increased from €8.3 Bn to €12.9 Bn!**

## Distribution of market capitalisation per listing market (€Bn)



Source: Euronext as at 31/12/2020

## Distribution of market capitalisation per company type (€Bn)



Source: Euronext as at 31/12/2020



# €1.9 Bn raised through IPOs since 2015

Distribution of HealthTech IPOs on Euronext since 2013 (amounts raised in €M)

Year	Amsterdam		Brussels		Dublin		Lisbon		Oslo		Paris		Total No. of IPOs	Total IPO sums raised
	No. of IPOs	IPO sums raised												
2015	2	79	3	231	1	302	-	-	1	58	11	333	18	1,004
2016	-	-	1	26	1	-	-	-	1	-	4	112	7	138
2017	-	-	-	-	-	-	-	-	2	56	7	174	9	230
2018	-	-	1	40	-	-	1	N/A*	4	6	5	35	11	81
2019	-	-	2	28	1	150	-	-	2	38	-	-	5	216
2020	-	-	2	147	-	-	-	-	3	217	1	N/A*	6	363
<b>Grand TOTAL</b>	<b>3</b>	<b>102</b>	<b>11</b>	<b>534</b>	<b>4</b>	<b>471</b>	<b>2</b>	<b>150</b>	<b>13</b>	<b>374</b>	<b>46</b>	<b>954</b>	<b>79</b>	<b>2,586</b>

\* Direct listing without fundraising. Source: Euronext as at 31/12/2020

Over the past six years (2015-2020), **52 biotech and MedTech companies (including 20 French companies) have been listed on a Euronext market**, raising almost €1,881 M and representing a total market capitalisation of almost €7.5 Bn. Of these 52 HealthTech companies, 30 biotechnology companies (including 15 French companies) raised €747 M through their IPOs.

2020 saw considerable volatility on the stock markets due to the COVID-19 pandemic and conditions little

conducive to IPOs. Euronext nevertheless reported 6 IPOs, mainly in northern Europe: **2 IPOs in Belgium** (Hyloris Pharmaceuticals and Nyxoah, which raised €62 M and €85 M respectively) and **4 IPOs in Norway**, mainly through direct listings (€216 M raised). European HealthTech companies accessed a total of €363 M in financing through IPOs on Euronext in 2020.

(Source: Euronext as at 31/12/2020 - Market capitalisation on IPO)

## French HealthTech IPOs since 2015 (as at 31/12/2020)

HealthTech	No. of companies	Amounts raised	Capitalisation (on IPO)
Biotechnology	14	€428 M	€1,485 M
Medical technologies (MDs)	6	€160 M	€465 M
<b>TOTAL</b>	<b>20</b>	<b>€588 M</b>	<b>€1,950 M</b>

Source: Euronext as at 31/12/2020

Since 2015, French HealthTech companies have accounted for **38% of IPOs completed on Euronext and 31% of amounts raised.**



## Almost €2 Bn raised through secondary transactions in 2020

**T**his year, fundraising for stock market-listed HealthTech companies has been highly dynamic. The pandemic has refocused investment strategies on the health sector, with increases in market capitalisations initiated in Q2 2020 enabling the best-prepared companies to take advantage of refinancing opportunities. Thus, in challenging conditions and limited "market windows", **73 Euronext-listed HealthTech companies used the markets over the year to raise €1,986 million through 393 financial transactions.** A total of €11.5 Bn has been raised on the markets since 2015 through secondary transactions.

### SEVERAL LARGE-SCALE TRANSACTIONS TOOK PLACE IN 2020

2020 has proven that European HealthTech companies are capable of raising significant sums to support their growth. The companies that raised the largest sums in 2020 were those with diverse pipelines, a sound "platform"-based approach, advanced-stage clinical trials (Phase II or above), and comprehensive study data. **Overall, HealthTech financing has been dynamic in 2020, albeit more concentrated in terms of "windows" and numbers of deals.**

- **6 transactions valued over €50 M including 3 exceeding €100 M.**
- **67 private placements totalling €1.5 billion in raised funds:** ArgenX (€828 M), Mithra (€68 M) and the French companies Sensorion (€30 M), Gensight (€25 M), OSE Immuno (€19 M) and Medincell (€17 M).
- **5 IPOs totalling €264 M in funds raised,** with the double listings of Inventiva (€71 M) and Nanobiotix (€81 M) in the United States.

### Top 10 secondary fundraising transactions on Euronext in 2020

Ranking	Date	Company	Country	Transaction type	Funds raised (€M)
1	01/06/2020	Argenx SE	 Belgium	Private placement	<b>720.73</b>
2	04/02/2020	DBV Technologies	 France	IPO	<b>135.98</b>
3	01/06/2020	Argenx SE	 Belgium	Private placement	<b>108.11</b>
4	15/07/2020	Inventiva	 France	IPO	<b>70.67</b>
4	10/12/2020	Nanobiotix	 France	IPO	<b>81.30</b>
5	23/06/2020	Mithra	 Belgium	Private placement	<b>67.94</b>
6	16/06/2020	Lumibird	 France	IPO	<b>44.49</b>
7	04/05/2020	BerGenBio	 Norway	Private placement	<b>44.11</b>
8	22/09/2020	Sensorion	 France	Reserved private placement	<b>30.18</b>
9	09/10/2020	Carasent	 Norway	Private placement	<b>26.37</b>
10	26/10/2020	Gensight Biologics	 France	Private placement	<b>25.01</b>

Source: Euronext as at 31/12/2020



**Two successful IPOs in the United States prove the effectiveness of seeking funding first in Europe and then elsewhere.**

→ **Inventiva**, a biotech company based in Dijon, has offered benefits and a profile of interest to North American investors from the outset, particularly in light of its key fibrosis drug candidates, which are being developed to treat NASH, a chronic liver condition known as "fatty liver

→ **Nanobiotix** has been listed on Euronext Paris since 2012. This French biotech company specialising in nanotechnologies for cancer treatment has since made significant progress in soft tissue sarcoma indications, "head and neck" cancer, and in particular, through CE marking of its technology in 2019.

The Nanobiotix technology has recently proven its worth

disease" that is highly prevalent in the United States. Its success story started on Euronext Paris, with over €110 M raised between its IPO in 2017 (already involving several US investors) and three private placements completed between 2018 and 2020. In July 2020, armed with this strong European foundation and major clinical advances with its drug candidates, Inventiva successfully completed dual listing in the United States, raising almost €71 M.

with a successful Phase II-III trial of NBTXR3 in 2018. The product is also being tested for other types of cancer (liver, prostate, lung and pancreatic cancer).

In total, Nanobiotix raised over €200 M on Euronext before issuing share capital and increasing its exposure in the United States through a double listing (€81 M raised).

