Biotechnology, pharmaceutical and life sciences

Healthcare Technology

This consists of the **development of innovation in the field of healthcare technology**. This term, recognised in Spanish legislation as "medical device" includes any instrument, apparatus, or medical or surgical procedure intended for the diagnosis, prevention, control, or treatment of an illness, impairment or injury to a patient. Medical device can be classified according to the intended purpose of medical devices in general, active implantable medical devices and medical devices for in vitro diagnosis. **The EC market and the adoption of quality standards ISO 9000** along with the transfer to domestic laws of the various European directives governing the sector allow the free movement of healthcare technology within the European Union.

ORIGIN OF THE INVESTMENT OPPORTUNITY

ECONOMIC/BUSINESS | **DEMAND** | **REGULATIONS** | **TECHNOLOGY**

The effect of technological obsolescence of equipment, along with increased clinical **expectations** of citizens and professional demand, boosts investment in R+D in healthcare technologies. This development should provide the clinician with diagnostic and functional information about their patients without precedents and support systems for faster and intelligent diagnosis, support decision making, simplify and increase the **productivity** of the healthcare sector.

The situation of obsolescence has worsened considerably in Spain in recent years as a result of reduced health spending since 2008 in the sector. Currently, the rate of renewal in Spanish hospitals is insufficient to maintain a technological balance and meet the **guidelines of the European Coordination Committee of the Radiological, Electromedical and Healthcare IT Industry.** These guidelines state that: the age of at least 60% of medical technology should be less than five years, at most 30% of computers with an age between 6 and 10 years and a maximum of 10% of devices more than 10 years old. The latest data shows that the Spanish hospital technological profile is close to triple the recommended European standards for obsolescence. (1)

LOCATION OF THE INVESTMENT OPPORTUNITY IN THE SECTOR VALUE CHAIN

Research → **Scale** → **Production** → **Commercialisation**

The age of healthcare technology, mainly in material diagnosis, monitoring and treatment of patients, gives rise to the opportunity to upgrade production facilities and renew equipment which has become obsolete. A key opportunity for foreign companies to come to manufacture and market their products, equipment, devices, etc. in Spain and supply the nearly 800 hospitals that make up the National Health System.

DIFFERENTIATING FACTORS OF THE INVESTMENT OPPORTUNITY

CONSUMER/USER

- Innovation
- Price
- Quality

- Improving the **quality of life** of chronically ill patients and people suffering from debilitating diseases.
- Innovation and improving **efficiency** of devices and healthcare systems, contributing to greater **accuracy, speed and certainty** in the diagnosis, monitoring and treatment of disease.

COMPANY/INNOVATION

- Operations
- Supplies
- New business lines

- Improved **competitiveness** resulting from the investment in R+D.
- The recent increase in both public and private collective health coverage guarantees the absorption of innovation, **creating an aggregate demand** due to risk accumulation and providing a stable level of use of new technologies introduced in into healthcare.

SOCIETY

- Environment
- Well-being
- Safety

- It contributes to the **welfare** of citizens through the application of biomedical engineering in the research, design, manufacture and sale of devices or appliances that alleviate pain, restore health and extend life.
- It increases the **assurance** of citizens in the National Health System.
- Technological innovation allows greater health **coverage** for citizens.

INVESTMENT OPPORTUNITY LIFE CYCLE

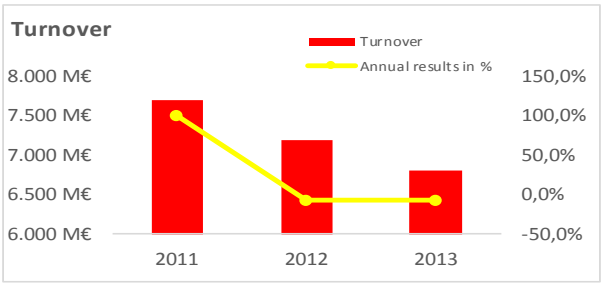
DEVELOPMENT | INTRODUCTION | **GROWTH** | MATURITY

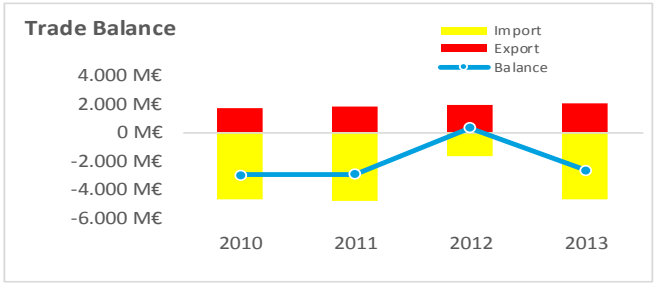
The health system is in a **process of evolution** toward a more modern, efficient, flexible and effective system, which is coming about through the application of **ICT in the field of health** (remote monitoring of chronic patients or dependants, interconnection of centres, electronic prescriptions, etc.), the incorporation of **biomaterials** and the application of new **biotechnological** advances.

