

CLUST-ER
HEALTH
SALUTE E BENESSERE



EXCELLENCES OF
EMILIA-ROMAGNA IN
**HEALTH &
WELLNESS**





Maybe you don't know it, but probably when you think of Italian excellence, you're thinking of our Region. Cars and bikes such as Ferrari, Lamborghini, Ducati, and food such as Parmigiano-Reggiano, Parma ham, balsamic vinegar are proudly made in Emilia-Romagna.

In arts, Verdi, Pascoli, Ariosto, Fellini, Pavarotti, Armani were born in Emilia-Romagna.

What about science? Guglielmo Marconi, Luigi Galvani, Lazzaro Spallanzani, they are all from Emilia-Romagna. But Emilia-Romagna is much more: it is the 1st region in Italy for the efficiency of the health system (Demoskopika, 2020), with a network of cutting edge University Hospitals, including Istituto Ortopedico Rizzoli, 8° Best Orthopedic Hospital in the World (Newsweek, 2022) and many other excellences.

The biomedical district in Mirandola, Modena province, is the core of the Medtech sector in Italy, with around 5,000 employees.

Advanced therapies and regenerative medicine are top-level sectors; the first stem cell medical product authorized by EMA in Europe was developed in Modena. The production of orthopedic prosthetic products in the Bologna area is another regional excellence.

Emilia-Romagna is the first region in Italy for innovation according to the European Innovation Scoreboard 2021, and the members of its Big Data Association manage 90% of the supercomputing resources for public research in Italy.

The Wellness Valley, in the Romagna area, relies on a widespread presence of spas and wellbeing centers and gives the chance to companies such as Technogym to start its own business.

The pharmaceutical sector is also strong, with giants such as Chiesi, Acme, or Alfasigma that have been operating in the territory for decades.

Regional innovation policy supports R&I activities carried out by enterprises, promotes the development of Industrial Research Laboratories and Innovation Centres located in the Technopoles and organized in the High Technology Network.

Clust-ER Associations are communities of public and private bodies (research centers, companies, training bodies) created to support the competitiveness of the most important production systems in Emilia-Romagna.

Clust-ER Health is the regional association focused on the development of strategic projects in the health sector. In this document you will also find the results of an analysis on the regional core assets commissioned by the Clust-ER to EY in 2020. You will see that Emilia-Romagna offers many opportunities to start new business, collaborations, partnerships and also innovative start-ups.



EMILIA-ROMAGNA: A EUROPEAN REGION



1st

REGION IN ITALY FOR
THE EFFICIENCY OF THE
HEALTH SYSTEM

Source: Demoskopika, 2020



A REGION OF HEALTH

18000 HOSPITAL BEDS

107 PATIENT-CENTERED MEDICAL HOMES

55 PUBLIC HOSPITALS (10 of them rank in the "Newsweek 200 World's best hospitals 2020")

5 Scientific Institute for Research, Hospitalization and Healthcare (IRCCS)

1st

REGION IN ITALY FOR
INNOVATION

Source: European Innovation
Scoreboard 2021



A REGION OF INNOVATION

The Regional Innovation Scoreboard 2021 elaborated by the EU Commission confirms the performance of the region as a "strong" european innovator. Although Italy is considered a modern innovator, Emilia-Romagna shows its ability to be included among the most advanced European regions.

Life expectancy
(source: Eurostat 2018)

81

EU 27

83.4

ITALY

83.9

EMILIA - ROMAGNA



A REGION OF WELLBEING

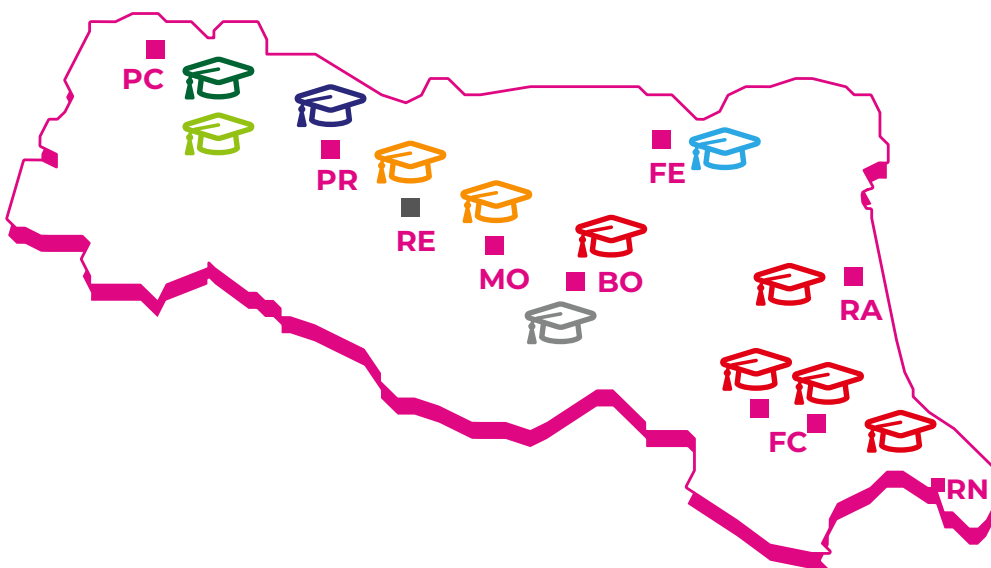
Italy is one of the countries with the highest life expectancy in Europe and Emilia-Romagna region shows data even higher than the national average.