### Funds raised by HealthTech companies in Euronext markets through secondary transactions since 2013 (€K)



Source: Euronext as at 31/12/2020

# Access to a diverse range of institutional investors

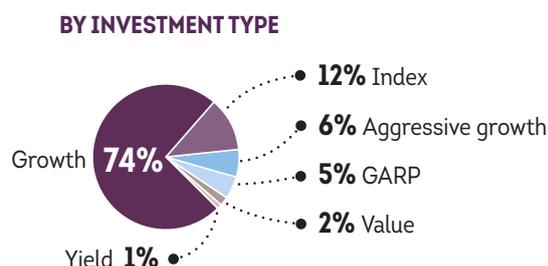
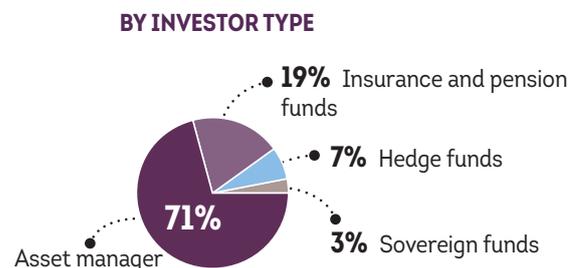
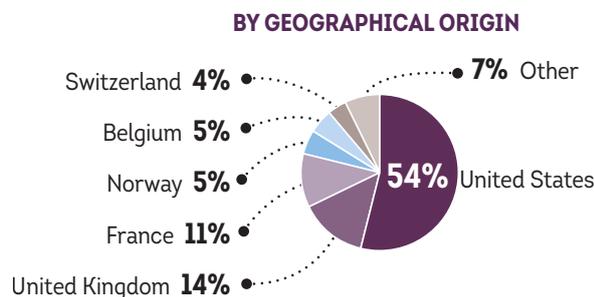
## Top 20 institutional investors (by value)

Organisation	Value (€M)	Type	Country	No.
Wellington Management Co.LLP	708	Growth	United States	5
Fidelity Management & Research Co.	677	Growth	United States	5
Capital Research & Management Co. (World Investors)	579	Growth	United States	4
The Vanguard Group, Inc.	579	Index	United States	14
Federated Global Investment Management Corp.	377	Aggressive Growth	United States	2
Invesco Advisers, Inc.	326	Growth	United States	6
Norges Bank Investment Management	285	Growth	Norway	19
Baillie Gifford & Co.	259	Growth	United Kingdom	4
BlackRock Fund Advisors	253	Index	United States	13
Schroder Investment Management Ltd.	226	Growth	United Kingdom	4
RTW Investments LP	211	Growth	United States	1
Amundi Asset Management SA	172	GARP	France	11
Dimensional Fund Advisors LP	149	Value	United States	28
Bellevue Asset Management AG	148	Growth	Switzerland	5
Perceptive Advisors LLC	128	Growth	United States	2
T.Rowe Price International Ltd.	126	Growth	United Kingdom	2
SG 29 Haussmann SASU	112	Growth	France	24
NN Investment Partners BV	100	Growth	Netherlands	2
BNP Paribas Asset Management Belgium SA	100	Growth	Belgium	13
KBC Asset Management NV	98	Growth	Belgium	10
<b>TOTAL</b>	<b>5,613</b>			<b>174</b>

The financial markets also provide access to a diverse range of investors from around the world. Although the largest of these (Tier 1, USA) currently only have a handful of holdings, companies listed on a regulated market and included in a

European liquidity pool (Euronext single order book) are sure to appeal to such investors when they seek exposure in the European health sector.

## Distribution of investments in European HealthTech companies (€M)



Source: Euronext as at 31/12/2020

HealthTech companies listed on Euronext's various European stock exchanges are visible to approximately one thousand institutional investors from some thirty countries, chiefly the **United States** (54%), the **United Kingdom** (14%) and **France** (11%). The majority of investors are asset managers (71%) whose investment style is **Growth** (74%). 12% of the identified investors adopt a passive (index-based) management strategy.



### 3 QUESTIONS FOR...

Louis de Lillers, CEO of CorWave

## "The CorWave cardiac assist device is inspired by nature"



**Louis de Lillers** is an entrepreneur with extensive experience of financing, development and marketing of new technologies. He co-founded and managed **PlugMed**, a company developing innovative devices within the field of dialysis and circulatory support. A self-taught programmer, Louis began his career by setting up a number of online projects in the early 2000s. He subsequently joined **Ernst & Young**, where he worked with innovative SMEs and hypergrowth companies. Later, he worked as an analyst with **Clipperton Finance**, an investment bank specialising in M&A and venture capital transactions. He went on to join **Sofinnova Partners** "information technology" investment team. Louis is a graduate of the EDHEC Grande Ecole programme with a master's degree in management and holds a degree in the artificial heart and circulatory support from Pitié-Salpêtrière teaching hospital.



CorWave is a French company involved in developing innovative cardiac assist devices. CorWave's wave membrane is a disruptive technology that stands out from left ventricular assist devices (LVAD) currently on the market due to its **physiological design. It can mimic a pulse and produce blood flow velocity similar to that of a healthy heart.** This technology was developed to reduce complications associated with current devices and improve care for heart failure patients. Incorporated in 2012 by the startup studio MD, CorWave acquired **over €45 M in equity and non-dilutive financing** prior to the current series C round. It is based in Clichy (Paris region) and employs over 50 staff.

**CorWave has recently raised €35 M to finalise development of its circulatory support device aimed at improving heart failure patients' lives.**

**Could you explain your disruptive innovation and its benefits for patients with heart failure?**

CorWave is working on a disruptive heart pump innovation in response to the public health challenge of heart failure, a fatal disease affecting over 60 million patients throughout the world. In France, it is responsible for 200,000 hospitalisations and over 70,000 deaths every year. Heart pumps have improved significantly and enable us to save thousands of patients' lives. However, they are very often linked to severe complications as they do not operate physiologically. Our disruptive technology is set to cause a paradigm shift in the history of circulatory support. Our wave membrane pump inspired by the undulating motion of marine animals stands out due to its physiological design; it can mimic a pulse and blood flow velocity similar to that of a healthy heart. This device has the potential to limit the adverse effects associated with current devices. This is a genuine source of hope for patients and heart surgeons.

**You are the first private French company to attract European Commission equity investment through the EIC fund. How did you "entice" Europe?**

We were fortunate enough to experience a historic event. Since it was founded in 1957, this is the first time the European Commission has made an equity investment in a private company: the notion of "Europe as a shareholder" was introduced with the CorWave series C funding round. Through the EIC Fund, the Commission is seeking to create a "unicorn factory" that will prompt the emergence of global companies in cutting-edge sectors such as medical technologies.

CorWave is a good fit for the EIC Fund's ambitions with its high-calibre global team, a highly innovative product providing a response to a major clinical need, not to mention a public health challenge, and a market worth €1 Bn with a clear and rapid go-to-market strategy. In just a few years, startups in this sector have become billion dollar companies by taking on the market directly. Since refunds are established and the market is focused on 400 heart surgery centres throughout the world, a streamlined sales force is sufficient to cover the market. In fact, even though we are not yet

THROUGH THE EIC FUND, THE COMMISSION IS SEEKING TO CREATE A "UNICORN FACTORY" THAT WILL PROMPT THE EMERGENCE OF GLOBAL COMPANIES IN CUTTING-EDGE SECTORS SUCH AS MEDICAL TECHNOLOGIES.

in the clinical phase, over 25% of the European market is already backing us. In this latest funding round, the EIC Fund invested €15 M along with Financière Arbevel and the Singaporean family office, M&L Healthcare. Our existing investors, Bpifrance, Novo Holdings, Seventure, Sofinnova Partners and Ysios contributed over half of the funding for this round.

