ASSOCIAÇÃO
Portugal Outsourcing

PORTUGAL

a nearshore outsourcing destination

Research Report

Lisbon, October, 2010

Portugal Outsourcing
ASSOCIAÇÃO

ABOUT APO

The non-profit organisation "Portugal Outsourcing", founded in 2008, is one of the top IT and BPO companies in Portugal that holds over 85% of the national market share. APO[1] aims to contribute to the Portuguese outsourcing market development, especially in IT Outsourcing and IT enabled BP Outsourcing services. This objective will be achieved by promoting best practices, building and implementing practice codes, stimulating Industry-University relationships, gathering and analysing data and other relevant information, in order to make sourcing managers and market analysts aware of Portugal's skills, competences and other capabilities, as a potential location for outsourcing services in a nearshore basis.

APO will work concomitantly with other private and public institutions prompting the discussion of relevant issues for the sector evolution in order to identify gaps in competiveness and help to define specific actions to bridge those gaps.

Portsourcing - Associação das Empresas de Outsourcing de Portugal

Rua Pedro Nunes, Nº 11 - 1º, 1050 - 169 Lisboa - Portugal

Tel. (+351) 213 958 615 | Mobile: (+351) 926 621 975

www.portugaloutsourcing.pt

The photograph at the header of this report is by courtesy of Jesús de Mula y González de Riancho (www.inmovista.es).

The production of this report counted with the contribution of TICE.PT - Center for Competitiveness and Technology, Center for Information, Communication and Electronics Technologies. TICE.PT was formally recognized by the Portuguese Government in August 2009, as part of the QREN's Strategies for Collective Efficiency.

TICE.PT's overall strategy comprises building a coordination platform that will involve and mobilize the TICE's main players in innovation processes, R&DT, transfer of knowledge, advanced training, development, production and marketing of products and services, marketing and internationalization. TICE.PT currently involves 49 bodies, 54% of which are Companies, 26% are part of the National Scientific and Technological System, and 20% are Associations, basically distributed throughout northern and central Portugal, as well as in the area of Lisbon and the Tagus River Valley. These 49 bodies account for a turnover of € 1,8 billion (1,16 % of GDP), € 290M in exports, M€ 124 invested in research, development and innovation and 14.000 direct jobs.

[1] In this document Portugal Outsourcing will be referred to as APO which stands for 'Associação Portugal Outsourcing' in Portuguese.

Table of Contents

1. About this Report

This Report is a compilation of several indicators which give a generic perspective of Portugal in comparison to other countries.

APO would like to acknowledge the contribution of several institutions and entities that have directly supplied information for this report, namely GPEARI (Office of Planning, Strategy, Evaluation and International Relations), GEPE (Bureau of Statistics and Education Planning), IDC and ISCTE. A special thanks to a group of invited companies that promptly accepted to contribute to this study by offering their testimonies and reasons for choosing Portugal as a nearshore location, namely, IBM, Ericsson, Logica, Nokia Siemens Networks and Siemens AG.

Portugal's current outlook is very much in line with other countries competing to host high-tech related investments. This fact results from a significant investment in education, infrastructures modernisation, simplification of public services and a public and private focus on research and development. Portugal is not usually considered as an attractive destination for near or off-shore operations; this report will provide a new perspective on the country's capabilities and competitive advantages.

1.1. Objectives and Goals

The reasons for producing this study are summarised in the following objectives and goals:

- To provide Sourcing Managers and Market Analysts with data on Portugal's differentiators as a nearshore location for centres of competence for ITO or IT enabled BPO services;
- To develop an up to date fact-based view on Portugal's IT/BPO industry;
- To identify Portugal's key competitiveness factors *vs.* other nearshore locations;
- To highlight competitiveness gaps and challenges to be addressed by Government and regulators;
- To provide a platform for a medium-term strategy for the IT/BPO industry growth Methodology and Structure.

The following study has been conducted to describe Portugal's unique competitive advantages and exceptional conditions for hosting international companies to investors interested in outsourcing their operations in a foreign country.

The study analyses Portugal's features and is structured in six parts: I) "About this report", II) "Executive Summary" III) "Portugal as a Destination", IV) "Centres of Excellence in Portugal (Testimonies of success)"; V) Final Conclusions and future Outlook", VI) "Acronyms" and VII) "Sources".

Within the scope of our compared analysis of competitiveness we have elected a group of reference countries that have in common the EU membership, which share a similar legal and regulatory framework and offer a

guarantee of contractual stability. In general these countries have similar cultures, a common pool of languages, are within neighbouring time zones and are not purely cost-driven – e.g. Application of innovation *vs.* low-cost labour paradigm. The selected countries are: the Czech Republic (CZ), Ireland (IE), Hungary (HU), the Netherlands (NL), Poland (PO), Romania (RO), Spain (ES) and the United Kingdom (UK).

The first chapter deals with the report's objectives and goals as well as with its methodology and structure. In this regard, the approach chosen for the preparation of the report involves three main stages:

1. **Analysis and evaluation**: This stage involved the collection of information from several sources, (including public information, European statistics, official web site organisations, reports from accredited organisations, national and international analysts and private information sources) through interviews and inquiries to selected companies and Governmental entities;

2. **Benchmark:** The second stage of the project included defining the scope of the assessment of Portugal as a near shore destination and defining the main indicators on which to base the analysis;

3. **Structuring, writing and final evaluation of the indicators:** This stage consisted mainly in the final structuring of the report and validation of the data.

The second chapter is an Executive Summary outlining the conclusions of the report as well as providing a future outlook for Portugal.

The third chapter consists of an evaluation of Portugal as an outsourcing location and covers four different elements or dimensions of analysis: Skills, Infrastructures and Intellectual Property, Cost and Country. The first one, "Skills", deals with the standard of the language spoken, education and the labour pool available. "Infrastructures and intellectual Property" evaluates Portugal in terms of its infrastructures (quality, availability, and others) and the means and laws enforced in the country to protect companies' and citizens' data and intellectual property, as well as privacy. "Cost" evaluates the country in terms of costs related to taxes, infrastructures, labour pool, cost of living, cost of doing business, etc. "Country" focuses on historical factors, political and economic stability, Government support, cultural compatibility and global and local maturity of the country.

The fourth chapter looks into the success stories of several foreign companies that have invested in Portugal and have used the advantages of operating in Portugal to boost their profits.

The fifth chapter analyses the challenges and opportunities faced by companies planning to invest in Portugal and presents a future outlook based on the country indicators' evaluated.

The sixth chapter contains the terms and acronyms used and, finally, the seventh chapter presents the main and compiled data used in this study, catalogued as "Sources".

The four different elements or dimensions of analysis are usually presented in the market analysts' studies when evaluating or comparing sourcing locations. The list below shows a set of attributes that are used, for each dimension, to characterise the country; main indicators[2] were pointed out for each attribute – most commonly used when comparing different economies in each element.

- **Skills**
  - Education
  - Language
  - Labour Pool
- **Infrastructures and Intellectual Property**
  - Infrastructure
  - Data and Intellectual Property Security and Privacy
- **Cost**
- **Country**
  - Political and Economic Stability
  - Government Support
  - Cultural Compatibility
  - Global and Legal Maturity

[2] A benchmark table is available showing a set of main indicators in each dimension's chapter. The "-" symbol represents countries for which values were not available.

2. Executive Summary

Portugal is becoming an increasingly attractive country as a nearshore outsourcing location. A top performer in Language skills and possessing an innate ability to work in multicultural, cross-border working environments, Portugal has:

- Committed investments in Education and increasing focus on R&D and commercial applications;
- Quality of infrastructures and utilities;
- Leadership in terms of eGovernment.

The overall country governance and stability indicators are highly positive as it is a mature Western European democracy, a member of the EU since 1986 and part of the Schengen pact and of the Euro; it is therefore in line with its prospective investors and clients and well ahead of the Eastern European countries. It is a tourism destination and therefore high on amenities, friendly towards foreigners and also an inclusive and culturally diverse society. Portugal is also among the five European countries that have increased their competitiveness rating in 2009, having been classified as the most competitive country of Southern Europe and a leading country in several domains of innovation, eGovernment and R&D incentives.

> The IT professionals' community is among the most skilled, creative and committed workforce when compared with its peers on an international basis. Portugal has a competitive cost/value environment among its competitors within a European context.

Skills: Since investment in early youth education is crucial for good foundations in lifelong learning, Portugal initiated a technology wave as the Government decided to invest heavily in technology in order to modernise and develop schools, launching several projects driven by the Technological Plan[3] for Education. Portugal is ranked by the IMD as the 2nd country with the highest Public Expenditure on Education.

Overcoming the structural deficit in the qualifications of the Portuguese population and making secondary level education the minimum qualification referential for all, will continue to be the Government's main pledge in this issue. Attention is also focused on promoting scientific knowledge, on innovating and modernising the productive fabric. In terms of language skills Portugal will develop a strong affiliation with the English language since the Government has included English as a second language from the beginning of the basic compulsory education (6 yrs on).

As far as Infrastructure is concerned, the general panorama is good, but there are a few areas in need of improvement (e.g.: next generation networks, etc.). Portugal scores high as the number one worldwide in terms of the Fibre-To-The-Home ranking. New investments amounting to several billion Euros are on the way (e.g.: TGV, New Lisbon Airport, New Generation Networks, etc) and the goal is to facilitate innovation, create workers mobility and generate hype and momentum towards the creation of economic value.

[3] The Technology Plan initiative, http://www.planotecnologico.pt/

In the topic of intellectual data property, Portugal has a long history on intellectual property protection as one of the 11 founding members of the Union for the Protection of Industrial Property. As a member of the EU, Portugal's intellectual property law has been harmonised with those of the other Member States, incorporating provisions of the EU Data Protection Directive, whilst Regulations on European industrial property rights such as European Patents, Community Trademarks and Community Designs are all complied with by the country. In addition, the country also has a recently approved law regulating cybercrime.

Regarding Cost, it is well documented that costs with personnel vary a lot, as in any other country, according to the sector and function; yet the statutory minimum wage increased by 5.6% in 2009 to €450. According to a recent study involving a selection of 500 of Europe's largest companies Lisbon is ranked as one of the top three cities when it comes to choosing locations according to low cost of staff. Nevertheless, there remain areas in need of improvement regarding fiscal aspects as the total collected tax revenues in percentage of GDP is still high.

3. Portugal as a Destination

3.1. Choosing Portugal as a Sourcing Location

The IT sourcing market is still growing, with a 31.6% increase in spending predicted for 2011 when compared to 2007. The IT offshore market alone is growing with a compound annual growth rate of 16.5% in Western Europe and a 14.4% rate in the US until 2009. Companies still see advantages on outsourcing IT to external partners.

The top three drivers for outsourcing and offshoring IT are still cost reduction, increasing flexibility and increasing quality. At 82%, cost reduction is at the top of the list of drivers, increasing flexibility is at 46% and increasing quality at 43%. A key reason for this is that the IT function is still inevitably perceived as a costly support function, instead of a possible business enabler.

India and Canada are the largest exporters of offshore IT services with a business volume of US$4.88bn and US$3.28bn respectively, along with the largest breadth in terms of IT capabilities. India remains price competitive due to its supply of human capital with China, despite high wage inflation. However, competition is likely to intensify with the emerging markets of Eastern Europe and Latin America.

But why nearshoring instead of offshoring?

According to the different IT delivery options, shown in Figure 1, the most common option is still nearshoring (outsourced to a partner in the company's own country or a nearby country).

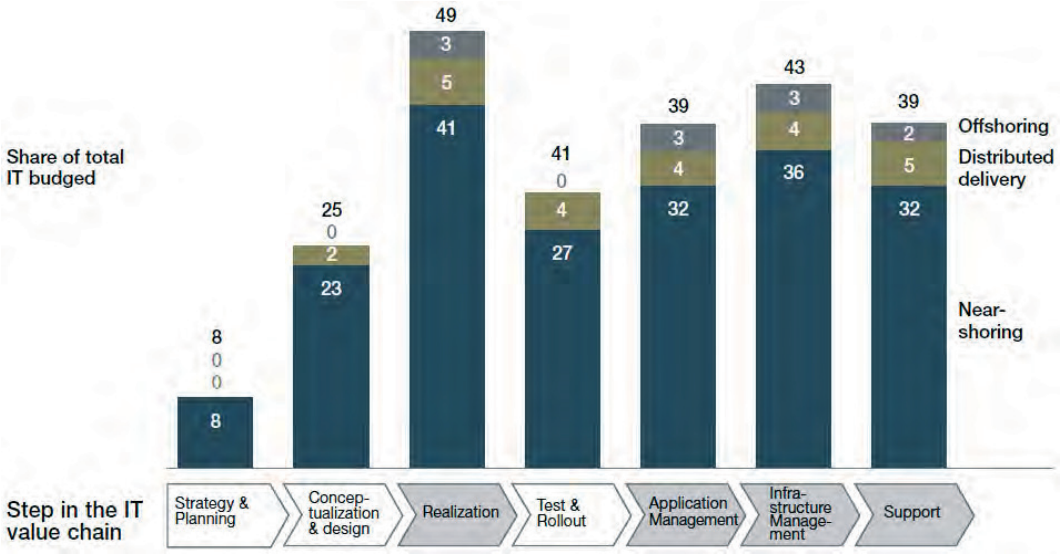


Figure 1: IT Budget allocation per IT and Value chain step in percentage

Managers are more satisfied with their outsourcing experiences closer to home than with overseas initiatives: this conclusion is derived from the Black Book for Outsourcing[4] when evaluating the state of the outsourcing industry, where respondents stated a percentage of satisfaction of 81.5% for their nearshoring initiatives, against 33.3% of their offshoring projects.