Also, the so-called Wellness Valley, is now a case study for the attention of numerous governments and international organizations for the creation of effective, inclusive and sustainable integrated health systems.



TRAINING AND EDUCATION

Universities of Emilia-Romagna



-  University of Bologna
-  University of Modena and Reggio Emilia
-  University of Ferrara
-  University of Parma
-  Cattolica University
-  Piacenza campus of "Politecnico di Milano"
-  Johns Hopkins

Health & Wellness education offer in Emilia-Romagna

5 Universities

7 Campus

2 ITS foundations
(Higher Technical Institutes)

105 courses (three years and master degrees)

12 1st level master courses

18 2nd level master courses

16 PHD courses

9 Specialization courses



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA



**Università
degli Studi
di Ferrara**



**UNIVERSITÀ
CATTOLICA
del Sacro Cuore**





RESEARCH AND INNOVATION

Emilia-Romagna is the first region in Italy for innovation (European Innovation Scoreboard 2021) and ranks first also for gross expenditure in R&D per inhabitant (Eurostat 2019) with 45 thousand employees in the public and private research system.

Research activity is carried out by universities and research centres as well as by a network of industrial research labs and dynamic companies, both corporates and SMEs. Almost 1,300 innovative start-ups complete the picture.

+30.6%
EMILIA-
ROMAGNA

+19.3%
EU19

+22.4%
ITALY

**INTRAMURAL
EXPENDITURE IN R&D
INCREASED MORE
IN EMILIA-ROMAGNA
THAN IN ITALY AND EU
IN THE PERIOD 2015-19**

Source: Eurostat

SUPPORTED RESEARCH IN HEALTH RESULTS OF THE SMART SPECIALIZATION STRATEGY 2014-2020

(UPD. : JAN 2022)

269.75
million euros of
PUBLIC INVESTMENTS

605
funded
R&D PROJECTS

497
PATENTS

214
funds to
RESEARCH LABORATORIES

296
funded
INDUSTRIAL RESEARCH

162
NEW
START-UPS



INDUSTRIAL SECTOR

The health & wellness industry is widespread in the region with top companies and highly specialized SMEs, leaders in their respective niches. The main specializations and outstanding niches of the health & wellness industry are:

The Mirandola Biomedical District (Modena) with companies as Livanova, Gambro Baxter, Fresenius Hemocare, etc. The district is leader in the manufacture of dialysis, heart surgery, transfusion equipment, along with other top technology content products, as well of disposable plastic products for medical use.

A specialization in the production of medicines and pharmaceutical preparations in the province of Parma and in Bologna (e.g. Chiesi, Acme, Alfasigma, GSK).

The Regenerative Medicine Hub with its important research centres, companies and startups (Holostem, Finceramica, Greenbone) along with several advanced biomaterial centres (ISTEC, CNR,..).

Leading centres for the production of prostheses and rehabilitation in Budrio (Bologna), e.g. Inail centre.

The Wellness Valley in the Romagna area, with excellences as Technogym and a widespread presence of spas and wellbeing centres.

Packaging machinery/solutions for pharmaceuticals and biomedical products (e.g. IMA, Marchesini, Marposs).

Machinery, equipment and gears for electromedical as well as measuring, checking and surveying instruments (e.g. Cefla, GVS, Bellco).

Export from the health industry showed strong growth, in particular in the pharmaceutical segment (+160% in the 2008-2019 period, +44% in the first half of the 2019-21 period, source: Istat-Coeweb)

INTERNATIONAL TRADE FAIRS IN EMILIA-ROMAGNA

EXPOSANITÀ

Health and health care services
Bologna, www.exposanita.it

B.T. EXPO

Biomedical technologies
www.bt-expo.it

COSMOPROF

Perfumery and cosmetics
Bologna, www.cosmoprof.com

COSMOFARMA

Health, wellbeing and beauty
products and services for
pharmacies
Bologna, www.cosmofarma.com

EXPODENTAL

Dental sector
Rimini, www.expodental.it

RIMINI WELLNESS

World of sport (sports and
beauty equipment, clothing,
footwear, sports medicine and
nutrition, etc.)
Rimini, www.riminiwellness.com

131
thousand
employees
Small 2019

30
thousand
local units
Small 2019

3.3
billion euros
export
2019

1.5
billion euros
import
2019



INNOVATION ECOSYSTEM



Regional innovation policy supports R&I activities carried out by enterprises, promotes the development of Industrial Research Laboratories and Innovation Centres mainly located in the Technopoles and organized in the High Technology Network, fosters the regional Clust-ERs along with innovative business ideas and initiatives. ART-ER Attractiveness Research Territory is the Emilia-Romagna Joint Stock Consortium fostering the region's sustainable growth by developing innovation and knowledge, attractiveness and internationalisation of the region.