**What are the next steps required to develop your device?**

We have achieved the most challenging technical milestones in the preclinical phase with a chronic in vivo study at 60 days and 6-month real-time endurance testing. The funds raised will enable us to finalise the development of pumps that can be implanted in humans, and thus initiate clinical trials. ■



# HealthTech funding in France

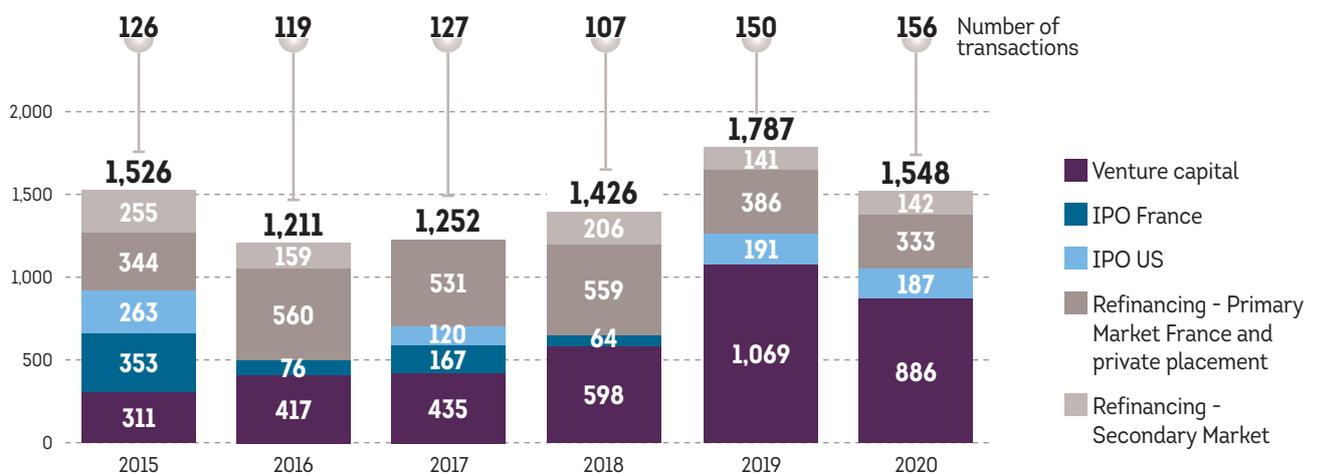
**F**ollowing strong growth in 2019, **funding of French HealthTech companies has been resilient in 2020**, despite the contrasting situation between companies directly involved in tackling COVID-19, whose valuations and capital and debt raising capacity have increased, and other companies whose operations were launched in early 2020 (clinical trials, fundraising) and suddenly slumped. In a sector where fundraising can be critical for continuing research and for companies' survival, funding needed to be identified quickly to bridge the gap.

Venture capital and refinancing transactions initiated in 2019 and completed in Q1 2020 brought in €355 M for around 50 companies, with an average deal size of €7 M. The number of transactions fell in subsequent quarters (less than forty in Q2 and thirty per quarter thereafter), partly due to lockdown periods. However, in the second year-half, the IPOs completed by Inventiva and Nanobiotix and the higher average size of venture capital and refinancing transactions on the stock markets appeared to herald renewed funding activity in the French HealthTech sector. The average deal size thus stood at €9 M at year end, which is nevertheless significantly lower than the €12 M seen in

2019, due to a lack of major transactions. In addition to equity financing, debt was also used to bridge the gap (bond issues, bank loans, Bpifrance subsidies, state-guaranteed loans).

**Venture capital, the number one source of HealthTech funding in France, has continued to provide the sector with considerable support in 2020, aided by a dynamic network of specialist funds and the involvement of Bpifrance.** However, this funding model did not enable significant sums to be raised (Withings raised the largest sum in 2020 at over €50 M). Difficulties encountered with IPOs therefore represent significant barriers to the growth of some companies, particularly in the biotech sector, where large sums are required to fund large-scale clinical trials or preparations for bringing products to market. Two French companies, Inventiva and Nanobiotix, which were initially listed on Euronext, successfully completed IPOs in the United States, each raising €90 M in July and December 2020. They join companies such as Genfit and Innate Pharma, which were already listed on Euronext, and completed IPOs in the United States in 2019. In an uncertain climate due to the COVID-19 pandemic and US election, this confirmed US investors' interest in the health sector and French companies.

Funding trends for the French HealthTech sector (€M)



Sources: EY, Euronext, Cfnws, Dealroom



# VENTURE CAPITAL IN FRANCE, a funding source still buoyant in 2020

Following an exceptional 2019, venture capital continued to support French HealthTech companies, with no less than €886 M raised in 2020 compared to €1,069 M in 2019 and just €598 M in

2018. The fall in total funding compared to 2019 is due to a lack of record sums raised. The largest amounts raised were around €40 to €50 M, whereas in 2019 Doctolib, Amolyt and Hifibio each raised over €60 M.

## Venture capital raised exceeding €30 M



Sources: EY, Euronext, Cfnews, Dealroom

**Biotechnology companies were particularly dynamic, with new companies securing access to funding, showing investors' faith in the sector's future prospects.** For instance, SparingVision raised €45 M in a series A funding round to finance the launch of clinical trials of its gene therapy for retinitis pigmentosa.

Moreover, investors recognised the innovative capacity of French research. In particular, evidence of this can be seen in the almost €111 M raised in 2020 by five Inserm spin-offs (Acticor Biotech, Alderaan, Aelis, Eyevensys, Imcheck), notably attracting foreign investment. **These transactions also highlight the increasing scale and dynamism of technology transfer from public research to private companies.**

Financing transactions completed by companies developing medical devices were lower in value and fewer in number. They nevertheless attracted foreign funding, as seen in the case of Robocath which raised €40 M from the Chinese manufacturer MicroPort. In a historic first, the European Commission chose CorWave for its first equity investment, enabling the company to raise €35 million to finalise its heart pumps and produce them with a view to launching clinical trials.

**The dynamism of French venture capital funds, which are attracting increasingly significant funding, and the appeal of innovative companies, should enable this positive trend to continue.**

## Top 3 venture capital fundraising transactions in 2020 and 2019

COMPANY	DATE	SUM RAISED (€M)	SECTOR	ORIGIN OF MAIN INVESTORS
1 Withings	July 2020	53	eHealth	France, Netherlands, Germany
2 Dynacure	April 2020	50	Biotechnology	United States, France, Israel
3 DNA Script	July 2020	45	Biotechnology	United States, Netherlands
1 Doctolib	March 2019	150	eHealth	France, Germany, United States
2 Alizé Pharma	July 2019	67	Biotechnology	France, Europe, United States, Israel
3 HifiBio	August 2019	63	Biotechnology	China, United States

Sources: EY, Euronext, Cfnews, Dealroom, VentureSource



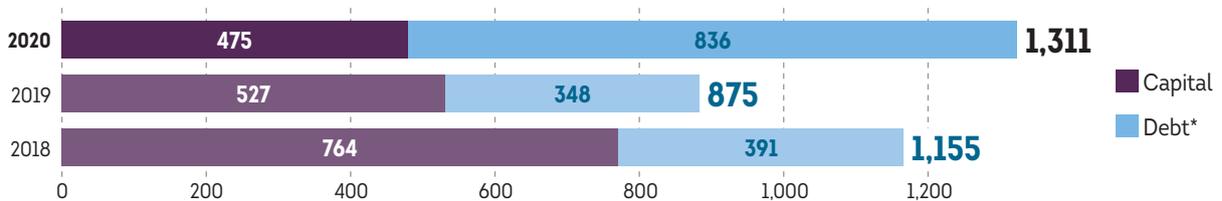
# LISTED COMPANY REFINANCING: growing recourse to debt

Since 2018, French companies' refinancing options on the stock markets have become increasingly limited. This is the result of share price volatility and uncertainties regarding clinical results. This trend has continued in 2020 and been exacerbated by the health and economic crisis, although a total of almost €475 M has nevertheless been raised by listed French HealthTech companies. Only one transaction exceeded €50 M, and, mirroring the trend seen every year since 2015, the largest sum of funding was raised by one of the seven French HealthTech companies listed on Nasdaq and Euronext. In 2020, as in 2019, this company was DBV Technologies, which raised €136 M through a public offering aimed at financing its preparations for the commercial launch of Viaskin Peanut. In addition to the French refinancing market, Nanobiotix and Inventiva sought access to US funding through IPOs in the United States, enabling them each to raise over €90 M, sums exceeding refinancing

transactions completed in France.