Offshore's main assurance is to cut costs up to 40% whilst delivering quality, but over 50% of companies fail to realise any benefits mainly due to poor planning, preparation and execution. It introduces additional multi-national risks on top of distributed delivery risks. These require increased focus on people and culture to ensure successful engagement and realisation of benefits.

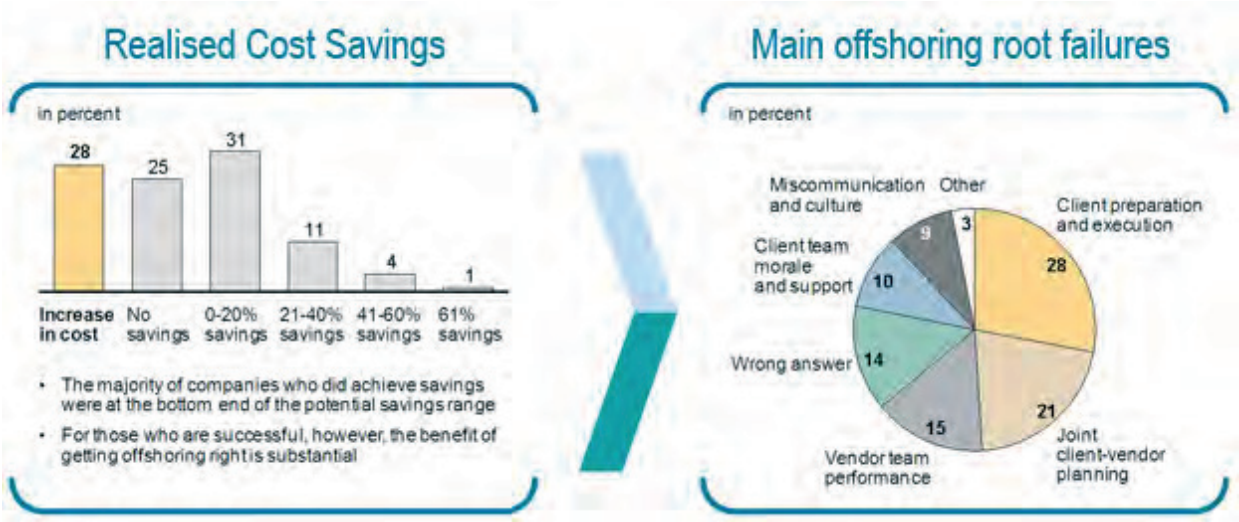


Figure 2: Offshoring savings and failures

In terms of nearshore, the hiring of a vendor should represent to a client a saving between 30 and 50% of its current cost, for a contract lasting 3 to 5 years. The other advantages of the nearshore are linked to the fact that neighbouring countries in general have similar cultures and sometimes the same language and time zone. For instance, Portugal is in the same time zone as the UK and Ireland (GMT), and is three hours from Brazilian, Argentine and Russian time zones.

According to the perspective put forward in the Ernst & Young study on the country's attractiveness[5] Portugal is considered fairly attractive (51%) in terms of language, culture and values of the Portuguese people. People are receptive to interacting with different cultures, learning different languages and mixing with foreign people. It is one of the developed countries where population is less worried with the public costs of integrating foreign

[4] Source: The Black Book for Outsourcing 2008, Brown-Wilson Group
[5] Source: FDI in Portugal: "What does Future holds?", Ernst & Young

citizens into the community; Portugal's policies respecting immigrant's integration are in the vanguard of Europe and of the World, thus being classified by ONU as the 1st country in the world to grant rights and services to the resident immigrants[6].

In order to build a good sourcing strategy different variables, apart from costs, can influence the right sourcing model and locations, such as labour availability, language skills, education, legal conditions, political and economic stability, infrastructures and others.

Considering the current climate change scenario, decision makers are called upon to protect the climate and awareness is made through the Climate Change Performance Index[7], in which Portugal ranks in the 12th position among 57 countries followed by Hungary (19th), Ireland (22nd), the Czech Republic (25th),the Netherlands (27th), Romania (30th), Spain (32nd) and Poland (49th).

Is it really necessary to sacrifice skills and quality?

The challenge facing enterprises that want to share services abroad is to balance costs, skills and infrastructures within Europe. The Mediterranean and Eastern European countries offer a chance to lower operation costs while maintaining the same quality and education skills.

Portugal offers good infrastructures, good technology skills, capable workers that are keen on technology (Portugal is the 3rd world leading country on mobile penetration[8]) and cost that are much lower than in Holland, Ireland and England – the latter representing the largest piece of shared services centres in Europe, according to an Ernst & Young study[9].

This study will investigate Portugal as a potential sourcing location, assessing the variables and its evolution in order to determine and quantify why Portugal is a valuable destination. According to the statements of multinational companies, interviewed in the course of the current study, the main factors that determined that foreign companies choose Portugal were the skilled resource pool and the available infrastructures.

Portugal as a technology early adopter

Portugal is a laboratory for the adoption of new technologies committed to attracting technology and science centres[10] (scoring 5.9 out of 7 points in "Availability of Latest Technologies" by the World Economic Forum). Technology adoption is also considered a method for innovation and Portugal, as an early adopter of technology, was the 1st country to implement mobile pre-paid cards and is currently the 3rd world leading country in terms of mobile penetration[11] and the 3rd within the EU in high-speed Broadband. According to the European Innovation

[6] ACIDI - *Alto Comissariado para a Imigração e Diálogo Intercultural*
[7] Source: The climate Change Performance Index 2010
[8] Source: OECD 2008.
[9] Source: FDI in Portugal: "What does Future holds?", Ernst & Young
[10] Major electronic companies like Apple, Cisco, Nokia, Siemens have been attracted to Portugal and its labour skills to develop research centres.
[11] Source: OECD 2008.

Scorecard, Portugal was the 5th country in the EU that made the most progress in terms of innovation: it is above the EU average in number of Science and Engineering (S&E) and Social Science and Humanities (SSH) doctorate graduates, private credit, broadband access by firms and resource efficiency innovators.

Some of the Research and Development work carried out in Portugal has a direct impact on the daily life of its inhabitants (like the Via Verde and the ATM Network services, described below). Some success stories take advantage of the increasing evolution of the information technologies and of electronics which have overcome Europe in its innovative projects.

- **Via Verde** – An integrated system of automatic toll payment in highways that has been implemented throughout the entire country;
- **Automated Teller Machine (ATM[12]) Network Service** (developed by SIBS) - This network kept up for its innovation and universal availability of features such as mobile phone top-ups, transfers, direct debits, events ticket sales and transportation ticket sales (more than 60 operations available);
- **YDreams** - I-Garment Prototype, an integrated management system of civil protection units, developed by a consortium headed by YDreams and certified by the European Aerospace Agency;
- **Nfive / CardFive / LabelFive** - Specialises in the development of technology for several types of identification cards (75% of the world market);
- **Crioestaminal** - A pioneer and leading company in Portugal specialised in the isolation and cryopreservation of stem cells from umbilical cord blood and 3rd in Europe in number of clients;
- And other projects, namely, the development of applications in the fields of e-Commerce and Artificial Intelligence.

These innovative and young companies are the direct result of the work of young researchers in R&D Centres.

Leading companies that deliver world class services have already “discovered” Portugal, perceived its potential and have chosen Portugal to host service delivery centres (shared or otherwise); they have obtained good results as will be shown in this study.

A full member of the European Union since 1986, Portugal is now one of the developed members of the European Monetary Union (EMU); this medium-sized country represents access to a free market of approximately 450 million consumers[13].

[12] More information available at: http://www.sibs.pt/en/mb/institucional/rede/operacoes/
[13] In Portugal Offer Web site, http://www.portugaloffer.com/about_us/portugal.html

3.2. Skills

Summary:

This chapter deals with the main characteristics used to describe the skills of the Portuguese population, focusing the analysis on three key attributes to develop the skills profile of the country: Education, Language and Labour Pool.

Skills are improving

Investments in R&D, structural reforms in education and strategic partnerships with world class Universities are improving skill levels of new entrants to the labour market.

Education: Portugal is engaged in a deep technology renewal, as the Government decided to invest heavily in technology in order to modernise and advance schools, launching several projects driven by the Technological Plan[14] for Education. This is confirmed by the IMD World Competitiveness Yearbook (IMD), 2009, that ranks Portugal as the 2nd country with the highest Public Expenditure on Education, at 7.6% of GDP, ahead of all the referenced countries. The use of internet is also improving the Information and Communication Technologies (ICT) potential and the enrolment in higher education as 33% of people use the internet for learning purposes, whilst the European Union's (EU) average is 26%[15].

Language skills: Portugal is the 12th out of 58 countries in the IMD 2009 ranking: it scored 7 points, 1.46 points below the Netherlands (8.46), followed by Poland (5.46), the Czech Republic (5.42), Ireland (5.20), Hungary (4.36), Romania (4.82), the United Kingdom (3.83) and Spain (2.62). English comes top in the national language strategy as the teaching of English is now mandatory from primary education onwards (6 year old pupils); Portugal is hence one of the countries that sets the compulsory teaching of a foreign language at an early stage.

Human Capital Development and quality of the Labour Pool: investments in R&D and reforms in education are changing and improving the profile of the Portuguese population that now enters the job market with a higher education level. This is especially true for the younger population that has qualifications levels similar to other countries in the Organisation for Economic Co-operation and Development (OECD). Nevertheless, some indicators like the Availability of Skilled Labour Pool position Portugal amongst the referenced countries after Ireland, the Netherlands, Hungary, the United Kingdom and the Czech Republic, occupying the 35th position in the IMD ranking followed by Romania (46th), Spain (50th) and Poland (52nd). This represents new challenges for the development of work qualifications to which the Government has responded by offering a new opportunity to students that would otherwise leave the education system before completing basic education, hence enrolling more than 250,000 new students. But the future development of Portuguese skills is promising, as will be shown, and it shows one of the lowest annual growth rates in terms of labour compensation, when compared to its close competitors in terms of nearshore outsourcing locations.

[14] The Technology Plan initiative, http://www.planotecnologico.pt/
[15] Source: Europe's Digital Competitiveness Report, 2009

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Completion rate in tertiary education (%)[16]	-	-	55%	-	71%	64%	**69%**	-	64%
Public expenditure on Education (% of GDP)[17]	3.9%	-	5.8%	4.4%	-	5.2%	**7.6%**	-	6.1%
Language skills (score)[18,19]	5.42	2.62	4.36	5.20	8.46	5.46	**7.00**	4.82	3.83
Foreign language Learning (starting age)[20,21]	8 yrs	3 yrs	9 yrs	-	10 yrs	7 yrs	**6 yrs**	8 yrs	11 yrs
Difficulty of Hiring Index (0-100)[22]	33	78	0	11	17	11	**33**	67	11
Availability of Skilled Labour (score)[23]	5.58	4.36	5.74	7.90	5.96	4.34	**5.16**	4.58	5.60

Table 1: Skills dimension main indicators benchmark

[16] Source: OECD - Education at a Glance 2009.
[17] Source: IMD - World Competitiveness Yearbook 2009
[18] Source: IMD - World Competitiveness Yearbook 2009
[19] UK and Ireland are two countries of English native speaking, so relevance of this indicator is minor to them.
[20] Source: European Commission – Eurostat "Key Data on Teaching Languages at school 2008"
[21] In Ireland it is not obligatory to teach a foreign language during the entire educational system.
[22] Means "Applicability and maximum duration of fixed-term contracts and minimum wage for trainee or first-time employee", In "Doing Business 2010" report. (Higher values represent more rigid regulations).
[23] Source: IMD - World Competitiveness Yearbook 2009

Education

The Portuguese educational system covers several stages, namely Pre-school, Basic Education, Secondary Education and Higher Education. The basic compulsory education is free and lasts for nine years, from the age of six to fifteen. However, the Ministry of Education's goal is to extend the minimum qualification to twelve years, up to the age of 18, on a phased approach starting at the 2010 academic year.

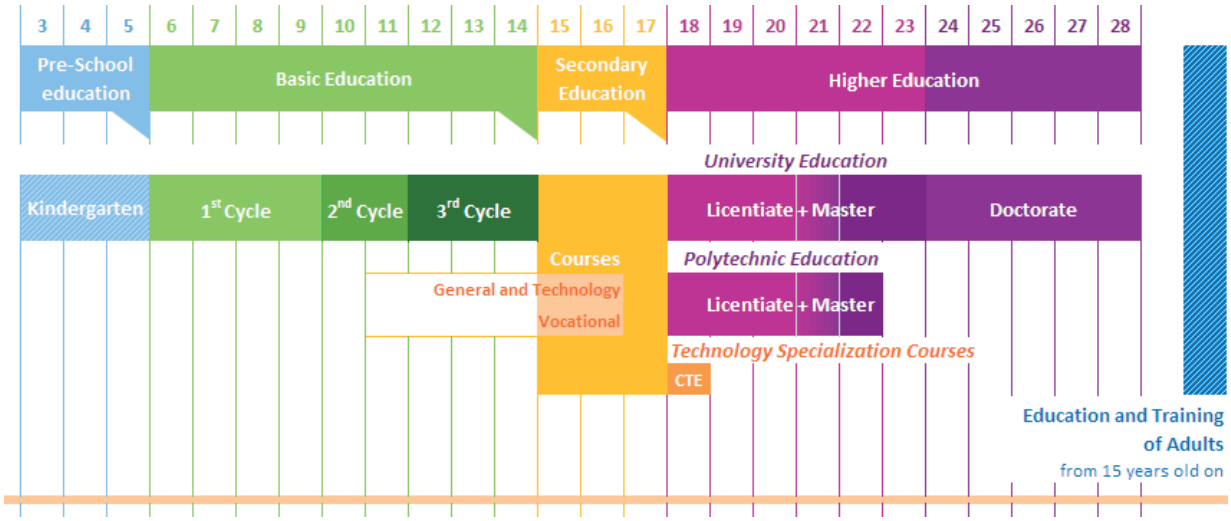


Figure 3: The Portuguese Education System[24]

Secondary Education

Students must attend three years of secondary education, from the age of 15 to 18, in preparation for higher education or to attend a vocational/technical education.

