Invest in Portugal

Health Industry Report





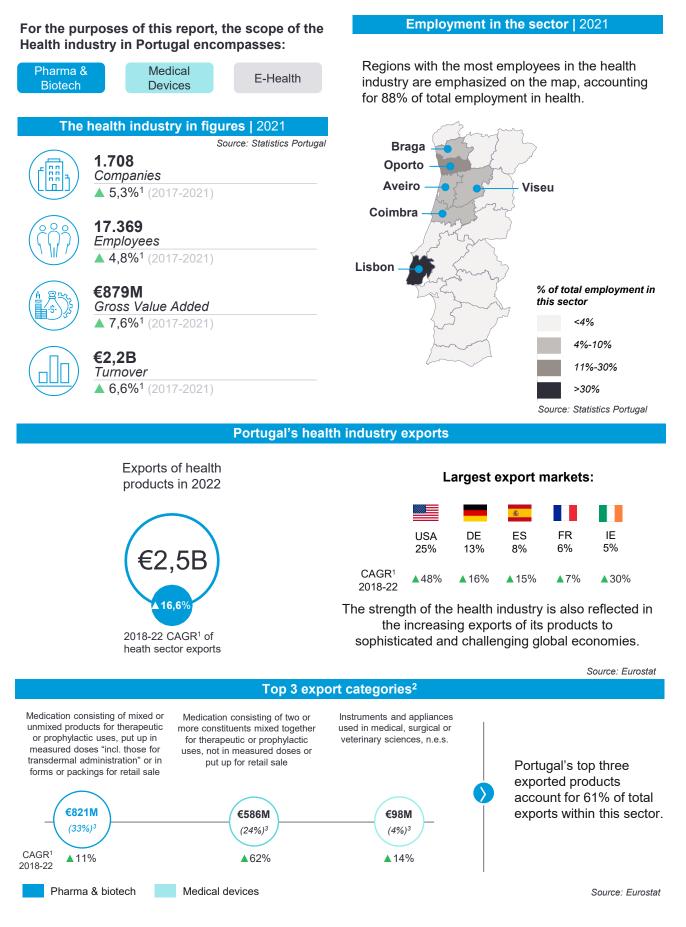
2024

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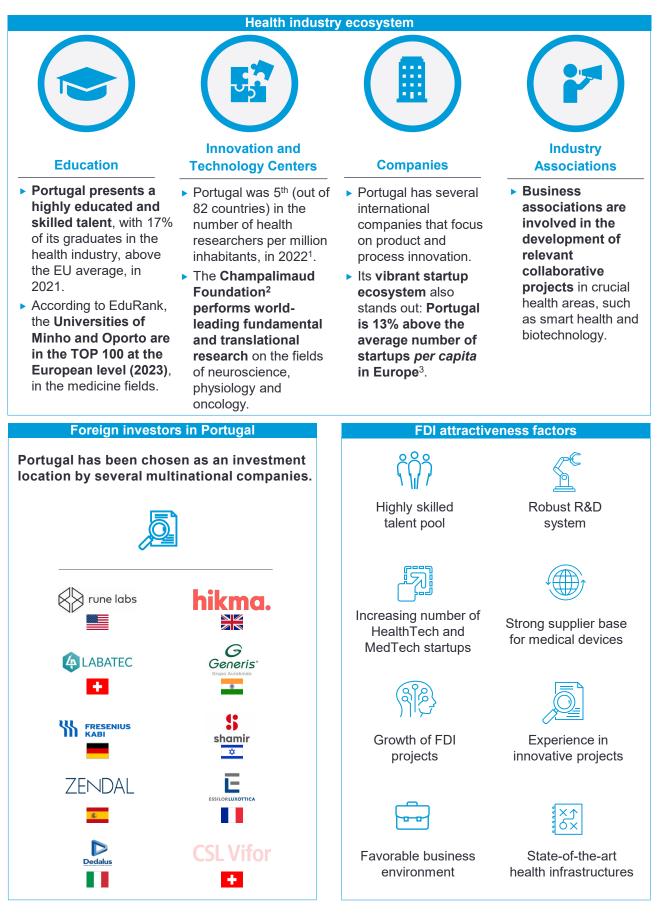
Key Insights

Portugal offers an exceptional set of conditions in the health industry...



