ICT | Cybersecurity

This opportunity consists of the implementation of a process of analysis and management of risks related to the **use, processing, storage and transmission of information or data** and the systems and processes used based on internationally accepted standards(1).
Cybersecurity is the collection of **tools, policies, security concepts, security safeguards, guidelines**, risk management approaches, actions, training, best practices, **insurance and technologies** that can be used to protect the assets of an organisation and users in the cyber environment.

ORIGIN OF THE INVESTMENT OPPORTUNITY

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

The dependence of society on ICT and **cyberspace** grows every day. Knowing **threats**, managing **risks** and having the adequate capacity for **prevention, defence, detection, analysis and research** is a priority for all actors in society: businesses, citizens and public administrations. In recent times, the **growing importance of the digital economy** on the economy as a whole and its **vulnerability to global cyberattacks** has highlighted the **need** for the **cybersecurity sector** to provide solutions to the challenges of network security. The multiplicity of potential attackers increases the risks and threats that can put the services provided of public administrations, critical infrastructure or the activities of businesses and citizens in serious difficulties.

Following the latest **cyber threats**, the USA put into force a **cybersecurity legislation package**. This commitment to cybersecurity in the US acts as a catalyst for the development of the sector in other countries. In Spain, looking at the guidelines for the safe use of cyberspace is a national priority which is confirmed by the **National Cybersecurity Strategy** and Trust Plan digital arena. A strategy focusing the tasks of the **National Cyber security Institute (INCIBE)** on the cybersecurity of business has also been promoted in recent years.

LOCATION OF THE INVESTMENT OPPORTUNITY IN THE SECTOR VALUE CHAIN

Telecommunications networks → **Production** → **Commercialisation** → **Services**

Cybersecurity in Spain is an **opportunity for companies of various types** ranging from manufacturers, local suppliers of specialised services, managed security services, wholesalers, distributors and basic technology companies through to integrators and consultants. For this reason, this opportunity can be looked at across three links in the value chain.

DIFFERENTIATING FACTORS OF THE INVESTMENT OPPORTUNITY

CONSUMER/USER

- Innovation
- Price
- Quality

- There are **four types of consumers** of cybersecurity solutions: **Central government** (defence and interior), **Critical Infrastructure** (Spain's strategic sectors such as banking, telecommunications, energy, etc.), **SMEs** and **citizens**.
- Thanks to these solutions, defence **mechanisms** against **online risks** can be developed in three areas: **prevention, detection and reaction.**

COMPANY/INNOVATION

- Operations
- Supplies
- New business lines

There are **two types of companies**:

- Those who develop **specific services for cybersecurity**: where this opportunity could mean the emergence of new companies.
- Those who **develop integrated services**: for which cybersecurity is an opportunity to work on a new business line.

SOCIETY

- Environment
- Well-being
- Safety

- To **energise society** and the **knowledge economy** confidence in the use of ICT is essential. In other words, the **safe use of technology** to provide all users will the feeling of being **protected against possible attacks or threats**.
- Cybersecurity promotes a **safer environment for investment**, job creation and competitiveness.

INVESTMENT OPPORTUNITY LIFE CYCLE

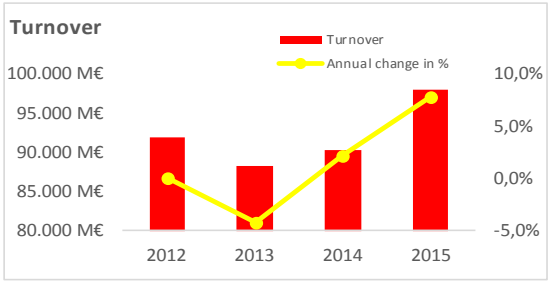
DEVELOPMENT | **INTRODUCTION** | GROWTH | MATURITY

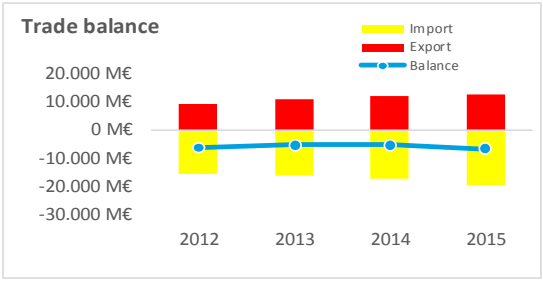
The concept of information security was almost unknown and **protection limited to desktops**, **servers** and **communications devices**, but not to information. The solution was a good **antivirus**, firewall or backup