The secondary educational system is predominantly based on role-learning with 95% of the schools offering vocational education. This is a result of the Government program to improve the Portuguese qualifications, in line with the Lisbon Strategy, by increasing the offer of vocational/technical courses at secondary schools. Figure 4 shows that the number of students enrolled in vocational courses in upper secondary schools is higher in the 2007/2008 school year than in the 1996/97: there is a preference to choose the more vocational component rather than the technology[25] courses, as the former focuses on skills development for the exercise of a profession, in conjunction with the local business community.

[24] Source: http://www.gepe.min-edu.pt/np3/9.html
[25] Technology courses give an intermediate vocational qualification in areas such as Administration, Computing, Social Assistance and Electrotechnology.

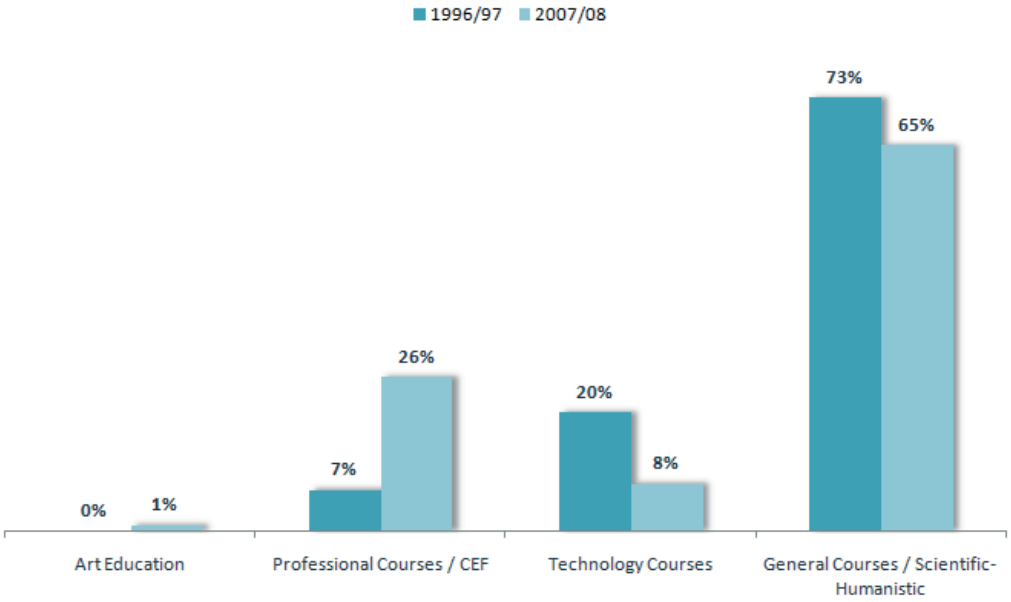


Figure 4: Distribution of enrolled students, by type, in Portugal - Youth (1996/97 and 2007/08)[26]

Higher Education

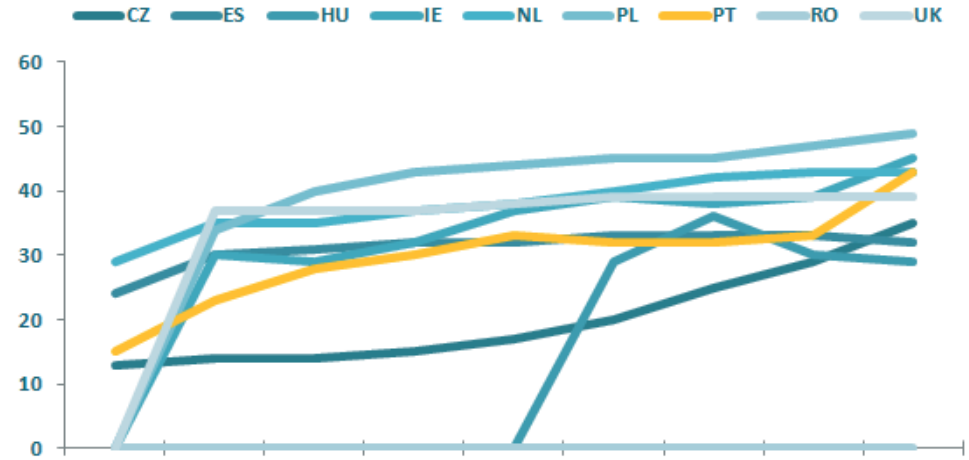
The higher education system consists of public universities, polytechnic institutes, and private institutions totalling 1,763 in 2007/2008[27].

After completing successfully the three years of secondary education and obtaining a secondary school diploma, or legally equivalent qualification, students may access the tertiary education, through a national examination or an entry examination set by the institution. Graduate qualifications may be a bachelor, master or a PhD degree.

Increasing the proportion of students who enter a tertiary program and leave with a qualification can help improve the efficiency of tertiary education systems – measured by the completion rate. According to the OECD report "Education at a Glance 2009" the completion rate of tertiary education in Portugal (reference is 2005) is equal to the OECD average (69%); Portugal is better positioned than some of the referenced countries e.g. United Kingdom, Czech Republic, Poland and Hungary. However it comes below the Netherlands that equals the EU average of 71% (see Table 1, above).

[26] Source: GEPE - *Educação em Números* – Portugal 2009
[27] Source: Portuguese statistics for science, technology and higher education (GPEARI)

Table 2 shows that the percentage of graduates has increased since 1995 and Portugal, like Poland, Ireland and the Netherlands, is above the OECD average for 2007 (43%). The entry rate in tertiary education (Type A), in 2007 it was 64% (9% above OECD average), and more people are currently completing tertiary education than ever before.



	1995	2000	2001	2002	2003	2004	2005	2006	2007
CZ	13	14	14	15	17	20	25	29	35
ES	24	30	31	32	32	33	33	33	32
HU	-	-	-	-	-	29	36	30	29
IE	-	30	29	32	37	39	38	39	45
NL	29	35	35	37	38	40	42	43	43
PL	-	34	40	43	44	45	45	47	49
PT	15	23	28	30	33	32	32	33	43
RO	-	-	-	-	-	-	-	-	-
UK	-	37	37	37	38	39	39	39	39

Table 2: Trends in Tertiary Graduation Rates – Type A (1995-2007) %

The implementation of the Bologna process, with its series of reforms that aim at achieving greater compatibility and comparability between higher education systems in Europe and at making education more attractive to students, played an important role in the improvement of the Portuguese qualifications and quality of the system. In terms of the three variables that are crucial to assess the quality of higher education - entry, graduation and completion rates - Portugal is well positioned above the average of the OECD countries. This has a direct impact on an increase in the amount of skilled labour that is available to the market.

The expansion on tertiary and secondary education has been accompanied by massive financial investments in Portugal, as well as in many other countries. In terms of Public expenditure on Education Portugal invested 7.2% of its GDP, which makes it the 2nd country ranked in the IMD Yearbook 2009 with greater expense on education; that places Portugal ahead of all the referenced countries with expenditure in education varying from 6.1%

(United Kingdom) to 2.8% (Romania). Portugal's investment in education is higher at the tertiary level. As stated further on in this chapter the Technological Plan for education, amongst other measures involved in delivering or supporting educational services, is one of the results of this investment.

During the 2008/2009 academic year 37,589 out of the 320,000 students enrolled in higher education[28] were IT students. Out of the 84,000 students which graduated in the Portuguese universities 10% were ICT students. The average annual growth rate in tertiary skill level is over 5%, similar to Poland and skills are increasing. An increase of almost 500% was registered, between 1992 and 2002, in the number of individuals with higher education who entered the Portuguese labour market[29].

Rethinking education for the 21st century: One computer for each student

The Portuguese Government initiated a "technology shock" mobilising firms, families and institutions to promote Portugal's development and competitiveness in terms of knowledge, technology and innovation: the Technological Plan[30].

The main purpose is to ensure that everyone in the workforce has access to the knowledge society and is proficient in the use of a computer. The message was to improve internet penetration and digital inclusion.

Only 31% of the Portuguese households had access to the Internet[31] in 2004 whereas in 2008 this figure had increased up to 46%. Several initiatives were put in practice to change these numbers and the schools were the best starting point. Examples of these are:

- **The Technological Plan**: provides schools with a technology Kit with video-projectors, computers, interactive boarding; high speed internet access; pupil electronic card and video surveillance for school control and security;
- **Launching of *Magalhães* mini-laptop** *("e.escolinha")*: five centuries after the Portuguese navigator *Fernão de Magalhães* (Magellan) completed his voyage of circumnavigation proving that the Earth was round, Portugal once more innovates with a pioneering project around the world, enabling 6-10 years old pupils to access the internet world and acquire a laptop at a very low cost;
- **E-School Program** *("e-escola")*: is the world's widest program supplying every school child with a laptop. Don Tapscott[32] referred to Portugal as an example on how to enter a 21st century education system: more collaborative, modern and multi-tasking;
- **School Simplex**: an electronic platform developed to support school management;
- **Training teachers in ICT**: provides access of school population to ICT academies and certification programs;

[28] Source: Portuguese statistics for science, technology and higher education (GPEARI)
[29] Source: OECD Thematic Review of Tertiary Education 2006
[30] The Technology Plan: Started in 2005 with the main objective of potentiating Portugal in the ICT domain and involving it with all the knowledge society.http://www.planotecnologico.pt/default.aspx?idLang=2&site=planotecnologico
[31] Source: EU Digital Competitiveness report 2009
[32] Don Tapscott, author of book "Wikinomics", wrote about the e-School program, in *"Note to OBAMA: "Want to Fix the Schools? Look to Portugal".*

- **The School Portal**[33]: provides over 1,000 digital educational resources for teaching and learning;
- **ICT Training On-job**: provides students with the option of training in a real work context within referenced knowledge economy enterprises;
- **Technological Support Centre for Schools (CATE):** creation of a Technology Support Centre to support schools on their technology inventory maintenance;
- **Protocols with World Class Universities:** creation of MIT–Portugal Program, Carnegie Mellon-Portugal Program, UT Austin-Portugal Program, Fraunhofer-Portugal Program, IBEROEKA - Business and Technology Cooperation with Latin America, Higher Education;
- **The "New Opportunities Program"**[34]: allows youths and adults alike to acquire further knowledge by enrolling about 250,000 extra students in the secondary and tertiary education;
- **1st grade Curriculum Enrichment activities**: English is taught to all pupils from the age of 6, along with others activities to stimulate creativity and thinking, such as music and sports;
- **ICT**[35] **subject from 9th grade:** ICT is a mandatory subject starting at the 9th grade (14/15 year old students), in order to prepare students towards an IT career, making them more capable, competitive and innovative.

	2005	2009
High-Speed Broadband Internet Connection in schools	<= 2 MBPS (ADSL)	>= 64 MBPS (Optical Fibres)
Computers Connected to the Internet in Schools	64,069	228,361
Students per Computer[36]	14	4

Table 3: IT Infrastructures in Schools[37]

Creating an innovative, scientific and technological culture

According to the European Innovation Scoreboard 2008, Portugal's innovation performance overcomes the EU27 average for Science and Engineering (S&E) and Social Science and Humanities (SSH) doctorate graduates: this despite the fact that in general Portugal, along with the Czech Republic and Spain, presents an innovation performance that is below the EU average. Nevertheless, Portugal's rate of improvement is more than twice that

[33] Source: Ministry of Education - School Portal site, www.portaldasescolas.pt
[34] According to AICEP Portugal Profile (2008), the New Opportunities Program (*Programa para as Novas Oportunidades*) has enrolled about 7.5% of the active population with no secondary studies until 2008.
[35] ICT – Information and Communication Technologies
[36] Public schools with 2nd and 3rd Basic Education cycles and Secondary Education.
[37] Source: Portuguese statistics for science, technology and higher education (GPEARI)

of the EU27 members, even when compared to countries where innovation performance is well above the average such as the United Kingdom, Ireland and the Netherlands.[38]

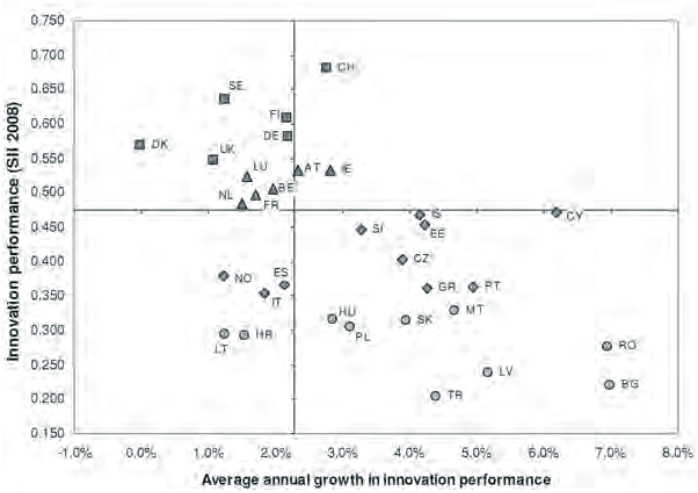


Figure 5: Convergence in Innovation Performance[39]

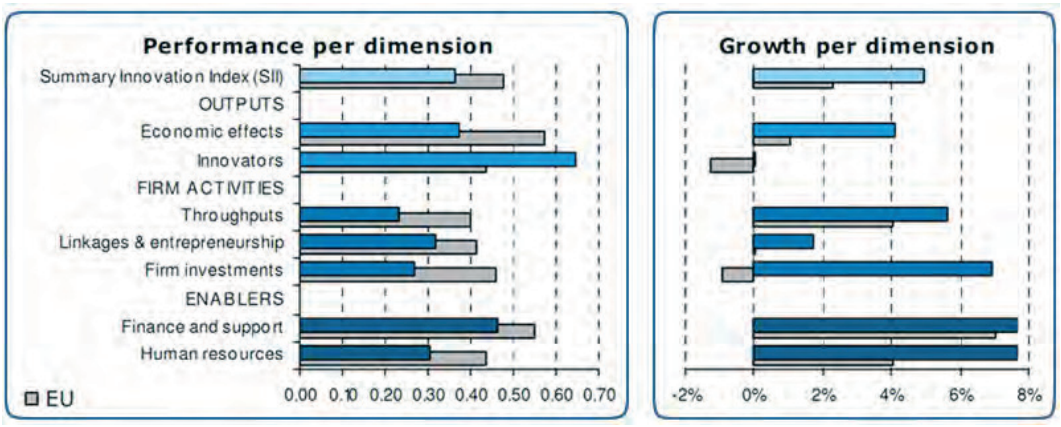


Figure 6: Portugal's Performance Dimension *vs.* EU[40]

[38] See chapter 3.5 (Country) for detailed information on the European Innovation Scoreboard.
[39] Source: European Innovation Scoreboard 2008
[40] Source: European Innovation Scoreboard 2008

A major contributor to these improvements is the continuous increase of R&D expenditure. It reached 1.5% of the total public investment of the GDP in 2008 (overcoming Ireland and Spain), enabling an increase in the number of researchers by 1.000 inhabitants between 2007 and 2008, from 6.7 to 7.2[41], surpassing the EU average. Researchers are the central element of the research and development system and the Government should stimulate higher levels of private investment in R&D, since on the side of the business, a lack of priority exists, in what concerns the research demand among the knowledge community.