- 1. Compound annual growth rate.
- 2. The top 3 export categories (combined nomenclature) are: 3004.90.00; 3003.90.00; 9018.90.84.
- 3. Share of total exports in the sector.

... that translate into an innovative ecosystem capable of attracting foreign direct investment



1. World Health Organization – Global Observatory on Health R&D.

2. Ranked 1st in Portugal and 11th among OECD countries regarding Health research (SCImago Institutions Rankings, 2023).

3. IDC - Portugal, the best place to StartUp (2021).

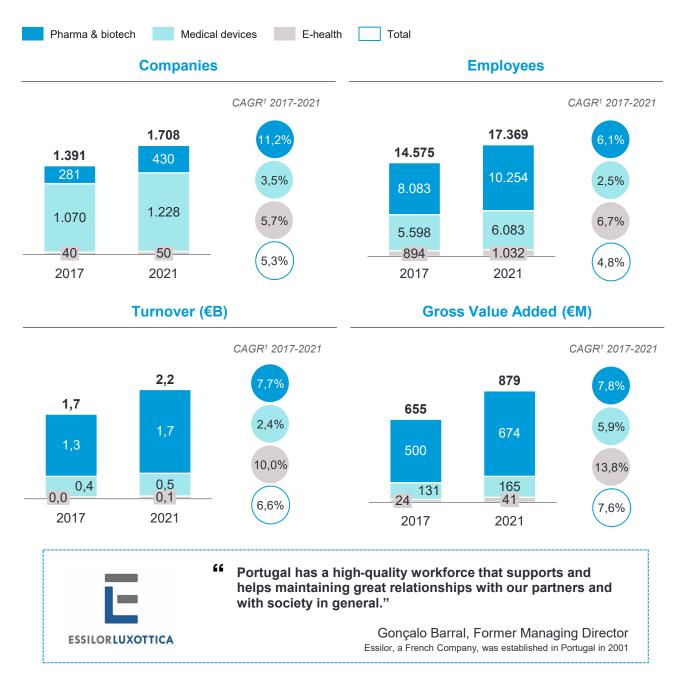
Health sector in Portugal

While medical devices subsector has the largest number of companies, pharma & biotech surpass in turnover and GVA

- The pharma & biotech industry is growing at a significantly faster pace than the manufacturing industry: 7% vs 3% CAGR¹ in terms of turnover for the period 2017-2021. Portugal supports the development of this subsector through universities, technological parks, incubators and technology interface centers.
- Portugal is known for its technological development and production capacity, which can be attested by its large number of enterprises,

with a relevant contribution from the medical devices subsector (72%) and its energetic startup ecosystem, which is leveraging the acceleration of the e-health industry.

Portugal has presented an average annual growth rate of 2,2% since 2017 in the number of highly qualified talent pool in the health area², supporting the positioning of the pharma & biotech industries among the country's most sophisticated activities.

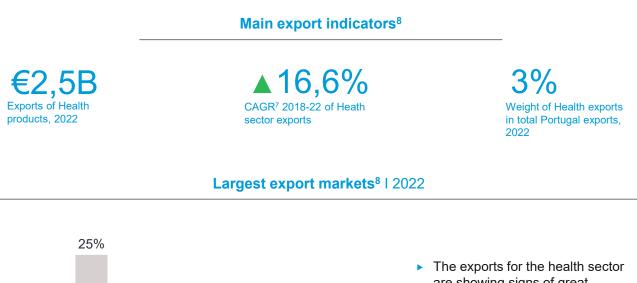


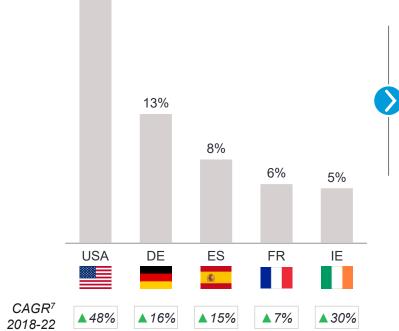
1. Compound annual growth rate 2017-2021.