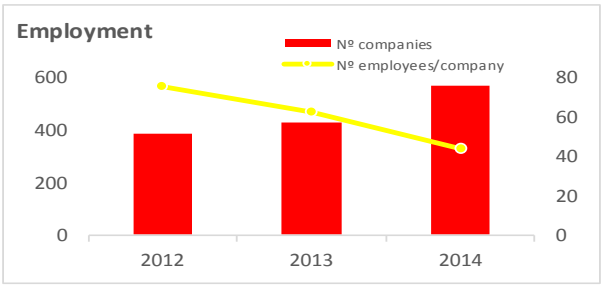
To carry out and promote that development it is necessary to invest and expand coverage and infrastructure of the healthcare technology sector and commit to the subsectors that have more impact and relevance for this digitisation process in the healthcare sector: **the Technology Sector and Clinical Information Systems.**

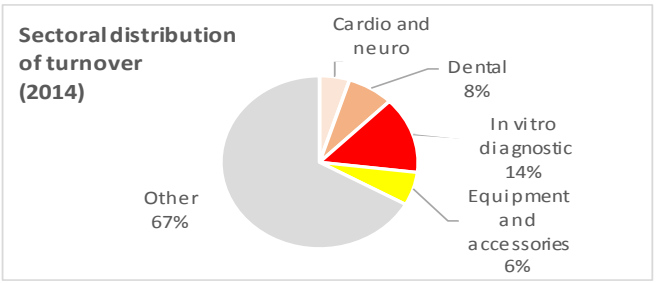
Sources: (1) Report - Technological Profile of Hospitals in Spain - Spanish Federation of Healthcare Technology Companies (Fenin). Healthcare Technology From Spain.

CHARACTERISTICS OF THE SECTOR (2)









SUPPLY

TOP 5 COMPETITORS IN SPAIN

#	Company	Net sales	Last available data
1	GE Healthcare	€252.95 M	2003
2	Abbott Laboratories	€499.49 M	2013
3	INDAS	€324.22 M	2014
4	Medtronic	€61.17 M	2013
5	GT-Medical	€3.66 M	2013

DEMAND

GROWTH

- In Spain, the Medical Devices sector generated a turnover of approximately **6 billion euros in 2014**. Of this amount, approximately 70% corresponds to the public health market. (2)
- In recent years the demand for healthcare technology in the **Technology and Clinical Information Systems** Sector has experienced above average growth, with an increase of 14% in 2014. Other sectors that performed well are Dentistry (6.9%), Ophthalmology and lenses (5%), Nephrology (3%) and material for healing and dressings (3%). (2)

SUCCESS STORIES

GE Healthcare

With its headquarters in the United Kingdom, **GE Healthcare** is a 17 billion US dollars division belonging to the company **General Electric**. GE Healthcare range is comprehensive, from **clinical devices** and imaging products in conventional or innovative ways, to materials for minor surgery, surgical guides, biopharmaceuticals and integrated technological solutions, through to performance improvement solutions.
GE has had a presence in **Spain** since the 50s and has about **2,200 employees** in its industrial, technological and financial divisions, spread over 25 workplaces, including production facilities.

HARTMANN

The HARTMANN GROUP is a leading international company in the field of health and medical care in the European market and was founded in Heidenheim, Germany. In 2014, the group achieved a global turnover of 1.862 billion euros.
In Mataro (Barcelona), Hartmann has its Spanish corporate headquarters and the **Centre of Competence for the Development and Innovation of global manufacturing**, the only of the group's production plants engaged in the manufacture of products such as Tiritas, Cosmopor dressings and Omnifix. Currently, Hartmann Spain is the fifth largest of the group's subsidiaries worldwide, with more than **98 million** euros turnover in 2014 and with over 300

VirtualRehab

VirtualRehab is the **first product** that uses virtual rehabilitation devices like Microsoft® Kinect or LeapMotion with the **CE mark** to show that it complies with the directives of the European Community as a medical device This product is aimed at professionals in the field of health, rehabilitation centres, clinics, hospitals, day centres, associations, etc.
A recent study presented at the 8th World Congress of Neurorehabilitation has shown that the use of VirtualRehab in patients with physical disabilities significantly improves static and dynamic balance, fatigue level and degree of functional independence.

Sources: (2) – Report 2012, 2013, 2014 - Fenin. Hartmnn. VirtualRehab.

POSITIVE FACTORS FOR INVESTING IN SPAIN

Favourable factors in Spain for the development of the opportunity

FENIN

The Spanish Federation of Healthcare Technology Companies (FENIN) is a national organisation with over **500 members grouped into 15 sectors**. Its main areas of work are issues of global or sectoral nature which affect the activities of companies such as: **European Affairs**, Communication and dissemination of the value provided by Healthcare Technology, Government Procurement, Market Access and Health Economics, Market research, Training, R+D+i, Legislation.