Portuguese researchers are as productive as ever and the quality of research is improving, as can be attested by the increase in the number of international patents and scientific publications[42]. An internationalisation of the National Scientific System is also observed with the increasing number of co-author publications, attracting more external researchers. Within the program candidates in "Science 2007" and "Science 2008", 40% were foreign scientists.

	2007[43]	2008
Companies investing in R&D	900	> 1700
Number of co-author publications	4,719	5,139
Number of researchers per 1000 inhabitants	6.7	7.2

Table 4: Changes in Business Investments in Portugal

Several investments to create a better scientific and technological culture in the society are part of the national science policy, which involves schools and other institutional settings (like science centres and science museums) and has a central role in stimulating curiosity and interest for scientific knowledge. The increase in the number of students in S&T fields appears to be correlated with the increase in the gross expenditure on S&T per inhabitant[44]. Public investment in science and technology in recent years has reinforced the activities of the national Project "Live Science" (*Ciência Viva)*, implemented in Portugal since 1996. Biological, Health and Computer Sciences are the most attractive fields for Portuguese students, which is in opposition to the European trend in general.

As can be seen in Figure 7, Portugal presents high efficiency in S&T graduation and is amongst the countries with the highest number of graduates and PhD's in Science and Technology within the 1993-2003 period. However in

[41] R&D expenditure has grown at an annual rate of 10% in Portugal between 1995 and 2000 while in the European Union as a whole, it has grown at a 3% annual rate (Source: European Community 2009).
[42] Source: TV Live Science ("Ciência Viva TV"), http://www.cvtv.pt
[43] In respect to the numbers of researchers, the reference is 2005 year.
[44] Source: The Future of Science Technology in Europe, 2007

terms of the number of entrants it is toward the bottom of the chart. This could be due to Portugal's small dimension, which is however comparable to that of the Netherlands and Poland.

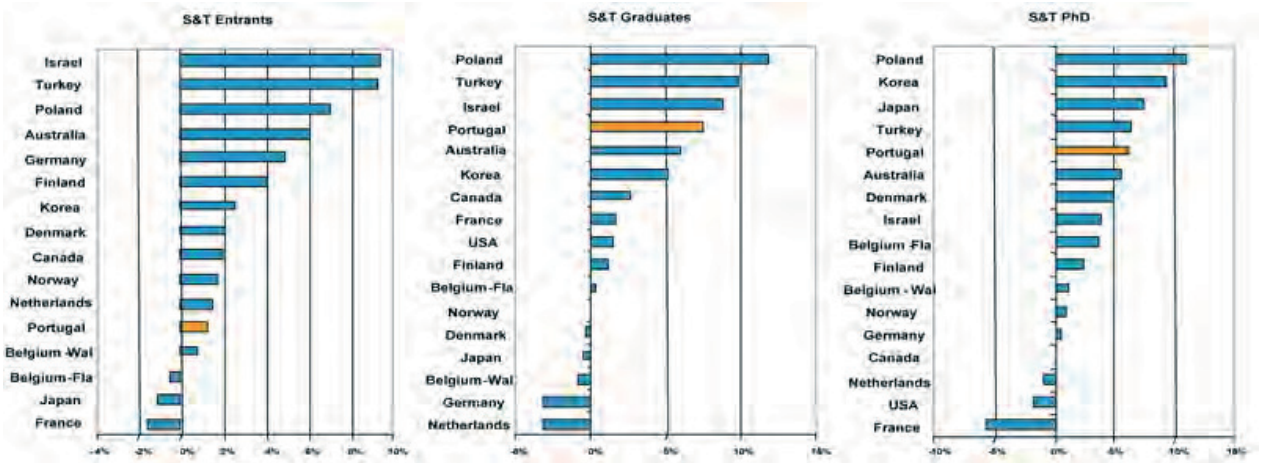


Figure 7: Average Annual change of S&T entrants, graduates and PhD's[45]

Portugal performs well in the International Math Olympics, distinguished with Gold, Silver and Bronze medals in the current year (2009). Indeed there are two Portuguese universities ranked in the Academic Ranking of World Universities[46].

Another trend is the increasing number of foreign students in Portuguese Universities, which results from the combination of several factors:

- Portuguese cities named as 'world heritage' and living conditions (money *vs.* infrastructure *vs.* quality of life);
- The international corporation programs with MIT, CMU and University of Texas.

In fact, the University of Coimbra was one of the first universities to be built in Europe and has existed since the 12th century. The Oporto University, one of the reference universities in the country, ranks first in terms of foreign students.

[45] Source: OECD (2006)
[46] ARWU - ranked in Top 500, in http://www.arwu.org/SubjectStatistics2009.jsp .

Some Indicators of Improvements in Education

The following indicators are collected from the OECD report "Education at a Glance 2009":

- The percentage of students aged 15-19 enrolled in school reached 77%, four percentage points more than in 2004/2005, but still distant from the 82% of the OECD countries;
- The percentage of the population between 25 and 34 years old having completed at least secondary education reached 44%, as compared with the 29% observed at the beginning of the decade[47]; however this number still contrasts with the 79% of the OECD countries;
- The average number of students per class is lower in Portugal with 19.7 students per class while in OECD countries the average was 21.4;
- The net rate of transition to secondary education reached 65%, 14 percentage points more than in 2004/2005 (51%), but a negative difference from the average of OECD countries still exists;
- The average number of hours of instruction per year in compulsory education for Portuguese students aged 15 was of 821 hours, less than the average for OECD countries (921 hours). However, in the 1st cycle of basic education, the average hours of instruction per year for students aged 7 and 8 years was 855.86 hours more than the average in OECD countries (769 hours);
- The number of teachers per student was greater in Portugal. In the 1st and 2nd cycles, the number of students per teacher was 11.8, contrasting with the 16 students per teacher in OECD countries. In the 3rd Cycle the ratio was 7.9 students per teacher, while the OECD countries average stood at 13.2 students per teacher. In secondary education, Portugal had a ratio of about 8 students per teacher, compared with the 12.5 students per teacher in the OECD countries.

In order to reduce the gap between Portugal and the OECD countries, policy measures were taken, such as the establishment of compulsory education up to 18 years of age and the provision of more support to families for the education of their children.

[47] Source: Ministry of Education - Education Portal, http://www.min-edu.pt

Language

The 7th Spoken Language in the World

Portuguese is the 7th most spoken language in the world[48], spoken in Asia, Africa, South and Latin America (Buenos Aires, Argentina). It is the official language in 9 countries[49] and this is due to the strong presence of Portugal in Africa and Asia as a result of colonial occupation. There are over 20 official schools around the world with a Portuguese curriculum.

Given the geographical and historical link to Spain, in some areas in Galicia (Spain), the Portuguese language is also spoken and may even integrate the curriculum of students there[50]. The opposite is also true as Portuguese people living near the Spanish border usually speak basic Spanish.

To overcome the language barriers, Portugal has created the Program "Portuguese for All"[51] to facilitate social and professional inclusion of foreign citizens. Portugal was distinguished by the United Nations for the measures undertaken in helping the integration of immigrants[52].

English widely spoken and understood

English is the first foreign language in Portugal as well as within the European Community. It is widely used in universities and business, representing 32% of the languages spoken other than the native Portuguese, followed by French, German and Spanish. Every year approximately 250 students graduate in English language.

Portugal has several international schools providing native-level official education for expats in several languages including English, French, German, Spanish and Italian. English is taught in Portuguese schools from the elementary grade.

[48] Source: MSN Encarta
[49] Countries where Portuguese is the official Language: Portugal, Angola, Brazil, Cape-Green, Guinea-Bissau, Macau, Mozambique, S. Tomé and Principe and East Timor.
[50] Source: SNESup - National Union of Higher Education
[51] Portuguese for All, "*Português para todos*", is a program co-financed by European Social Fund
[52] The Country in the world with best policies in respect to Immigration citizens

The integration of multilingual and multicultural workers is essential for a competitive position due to the knowledge economy. Portugal has strong economic and commercial ties with other countries and language skills are essential to develop these bonds. The survey "Special Eurobarometer 243 – Europeans and their Languages" conducted by the European Commission presents the percentage of foreign languages spoken by Portuguese citizens, as can be observed below in Figure 8.

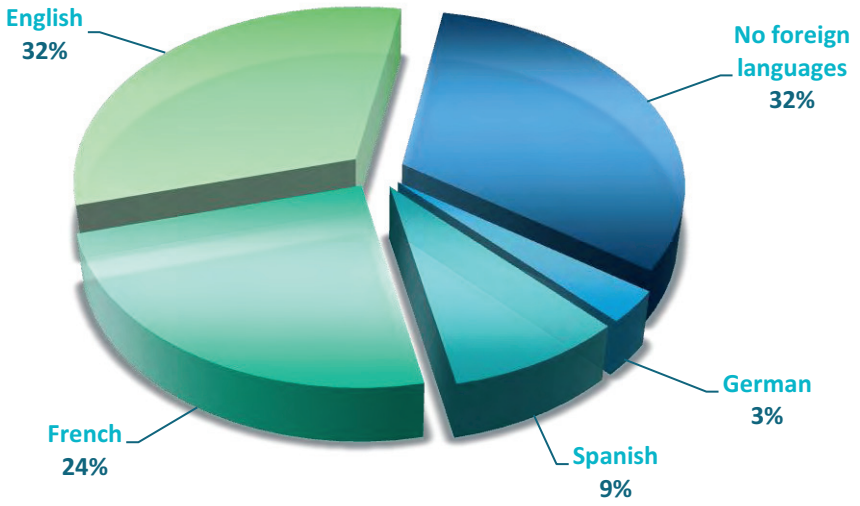


Figure 8: Percentage of foreign languages spoken in Portugal[53]

Diversity in the teaching of languages was a principle adopted early-on in Portugal. During basic education it is compulsory to learn two foreign languages, which can be English (US and UK based), French, German and Spanish.

At least 42% of Portuguese nationals speak a foreign language[54]. However, this is far from the EU average and is a significantly lower number than that found in the Netherlands (91%), Poland (57%) and the Czech Republic (61%). Nevertheless, in the medium-term this number should increase as English as a foreign language is being taught from the age of 6 years onwards.

School is the main environment in which a foreign language is learnt. When analysing results for the evaluated effectiveness of language lessons at school, the scores vary from 12% in Greece to 75% in Portugal. Portugal is within the referenced countries, i.e., countries where school was considered by interviewers as the most effective way of learning a foreign language[55] as can be seen in Figure 9 below.

[53] Source: European Commission - Europeans and their Languages 2006
[54] Source: SNESup - National Union of Higher Education
[55] Source: European Commission - Europeans and their Languages 2006

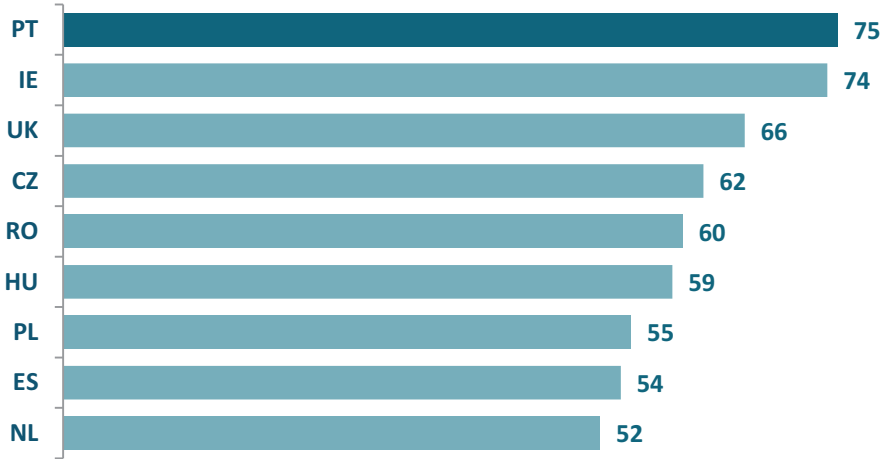


Figure 9: School as the most effective place to learn a language[56]

It has been mandatory since 2008/2009 in all Portuguese schools to offer English as a foreign language from the first year of primary education onwards (pupils aged 6-10). The same policy occurs in Poland and in certain places in Spain. In Ireland and the United Kingdom it is not obligatory to learn a foreign language at school, perhaps due to their advantage of having English as a native language. In Portugal, from the age of 10 onwards, foreign languages become mandatory for everyone and pupils can choose between English and French as a first foreign language[57].