2. Includes bachelor's, master's and PhD's graduates Source: Statistics Portugal, Sabi.

The health industry exports more than 50% of its production, demonstrating a continuous growth

- The health sector in Portugal exported €2,5B of > Note that more than half (57%) of the health health products in 2022, showing a positive steady growth since 2018 (16,6% CAGR⁷).
- industry's production is exported, revealing the strong presence of the national industry abroad.





- are showing signs of great development, having a higher CAGR⁷ than the total Portugal exports (17% vs 8%)
- The USA was the main destination for Portuguese health exports in 2022.
- Besides the USA, advanced EU economies are part of this ranking, demonstrating a strong industrial base in this sector.

" Portugal is suitable for a business development, given its proximity to our main markets and easy access of gualified hikma. workforce." Riad Mishlawi, CEO Hikma, a British company, was established in Portugal in 1990

7. Compound annual growth rate.

8. E-health subsector data was not included, due to lack of data availability.

The majority of the main health products exported are from Pharma and Biotech subsector

Top products exported by the Portuguese health industry⁹ | 2022

Product name	Health subsector	Exports in 2022 (€M)	CAGR ¹⁰ 2018-22 (%)	Weight on total Portugal Health exports (%)
1 3004.90.00: Medication consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale	Pharma & Biotech	821	▲11%	33%
2 3003.90.00: Medication consisting of two or more constituents mixed together for therapeutic or prophylactic uses, not in measured doses or put up for retail sale	Pharma & Biotech	586	▲62%	24%
3 9018.90.84: Instruments and appliances used in medical, surgical or veterinary sciences, n.e.s.	Medical Devices	98	▲14%	4%
2937.12.00: Insulin and its salts, used primarily as hormones	Pharma & Biotech	90	▲89%	4%
5 3004.20.00: Medicaments containing antibiotics, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale	Pharma & Biotech	81	-	3%
6 3004.10.00: Medicaments containing penicillins or derivatives thereof with a penicillanic acid structure, or streptomycins or derivatives thereof, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale	Pharma & Biotech	77	▲13%	3%
9001.50.49: Spectacle lenses of materials other than glass, both sides finished, for the correction of vision (excl. bi-focal or multi focal)	Medical Devices	46	▲6%	2%

9. E-health subsector data was not included, due to lack of data availability.

10. Compound annual growth rate 2018-2022.

Source: Eurostat.

Lisbon and the Northern Areas are the regions where the health industry ecosystem is most concentrated

Geographical distribution of employment in the health sector and top 15 health employers¹ | 2021



- The regions highlighted in the map comprise 88% of the total employment in this sector.
- The Northern region and Lisbon area have the highest number of enterprises and turnover.
- Together, these regions accounted for 65% of all health companies in the country and 83% of total turnover, in 2021.
- The two largest employers are located in Oporto (Bial) and in Lisbon (Hovione).

^{1.} Companies ranking by number of employees.

Portugal has been selected as an investment destination by several companies

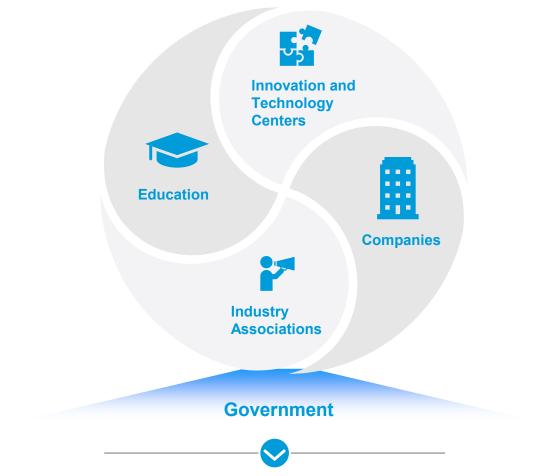
Most recent investments performed by foreign companies in Portugal



Health industry ecosystem in Portugal

The strong dynamics of the health ecosystem in Portugal enabled its positioning in the global context

Health industry ecosystem in Portugal



In general, the **health ecosystem in Portugal comprises four main axes**, **connected with each other and the Government**, a key stakeholder in facilitating its growth.