Besides seeking foreign funding, particularly in the United States, French listed companies have made greater use of debt instruments in 2020, including bond issues, private or public bank loans (Bpifrance, European Investment Bank), and state-guaranteed loans, which accounted for over 52% of debt raised. Thus, by 2020 year-end, over €430 M had been granted in state-guaranteed loans to listed companies within the sector by Bpifrance or private banks. The ranking of these loan recipients is topped by companies that also raise the highest sums in equity every year, including Collectis (€18.5 M), Erytech (€10 M), Carmat (€10 M), and Oncodesign (€15.9 M). **State-guaranteed loans enabled each of these companies to improve their cash flow in subsequent months** and thus get their development to the next milestone, which should enable them to raise more substantial funding.

## Funding source of French listed companies (€M)



(\*) Bond issues and loans granted in the financial year. Convertible loans are included in debts, and the conversion premium is recognised as capital. Sources: EY, Euronext, Cfnews, Dealroom, VentureSource

## Top 3 refinancing transactions in 2019 and 2020

	COMPANY	DATE	SUM RAISED (€M)	SECTOR	TRANSACTION TYPE
1	DBV Technologies	February 2020	136	Biotechnology	Issues of ADS (Nasdaq) and ordinary shares (Euronext)
2	Lumibird	June 2020	44	MedTech	Euronext public offering
3	Sensorion	September 2020	30	Biotechnology	Private placement with European and US investors
1	DBV Technologies	September 2019	131	Biotechnology	Issues of ADS (Nasdaq) and ordinary shares (Euronext)
2	DBV Technologies	April 2019	72	Biotechnology	Issues of ADS (Nasdaq) and ordinary shares (Euronext)
3	Carmat	September 2019	60	MedTech	Offering limited to specialist investors

Sources: EY, Euronext, Cfnews, Dealroom

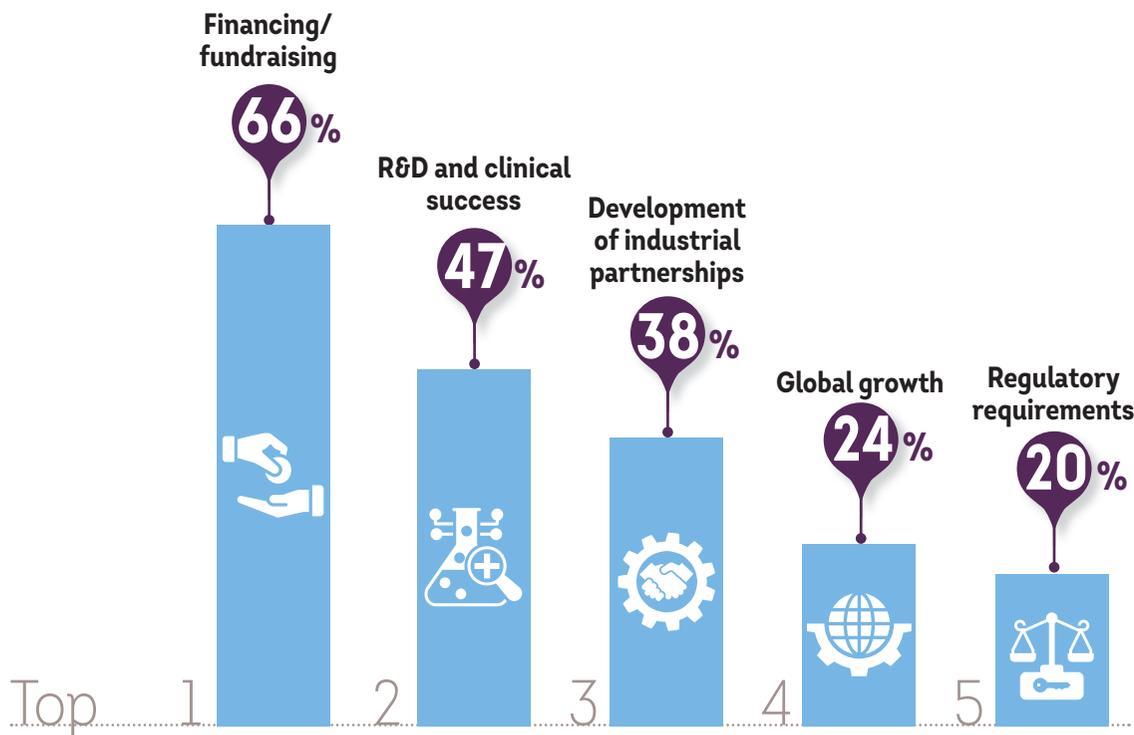


# Funding, the key to success for HealthTech companies

The HealthTech sector's capital intensity is reflected in the scale and frequency of funds raised throughout companies' development. Entrepreneurs are confident of their ability to attract investment to this future-focused sector.

## Funding, a chief concern for entrepreneurs

**Top 5** concerns for entrepreneurs (% companies)



Source: France Biotech, 351 companies, December 2020

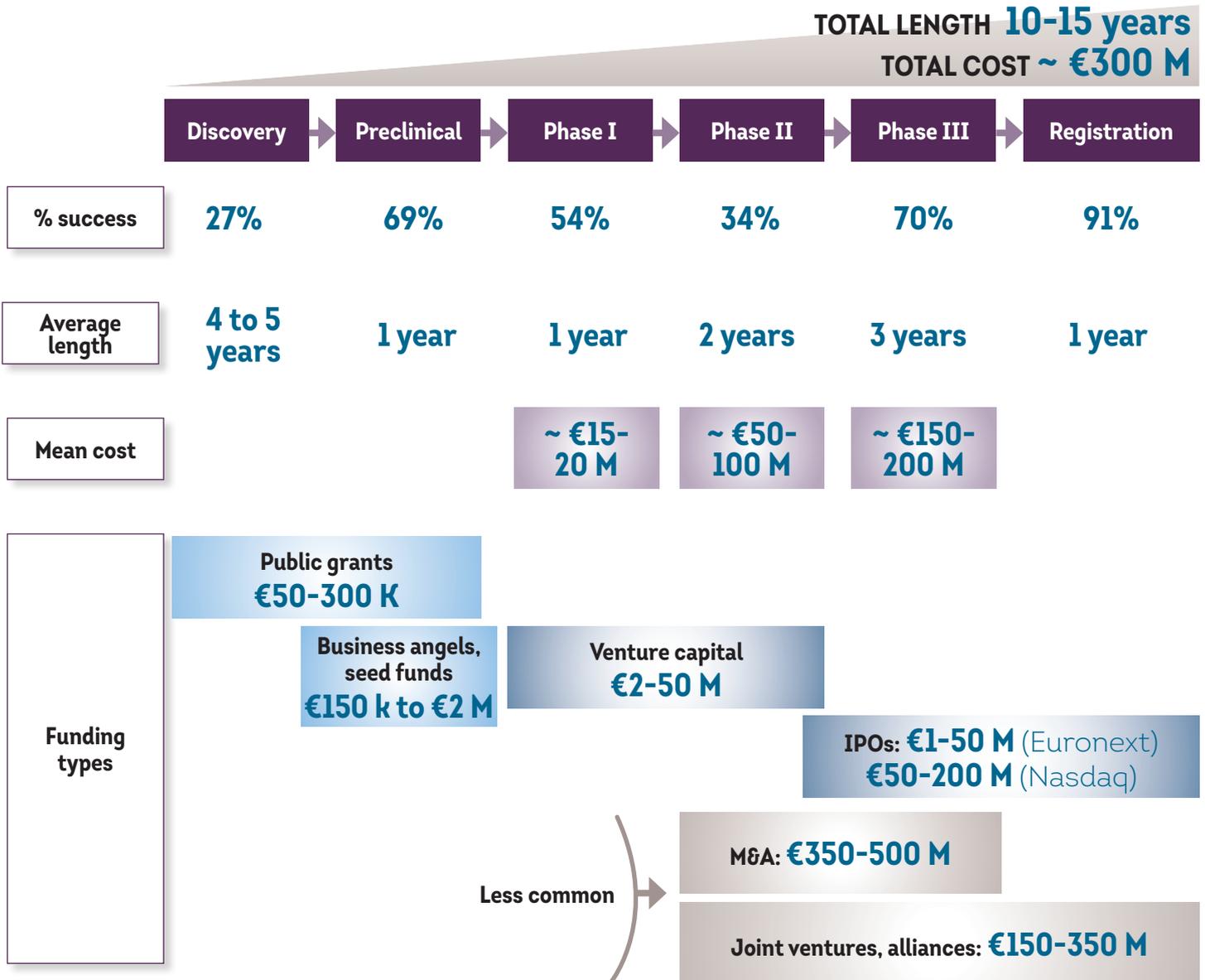
Two-thirds of entrepreneurs identified financing as a major issue. R&D and clinical success and the development of industrial partnerships are also critical to companies' growth.