English is widely spoken in the Algarve (in the South of Portugal), and, as the English community in the region grows, so does the number of English speakers – along with the amount of golfers. The teaching of English as a second language is a job opportunity in this region where several English schools are already settled. It is however necessary to be certified to teach English as a second language in Portugal.

According to the IMD World Competitiveness Yearbook 2009 report, Portugal is well positioned in respect to Language Skills (12th), overcoming all the referenced countries in terms of language skills meeting the needs of enterprises. The exception is the Netherlands who occupy a higher position (3rd).

[56] Source: European Commission - Europeans and their Languages 2006
[57] Source: European Commission – Eurostat "Key Data on Teaching Languages at school 2008"

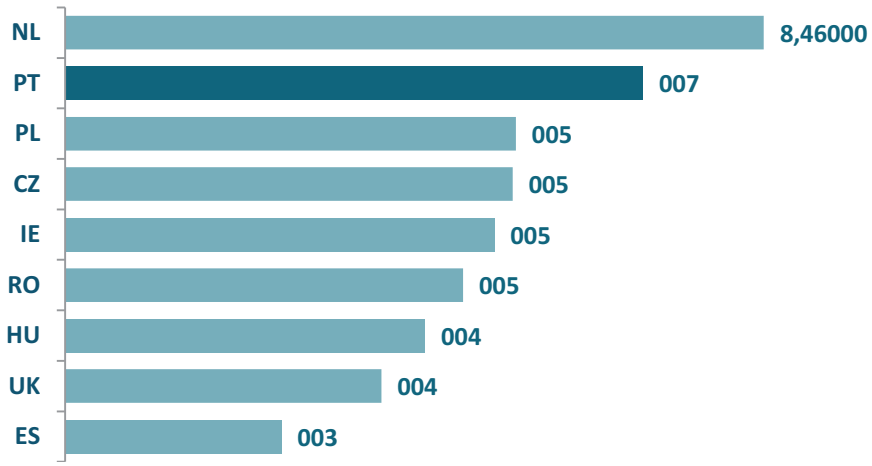


Figure 10: Language Skills[58]

The New Language Experience: Mastering a different language

The Portuguese government has implemented some important initiatives to improve Portugal's position among EU countries with respect to language skills.

- Since 2008/2009, schools are obliged to offer English lessons to 6-10 year-old pupils;
- Portugal is the EU country where young people from the ages of 12 to 18 have the greatest workload of foreign language lessons (6 hours per week);
- Protocols were established with World Class Universities (like Carnegie Mellon and MIT), which motivated the knowledge of a foreign language;
- To improve language proficiency among pupils, some subjects at universities are taught in English, especially in management and economy universities;
- Implementation of CLIL[59] programs at schools as pilot projects to improve foreign languages;
- In 2008/9, 1,165 people were enrolled in higher education in foreign language specialised courses at the postgraduate, master and doctoral levels;

[58] Source: IMD World Competitiveness Yearbook 2009
[59] CLIL - involves teaching a curricular subject through the medium of a language other than that normally used.

- The National Agency for the Socrates and Leonardo da Vinci Programs was created to act as a single point of contact between students and the EU programs, promoting student mobility and supporting the learning and teaching of languages (e.g. Erasmus).

Labour Pool

Foreign investors recognise Portugal as a productive and skilled workforce. According to IDC studies[60], in 2008 Portugal's workforce reached 5,565 million workers, of which 98,835 were IT professionals (out of the 10,600 million of total population) and the number of IT companies reached 8,153. In terms of job employment, the Agriculture, Construction and Mining sector provide the majority of employment (23.1%), followed by Commerce (20.1%) and Industry (18.5%), while the Services sector represents only 6.3% of job opportunities.

As can be observed in Figure 11, the Portuguese unemployment rate reached 9.6% at the end of 2009 under circumstances of economic crisis, inflating the trend of the last decade. Industry and Construction were the most affected sectors, whilst tertiary sectors have been improving.

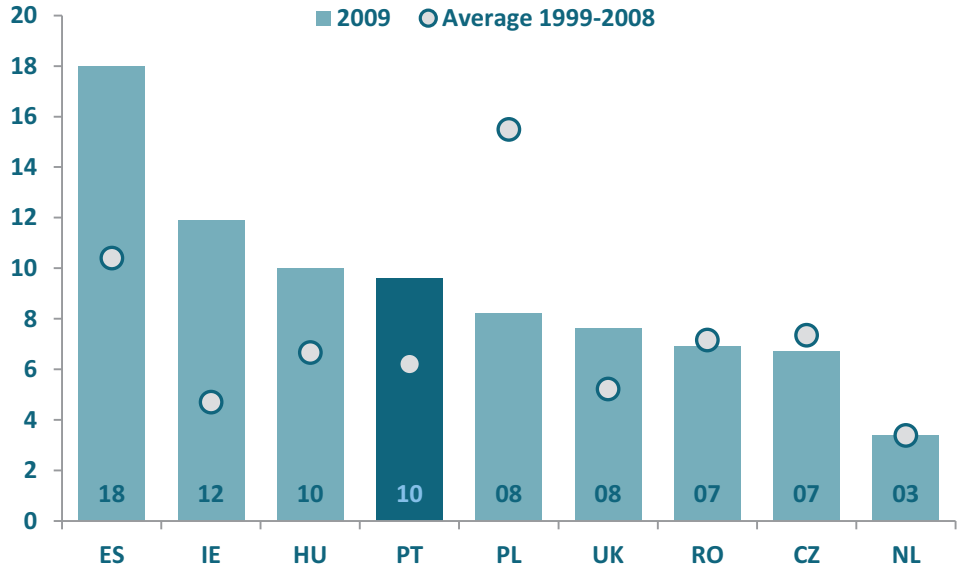


Figure 11: Unemployment Rate (% of civilian labour force) - 2009 *vs.* 1999-2008 average[61]

[60] Source: IDC Enterprise Market Research Study 2009
[61] Source: Eurostat (tsiem110) - Unemployment Rates

According to the "Doing Business Report 2010"[62], the Difficulty of Hiring Index, which considers the applicability and the duration of fixed-term contracts and minimum wages for trainees, Portugal and the Czech Republic are classified with 33 points. This value represents the existence of more rigid regulation on hiring people than the average for the OECD countries. However, in Romania and Spain, hiring seems to be even more difficult, where the values of the Difficulty of Hiring Index are 67 and 78, respectively.

Training to Improve Skills

In terms of best practices in IT, the use of ITIL (IT Infrastructure Library) is common among the largest companies. In addition, across the country other companies are gaining certification in standards such as CMMI - Development (Capability Maturity Model Integration) from SEI – Software Engineering Institute and the ISO (International Organisation for Standardisation) – namely ISO 9001[63], ISO 27000; companies are preparing for the ISO 20000 and the new constellation from SEI: CMMi for Services.

Adherence to ISO 9001, the more horizontal standard for quality management is improving in Portugal. Portuguese leading firms tend to comply with ISO 9001 as well as to the ISO14001 and ISO 18001. There is also knowledge about Six Sigma, TOGAF, eTOM, SOX and Basel II.

The Portuguese labour pool is becoming more skilled in technology due to measures and projects aimed at accelerating efficiency and reducing Government bureaucracy. These measures are based on automation and providing web contents in the public sector and for private enterprises (i.e. the SIMPLEX initiative). Furthermore, specialised training centres were created for the public sector staff, amongst which the most important is the National Institute of Administration (INA) responsible for the development of training courses and certifications such as ITIL, Project Management and a variety of online degrees in Information Systems. Several degrees and courses are offered in Universities to provide training to meet the increasing demand for IT expertise.

As the economy and labour demand recover, investment in skills development is an imperative and the Government needs to couple efforts with universities and IT firms and improve the quality of technology training and the size of the qualified work pool.

Information and Communications Technology (ICT)

Working conditions are improving in many areas mainly due to improvement in the Information and Telecommunications Technologies (ICT), which include the Research and Development (R&D) area. The scientific employment programs brought about an increase in foreign researchers who choose to work in Portugal as social and contractual conditions improved. This shows that Portugal is currently very attractive for scientific research.

The demand in the business sector is expected to increase in the coming years, albeit slowly. Foreign investors should take advantage of the growth in the scientific community and the quality of the research performed in

[62] Report Doing Business 2010, http://www.doingbusiness.org/
[63] There are 4.642 companies certified in ISO9001 (April 2009), source: IPAC – *Instituto Português de Certificação*

many Portuguese laboratories as these offer potential for university-industry collaboration and, as a spin-off, for the development of a research-based company sector. According to the IMD Competitiveness Yearbook 2009, Portugal has made improvements and currently scores in the middle of the referenced countries average (4.53 pts) in terms of Knowledge Transfer from universities to companies. This can be seen in Figure 12.

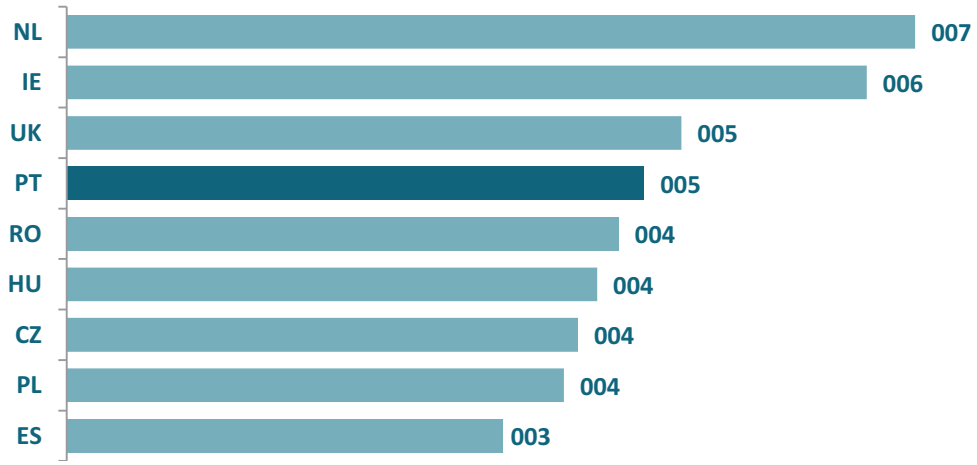


Figure 12: Knowledge Transfer[64]

In the period between 2003 and 2008, an evolution of Information and Communications Technology (ICT) usage within enterprises in Portugal was observed, as can be seen in the top charts of Figure 13. A comparison with the reference countries can be also observed in the bottom charts of the same figure.

[64] Source; IMD Competitiveness Yearbook 2009

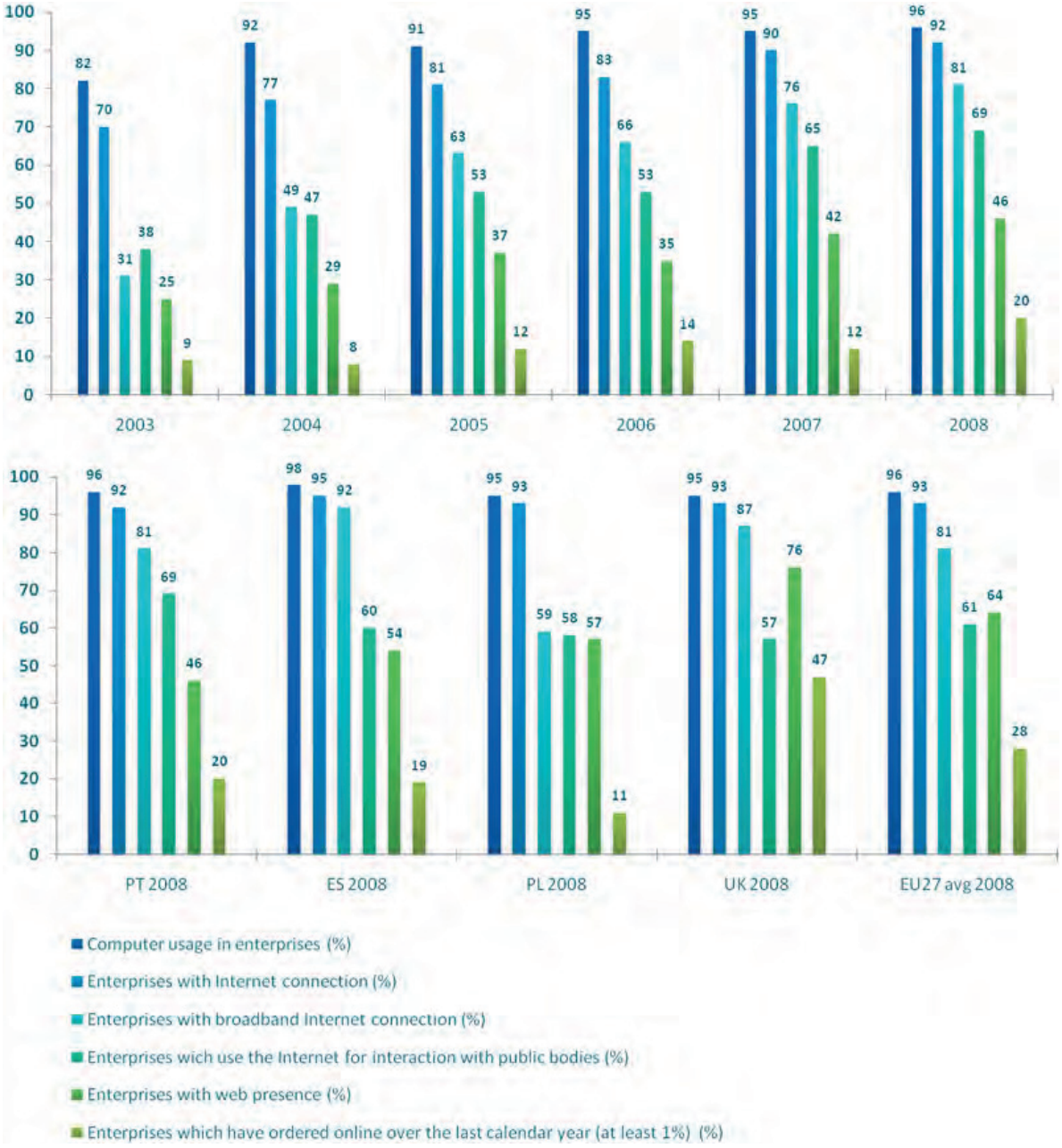


Figure 13: ICT usage within Enterprises Comparison[65]

[65] Source: Eurostat, Survey on ICT Usage in Enterprises 2003 - 2008

Good Labour Skills

Portugal has one of Europe's most cost-efficient workforces, flexible and well skilled. The number of graduates in tertiary education in 2008 ascended to 84,000[66]. Amongst these, 8,012 were in Computing, 2,863 in Math and Statistics and 49,342 were in Engineering.