- The Portuguese Government considers the health industry as a priority at a national level.
- In 2019, through the "Health + Value" Pact, an agreement with Health Cluster Portugal, the Government was strongly committed to perform leading initiatives in this area.
- According to the OECD¹, the Portuguese NHS is also a very important foundation of the health industry, standing out for the quality of its services and contributions in terms of R&D. In fact,
 Portugal outperforms the OECD average in several indicators, such as the NHS coverage, safe primary care, effective primary care and effective secondary care.
- Within the scope of the RRP², 4 innovative and disruptive Health Mobilizing Agendas were created, involving entities from various health

segments, working collaboratively, and to impact the country economically in terms of wealth generation, new jobs and exports.

Also, there are regulators focused on life sciences industries that are important players to stimulate research activities and to promote companies' competitiveness:

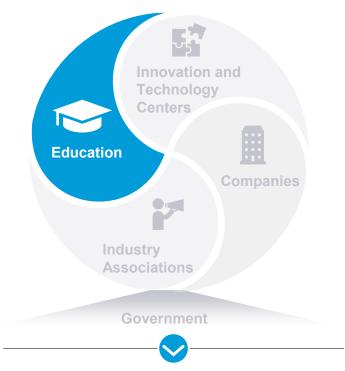


1. Organization for Economic Co-operation and Development.

2. Portugal's Recovery and Resilience Plan

Portugal presents a highly educated and skillful workforce, supported by its renowned universities

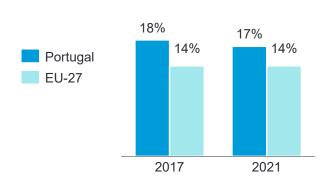
Health industry ecosystem in Portugal | Universities



- Portugal features a highly educated and skilled talent, ensured by its world-class universities.
 The country has invested in the emerging area of smart health, an area that presents high growth
- In 2021, the share of graduates in the Health sector represents 17%, versus 14% in the EU¹.
- Partnerships between universities and companies to create innovative solutions are in place. For example, several students from the Instituto Superior Técnico have won a GovTech Award by creating physical therapy solutions inspired by videogames.
- The country has invested in the emerging area of smart health, an area that presents high growth potential, through well-positioned universities at a worldwide level (e.g., the University of Oporto).
- The life sciences sector in Portugal also has some relevant science & technology parks, incubators or technology transfer organizations, (e.g., Biocant, IPN, Healthtech Lisbon).

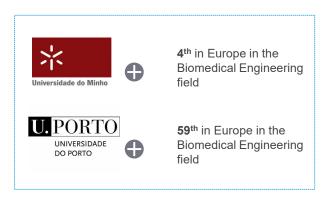


Source: Eurostat



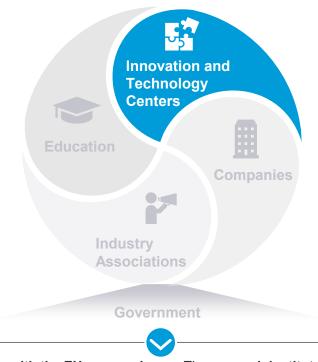
Portuguese Universities in the world ranking of the best universities in the Medicine field | 2023

Source: EduRank, 2023 – total of 2.785 universities



The Innovation and Technology Centers are internationally recognized with award-winning researchers

Health industry ecosystem in Portugal | Innovation and Technological Centers



- Portugal has kept pace with the EU average in the scientific production indexed in the Web of Science. With 32% of publications in the field of Clinical and Life Sciences, Portugal has also kept up with the average level of scientific production across the EU (38%), according to the Web of Science in the 2016-20 period.
- Portugal has well-recognized R&D institutions specialized in health-related subjects (e.g., neurodegenerative diseases, oncology) that count with award-winning researchers.
- The Champalimaud Foundation¹, in Lisbon, performs world-leading fundamental and translational research in the fields of neuroscience, physiology and oncology.