Centres of innovation in healthcare technology

The medical technology sector has committed to an open structures that are able to attract the knowledge economy, efficient health innovation and contribute to economic recovery, through formulas of **open network research** and networking to optimise existing resources. MEDINTECH is an example of this. It is a nationwide **virtual services platform** of healthcare technology innovation formed by companies, universities, technology centres, hospitals and government agencies, and contributes to expediting the **transfer of innovative solutions** to the market in the healthcare sector.

High concentration of hospitals

Spain has an **extensive network of hospitals**, exactly 787, distributed throughout the country. The **occupancy rate** of these centres is 80%; about 70% of beds are used for general care, 20% go to admissions and long-stay hospitalisations, and 10% are used by psychiatric patients. (3)

Social factors and habits

The forecasts of the Spanish population by age reveals a progressive and continued ageing of the population. The percentage of population over 65 years old currently stands at 18.2% and will become 24.9% in 2029 and 38.7% in 2064, according to the INE (Spanish Statistical Office). This projection places the Spanish population as a market with great potential in terms of **healthcare**.

Favourable factors for the sector in Spain

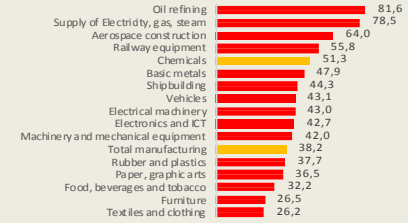
Macroeconomic situation

Throughout 2014, the market for **healthcare technology** showed a slight recovery in the turnover of around 2%, placing the market at **6.9 billion euros**. Sector exports totalled **2.20507 billion euros**, representing 0.95% of the exports of the industrial sector. (1)

Labour market

The **average productivity per employee** in the chemicals sector is **91,400 euros** per year. Their **average individual remuneration** is **51,300 euros per year**. The **Unit Labour Cost** accounts for **56.1%** of the ratio between the remuneration per employee and the individual productivity (productivity defined as value added per employee). (4)

Remuneration per employee (thousands of €)



Graph created using data from the Sectoral Presentation: chemicals sector. April 2015. Ministry of Industry, Energy and Tourism

Incentives

The Centre for the Development of Industrial Technology (CDTI) finances R+D projects in four categories: Individual R+D projects, National Cooperation R+D projects, International Technological Cooperation Projects and specific R+D projects announced by the CDTI. Furthermore, there are other cross-sectional programmes promoted by the CDTI such as the línea Directa de Innovación, the línea de Innovación Global, **Innvierte and FEDER** (ERDF) **Innterconecta**.
Also, the **ICEX-IIS Technology Fund** funded by the ERDF and ICEX offers companies with foreign capital aid of up to 75% of the project to carry out **new R +D+i** in Spain.

I+D+i

The Spanish biotechnology companies involved in R+D+i are small: 84% of companies have fewer than 100 employees, 68% no more than 25 employees and 38% have less than 10 employees (micro), mostly spin-offs. In 2014, **58 biotech companies** started their activity in the sector.(5)

Market and potential

Spain is **ranked 5th** in the export of healthcare technology, mainly to the rest of Europe and the United States. It is the sixth largest European market, only behind to France, Holland, UK, Germany and Italy. It has the highest rate of **transplant donation** in the world, is the **third** in the world in assisted reproduction and **fifth** in biochemistry and molecular biology.

Geographic location

Spain is **within reach of three main regions**: the **European** region, the **Mediterranean** region and the **Atlantic** region. Spain is considered to be the **gateway** between **North Africa and Europe**, and a key **link** to **Latin America**, not only because of its geographical location but also because of its strong historical and cultural ties with the region. In Spain the **Canary Islands** play a key role with regards to **maritime traffic** with **West Africa**.

Technological and research infrastructure

The Healthcare Reputation Monitor (*MRS*) establishes the best public and private hospitals based on **indicators** such as human and material resources, number of beds, availability of basic and high-tech equipment, total admissions and average time of stay, and satisfaction with the service.
The **top five public hospitals** are La Paz, Hospital Clínic i Provincial de Barcelona, the Gregorio Maranon, Vall d'Hebron Hospital and 12 de Octobre. The five best **private centres** are the Navarra University Hospital, the HM Montepríncipe, the HM Sanchinarro, the Quirón de Madrid and the Hospital Ruber Internacional. (6)

Location of the top 10 public and private hospitals in Spain in 2014

Graph created using the results of the Health Reputation Monitor presented by Merco (2014)

Transport infrastructure and logistics networks

There are **250 airlines** operating in Spain in its 47 airports; its high-speed rail network is the 2nd best in the world and the best in Europe; it is ranked **1st in the EU for its motorway network**; and it has excellent sea connections to its **46 ports** distributed along the Atlantic and Mediterranean coasts. (7)

Sources: (3) Report – Health at a Glance: Europe 2014 - OECD (4) MINETUR, "Sectoral Presentation: Chemical industry" (2015) (5) MINETUR, "Report - profile of Spanish biotechnology companies involved in R+D+i" (2014) (6) MERCO, "Healthcare provision indicators" (2014) (7) Brand Spain, "Foreign investment in Spain and its socio-economic contribution" (2014)