**70% of companies are seeking funds** and 50% experienced difficulties seeking funding.



# Recurrent funding needs

Growth and funding of HealthTech companies



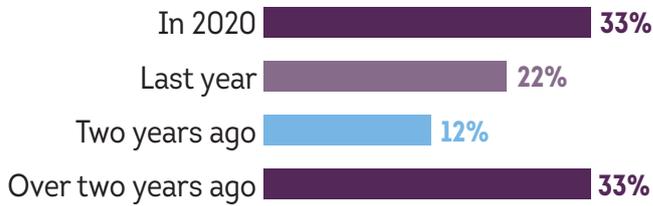
Source: European Investment Bank - Financing the next wave of medical breakthroughs (2018), France Biotech

It takes a long time to develop drugs or biopharmaceuticals (time-to-market of 10 to 15 years), requiring significant and increasing investment as projects progress. The initial phases involve significant risk. Investment, generally amounting to less than €1 M, mainly takes the form of public grants and investments or seed funds, or is provided by business angels. **As risk decreases** with products reaching the clinical phase, **different types of financing are sought,**

with companies turning to private venture capital funds. Series A (€2-25 M) and B (€25-50 M) funding is common, while series C and beyond is still rare in Europe, with most companies seeking Phase II and III funding on the stock markets. Joint ventures (JVs) and M&A transactions are more common in the United States than in Europe, where they are still relatively rare.



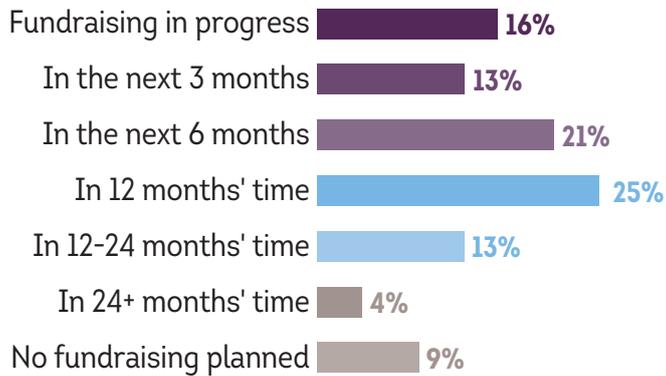
### When did you last raise funds?



Companies need to raise funds frequently, and thus, over 50% of companies last raised funds less than two years ago.

Source: France Biotech, 405 companies, December 2020

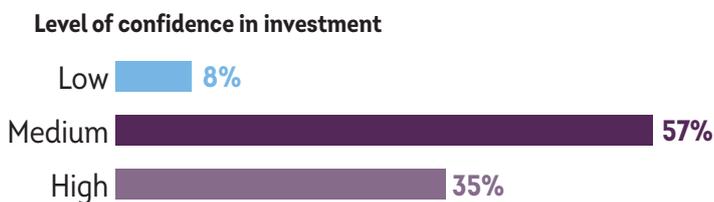
### When are you planning to raise funds?



As regards upcoming funding, **75% of entrepreneurs are currently raising funds (16%) or aim to raise funds in the next 12 months.**

Source: France Biotech, 356 companies, December 2020

### Entrepreneurs' level of confidence in raising funds



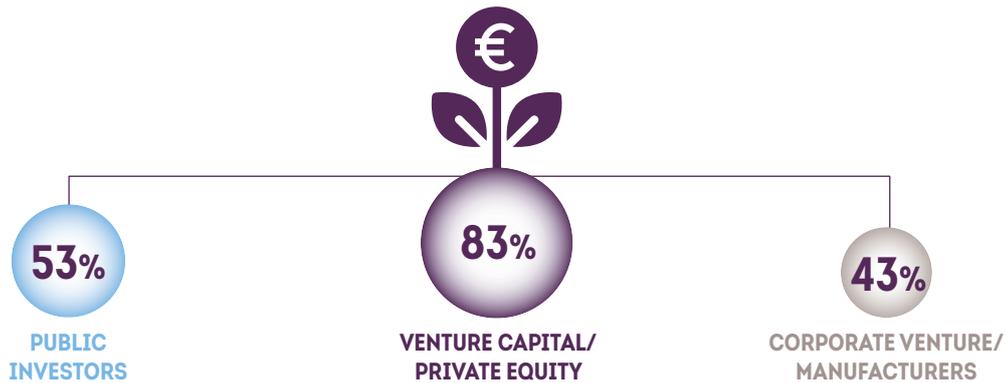
**Entrepreneurs' level of confidence in their ability to raise funds is high.** The vast majority believe that the current environment is favourable.

Source: France Biotech, 276 companies, December 2020



# Venture capital – a preferred option for raising funds

Who do you plan on raising funds from? (% companies)



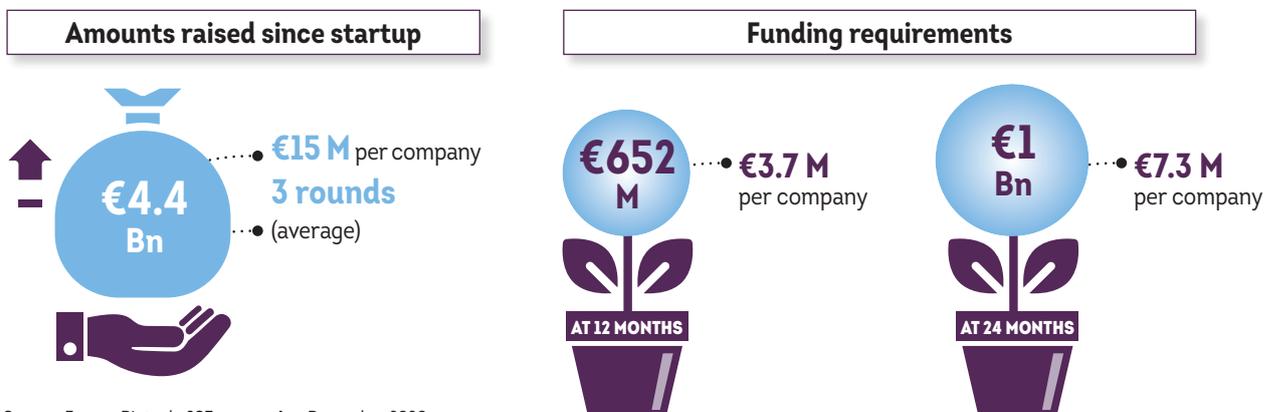
HealthTech companies **traditionally seek private venture capital investment** for their series A to C funding. More mature companies that are already listed on the financial markets are also dependent on venture capital to continue investing through capital increases. Although rarer, investment from manufacturers (corporate venture capital) is highly sought after by entrepreneurs. In addition to the

significant sums invested and the potential for partnerships arising from investments, companies with industrial shareholders gain credibility as innovators and can benefit from these stakeholders' experience and expertise within their governing bodies.