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2021

- The research institute i3s² is known internationally for its projects on relevant health challenges society faces today (e.g., ageing, infectious diseases, regenerative medicine).
- The IPO Oporto Research Center is the largest specialized Portuguese cancer center.
- The São João University of Oporto Hospital Center was the institution with the largest R&D expenditure, in 2021, with 91 researchers and 21 doctorates.
- The Gulbenkian Institute of Molecular Medicine (in Lisbon) and the CNC-UC (in Coimbra) are research institutes dedicated to biological and biomedical research and graduate training.



Health industry investment in R&D (€M)

Source: IPCTN

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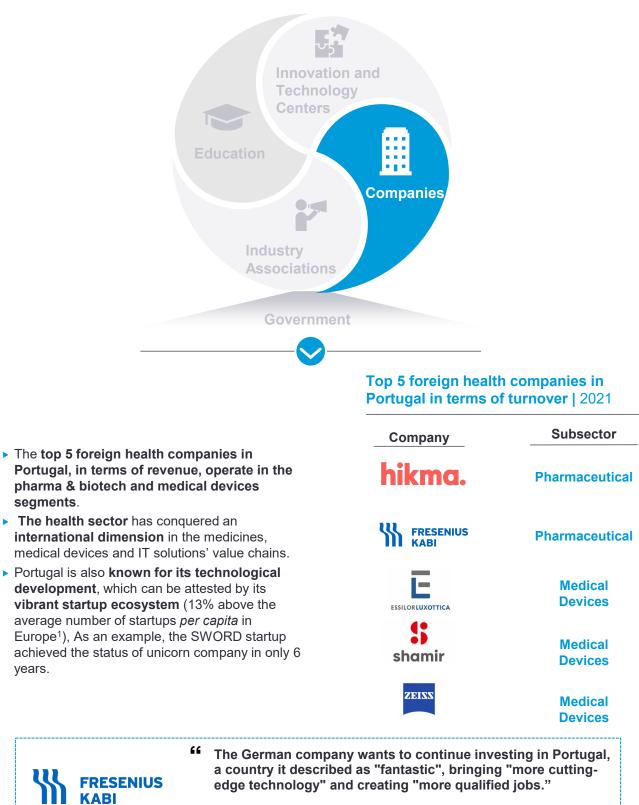
2014

1. Ranks 1st in Portugal and 11th in EU-27 in Health research (SCImago Institutions Rankings, 2022).

2. Institute with the most doctoral graduates, according to Fundação da Ciência e Tecnologia (R&D institutions funding 2020-23). Source: Global Competitiveness Report; European Patent Office (EPO); World Health Organization – Global Observatory on Health R&D; AICEP Portugal Global; IPCTN

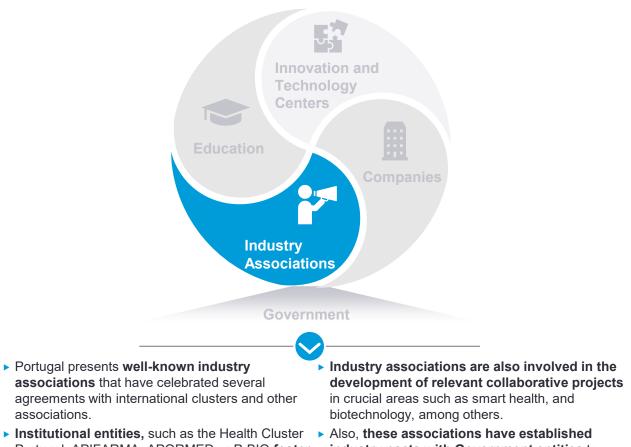
Foreign investors have been recognizing the opportunities the health sector may offer