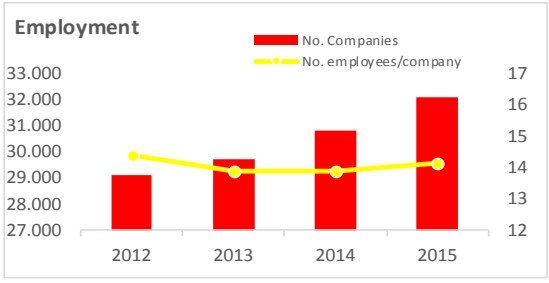
The cybersecurity market is mainly characterised by its **huge development in recent years**, led by the great evolution in ICT. Many countries have developed national cybersecurity strategies in order to organise and improve the resources available to address the growing incumbent threats in cyberspace.

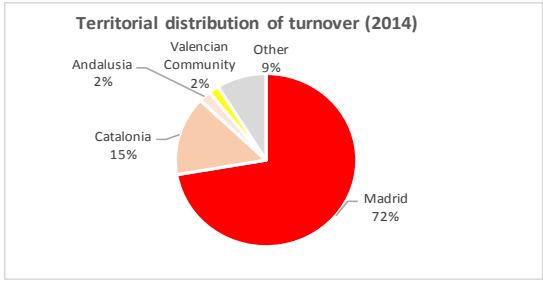
Sources: (1): National Cybersecurity Institute (INCIBE)

CHARACTERISTICS OF THE ICT SECTOR (2)









SUPPLY

TOP 5 COMPETITORS

#	Company	Net sales	Last available data
1	Telefónica	€59,104 M	2014
2	Indra	€4,909 M	2014
3	Microsoft	€464.01 M	2014
4	S21SEC*	N. avai.	-
5	S2GRUPO*	N. avai.	-

* Data not available in the queried database. SABI.

DEMAND

GROWTH

Global spending on cybersecurity in 2014 was $**72,237 M** and increases of **10%** are expected in the coming years:

- 9,613 million dollars in network security equipment - **13%**
- 22,798 million dollars in security software - **32%**
- 39,826 million dollars in services (Consulting, Implementation, Outsourcing and SW/HW support) - **55%**

The turnover of the cybersecurity sector in Spain is **more than 501.49 million euros**. (3)

SUCCESS STORIES

Thales, a company with technologies for use in defence, aerospace, security, transport and space, has signed a commercial cooperation agreement with **Schneider Electric**, for the **development of cybersecurity solutions and services** for command and control systems **against potential cyberattacks**. With this agreement, Thales and Schneider Electric make available the most up-to-date security and defence technologies against the current cybersecurity threats to both industrial operators and defence agencies.
The catalogue of solutions that both companies offer includes risk management, vulnerability analysis, definition of security architectures, implementing and monitoring of security measures as well as the maintenance of security and incident response management, among others.

Telefonica Digital, a division of the group focused on digital content and services, and the popular hacker Chema Alonso launched **Eleven Paths**, a cybersecurity subsidiary of the Spanish multinational. The company has a prototype that allows 2,000 checks per minute for possible threats from the Telefonica Security Operations Centre (SOC) .

The Spanish cybersecurity firm S2 Grupo selected for innovation in the EU:: S2 Grupo, a Spanish company specialising in cybersecurity, has been chosen by the EU to develop Captor, the first system to combat persistent cyberthreats created with Spanish technology. S2 Grupo was selected from a total of 2,666 companies.
Initial funding will total of **50,000 euros**, which **could later be increased to 2 million euros** to help cope with advance persistent threats (APT).
The Spanish firm has over 10 years of experience working in the field of cybersecurity and leads the European MUSES consortium, which is developing a multidevice corporate security system and has also been partly financed with European funds.