Source: France Biotech, **276 companies**, December 2020

## Significant funding needs

Amounts raised since startup and funding requirements



Source: France Biotech, **293 companies**, December 2020

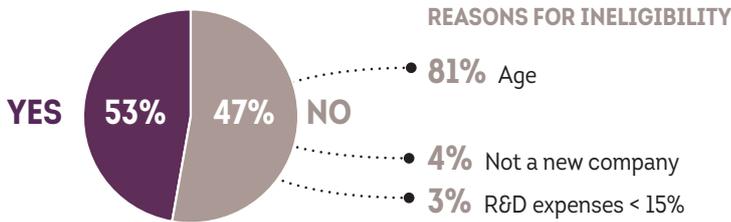
The amounts raised by companies vary considerably and depend on their maturity. Since inception, HealthTech companies have raised over €4 Bn. In order to pursue their

clinical phases and secure their growth, they estimate **their funding requirements at approximately €1 Bn in the next 24 months.**

# Research Tax Credit and Innovative Young Company status: attractive schemes for HealthTech companies

### Innovative Young Company (JEI) status

#### Eligibility for JEI status



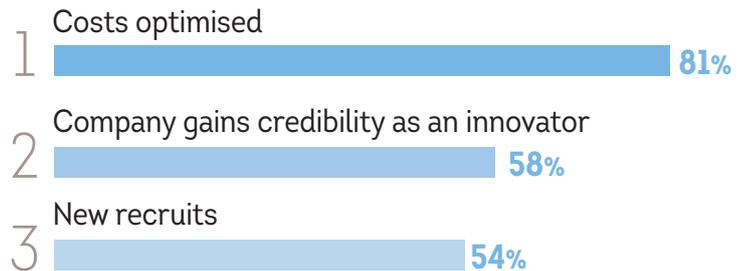
Innovative Young Company (JEI) status is widely used by innovative SMEs in the health sector, with over half of companies awarded the status in 2020. This **system is highly appreciated by entrepreneurs, three-quarters of whom stated that it had a major impact.**

Source: France Biotech, 405 companies, December 2020

### Top 3 benefits of JEI status for companies

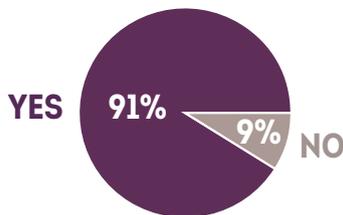
**This status is a major pull factor for France since it enables companies to optimise their costs.**

This status has also enabled 50% of companies to recruit. However, despite its benefits, this status is not sufficiently tailored to the time frame required to develop drugs (it lasts 8 years, whereas it takes 10 to 15 years to develop a drug).



### Research Tax Credit (CIR)

#### CIR system used?



Source: France Biotech, 405 companies, December 2020

**Almost all French HealthTech companies (91%) use the CIR system.** During the health crisis, fast-track refunds of CIR in 2020 benefited many companies whose fundraising was often on hold and whose cash flow was affected by the crisis.

**The speed at which CIR was refunded was a key factor for innovative health companies.** It was greatly appreciated by entrepreneurs, who hope that fast-track processing of claims will continue in future. Moreover,

### Focus on the health crisis

**51%** of companies requested fast-track refunds of CIR in 2020.

Of these, **86%** were granted them and virtually all of them (88%) had no difficulties obtaining them.

since cash flow is critical to entrepreneurs, they hope that there will be greater clarity regarding payment dates. Other requested improvements include simplification of often complex procedures. This also appears to be a priority for ensuring this system's continued appeal. The elimination of the mechanism for doubling CIR for academic R&D collaborations could constitute a lost opportunity for HealthTech companies.

APPENDICES

#4

STEERING COMMITTEE

PARTNERS

CONTRIBUTORS

CORPORATE SURVEY  
PARTICIPANTS

## STEERING COMMITTEE

**Franck Mouthon**

Chairman  
France Biotech

**Olivier Chabanon**

General Delegate  
France Biotech

**Chloé Evans**

Market Research Manager &  
International Relations  
France Biotech

**Hugo Servanton**

BD & Partnerships Coordinator,  
France Biotech

**Rosalie Maurisse**

Head of Health Sector,  
Innovation Department  
Bpifrance

**Cédric Garcia**

Partner  
EY

**Laurence Barbaut**

Senior Manager  
EY

**Nicolas Meunier**

Head of Advisory & IR Solutions  
Euronext

**Françoise Mari**

Director of Financial Lines  
QBE France

**Stéphanie Taschek**

Life Sciences Underwriter  
QBE France

The authors would also like to thank **Alexandre Devernay**, intern at France Biotech, and **Elsa Fernandez**, manager at EY, for their valuable contributions to the report.

**FRANCE BIOTECH IN ACTION**

France Biotech is actively working with the public authorities to promote the development of the innovative HealthTech sector, with policy proposals relating notably to taxation and financing of startups, partnerships between academic research and industry, and easing of regulatory requirements and their burden on innovative health companies.

France Biotech spearheads proposals emanating from its **9 committees and 3 working groups** that serve as a think tank for innovative ideas.

- Biomufacturing and Advanced Therapeutic Medicinal Products (ATMP) Committee
- Business Development Committee
- Legal Committee
- Corporate Finance Committee
- eHealth Committee
- HealthTech Innovation Days (HTID) Committee
- MedTech & Diagnostics Committee
- Human Resources Committee
- Antibiotic Resistance/Microbiota Committee
- Clinical Trials Working Group
- Market Access Working Group
- Technology Transfer Working Group

France Biotech is both a **national observatory** for monitoring innovation in the Life Sciences sector and a **platform for sharing best practices** among all ecosystem stakeholders.

- Publication of reports, white papers and bulletins
- Organisation of monthly workshops and conferences
- Production of video content (webinars, France Biotech – Le Talk, etc.)
- Contribution to numerous French and international events related to health innovation
- Participation in study trips abroad (USA, China)

France Biotech's aim is to **put the spotlight on the HealthTech companies that are embracing innovation** through its role in a number of private and quasi-public organisations, including:

- The European associations EuropaBio and EUCOPE
- The International Council of Biotechnology Associations (ICBA)
- LEEM, the French pharmaceutical trade association
- CSIS, the strategic committee for health industries
- CSF, the strategic industry committee
- ARIIS, the health industry alliance for research and innovation
- The HealthTech network (together with all French health sector centres of competence and clusters)
- The French Tech initiative

**FRANCE HEALTHTECH PANORAMA**

Every year since 2002, France Biotech has published the France HealthTech Panorama (formerly Panorama of the French Life Sciences Industry®), a unique French analytical review of developments in the innovative HealthTech sector over the previous year both nationwide and globally. The findings of the France Biotech review provide an insight into the situation of companies and serve to inform policy proposals for improvements to give the industry its rightful recognition.

## PARTNERS



**F**rance Biotech was founded in 1997 as an independent association, uniting the country's leading innovative health companies and their expert partners. As a leader in health innovation working in close cooperation with public authorities in France and across Europe, France Biotech is ideally positioned to address the challenges facing the HealthTech sector, notably corporate financing, taxation on innovation and regulatory and market access-related issues. Its committees and working groups strive to identify viable solutions to create the necessary conditions for a competitive and attractive industry. Its mission is to support HealthTech startups and SMEs in their quest for international expansion with the capability to rapidly design and develop new innovations and get them to the point of care. Since September 2019, France Biotech has been chaired by Theranexus CEO Franck Mouthon. The association currently has 345 members.  
[www.france-biotech.fr](http://www.france-biotech.fr)



**E**uronext is the leading pan-European market infrastructure operator, connecting local economies to global capital markets, to accelerate innovation and sustainable growth. It operates in Belgium, France, Ireland, Norway, the Netherlands and Portugal.