Health industry ecosystem in Portugal | Companies



Glenn Luis, General Manager Fresenius Kabi, a German Company, was established in Portugal in 1999 Health industry associations foster partnerships amongst the sector aiming to increase its competitiveness

Health industry ecosystem in Portugal | Business Associations



- Portugal, APIFARMA, APORMED or P-BIO foster partnerships among companies, the links between R&D system and Academia, but also play a key role in promoting and spreading the achievements and work of Portugal's health industry internationally.
- Also, these associations have established industry pacts with Government entities to foster a friendlier business environment, increase exports and promote FDI, as well as R&D and entrepreneurship.



sectors in Portugal.

Health industry subsectors in Portugal

The innovative profile and R&D skills are enhancing the pharma & biotech strong positioning in the market

Pharma & Biotech

- The pharmaceutical and biotech industry is showing a significant growth rate in 2018-22 period (94,2%), with a considerable increase in pharmaceutical products' exports.
- The national technological and scientific system stands out for the knowledge production in several areas, which are recognized internationally (e.g., neuroscience, cell biology, molecular biology)
- Portugal ranks 27th among 140 economies regarding the quality of its R&D centers, according to the Global Competitiveness Report (2019).
- The pharmaceutical industry represented 6% of national spending on R&D in 2021¹, being the industry that invested the most in this area, compared to other manufacturing industries.
- Portugal's healthcare infrastructures are suitable for positioning the country as a test bed and conducting innovative clinical trials. Multinational pharmaceuticals, such as Roche, Johnson & Johnson and Bayer, have chosen Portugal to conduct clinical studies.

€674M (77%)

Gross value added (weight on the health industry) | 2021 Source: Statistics Portugal E2B (194,2%) Pharmaceutical products exports | 2022 (growth rate 2018-2022) Source: Eurostat



...With significant investments in R&D, **Bial**², **a Portuguese firm founded in 1924**, has synthesized over 15 new molecules and launched the first two Portuguese new chemical entities patented worldwide and it is, currently, licensing and exporting its technology to the main world's economies, namely to the USA, Japan, Canada and Australia.

...Founded in 1959, **the Portuguese firm Hovione**² researches and develops new chemical processes and medical devices and produces active ingredients for the worldwide pharmaceutical industry. It is the largest private employer of doctorates in Portugal.



hikma.

...Established in Portugal since 1990, the global company **Hikma²**, **founded in Jordan**, based in the UK, has factories located in Portugal employing more than 700 people and specialising in the production of injectables to promote high-quality medicines.

...Established in Portugal since 1999, **the German company Fresenius Kabi**² has five complex production facilities and a logistics center in the country: a penicillin factory, a sterile solutions factory, a solids factory, a cephalosporin factory and a parenteral nutrition compounding factory.



Portugal is a reference in technological solutions, offering conditions to develop state-of-the-art medical devices

Medical Devices

- Through complementary industries, Portugal offers suppliers with a solid reputation and extensive experience in the medical devices industry. Specifically, it has a strong specialization in textile, moulds, plastic and glass industries (e.g. optics, electronics and precision mechanics).
- Products and services based on digital technologies are the key to addressing the recent trends the industry is facing. Medical devices players in the country are starting to develop artificial intelligence, robotics and virtual reality solutions, providing the conditions to create, for instance, medical robots, 3D printing for reproduction of prostheses, customized organs and surgical equipment, among other innovative products/services.
- With an excellent talent pool and technological development, Portugal is home to many key international players, besides Portuguese enterprises. Also, the country accommodates conditions to create a vibrant and expanding startup ecosystem (13% above the average number of startups per capita in Europe¹).