THE EMILIA-ROMAGNA HIGH TECHNOLOGY NETWORK

92 INDUSTRIAL RESEARCH LABS AND INNOVATION CENTRES

10 TECHNOPOLES

20+ INCUBATORS AND STARTUP ACCELERATORS

OPEN INNOVATION INITIATIVES



11 THEMATIC CLUST-ERS

including Big Data Association and MUNER with more than 450 public and private entities involved



The Clust-ER Associations rely on the innovation capacity of the entire innovation system: within the Clust-ERs, research laboratories and innovation centres belonging to the regional High Technology Network team up with companies and higher education organisations to face common challenges, develop strategic projects and multiply opportunities.

Maximize the opportunities for participation in European programs, international research and innovation networks;

Create synergies and activate coordinated and stable networks and links with other public-private aggregations active in the same areas at national and European level;

Encourage initiatives in the field of higher education and the development of human resources;

Support the development of new research infrastructures of general interest for the Emilia-Romagna area

CLUST-ER HEALTH

A **QUADRUPLE HELIX** ASSOCIATION
SUPPORTING THE **COMPETITIVENESS**
OF THE **EMILIA-ROMAGNA HEALTHCARE SECTOR**



POLICY ADDRESSING / COLLABORATIVE PROJECTS / ACCESS TO FUNDING / NETWORKING / INTERNATIONALIZATION

MORE THAN 100 ASSOCIATES

4 DIFFERENT VALUE CHAINS



New Generation
Medtech and
Prothetics



Regenerative
and Restorative
Medicine



Pharmaceutical
and Omics
Sciences



Technologies &
Services for
Healthy Living
and Active Aging

BUILDING THE FUTURE OF THE REGIONAL HEALTH INNOVATION

REGIONAL SMART SPECIALIZATION STRATEGY (S3)

Clust-ER Health's associates were involved in the revision of the strategy in 2018, to update the technological priorities that had been identified in the definition phase of the S3.

In 2020, the Emilia-Romagna Region, supported by ART-ER and Clust-ERs, launched the participatory process to define the new Smart Specialization Strategy in view of the start of the 2021-2027 European Fund programming.

CLUST-ER HEALTH ACTION PLAN

Clust-ER Health is developing its own Action Plan, with specific Strategic Priorities and Lines of Intervention, which will lead to the definition of executive projects to benefit from the programs of regional, national and community funding. The aim is to promote construction or enhancement of infrastructure for research, collaborative industrial research projects, productive investments, actions for high schools skills, creation of laboratories and hubs open to the ecosystem and businesses. The strategic priorities are the result of an analysis carried out within the Value Chains and different working groups with the aim of defining the projects with the greatest impact, in consideration of the regional assets and the characteristics of the different supply chains, also taking into account the cross-Value Chain and cross-sectoral dimensions referring to the other S3 priority areas defined by other regional Clust-ERs.




INTERNATIONALIZATION

Clust-ER Health promotes the participation of its members in the most international important scientific and economic events of relevance in the pharmaceutical, biomedical, biotechnology, life sciences and wellness sectors.

Through the constant collaboration with ART-ER, the Internationalization Working Group of ALISEI, ICE and in accordance with the internationalization strategy developed by the Clust-ER itself and reviewed annually, programs, missions and participation in fairs are activated.

A FOCUS ON THE MOST STRATEGIC ASSETS

Clust-ER Health, in collaboration with EY, performed an analysis of the regional health sector. The analysis took in consideration:

-  Economic and occupational value
-  Quality of research
-  Distinctive aspects and uniqueness
-  Industries and key players
-  Excellences

Seven assets were identified for their relevance at international level, the potential and the capacity to attract scientific and business collaborations.

The 7 healthcare assets of the Emilia-Region are:



PHARMA & ATMPs



BIOMEDICAL TECHNOLOGIES



BIG DATA & DIGITAL HEALTH



ORTHOPEDICS



NEUROSCIENCES



NUTRACEUTICALS




ANIMAL HEALTH





PHARMA & ATMPs

Some of the major Italian pharmaceutical industries are based in Emilia-Romagna, with a strong trend to invest in innovative research. Also, skills on the most modern methodologies for studying the genome and interpreting its variations are well developed.

Advanced therapies are a strategic asset for the region, with scientific excellences and entrepreneurial initiative. Today, it can rely on dedicated research centres, clinical structures, GxP facilities and networks at national and international level. This also generates important satellite activities in the equipment industry, combining competences with the medical device sector.

 The turnover generated in Emilia-Romagna by the pharma industry is approximately 1.4 billion euros and generates more than 4,035 jobs.

 In ATMPs research, out of a total of 160 universities and research centers identified at international level, the University of Bologna ranks 95 with 1,852 publications in this field

 The world's first stem cell-based drug was created by Holostem, a spin-off of the Regenerative Medicine Center of the University of Modena and Reggio Emilia