With close to 1,500 listed issuers worth almost €4.5 trillion in market capitalisation as of end December 2020, Euronext operates regulated and transparent equity and derivatives markets and is the largest bond and fund listing venue globally. Products covered include equities, FX, Exchange Traded Funds, Warrants & Certificates, Bonds, Derivatives, Commodities and Indices. In addition to its main regulated market, Euronext operates Euronext Growth® and Euronext Access®, simplifying access to listing for small- and mid-caps. Euronext also provides custody and settlement services through central securities depositories in Denmark, Norway and Portugal.



**B**pifrance, a subsidiary of the Caisse des Dépôts and French government, and a trusted partner to businesses, supports companies from the seed phase to stock exchange listing through loans, guarantees and equity investments. Bpifrance also provides guidance and support for internal innovation and external growth projects and exports, in partnership with Business France and Coface. Bpifrance offers businesses a financing continuum covering each key phase of their development and a service tailored to specific regional requirements. With 42 regional offices, Bpifrance supports public policies enacted by the French government and regional councils.



**Q**BE is a world leader in insurance and reinsurance services, recognised for its expertise and ability to deliver innovative solutions. The organisation has been established in France for more than 20 years and covers the risks of companies of all sizes, particularly mid-caps and SMEs across all industry sectors. QBE engages with companies to stay on top of risk management, helping them to identify exposures to better control them. It is primarily a local insurance operator with a strong regional foothold.

In life sciences, QBE supports companies through all their key development stages: from R&D startup to product launch – and including clinical trials and international development. QBE's full service offering covers crisis management and risk mapping support.



**E**Y's corporate purpose is to help build a fairer world by creating long-term value for our clients, our employees and our communities, and by instilling greater trust and confidence in capital markets. EY's teams are expert in data processing and new technologies, operating in over 150 countries and striving to create conditions to foster trust in the economy and address the challenges associated with growing, transforming and managing our clients' business. With expertise in auditing, consulting, law, strategy, tax and transactions, the EY teams are well-equipped to navigate the complexities of today's world, ask the right questions and provide relevant answers. You can find more information about our organisation at [www.ey.com](http://www.ey.com)

## CONTRIBUTORS

France Biotech would like to thank the following organisations that contributed to the 2020 France HealthTech Panorama report.



# HEALTH COMPETITIVENESS CLUSTERS



**A**tlanpole Biotherapies is the health competitiveness cluster for western France. Since its inception in 2005 and its accreditation by the French Ministry of Industry, it has served as a framework for an innovative interregional sector covering the three regions Centre-Val de Loire, Pays de la Loire and Brittany.

Its aim is to develop the medicine of the future, by harnessing skills from laboratories and companies throughout the biopharmaceuticals value chain, from the discovery of therapeutic targets to clinical trials. The work of Atlanpole Biotherapies is based around three broad strategic fields – immunotherapy, radiopharmaceuticals and regenerative medicine –, and it has also branched out to three new areas, namely digital technologies for innovative therapies, clinical nutrition and the microbiota, and animal health.

## KEY FIGURES

- ◆ 220 members
  - ◆ More than 65,000 jobs, including 6,000 private R&D jobs, representing more than 25% of jobs nationally in the biotech-health sector
  - ◆ 753 approved projects with a total worth of more than €700 million since inception
  - ◆ 30 innovative products in the health sector brought to market since inception
  - ◆ 4 publicly traded companies
- Contact: [suquet@atlanpole.fr](mailto:suquet@atlanpole.fr)

It continues to experience strong growth, with more than 200 members and 65,000 jobs, including 6,000 private R&D jobs over the entire area. The COVID-19 crisis has provided an opportunity for member companies to demonstrate their responsiveness and adaptability.

The competitiveness cluster offers its members a comprehensive, custom-designed package to develop their business. They receive tailored support for any collaborative

innovation projects, together with access to the European networks to which the cluster belongs and access to specific grants aimed at companies seeking to reach international markets. They can also broaden their networks and identify key partners by taking part in the many events organised by the cluster, or boost their visibility with the communication tools provided.



**B**ioValley France operates throughout eastern France. Its aim is to serve as a leader for the health sector, providing a framework and bringing together all relevant stakeholders, including companies of all sizes, research laboratories and health and training companies, to build a strong, united community.

## Four major topics

BioValley France provides expertise and tailored support in four areas:

- Drugs and innovative therapies;
- Diagnostics;
- Medical technologies;
- Digital health.

## KEY FIGURES

- ◆ More than 200 members
- ◆ More than 500 R&D projects supported and/or approved
- ◆ More than €220 M in public funds raised by members
- ◆ More than €550 M in funds invested in supported projects
- ◆ 7 international partnerships: Belgium, Canada, Germany, Israel, Japan, Switzerland and the United States
- ◆ 9 out of 10 members renew their membership each year

## Dedicated services to boost your health innovation projects

- Business strategy: guidance on strategy, regulatory issues, intellectual property (legal and financial aspects), market access, innovation marketing;
- Innovative projects: identifying funding schemes, project set-up support, expertise and accreditation, targeted networking, navigating the startup landscape;
- International relations: partnerships with international clusters, international

missions and delegations, organisation and support for major trade fairs;

- Visibility and influence: events organisation, guidance on communications strategy, press relations, publication of news and vacancies for members, directory of members.

Further information: [biovalley-france.com](http://biovalley-france.com)



**E**urobiomed is the health cluster for the Sud Provence-Alpes-Côte d'Azur region and the Occitanie/Pyrénées-Méditerranée region. The aim of Eurobiomed is to promote the growth of companies in the health industry, to develop and lead one of Europe's major networks of health stakeholders, and to generate a new dynamic that will consolidate France's position as a global leader in health innovation.

Eurobiomed offers resources and dedicated solutions for companies and research organisations in the health industry to encourage innovation and development and help them secure funding. The ultimate aim of the members' strategic and business goals is to improve treatment and quality of life for patients.

With more than 14 years of expertise, Eurobiomed supports the development of innovations that tackle the challenges facing the future of medicine by providing comprehensive assistance to help its members develop their innovations and bring them to market. Since 2006, 310 projects supported by Eurobiomed have been

funded through various calls for proposals at European, national and regional level, representing more than €1 billion in investment, including €461 million in public grants.

Since 2014, Eurobiomed has developed a comprehensive support package for companies to support them in their growth. Each year we offer guidance to more than a hundred companies in the areas of strategic positioning, regulatory compliance, asset protection, boosting equity capital, market access and developing contacts with potential clients.

Eurobiomed represents its companies and is committed to developing an ongoing dialogue with public authorities to provide the sector with an environment that is conducive to its development, in particular by working in partnership with France Biotech and as part of the Network of Health Clusters, composed of the six health clusters in France.

Eurobiomed has its registered office in Marseille; it currently has more than 400 members, including 336 companies, and 16 staff members. [www.eurobiomed.org/](http://www.eurobiomed.org/)



**L**yonbiopôle serves as an umbrella structure for a thriving, innovative health ecosystem with an international outlook in the Auvergne-Rhône-Alpes region. It has been a global competitiveness cluster since its inception in 2005, supporting projects and companies in the sector and boosting the development of technological innovations, products and services that will address the health challenges of the future. It has four strategic focus areas: medicinal products for human use, medicinal products for veterinary use, diagnostics, and medical devices and technologies. Its work is based on five main priorities: stimulating innovation, promoting economic development for its members, supporting them in their efforts to access international markets, providing them with access to industrial infrastructures to grow

their projects, and boosting the entire ecosystem via an effective communication strategy.