€165M(19%)

Gross value added (weight on the health industry) | 2021 Source: Statistics Portugal

€464M (▲53%) Medical devices products exports | 2022

(growth rate 2018-2022) Source: Eurostat

Top 3 Portuguese medical devices products exported | 2022



Instruments and appliances used in medical, surgical or veterinary sciences

(21%)²

Spectacle lenses of materials other

than glasses both sides finished, for

the correction of vision (excl. bi-focal

or multi-focal)

 $(10\%)^2$



Spectacle lenses of materials other than glasses both sides finished, for the correction of vision, single focal

(8%)²



...Operating in Portugal since 2001, **the French firm EssilorLuxottica**³ currently holds three production units/laboratories to produce ophthalmic lenses, being a reference at the European level. Production exceeds two million lenses and employs more than 300 highly qualified people in Portugal.

...Established in Portugal since 1966, **the North American company Invacare**³ produces hospital beds and transfer elevators that are exported all over the world, employing more than 150 people in Portugal.





...Established in Portugal since 1994, **the French company Vygon**³ has invested recently in the construction of a new medical-surgical and pharmaceutical material unit in Portugal, using technologically advanced processes. Its activity in Portugal is focused on single-use plastic-based medical devices for oncology and neonatology.

...Operating in Portugal since 1966, **the Danish firm Codan³**, a manufacturer and supplier of medical transfer systems has selected the country to expand production capacity and product development. Its activity relies on innovative medical devices in the fields of infusion, blood pressure monitoring and infusion pump technology.



2. Eurostat. Weight on total Portuguese medical devices exports in 2022.

3. Case-studies chosen as relevant international investors in the subsector (SABI, 2021). Source: Statistics Portugal, Eurostat.

The e-Health growth in Portugal is driven by a robust digital ecosystem and by first-class R&D infrastructures

e-Health

- Portugal has a fast-growing digital health ecosystem, supported by several startups that are thriving around the world. SWORD achieved the status of a unicorn company, but other startups (e.g., iLoF, PeekMed, Adapttech) and large companies (e.g., Glintt Healthcare Solutions) are also thriving in a fast-growing market.
- The emergence of these technology-based startups is leveraging the acceleration of the e-health industry in Portugal, promoting the transition from traditional models to disruptive ones, in which digital is the watchword. Portuguese e-health companies are mainly focused on telehealth & telemedicine, big data & analytics, electronic health and medical records,

health IT systems and mobile health.

- 91% of companies in the sector are small or medium-sized, working in a fast-paced innovation environment.
- Portugal is on the radar of international investors and is perceived as a destination for e-health innovation in Europe. Portugal stands out for its dynamic startup ecosystem, highly qualified people in technological and medical areas, and excellent universities and R&D facilities.

1 st

Subsector with the highest Turnover and GVA¹ CAGR² compared to Pharma & Biotech and Medical Devices subsectors | 2017-2021 Source: Statistics Portugal

8% Weight of health-based startups³ | 2021 Source: Portugal Startup Ecosystem Report 2022

knŏk

...Knok⁴ is an innovative startup operating in the health sector. It **provides a digital platform that connects patients with healthcare professionals for in-home medical consultations**. The startup aims to enhance the convenience, efficiency, and personalization of healthcare delivery, by making it easier for patients to access medical services right in the comfort of their homes.

... Raclac SA⁴ is the first European manufacturer of disposable gloves – with a 100% automated production line. With patented packaging, Raclac, S.A. is changing the way of using disposable gloves eliminating cross-contamination in the medical environment.





... Nutrium⁴ is a health-tech startup that developed a software for health professionals, with a focus on nutritionists and dietitians. The software allows professionals to deliver more effective nutritional care by streamlining client management through meal planning, nutrient analysis, and progress tracking. In turn, this allows clients to have continuous access to their dietary plans and advice, while health professionals can monitor and support their clients in real time.