Portugal has a literacy rate of 94.9% and, according to IMD Competitiveness ranking 2009, the percentage of population with higher education (aged 25-34) reached 20.0%, a value better than that for the Czech Republic (15%) but lower than for countries such as Spain and Hungary, with 39% and 21%, respectively. However in terms of Graduation Rates, Portugal is better classified than any of the above-mentioned countries, as can be seen in the following graph.

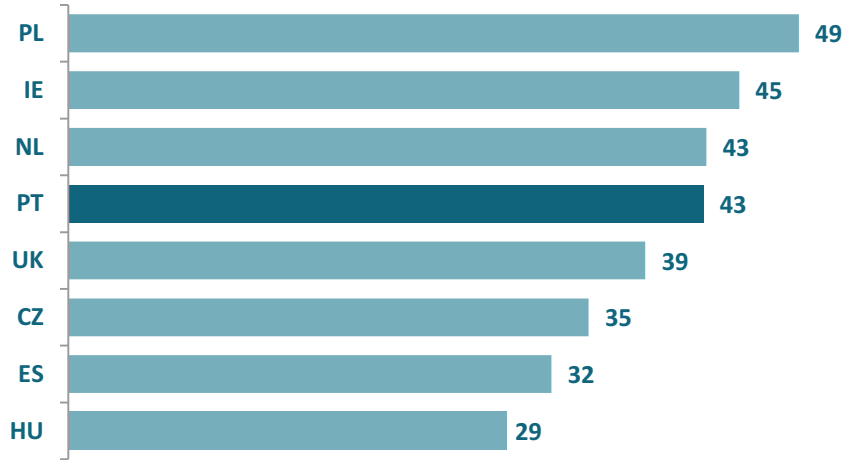


Figure 14: % Graduation Rates in Tertiary Education (Type A) 2007[67]

The IMD's indicator of Availability of Skilled Labour (2008) shows that Ireland, the Netherlands and Hungary perform better in this area, while Portugal's score is close to the average of the IMD countries, with a score close to that of the other countries referenced in this study. This can be seen in Figure 15 below.

[66] GPEARI – National institute for statistic in education

[67] Source: OECD - Education at a Glance 2009 - Tertiary-type A programmes are largely theory-based and designed to provide qualifications for highly skilled professions. Tertiary-type B programmes are classified at the same level of competence as tertiary-type A programmes, but are more occupationally oriented and provide direct access to the labour market.

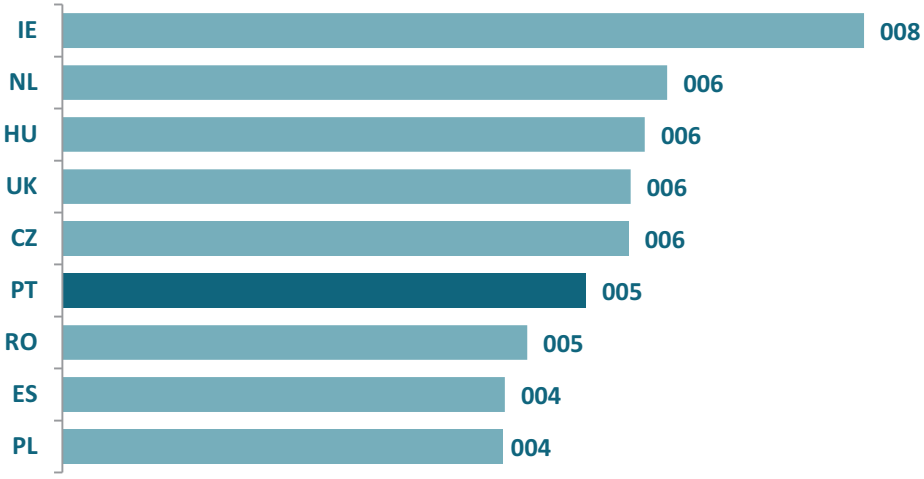


Figure 15: Availability of Skilled Labour[68]

The Availability of Skilled Labour can be improved through a mixed approach: to reduce or contain the flight of talent (emigration), to implement a strategy to retain graduates from Erasmus or other interchange student programs in Portugal and to promote immigration of skilled labour in order to bridge skill gaps.

Interestingly, a pool of Qualified Engineers places Portugal in the 12th position in the IMD Yearbook, scoring 7.04 points, with Ireland in a better position. Portugal overcomes Spain (5.51), the United Kingdom (5.3), the Netherlands (6.3), Poland (4.9), Hungary (5.59), the Czech Republic (5.53) and Romania (3.83).

Knowledge Activation is crucial to improve performance

In terms of the R&D labour pool, over the last ten years changes occurred in the international scientific production within the Engineering Sciences and Technology and Social Sciences and Humanities groups. Both are growing to very high levels of internationalisation, whereas years before both were well below international scientific production levels.

The increase of R&D investment directly impacts on the development of the knowledge-based economy and consequently on the skills involved. In order to advance effectively towards a knowledge-based economy, countries need to invest not only in the creation of knowledge but also in its diffusion. To assess this several indicators are important such as R&D expenditure per capita, number of researchers, education spending and eGovernment. These indicators shown in the table below, show Portugal in a good position for every one of them. These indicate effectiveness not only in the creation but also in the diffusion of knowledge and show Portugal ahead even in the area of eGovernment and education spending.

[68] Source: IMD - World Competitiveness Yearbook 2009

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Researchers per 1.000 employments[69]	5.4	5.8	4.5	6.0	5.2	4.4	**5.5**	-	5.9
R&D expenditure per capita (USD)[70]	215.1	287.2	112.1	683.0	671.1	49.8	**141.2**	25.8	657.2
eGovernment[71]	19th	12th	22nd	7th	15th	24th	**1st**	30th	7th
Public expenditure on Education (% of GDP)[72]	3.9%	-	5.8%	4.4%	-	5.2%	**7.6%**	-	6.1%
Nr of Scientific Articles 2009 (by million population)[73]	694	832	465	1528	1537	421	**703**	242	1311

Table 5: R&D Investment Indicators

Figure 16 below combines the creation of knowledge (defined by the number of researchers, the number of scientific and technical papers per million people and R&D expenditure per capita) and the Quality of Life[74] indicator.

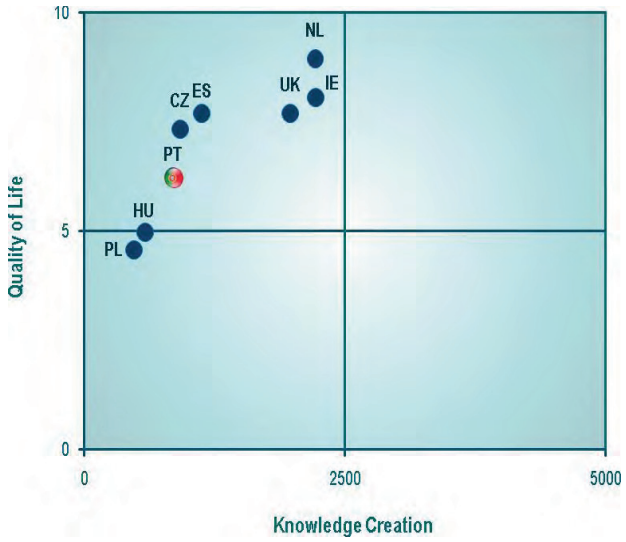


Figure 16: Quality of Life and Knowledge Creation[75]

[69] Source: OECD Factbook 2009
[70] Source: IMD - World Competitiveness Yearbook 2008
[71] Source: European Commission
[72] Source: IMD - World Competitiveness Yearbook 2009, Public Expenditure on Education (%GDP)
[73] Source: GPEARI - Portuguese Scientific Production, 1990-2009: Series Statistics
[74] Source: IMD World Competitiveness Yearbook 2009

IT Services Landscape

According to the IDC, in 2008 the Portuguese domestic market for IT Services generated a total turnover of 5,559 million Euros. Of these 2,146 million Euros are estimated to be effective - when excluding subcontracting - and 377.71 Million correspond to international markets. The Telecom and Energy and Utilities sectors represent the greatest slice of the turnover, accounting for 25% of the whole income[76] (IDC Enterprise, 2009).

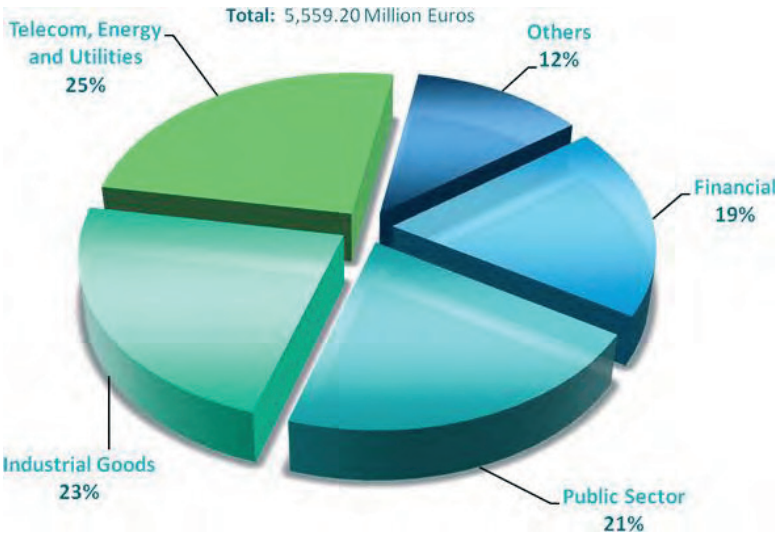


Figure 17: IT Services Turnover by Economic Sector, 2008[77]

The turnover is generated by 338 companies, which represent 95% of the market of IT Outsourcing Services in Portugal and employ over 31,000 workers. The 9% growth rate of this turnover caused an increase of 2% in the number of employees in companies operating in the IT services market in 2008, and a subsequent increase in productivity of the sector.

The fifteen largest IT Outsourcing companies, as ranked by IDC 2009, represent a very large portion of Portugal's GDP. Most of them are foreign-owned and therefore not as dependent on the Portuguese market.

[75] A calculated value, combining a set of indicators taken from the R&D Investment Indicators table – No data available for Romania for "Researchers per 1.000 employments".
[76] Source: IDC 2009
[77] Source: IDC Portugal 2009

The IT Outsourcing Providers Portuguese Scenario

Rank	Company	2008	Employees
1	IBM	168.93	608
2	Logica	98.25	980
3	PT SI	46.23	789
4	Reditus	44.45	936
5	Novabase	33.94	1703
6	PT Inovação	27.50	426
7	HP (with EDS)	32.79	520
8	Accenture	30.50	1200
9	Deloitte	20.21	1705
10	GFI	15.41	640
11	Oni Communications	14.43	258
12	Capgemini	14.03	458
13	NOESIS	11.47	297
14	Glintt	10.38	910
15	Mainroad	10.31	81

Table 6: Top 15 - IT Outsourcing Providers (2008), million Euros[78]

IT Outsourcing represents 33% of IT Services with a total turnover of 713.57 million Euros. This Top 15 aggregates about 81% of the total return in outsourcing services.

Portuguese have good technology skills and this is recognised by the companies investing in competence centres in Portugal, also mentioned in this study. Considering information technologies in the economy, Portugal scores well in eBusiness and ecommerce. The contribution of eCommerce to total turnover is equal to the EU average and is among the leading countries for Enterprises' Implementation of eBusiness applications, with almost every indicator exceeding the EU average[79], while the United Kingdom is among the lowest of all Member States.

[78] Source: IDC Portugal 2009
[79] Europe's Digital Competitiveness Report 2009 – ICT Country profiles

Skills are Improving

Increasing investment in the developing of skills through Education reforms and R&D is improving the Portuguese skill profile and according to testimonies of companies investing nationally, new entrants are considered well prepared for the labour market. Let's have a look at some improvements:

- In 2005 there were around 900 companies registered in Portugal with research activities and in 2008 these exceeded 1700. Therefore, the number of companies that have research activities more than doubled in the period of 2005 to 2008, causing the economy to generate more knowledge-based employment;
- The total of working population with a higher education degree for the 1st quarter of 2006 showed an increase of 6.5% in relation to the same period in the preceding year;
- The average annual growth rate in tertiary attainment levels has exceeded 5% in Poland and Portugal[80].

According to the World Economic Forum in the Global Competitiveness Report 2009-2010, Portugal is in a good stage of development especially in the domain of Health and Primary education and Infrastructure. Portugal is considered as Innovation-driven jointly with the Czech Republic, Ireland, the Netherlands, Spain and the United Kingdom, while Poland, Hungary and Romania were considered to be in a transition stage from Efficiency to Innovation driven.