KEY INDUSTRIES



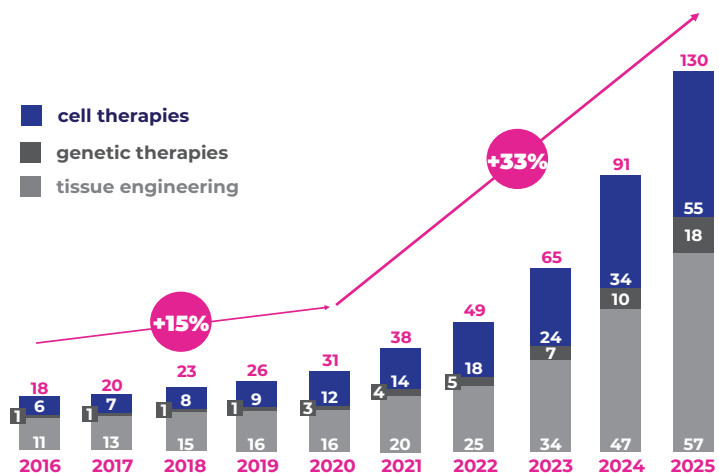
EXCELLENCES

Presence of internationally known excellences, such as the Centre for Regenerative Medicine «Stefano Ferrari» of the Modena University, hospitals able to perform clinical studies for ATMPs, biobank networks, centers focused on biomaterials and companies, such as Holostem and Rigenarand.

GLOBAL TREND

In 2019, the market value of the ATMPs was approximately 26 billion euros and was represented for 34% by cell therapies, 3% by gene therapies and 63% by tissue engineering.

In 2025, the market will see an increase in the importance of cell and gene therapies, at the expense of tissue engineering; it is estimated to hit 130 billion euros in 2025, with a rate of growth of 33% in the period 2020 - 2025.






SOURCE: EY based on Verified Market Research data (2020)



BIOMEDICAL TECHNOLOGIES

The biomedical sector represents an industrial excellence in Emilia-Romagna, for the presence of numerous foreign companies that allows the establishment of strong relationships both at a national and international level. The sector can rely on innovative design activities, from materials to processes, and on skills as clinical testing and validation that significantly shorten the path of new products to the market.

-  The biomedical sector generated 9,849 jobs in Emilia-Romagna in 2017, and the Mirandola and Bologna districts generated a turnover of over 1.6 billion euros in 2018.
-  Out of a total of 160 universities / research centers identified at international level, the University of Bologna ranks at 86th position with 1,164 publications in this field.
-  In the small town of Mirandola is located one of the biggest Medtech district of the world that counts over 100 companies, employing 4,900 people.

KEY INDUSTRIES



EXCELLENCES

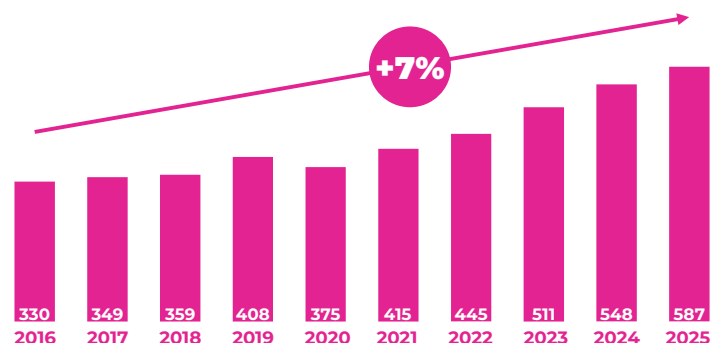
The Mirandola Biomedical District is a world leader in the production of disposable plastic materials for use in the field medical and high-tech equipment used for various branches of healthcare. It represents a pole of excellence, where the first artificial kidney, hemodialysis blood circuits and many other innovative products were devised. The Mirandola Biomedical District can rely on Mirandola Technopole (TPM), which support companies with medical device regulation, R&D projects and other services.

GLOBAL TREND

In 2019, the value of the biomedical market was 408 billion euros; it is expected to reach 587 billion in 2025, with a growth rate of 7% between 2016 and 2025.

Due to the Covid-19 pandemic, a decrease of -8.2% is expected between 2019 and 2020 (from 408 billions of euros to 375 billion euros)

The most important segment is prosthetics, which covers almost half of the total market value total





SOURCE: EY based on Verified Market Research data (2020)



BIG DATA & DIGITAL HEALTH

Emilia-Romagna is a highly dynamic and innovative region: in the last years, most sectors of excellence in the Region are moving towards a digitalization of processes, including health care data collection and management. Thanks to the investments and skills, the Region is considered as the "European Data Valley", with the best supercomputers in the world.

 The big data and digital health sector generates approximately 91 million euros in turnover and 1,303 jobs in Emilia-Romagna.

 More than 90% of the supercomputing resources for public research in Italy are managed by the members of the Big Data Association

 Emilia-Romagna owns one of the most complete EHR database in Italy, collecting data from patients for more than 30 years