Lyonbiopôle currently has 239 members, including a group of 6 founder members composed of 4 major manufacturers (Sanofi Pasteur, bioMérieux, Boehringer Ingelheim Animal Health and Becton Dickinson), the French Alternative Energies and Atomic Energy Commission (CEA) and the Mérieux Foundation, 14 subsidiaries of major corporations and mid-caps, 200 SMEs and 19 centres of competence (teaching hospitals, universities, foundations, etc.). It was awarded the European Cluster Excellence Initiative Gold Label and is a stakeholder in two European meta-clusters, MAGIA and S3martMed, and a member of EIT Health.

Further information: [www.lyonbiopole.com](http://www.lyonbiopole.com)



**M**edicen is the health competitiveness cluster for the Greater Paris Region. Its unique network comprises more than 490 players in health innovation, including 420 startups and SMEs in HealthTech, health industry manufacturers, major national research institutes and healthcare institutions. This regional network helps identify clinical and academic needs, paving the way for future solutions and providing support for the development of innovative diagnostic and therapeutic solutions.

The Medicen cluster leads and supports the ecosystems of the three HealthTech strands: MedTech, biotech and eHealth. The cluster encourages interdisciplinary collaboration to overcome specific diagnostic and therapeutic challenges and address unmet medical needs, with a growing focus on governance and the use of health data.

As a competitiveness cluster, Medicen aims to transform scientific innovation into therapeutic value for patients,

as well as economic value, industrial processes and jobs. To support its members and help them grow their projects, Medicen has three key areas of action:

- Promoting the emergence of research and innovation projects,
- Encouraging the growth of startups and SMEs in France and at international level,
- Guiding project leaders to relevant sources of funding, whether public (calls for proposals at regional, national and European level) or private (relations with investors and manufacturers).

Medicen facilitates encounters between partners, offers project set-up guidance and boosts the visibility of its members to provide them with the keys to success, in France and worldwide.

Since 2005, 382 projects supported by Medicen have received a total of €2.1 billion in funding, including €863 million in public funding, resulting in more than 80 therapeutic solutions (products or services) being brought to market.



**Clubster NSL, a network of professionals in industry, academia and healthcare involved in innovation in the area of nutrition and health**

**C**lubster NSL – Nutrition, Health, Longevity – is a **competitiveness cluster at the convergence of nutrition and health, bringing together stakeholders in the fields of agronutrition, biotech and pharma, MedTech and hospital tech, eHealth and the silver economy.** It promotes dialogue and cooperation between academia and industry and supports innovative projects that are eligible for regional, national and European funding. It works to facilitate the emergence of innovative projects between private and public stakeholders with the aim of advancing and promoting the nutrition and health sector.

Clubster NSL is currently composed of **300 member structures with wide-ranging profiles:** startups, companies, healthcare establishments and research and training organisations. Clubster NSL provides its members with the support of a dynamic team and the resources and partners they need to **innovate together,**

#### CLUBSTER NSL IN NUMBERS

- ♦ 300 members
- ♦ 250 approved projects
- ♦ 120 funded R&D projects
- ♦ €200 million in funding received
- ♦ 120 events each year

**fund their projects and develop their business.**

The cluster is based in the Hauts-de-France region. It is France's third leading cluster of excellence in nutrition and health. **The region has some**

**1,100 companies, with 32,000 employees, operating in the areas of nutrition and health, and more specifically in the sectors of biotech and pharma, MedTech and hospital tech, eHealth, agronutrition and the silver economy.**

Each year, Clubster NSL joins forces with Eurasanté to organise four European business conventions designed to foster innovations for the future in the field of nutrition and health: BioFIT: biofit-event.com, MedFIT: medfit-event.com, NutrEvent: nutrevent.com and AgeingFit: ageingfit-event.fr.

- Follow our news: [www.clubster-nsl.com](http://www.clubster-nsl.com)
- Twitter: @ClubsterNSL
- For any queries, email: [contact@clubster-nsl.com](mailto:contact@clubster-nsl.com)

# CORPORATE SURVEY PARTICIPANTS

\* Euronext/Euronext Growth/Euronext Access. \*\* Nasdaq/dual listing.

@rtMolecule

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Abionyx Pharma  
Abivax\*  
Abolis Biotechnologies  
Abyss Ingredients  
Accure Tx France  
Acobiom  
ACS Biotech  
Acticor Biotech  
AcuSurgical  
Adaptherapy  
ADELIS  
Adhex Pharma  
Adjuvatis  
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Affluent Medical  
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Avatar Medical

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Axcel France

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BA Healthcare  
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BGene Genetics  
Bio Elpida  
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Cytoo

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Diabeloop  
Diafir  
Diagante  
Divincell  
DNA Script  
Docmadi  
Docndoc  
Doctoclass  
Doctor To Doctor  
DOMAIN Therapeutics  
Doptim  
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Ekinnox  
Eligo Bioscience  
Elsalys Biotech  
Emosis  
Enterome  
Enterosys  
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Erytech Pharma\*\*

ETIC-SYSTEMS

Eukarys

Eurosafe

eVeDrug

EverZom

ExactCure

Exelium Biosciences

Exolis

EzyGain

e-Zyvec

## f

Flowgene

## g

Galenix Innovations  
GamaMabs Pharma  
Genelpis  
Geneuro Innovation\*  
Genfit\*\*  
Genodics  
Genoscience Pharma  
Genoscreen  
Gleamer  
GlioCure  
GLYcoDiag  
Goliver Therapeutics  
Graftys  
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GreenTropism  
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## h

H4 orphan Pharma  
HCS Pharma  
Healshape  
Hemarina  
Hephaï  
Hera-MI  
Hillo ai  
Hippocampus Pharma  
Hippoxis  
Hirondelle Medical  
Horama  
Horus Pharma  
Hypno VR

## i

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iC biosolutions  
iDD Biotech  
Igyxos

ILTOO Pharma

Imactis

Imactiv-3D

Imaxio

Imescia

Immersive Therapy

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Insilience

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Inventiva\*\*

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## J

Jymsea

## k

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## L

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LinBox  
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LXRepair  
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**m**

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 Systems  
 Meccellis biotech  
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 Medsteer  
 Melibiotech  
 Metabolic Explorer  
 Metafora Biosystems  
 MicroBrain Biotech  
 Millendo Therapeutics  
 MI-Medical Innovation  
 MinMaxMedical  
 Miravas  
 Mitologics  
 Molsid  
 MORPHEE+  
 MoveUP  
 MT-act  
 MyndBlue  
 MYPL  
 MyRobotics

**n**

Nahibu  
 Nanobiose  
 NanoMedSyn  
 Naogen pharma  
 Neocustis  
 Netri

NETRIS Pharma  
 Neurallys  
 Neurokyma  
 Neurophoenix  
 Neuro-Sys  
 Newcard  
 NH TherAguiX  
 Nicox\*  
 Nosopharm  
 Novadiscovery  
 NOVOTEC

**o**

Observia  
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 Onxeo  
 OP2 Drugs  
 Op2Lysis  
 OREGA Biotech  
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**p**

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Phenocell  
 Pherecydes Pharma  
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 Posos  
 Poxel  
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 Premedit  
 Primaa  
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**q**

Quantum Genomics\*

**r**

REGEnLIFE  
 RespInnovation  
 Rheonova  
 Robeauté  
 Robocath

**s**

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 Sangamo Therapeutics  
 Scipio bioscience  
 SeaBeLife Biotech  
 Seekyo  
 SeleXel  
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 Vaxon Biotech  
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 Vibiosphen  
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 VirtualiSurg  
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Xegen  
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