[80] Source: OECD Factbook 2009

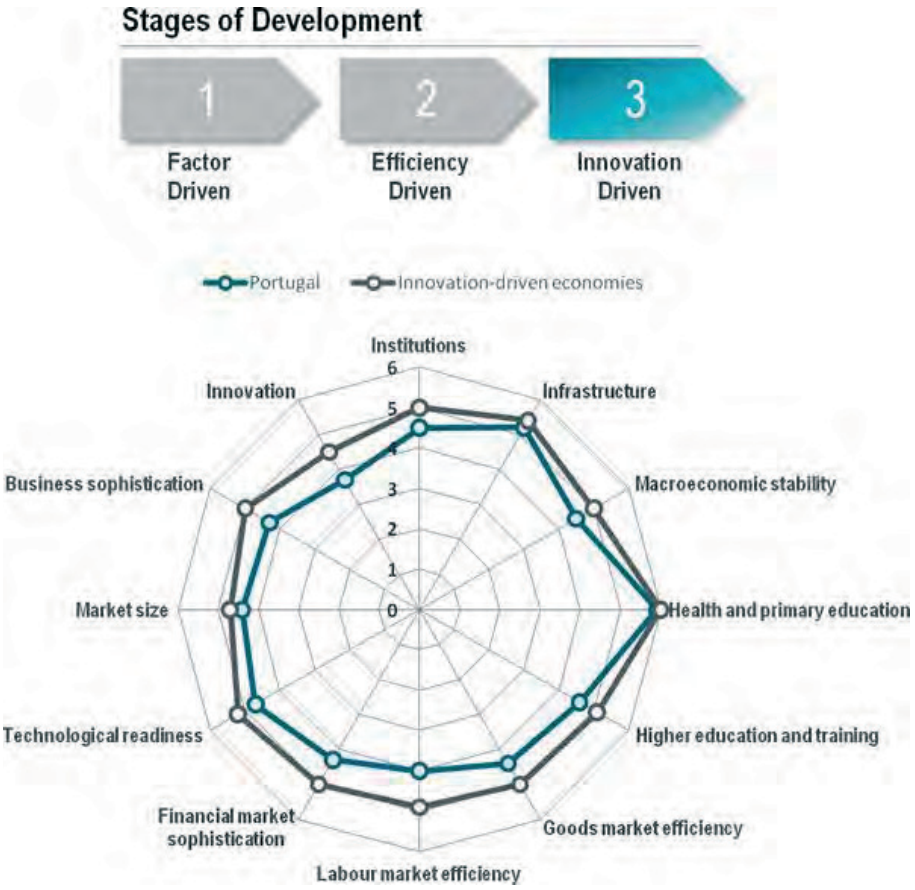


Figure 18: Portugal vs. Innovation-driven economies[81]

The country is improving skills and making efforts in the domain of technology and knowledge and has started with an education system reform and an increase in R&D investment, promising a good future for skills availability. On the other hand, internationalisation of labour is crucial as new technologies allow for knowledge, skills and services to be transferred across international boundaries.

[81] Source: World Economic Forum - World Competitiveness Report 2009-2010

3.3. Infrastructures and Intellectual Property

Summary

Promoting a better business Environment

Significant investment in Next Generation Networks, Public Administration Modernization and on-line services.

This chapter and its analysis focus on Portugal's physical infrastructures, data and intellectual Property, Security and Privacy. Portugal seems to be on the right track in terms of infrastructure evaluation items and data property and security. Despite that there are still areas in need of improvement (such as new generation networks) although much has been done already. As far as the physical infrastructure is concerned, Portugal consistently ranks in the upper middle half of the OECD countries. As for countries in direct comparison and in terms of the benchmark, it is clear that Portugal ranks amongst the top 3 in the majority of indicators. New investments are being made such as the New Generation Networks (a 1 Billion EUR investment), the TGV construction (circa 7 Billion EUR investment) and the new Lisbon Airport (circa 5 Billion EUR investment). The aim is to facilitate innovation, create citizen mobility and generate hype and momentum towards the creation of economic value. Nevertheless, these investments need to be prioritised to cope with EU requirements in terms of control of public spending and deficit reduction.

In the area of intellectual data property, security and privacy, Portugal has a long history in intellectual property protection and is one of the eleven founding members of the Union for the Protection of Industrial Property, created by the Paris Convention (1883 as amended).

As a member of the EU, Portugal's intellectual property law has been harmonised with the other Member States' laws, incorporating provisions of the EU Data Protection Directive, of the Regulations on European Industrial Property Rights, such as European Patents, Community Trademarks and Community Designs. Portugal also has a law regulating cybercrime. Nevertheless, the government should be more active in terms of Intellectual Property protection.

Portugal is a signatory to the World Trade Organisation (WTO) agreements and is a member of both the World Intellectual Property Organisation (WIPO) and of the WTO. The country has signed several treaties under the patronage of these bodies, namely, the Trademark Law Treaty (TLT) (1994), the Copyright Treaty (1996) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Total Communications[82]	18th	15th	23rd	11th	12th	27th	**17th**	-	5th
Quality of overall infrastructure[83]	4.5	5.2	4.3	4.1	5.8	2.6	**5.7**	2.4	5.2
IT infrastructure[84]	52.1	45.6	36.8	65.9	92.5	39.9	**47.7**	30.4	81.4
Intellectual property protection[85]	4.0	4.3	3.9	5.6	5.8	3.6	**4.6**	3.4	5.3
eGovernment[86]	19th	12th	22nd	7th	15th	24th	**1st**	30th	7th
Software Piracy rate[87]	38%	42%	42%	34%	28%	56%	**42%**	66%	27%

Table 7: Infrastructures and intellectual property dimension main indicators benchmark

Infrastructure

Three items compose the analysis of Portugal's physical infrastructure: Transport, Technological and Civil Protection Infrastructure.

In the past few years, strong investments in the Portuguese Transport Infrastructure have been made with the assistance of European Community Funds. The aim was to modernise roads, railways, maritime ports and airports, in order to establish Portugal as a natural gateway into Europe.

Portugal has one of the most developed road infrastructures in Europe. It has been modernised to encompass a network of roads that connect most of the country, besides offering a rapid access to Spain. This network consists of 2,091km of motorways (*Auto-Estradas*), 1,085km of main trunk roads (*Itinerários Principais*), 1,294km of secondary roads (*Itinerários Complementares*), 4,910km of national roads (*Estradas Nacionais*) and 4,500km of local roads (*Estradas Municipais*).

[82] Source: OECD communications outlook 2009 - total communications paths per 100 habitants.
[83] Source: World Economic Forum - The Global Competitiveness Report 2009-2010
[84] Source: The Economist Intelligence Unit - Resilience amid turmoil (Benchmarking IT industry competitiveness 2009)
[85] Source: World Economic Forum - The Global Competitiveness Report 2009-2010
[86] Source: European Commission eGovernment index 2009 (Sophistication 2007-2009)
[87] Source: Annual Piracy Study by IDC - Business Software Alliance 2008

With regard to this item, Portugal is ranked 7th by the OECD with a total motorway Km per square Km of 28.65, ahead of most European countries.

There are regular bus services connecting the main cities, towns and villages in Portugal, served either by public or private transport companies.

As for railway infrastructures, there is a vast rail network covering the country's mainland (about 3,600km), as well as international daily train services that connect Portugal to Vigo, Madrid and Paris (Sud-Express). There is also a new project in place, the high-speed TGV lines, which will connect Lisbon to Oporto, Lisbon to Madrid and Oporto to Vigo.

	Lisbon - Madrid	Lisbon - Porto	Porto - Vigo
Link	2h45min	1h15min	60min
Traffic	Passengers and freight	Passengers	Passengers and freight
Length	204 km (in Portugal)	290 km	55 km (in Portugal)
Stations	Lisbon, Évora and Caia	Porto, Aveiro, Coimbra, Leiria and Lisbon	Braga
Investment	2,600 M€	4,500 M€	850 M€
Beginning of operations	2013	2015	2013
Project speed	350 km/h	300 km/h	250 km/h
Demand (Mpax[88])	9.4 Mpax	12.2 Mpax	3.7 Mpax

Figure 19: Characterisation of high-speed lines

The national rail network offers a variety of train services. Among these are the Alfa-Pendular train services which are high-speed trains that connect Lisbon to the south (Algarve) and the north (Oporto, Braga or Guimarães, with stops in Coimbra and Aveiro); the Intercity and regional train services, which link the above-mentioned cities with various other cities throughout Portugal; the subway systems in Lisbon and Oporto, which share stations with the Alfa-Pendular trains, so as to provide connection between the cities; and cargo trains which are integrated into a logistic chain, with rail-road-port terminals spread throughout the country.

With regards to maritime Ports, there are 9 main seaports on the mainland, a major advantage to companies shipping products throughout the world, as all of these ports receive international traffic. The main seaports are

[88] Mpax – Million passengers in 2030

located in Lisbon (Centre), Leixões (Oporto - North), and Sines (South), with dedicated train lines that dispatch the goods to the rest of the country and Europe. The Sines Port is one of the largest deep-water ports in Europe, with virtually no restrictions, therefore receiving more cargo ships than any other port in Portugal. In addition, there are regular cargo lines linking Portugal to North, Central and South America, Asia, Africa, Europe and the Middle East.

Portugal is also connected by means of air transportation, with three international airports on the mainland and seven in the islands. In addition, there is an ongoing project to build a larger international airport in Alcochete (Centre) to replace the one in Lisbon, which is due to reach maximum capacity very soon. As far as low cost airlines are concerned, a new airport in Beja (an investment of 33 million Euros) is projected to be strictly dedicated to low cost airlines.

There are regular daily passenger flights within the country and to all the European countries, South Central and North America and Africa, as well as cargo flights from Portugal to the major hubs in Europe and Asia.

Within mainland Portugal travel times are short. It takes less than an hour to fly to Faro and Oporto (35minutes and 45minutes, respectively), and a little longer to the islands (Funchal 1h30m and Ponta Delgada 2h20m, the regional capitals of Madeira and Azores, correspondingly). Due to Portugal's location at the western edge of mainland Europe, flight times from/to Lisbon to/from major international capitals are very attractive. Portugal is 3 to 12 hours away from major business centres in Europe (Madrid 1h00m; Barcelona 1h35m; Zurich 2h10m; London 2h20m; Paris 2h30m; Amsterdam 2h45m; Frankfurt 2h55m) and the rest of the world (Boston 6h10m; New York 7h25m; Johannesburg 11h50m), respectively.

In the last few years, technological infrastructures relating to the telecommunications sector were substantially improved and modernised, allowing Portugal to stand comfortably among its European partners. In this area there are voice systems (Internet access), video services (TV signal) and several types of networks: traditional, fixed network, mobile network and TV distribution by satellite, cable and other radio-electric means. The deregulation of fixed and mobile networks and the entry of new telecommunications operators into the Portuguese market increased competition, improved quality and reduced charges.

Considering fibre-to-the home investments, a massive effort is being conducted and the first results are extremely positive, as Portugal came first in the world ranking of countries with the highest penetration of fibre-to-the-home[89].

The Technological Infrastructure has been an area of improvement and modernisation in the past years so as to keep Portugal in pace with its European counterparts. The Portuguese telecommunications market is medium-sized yet developed. Portugal has been considered one of the European countries that offers the most conducive communications environment for business communications services and seen as one of the principal growth areas in Europe, especially in the mobile and broadband markets. The mobile market is very strong, with one of

[89] Ranking report produced by the European Council of optical fibre.

the highest mobile phone penetration rates in the world (127% vs. E.U. average in 2008 of 118%[90] mobile penetration rates).

As for IT Infrastructure, there is need for more support from the government to improve the IT Industry Competitiveness. Improvements can be made in the domain of market spending on hardware, software and IT services, number of desktops/laptops, mobile-phone penetration and broadband connections. Figure 20 shows the scoring within the reference countries:

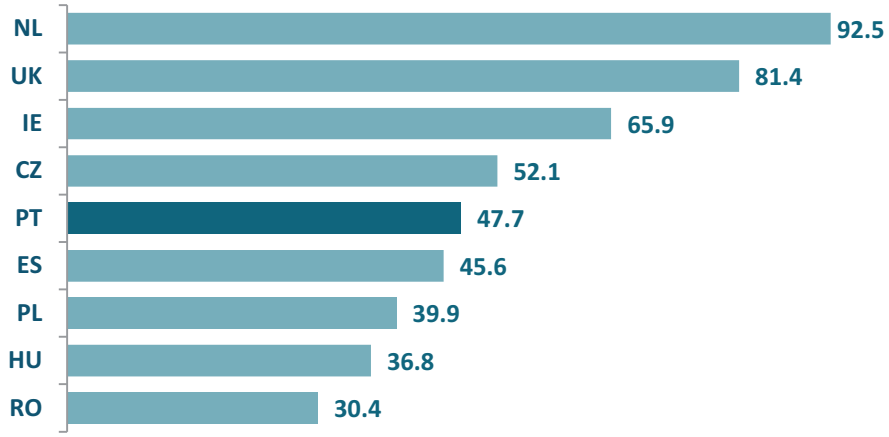


Figure 20: IT Infrastructure Index, 2009[91]

[90] Source: OECD communications outlook 2009
[91] Source: The Economist Intelligence Unit - Resilience amid turmoil (Benchmarking IT industry competitiveness 2009)

The broadband market penetration rate is 171%, according to the OECD communications Outlook 2009 which is higher than average of OECD countries.