INDUSTRIES & KEY PLAYERS



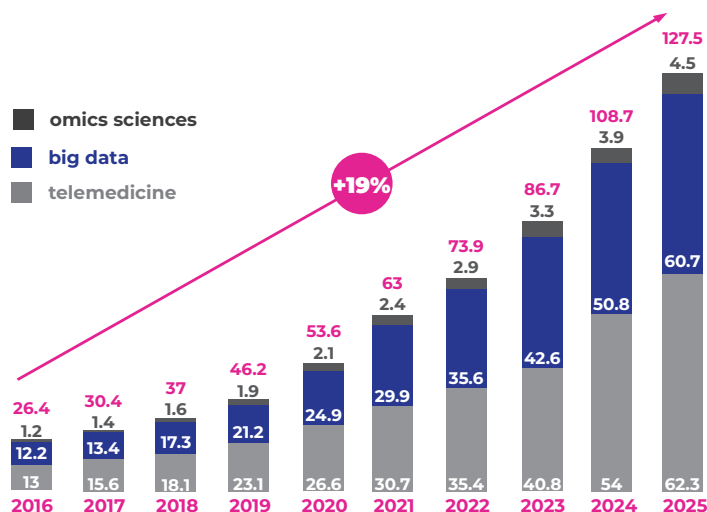
EXCELLENCES

The Big Data Technopole - Bologna Hub will be the international digital hub hosting HPC infrastructures, such as the world class pre-exascale HPC supercomputer that will be one of the three precursors to Exascale Supercomputer at European level.

GLOBAL TREND

In 2019, the total market for big data and digital health was equal to 46 billion euros, and will reach 127 billion euros in 2025, with a considerable growth rate of 19%.

Telemedicine is the segment with the most expected growing over the period 2016-2025, that will be equal to half the market value in 2019.




SOURCE: EY based on Verified Market Research data (2020)





ORTHOPEDECS



The orthopedic sector, due to the presence of world-class companies, can rely on strong collaborations with universities and research centers, both at European and international level. Given the characteristics of the orthopedics products, the number of competitors and the growth rate, orthopedics is a highly competitive market, in which innovation and efficiency play a key role on the chance to be successful.

 The orthopedic devices sector and prosthesis generates around 94 million euros in turnover and around 500 jobs in Emilia-Romagna.

 Out of a total of 160 universities / research centers identified, the University of Bologna ranks 17th with a total of 1373 publications.

 The Rizzoli Orthopedic Institute was the first hospital in the world to make a custom-made 3D-printed prosthesis.

INDUSTRIES & KEY PLAYERS



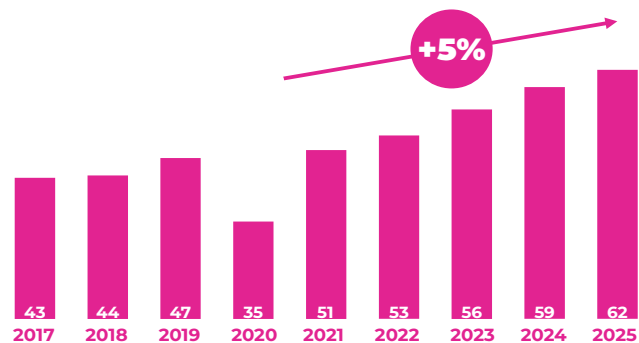
EXCELLENCES

Presence of excellences, such as the Rizzoli Orthopedic Institute (the 8th best Orthopedic hospital in the world according with Newsweek, 2022), the National Prosthesis Center of INAIL in Budrio and the CNR-ISTEC, the national institute for science and technology in ceramics.

GLOBAL TREND

In 2019, the market value of orthopedic devices and prostheses was estimated at 47 billion euros, with a expected reduction of 35 billion euros (-25.6%) in 2020, due to the Covid-19 pandemic.

The expected market value in 2025 is 62 billion euro, with a growth of 5% between 2021 and the end of period



SOURCE: EY based on Verified Market Research data (2020)




NEUROSCIENCES

The neuroscience sector in the Emilia-Romagna region has both significant infrastructures, including new laboratories and increasingly advanced instrumentation for research in the field of neurodegenerative diseases, and advanced know-how. New product introductions and technological advances have contributed to the diagnosis and treatment of neurovascular disorders, and research and development in neurostimulation devices will offer profitable growth opportunities for players in the global neurology devices market.

 The neurological medical devices sector generates around 42 million euros in turnover and around 60 jobs in Emilia-Romagna.

 The CNR of Parma ranks 76th on 160 with a total of 1,138 publications

 Prof. Giacomo Rizzolatti, from the Neuroscience Institute of CNR Parma, is known globally for the discovery of mirror neurons

INDUSTRIES & KEY PLAYERS



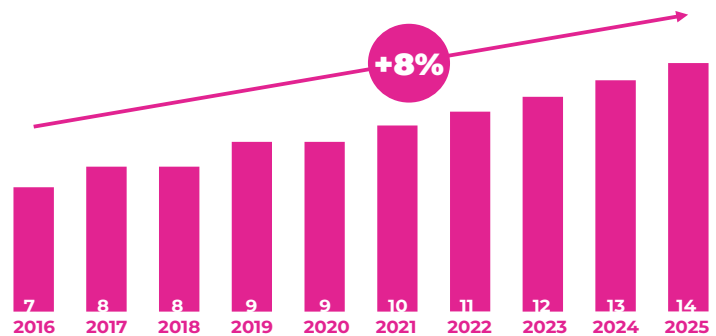
EXCELLENCES

Presence of excellent infrastructures, such as the IRCCS Bologna-Bellaria, Montecatone Institute, CNR, IRET Foundation. IRCCS Bologna-Bellaria is a promoter of the Italian IRCCS network for neuroscience and neuro-rehabilitation

GLOBAL TREND

In 2019, the market value of neurological devices is estimated at 9 billion euros. The expected value of the market in 2025 is 14 billion, with a growth of 8%.