1. Gross value added 2017-2021.

2. Compound annual growth rate.

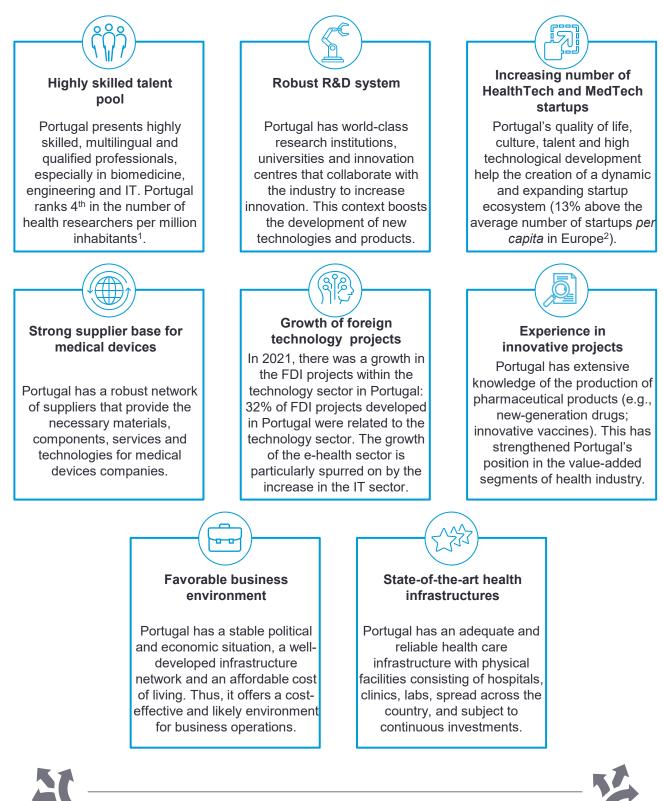
3. Weight of health-based startups in total startup ecosystem in 2021.

Source: Statistics Portugal, Eurostat.

FDI attractiveness factors for the Health industry

009

Portugal holds several favorable factors that enhance the country's attractiveness to FDI...



External challenges to which the health industry in Portugal is responding

Growth of telemedicine

Betting on preventive medicine

Application of **Artificial** intelligence and **Cybersecurity** in Health

Increase of ageing population

Source: EY-P Analysis; AICEP (2022), Study of characterization and potential of the Life Sciences sector in Portugal.

Appendix

Health Economic Activity codes* and combined nomenclature¹

NACE	Description	Subsector	
21	Manufacturing of base pharmaceutical products and pharmaceuticals preparations	Pharma & Biotech	
7211	Biotechnology investigation and development		
266	Electrotherapeutic, electromedicine and radiation equipment manufacturing	Medical Devices	
325	Medical surgical material and instruments manufacturing	Medical Devices	

CN	Description	Subsector	
3004.90.00	Medicaments consisting of mixed or unmixed products for therapeutic or prophylactic uses, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale (excl. containing antibiotics, hormones or steroids used as hormones, alkaloids, provitamins, vitamins, their derivatives or antimalarial active principles)	Pharma & Biotech	
3003.90.00	Medicaments consisting of two or more constituents mixed together for therapeutic or prophylactic uses, not in measured doses or put up for retail sale (excl. antibiotics containing hormones or steroids used as hormones, but not containing antibiotics, alkaloids or derivatives thereof, hormones, antibiotics, antimalarial active principles or goods of heading 3002, 3005 or 3006)		
2937.12.00	Insulin and its salts, used primarily as hormones		
3004.20.00	Medicaments containing antibiotics, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale (excl. medicaments containing penicillins or derivatives thereof with a penicillanic structure, or streptomycines or derivatives thereof)		
3004.10.00	Medicaments containing penicillins or derivatives thereof with a penicillanic acid structure, or streptomycins or derivatives thereof, put up in measured doses "incl. those for transdermal administration" or in forms or packings for retail sale		
9018.90.84	Instruments and appliances used in medical, surgical or veterinary sciences, n.e.s.	Medical Devices	
9001.50.49	Spectacle lenses of materials other than glass, both sides finished, for the correction of vision (excl. bi-focal or multi focal)	modical Dovides	

^{1.} The combined nomenclature codes mentioned in the table above are exclusively the ones referenced in this report in page 9. For the purposes of computing the industry's overall figures, the list available at the excel file that can be consulted in the Invest in Portugal site was used.

^{*}E-health data was selected individually (company by company), using SABI as the main source of information.

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