Sources: (2) Annual Report of Information Technology, Communications Sector and Content in Spain 2015. 2016 Edition. (3) Feasibility study, opportunity and strategic integrated plan of a technological cybersecurity terminal (INCIBE).

POSITIVE FACTORS FOR INVESTING IN SPAIN

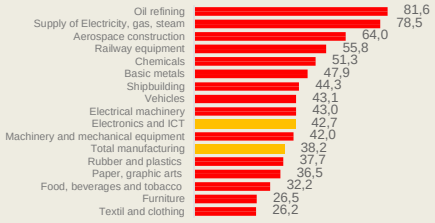
Favourable factors in Spain for the development of the opportunity

INCIBE world leader in cybersecurity	Located in Spain, **INCIBE is the benchmark organisation for the development of cybersecurity and digital trust of citizens, the Spanish academic and research network (RedIRIS) and companies, especially in strategic sectors**. It is an effective means of strengthening digital trust, increasing cybersecurity and resilience, and promoting the safe use of cyberspace.
High demand for professionals	Spain is the **second most targeted country in the world** after the United States and accounts for 20% of international cyberattacks. Despite the proliferation of network crimes, **there are not enough cybersecurity experts**. Globally, the deficit of these experts exceeds one million and most organisations do not have personnel to monitor networks and detect infiltration(4).
Importance of strategic sectors in Spain	In Spain, the **strategic sectors** (energy, telecommunications, banking, etc.) for cybersecurity are the most important sector and **generate the largest volume of business**. These companies demand **better cybersecurity services**.
Social factors and habits	Broadband coverage of over 30 Mbps rose from 53% to 65% of the population and **ultra-fast broadband over 100 Mbps has already reached 61% of the population**. Broadband access of Spanish companies is above the European average at 99%. (5)

Favourable factors for the sector in Spain

Macroeconomic situation	**The Added Value of the information technology and communications sector** in 2015 was 45,296 million euros, representing 4.9% of the added value of the Spanish economy. Sector exports totalled **13,032 million euros.** (2)
Labour market	The **average productivity per employee** in the ICT sector is **52,100 euros** per year. Their **average individual remuneration** is **42,700 euros per year**. The **Unit Labour Cost** accounts for **81.8%** of the ratio between the remuneration per employee and the individual productivity (productivity defined as value added per employee). (5)

Remuneration per employee (thousands of €)



Graph created using data from the Sectoral Presentation: Electronics and ICT.

Incentives	The Ministry of Energy, Tourism and Digital Agenda allocated **80 million euros to R&D in the ICT sector in 2016 to promote high value technologies** in industries of the future (Components and Systems, Internet of the future, High Performance Computing (supercomputing), robots and autonomous systems, Internet of Things, cloud computing solutions for mass data processing...), Cybersecurity and digital trust, agrifood and environmental management, energy efficiency, transport and logistics, and digital content.
I+D+i	There are 15,736 **innovative companies** and the **percentage of innovative companies is** roughly **28.5%**, spending a total of **13,6747 million euros** on innovation.(7)
Talent	Installs in Spain Google Campus to the world's largest entrepreneurs, ahead of London, Seoul and Tel Aviv, demonstrating confidence in the creativity and talent in the country by leading companies the sector. These facilities provide work areas and technical advice for the implementation of new projects. TechHub is involved in this project which manages a **global community of digital entrepreneurs**.
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	Spain has a very advanced technological infrastructure as shown in areas such as: the presence of **84 technology parks** that house more than 5,000 technology companies and a **broadband coverage of 96.5%**, one of the few OECD countries that has had included in its legislation since 2012 the **universal obligation of 100 Mbps broadband supply**. In the **business** arena, broadband penetration exceeds that achieved in the European Union. In 2016 **99%** of **companies** in **Spain** that access the Internet do so by broadband (5).
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.

Technology centre locations

Graph created using data from Spanish Foundation for Science and Technology.

Sources: (4) Cisco Annual Security Report 2014. (5) ONTSI. (6) Electronics and ICT Sectoral Presentation. April 2015. MINETAD (7) Innovation in companies Survey 2016