The introduction of new products and the technological progress, especially related to devices for the diagnosis, contributed to the treatment of neurovascular disorders, and they are expected to provide profitable opportunities for market expansion during the forecast period.






SOURCE: EY based on Verified Market Research data (2020)



NUTRACEUTICALS

The development and production of nutraceuticals in Emilia-Romagna has increased in the last years due to rising attention to lifestyles, to provide effective solutions for improving health and reducing the risk of disease through prevention.

Nutraceuticals represent a new consumer sector, in which the pharmaceutical and the food industry are investing heavily. Strong collaborations on research projects are in progress today, involving universities, manufacturing companies and technopoles of Emilia-Romagna, to ensure a new future for efficiency, quality and safety of nutraceuticals.

-  The turnover generated in Emilia-Romagna is approximately 1.4 billion euros and generates more than 4,035 jobs
-  On a total of 160 universities and research centers identified at international level, the University of Bologna ranks 32° with 366 publications
-  Emilia-Romagna is among the regions with a greater number of companies producing nutraceutical products

KEY INDUSTRIES



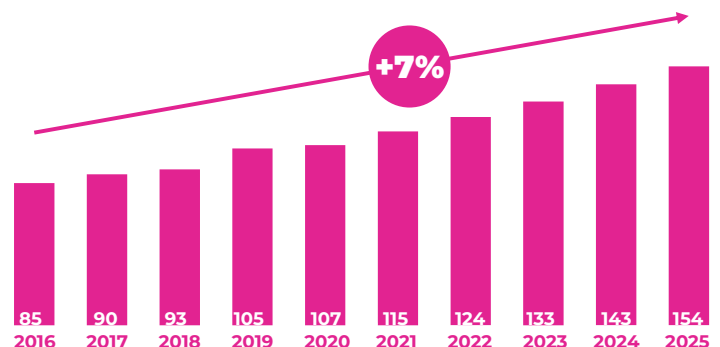
EXCELLENCES

Presence of excellent infrastructures such as the Microbiome Research Hub of the University of Parma, the Inderdipartimental Center on Agrifood of the Bologna University and the Technopole of Forlì-Cesena.

GLOBAL TREND

In 2019, the nutraceutical market value was 105 billion euros. It is expected to reach 154 billion euros in 2025.

Market growth of 13% between 2018 and 2019 will slow due to the effects of the pandemic from Covid-19 (+ 2% between 2019 and 2020), and will grow again in 2021 at a faster rate (+ 7% between 2020 and 2021 and overall on the whole period)






EY based on Verified Market Research data (2020)



ANIMAL HEALTH



The veterinary pharmaceutical market is competitive and many production sites for medicines manufacturing are based in Emilia-Romagna. The agri-food safety sector is one of the main application in Emilia-Romagna: it mainly includes vaccines, in addition to the monitoring of infectious diseases in livestock and recovery plans for the eradication of animal diseases.

-  The veterinary pharmaceutical sector in Emilia-Romagna generates around 250 million euros turnover and 780 jobs.
-  Out of a total of 160 universities and research centers identified at international level, the University of Bologna ranks 85th with a total of 488 publications.
-  13 production sites for veterinary pharmaceutical, out of a total of 81 throughout Italy, are located in Emilia-Romagna

KEY INDUSTRIES



EXCELLENCES

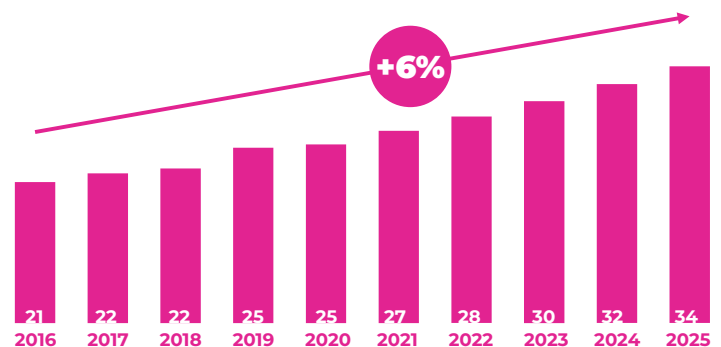
Presence of Excellence such as the Experimental Zooprophyllactic Institute of Lombardia and Emilia-Romagna "Bruno Ubertini" (IZSLER) and the Animal Production Research Center S.p.A. (CRPA).

IZSLER is currently managing the largest veterinary biobank facility in Italy for the storage of animal biological resources. CRPA participates as coordinator and partner in numerous European research projects.

GLOBAL TREND

In 2019, the veterinary pharmaceutical market was worth 25 billion euros, and will reach 34 billion euros in 2025, with a growth rate of 6% between 2016 and 2025.

The producing animal segment is leading the veterinary pharmaceutical market, representing 50% of the value in 2019. The remaining 50% is represented by drugs for pets, 40% of which is the share of drugs for dogs.



SOURCE: EY based on Verified Market Research data (2020)

RELEVANT INFRASTRUCTURES, HUBS, NETWORKS



ADVANCED THERAPIES REGIONAL NETWORK

Advanced Therapies and Regenerative Medicine are a strategic priority for the Emilia Romagna Region, involving local stakeholders as universities, specialized research centers and companies.

The Network focuses its interest on therapeutic approaches aimed at replacing and / or regenerating damaged or lost cells, tissues or organs, mainly through somatic cell therapy approaches, exosomes, gene and cell therapy (including anti-tumor), combined advanced therapy and extensively manipulated tissue engineering (defined as Advanced Therapy Medicinal Products in EU regulation No. 1394/2007).

Regional companies provide know how and support services and equipment such as packaging, tracing, testing and logistics, companies operating in the plant engineering sector, technical furnishings, isolators and structures for GMP classified environments.

Thanks to the multidisciplinary competences of regional stakeholders, the network is able to deal with every aspect of the development of ATMPs and regenerative medicine products.

THE NETWORK

Universities & Research Center

Centro di Medicina Rigenerativa
"StefanoFerrari"



Companies



Hospitals



THERAPEUTICS APPROACHES

Optimization of cell types characterization and culture techniques, isolation and characterization of exosomes, gene correction (also through new replacement and gene editing technologies), and new quality control platforms to deliver optimal cell products;

Development of logistics for the delivery and administration of ATMPs with particular regard to the cold chain;

Stimulation of the self-repair of tissues and organs, i.e. the ability to repair damage by controlling concurrent pathological events, such as inflammation, hypoxia, immune reaction and simultaneously stimulate stem cells and endogenous precursors;

Use of biomaterials / scaffolds (semi synthetic, natural derived from autologous and homologous or biomimetic tissues including decellularized matrices);

Use of cells and cellular derivatives, drugs (including nutraceuticals), physical stimuli (pulsed electric fields and electromagnetic fields, lasers, plasma, photostimulation, etc.), biosensors, and combinatorial products that can be classified as medical devices, advanced medications or therapies advanced;

Development of new scaffolds and bioreactors for tissue colonization and engineering, with standard and innovative methods also based on micro- and nanotechnologies that can be combined with 3D printers for personalized medicine;

Development of new therapies and new diagnostic systems, such as sensors, nanoelectrodes, nanoparticles for cell and molecular guiding, bioreactors, biomaterials, intelligent materials, bone cements and injectable pastes, biomimetic materials for cell recruitment and stimulation;

Development of advanced training courses for specialized personnel generated also thanks to its Universities;

MIRANDOLA BIOMEDICAL DISTRICT

Mirandola Biomedical District is home to over 100 companies specialized in plastic disposable products and electro-medical devices.

The fields of application are hemodialysis, heart surgery, anesthesia and resuscitation, dialysis, aphaeresis and plasmapheresis, transfusion, nutrition and gynecology.

In 2012, an earthquake, which landed two annihilating blows on the entire region, paralyzed around 70% of production capacities.

Companies rebuilds their factories, carrying out their work in provisional containers and tents.

The Emilia-Romagna decided to invest 25 million of euros generating 60M€ of total investments. 4 million of euros were for the Mirandola Technopole TPM, a biomedical center, which includes a Higher Technical Institute, universities, labs, incubators and a medical device regulation service provider.

Now, 5,000 people work in medtech companies in and around Mirandola and generated sales of over 1 billion euros, 40% of which came from exports. Large multinationals including B. Braun, Baxter, Fresenius Kabi, Livanova, Medtronic and others already invested in Mirandola.

Supporting facilities

TPM supports companies in the design, development and validation of new materials, products, measurement systems and equipment. TPM also provides support services to companies in the context of the new European MDR legislation for EC certification or for the required registrations in the out-of-EU countries.

TPM Cube is dedicated place for ideas incubation, enterprise laboratories and start-ups belonging to the biomed, biotech and nanotech sectors. Services provided include: access to office spaces, laboratories (private or common), specific advices (research, regulation, market access, etc), networking and fundraising.

The Foundation “Istituto Tecnico Superiore Nuove Tecnologie della Vita” (ITS Biomedicale), runs two-year post high school diploma courses for the education of new technician figures for the production of biomedical devices and devices.



BIG DATA TECHNOPOLE

Emilia-Romagna qualifies as an international Data Valley boasting top world supercomputers, cutting edge data centres and a wide 'big data community' with policies supporting new investments and a dynamic business environment aimed to put Europe on a par with the giants USA and China. The Big Data Technopole - Bologna Hub will be the international digital hub hosting HPC infrastructures, namely: world class pre-exascale HPC supercomputer that will be one of the three precursors to Exascale Supercomputer at European level, European Centre For Medium-range Weather Forecasts (ECMWF) Data Centre, the new CINECA - INFN complex, the Competence Center Industry 4.0 BI-REX, the bio- banks of the Rizzoli Institute of Bologna, the Regional Agency for weather forecasts, environmental protection and energy ARPAE Emilia-Romagna, ENEA, as well as small and large companies.

LEONARDO SUPER COMPUTER

EU chose the 'Big Data Technopole - Bologna Hub' as location of the new supercomputer Leonardo, worth 120 million euros, positioning the region among the world's top computing hubs.

INTERNATIONAL FOUNDATION ON BIG DATA AND ARTIFICIAL INTELLIGENCE FOR HUMAN DEVELOPMENT

The Foundation aims to be an independent and influential international point of reference for the scientific and cultural debate on human development, sustainability and new science. Its main objectives are: reinforcing, enhancing and promoting scientific research and its cross-disciplinary implications, with particular focus on BD and AI; designing scenarios related to economic and social transformations in connection with climate change, health crisis and other great challenges of our time; dissemination of the role and potential of AI and BD in addressing global issues with an impact on people's lives.

BIG DATA ASSOCIATION

The Associazione Big Data was set up to interconnect and jointly exploit the knowledge, research and innovation potentials of high performance computing, big data analysis, deep and machine learning algorithms, high bandwidth networks. The Association is open to national and international stakeholders from the scientific, research and business communities and aggregates public organisations managing facilities and possessing skills and knowledge relating to big data, their applications and possible impact on the daily lives of citizens. More than 90% of supercomputing resources for public research in Italy are managed by association's members.

CINECA

CINECA is a Consortium composed by 98 universities and public institutions, led by a Board comprising the Ministry of Education and the Ministry of University and Research. Cineca's supercomputers are among the most important in Europe and worldwide, always present in the Top 500 list of the most powerful supercomputers in the world.

BI-REX COMPETENCE CENTER

The Bi-Rex - Big Data Innovation and Research Excellence is a Competence Center coordinated by the University of Bologna with a group of 57 stakeholders including five regional universities (Bologna, Ferrara, Modena-Reggio, Parma, La Cattolica), organizations part of the regional research system such as CINECA, CNR, ART-ER, IOR, INFN as well as companies among which IBM, Philip Morris, Siemens, Manz Ag and many other regional excellences.

The region concentrates investments and skills qualifying it as a '**European Data Valley**' with top world supercomputers.

>90%

SUPERCOMPUTING RESOURCES FOR PUBLIC RESEARCH IN ITALY MANAGED BY BIG DATA ASSOCIATION MEMBERS

140

EUROPEAN FUNDED PROJECTS -H2020, FP7, CEF

>2.1 BLN€

TOTAL COSTS OF THE PROJECTS

160 MLN€

EU FUNDS

SUPPORTED BY REGIONAL POLICIES AND BIG DATA AND ARTIFICIAL INTELLIGENCE COMMUNITIES

FOCUS

INDUSTRY 4.0

LIFE SCIENCE AND HEALTHCARE

CLIMATE, WEATHER AND SUSTAINABILITY

SMART CITIES, SMART MOBILITY

EDUCATION AND TRAINING

MASTER DEGREES

AI ACADEMY MUNER

PHD COURSES

RESEARCH FELLOWSHIPS BD&AI

DATA LAB

EMILIA-ROMAGNA: A PLACE TO INVEST

TOP 10 LARGE EUROPEAN REGION FOR FOREIGN DIRECT INVESTMENT (FDI) STRATEGY

Source: FDI Financial Times - Report "European cities and regions of the future 2022-23"

ATTRACTIVENESS PROGRAMME

EMILIA-ROMAGNA GO GLOBAL 2021-25

The programme is aimed at expanding the regional relations at international level, targeting Northern America, India, Japan, Korea and ASEAN countries in the fields of innovation and education in health, digital, green and creative industries.

REGIONAL LAW FOR THE PROMOTION OF INVESTMENTS (R.L. 14/2014)

The region is governed by a business-friendly public administration that supports new investments, offering financial incentives and reliable governance together with easy and fast procedures, also with a specific Law for the Promotion of Investments. The law supports innovation and specialization and encourages R&D projects by entering into agreements directly with investors.

In addition, it guarantees regional coordination on procedures and collaboration with local bodies and stakeholders.

TALENT ATTRACTION

→ internationaltalents.art-er.it

It-ER - International Talents Emilia-Romagna program is aimed at promoting Emilia-Romagna study, research and career opportunities among international talents and Emilia-Romagna expats. It provides information regarding services and initiatives to support talents to move and live in Emilia-Romagna as well as information regarding regional networks and communities, making easier to be part of the regional ecosystem.

INTERNATIONAL PRESENCE AND COLLABORATION

EMILIA-ROMAGNA HUB IN SILICON VALLEY

In 2015 the Emilia-Romagna Region opened an Innovation Hub in Silicon Valley managed by ART-ER to support startups and innovative companies to approach the Silicon Valley ecosystem and internationalization towards the North American market. Since 2018, ART-ER has expanded the action of Hub setting up and consolidating relations with the main innovation centers and ecosystems in North America. The purpose is to develop contacts in strategic specializations and find top level expertise and potential partners to develop targeted collaboration projects.

emiliaromagnainsiliconvalley.it/en

About 1,200 foreign companies have already invested in Emilia-Romagna, which is recognized by the Foreign Direct Investment division of the Financial Times as a Top European Region. They include:

Altana, Amazon, AVL, B.Braun, Baxter, Basf, Crown, Daimler, Dover, Fev, FAW-SilkEV, Fresenius, Gea, GSK, Ibm, Lovol Arbos, Manitou, Manz, Marini-Fayat, Medtronic, Philip Morris, Schneider Electric, Siemens, TetraPak, Toyota, Volkswagen, Weichai and many more.



CLUST-ER INDUSTRIE DELLA SALUTE E DEL BENESSERE

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