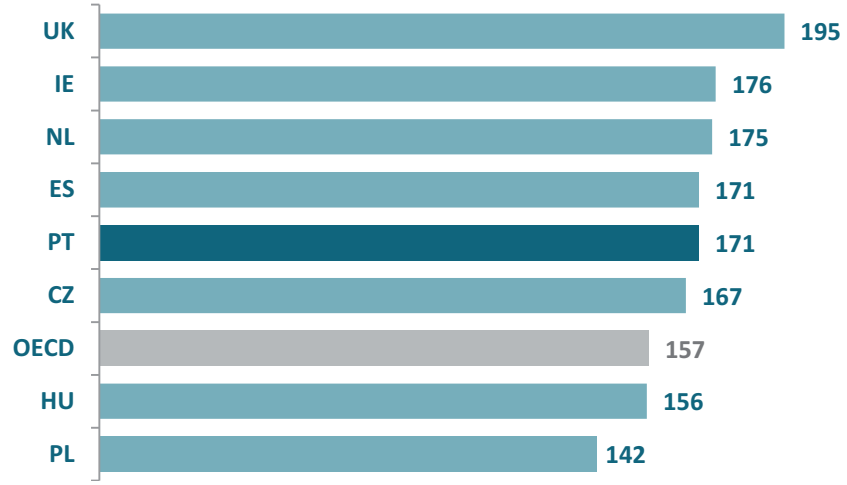


Figure 21: Total communication access paths per 100 inhabitants, 2007[92]

This market has been showing continued growth in the past few years. This is due to widespread cable and DSL networks, as well as to ADSL2+ services offered by alternative operators and cable data and fibre optic speeds at up to 100mbps.

In effect the Portuguese Government is committed to the development of next-generation networks (NGNs), having initiated a program that aims at doubling the number of broadband households and users by 2010 and becoming one of the cheapest broadband markets in Europe. To achieve this goal, the Government signed an agreement on the roll-out of fibre networks with some of the Portuguese Telecom operators. The agreement aims at promoting legislation to stimulate the market, opening an 800 million Euros credit line and providing incentives to the investors in the NGNs. The latter are projected to invest 1 billion Euros in the NGNs so as to provide greater access to the Portuguese population.

The Government has also encouraged the deregulation of fixed and mobile networks, which along with the entrance of new telecommunications operators in the Portuguese market (increasing competition), improved the quality of the offered services and reduced charges.

There are three types of systems offered: voice (fixed-line and mobile telephone), data (Internet access) and video (TV signal which is distributed either by satellite, cable or other radio-electric means). The domestic telecommunications system is composed by integrated network coaxial cables, open-wire, microwave radio relay

[92] OECD value represents the average of all the OECD countries values.

and domestic satellite earth stations. As for the international system, Portugal is linked to Europe, North and East Africa, South Africa, the Middle East, Asia, and to the US by means of a combination of submarine cables (Euroafrica, SAT-2, COLUMBUS-II, Iberian Festoon, TAGIDE-2, SEA-ME-WE-3, and Atlantis 2) and satellite earth stations (3 Intelsat (2 Atlantic Ocean and 1 Indian Ocean), NA Eutelsat; and tropospheric scatter to Azores).

In terms of the Civil Protection Infrastructure in Portugal, the country's authorities responsible for law enforcement are the Public Security Police (PSP) in large urban centres and the Portuguese National Guard (GNR) in rural areas and smaller towns. These bodies also provide a national highway patrol and fiscal guard. In addition, there are other major public safety agencies such as the National Institute for Medical Emergency (INEM), and the National Authority of Civil Protection (ANPC).

In the presence of imminent situations or in the occurrence of serious accidents or disasters, there is a system, the SIOPS - Integrated System for Relief and Protection Operations - which comprises of a set of structures, norms and procedures that ensure that all Civil Protection agents act at the operational level (institutional coordination), under a sole command (operational command), despite the respective hierarchic and functional dependence. The Institutional coordination is ensured by Operational Coordination Centres (at national and district levels), which are responsible for managing the operational participation of all the essential entities and institutions in relief and protection operations. As for the Operational Command, it is the responsibility of the National Command for Relief Operations, under the administration of the National Authority of Civil Protection, to guarantee the operational command in terms of relief operations and the integrated operational command of all the fire brigades.

In the past few years, the Portuguese Government has been modernising its civil protection infrastructures, by investing in both information technologies and in equipment, vehicles and buildings for security and civil protection agencies. For the former, the Government has created SIRESP (Integrated System of Portugal's Emergency and Security Networks) aimed at fulfilling the communications needs of the emergency and security forces and services. This enables the intercommunication and interoperability among the several forces and services and the centralisation of leadership and coordination. This project is being implemented, and operationally consists of a TRUNK network which, upon conclusion, will consist of a central switch, 550 base stations, 20 control rooms and nine remote nodes, with full redundancy provided via a second disaster recovery site. In addition, there are other ongoing projects in the field of means of communication such as the National Network for Homeland Security (RNSI), a secure and integrated telecommunications network which supports voice, data and images transmissions between the various entities responsible for ensuring internal safety and civil protection; and SIVIC (*Integrated Surveillance Command and Control)*, which is a coastal surveillance system to be installed across the Portuguese coast.

Portugal in terms of general infrastructures (e.g., transport, telephony and energy) is classified by the companies investing in Portugal – see testimonies chapter – and by the World Economic Forum (The Global Competitiveness Report 2009-2010) as a country with very good infrastructures in terms of Quality of Overall Infrastructure indicator.

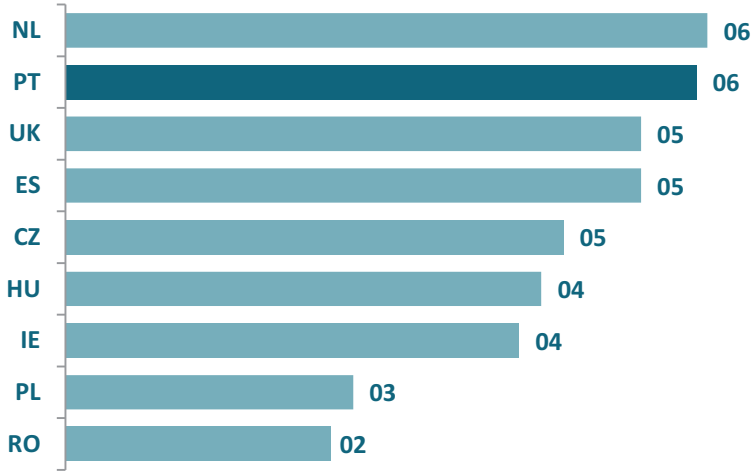


Figure 22: Quality of overall infrastructure[93]

Data and Intellectual Property Security and Privacy

Portugal has a long history in regards to intellectual property protection, having been one of the eleven founding members of the Union for the Protection of Industrial Property, created by the Paris Convention (1883 as amended).

As a member of the EU, Portugal's intellectual property law has been harmonised with those of the other member states, incorporating provisions of the EU data protection directive, whilst regulations on European industrial property rights, such as European patents, Community Trademarks and Community Designs, are all complied with by the country. In addition, the country also has a law regulating cybercrime.

Portugal is a signatory to World Trade Organisation (WTO) agreements and a member of the World Intellectual Property Organisation (WIPO) and of the World Trade Organisation (WTO), having, therefore, signed several treaties under the patronage of these bodies, namely, the Trademark Law Treaty (TLT) (1994), the Copyright Treaty (1996) and the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS).

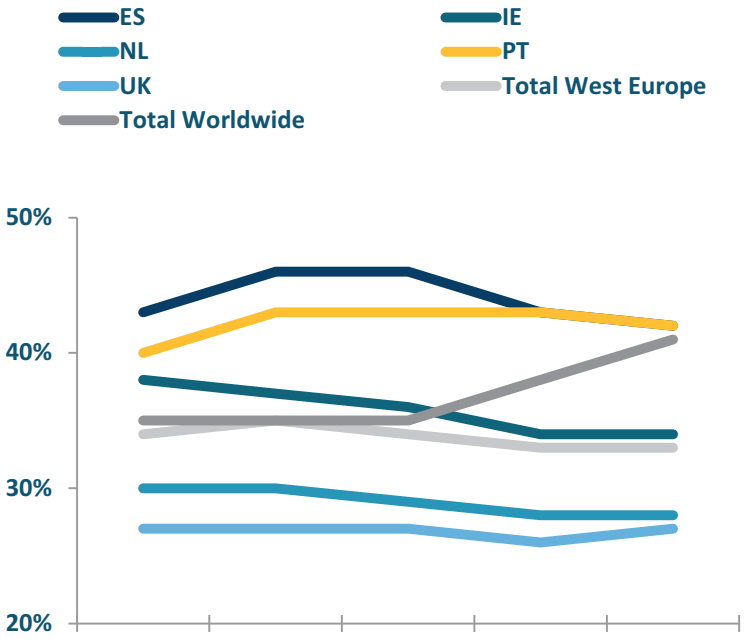
In 2008, Portugal implemented the IP Rights Enforcement Directive (2004/48/EC) in order to harmonise its procedural mechanisms for the enforcement of IP rights with those set by the EU since the procedures employed to handle the infringement of IP rights were, most of the times, adapted from ordinary procedural rules. This directive introduced new means to protect the holders of IP rights, which were non-existent in the Portuguese law, and also gave them the possibility to obtain fair compensation for the damages and losses caused by the infringement. Nevertheless, it has been very difficult to adapt the Portuguese legal system to these new

[93] World Economic Forum - The Global Competitiveness Report 2009-2010

procedural rules, a fact which resulted in a significant delay of the effective implementation of the directive in the country.

The judiciary system in Portugal is slow, in such a way that the number of years required to resolve disputes is well above the EU average. Nevertheless, specialised commercial courts with jurisdiction on these matters have been set up in 1999, thereby speeding up the entire process: it now takes up to a maximum of 6 months to settle IP issues. Additionally, disputes on intellectual property rights may also be resolved through arbitration, given that Portugal is part of the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards (1958).

Regarding software piracy in 2008, according to the Annual Piracy Study by IDC - Business Software Alliance 2008, Portugal has a piracy rate of 43%, above the Western European average of 33%, but on average with the countries which are the scope of this benchmark.



	2004	2005	2006	2007	2008
CZ	-	-	-	-	-
ES	43%	46%	46%	43%	42%
HU	-	-	-	-	-
IE	38%	37%	36%	34%	34%
NL	30%	30%	29%	28%	28%
PL	-	-	-	-	-
PT	**40%**	**43%**	**43%**	**43%**	**42%**
RO	-	-	-	-	-
UK	27%	27%	27%	26%	27%
Total West Europe	34%	35%	34%	33%	33%
Total Worldwide	35%	35%	35%	38%	41%

Figure 23: Annual Piracy Study on Software Piracy Rates

In Portugal, the risk that the Government would intercept sensitive, confidential information is minimal, as there is no legislation on the use of encryption. Yet, if a company is being investigated by the Portuguese State Prosecutor (*Ministério Público*) in the context of an ongoing inquiry, the State may have access to any information regarded as important and necessary, whenever authorised and mandated by a judge.

As to Data and Intellectual Property Security and Privacy in the context of labour law, the rules defined in the labour contract signed by both the employer and the employee prevail, as long as these do not violate the laws ruling the protection of personal data.

3.4. Cost

Summary

Regarding Cost - an important variable -, costs with personnel, as in any other country, vary significantly according to the sector and the function, yet statutory minimum wage increased by 5.6% in 2009 to €450. Lisbon, the capital of Portugal, is one of the top three elected cities in terms of cost of staff by a selection of 500 of the largest European companies responding to a study conducted by Cushman & Wakefield. Regarding the cost of real estate, analysing the "Value for Money for Office Space Index" in the European Cities Monitor Report by Cushman & Wakefield, Lisbon ranks number 2. In terms of cost of living[94] Lisbon is ranked 64th out of 143 cities, after Paris (13th), London (16th), Dublin (25th), Athens (28th), Madrid (37th), Barcelona (39th), and Zagreb (59th).

The Changing Paradigm

Portugal presents a stabilized cost environment, contrary to trends in western countries and is increasing its capability taking innovation and knowledge as key, in complement to cost.

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Cost of hotels (priciest come first)[95]	62nd	42nd	59th	58th	30th	55th	**44th**	48th	20th
Cost of staff (cheapest come first)[96]	6th	12th	3rd	13th	25th	4th	**4th**	1st	28th
Cost of telecommunications[97]	110.42	94.07	64.35	151.49	127.27	104.79	**82.07**	-	55.76
Cost of living (priciest come first)[98]	70th	37th	108th	25th	29th	113th	**64th**	107th	16th

[94] Source: Mercer Cost of Living 2009. The study measures the comparative cost of over 200 items in each location, including housing, transport, food, clothing, household goods and entertainment.
[95] Source: Hotels.com - Hotel Price Index 2009, Average hotel prices in 2009
[96] Source: Cushman & Wakefield - European Cities Monitor 2009 (EU capital cities come first)
[97] Source: OECD communications outlook 2009 - broadband prices monthly subscription (top rates – companies).
[98] Source: Mercer Cost of Living Survey – Worldwide Rankings, 2009 [City Rank – Prague (CZ), Madrid (ES), Budapest (HU), Dublin (IE), Amsterdam (NL), Warsaw (PL), Lisbon (PT), Bucharest (RO), London (UK)].

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Collected total tax revenues (% of GDP)[99]	36.7%	37.2%	39.3%	31.2%	37.5%	-	**36.5%**	29.8%	36.1%
Labour compensation per unit labour input (total economy - annual growth)[100]	6.8	4.7	6.2	6.0	2.8	7.3	**2.1**	-	3.6

Table 8: Cost dimension main indicators benchmark

When considering in which country to invest, companies take into account several costs that may diverge from those paid in the headquarters' country, such as the wages, real estate, infrastructure and travel costs, as well as the cost of providing an adequate quality of life to an expatriate on assignment in that country, and others. Additionally, companies should also consider the existence of hidden or indirect costs of doing business, such as excessive bureaucracy and delays or taxes.

Labour Compensation

Observing the referenced countries in Figure 24 presented below, Portugal is one of the countries with the lowest annual growth in terms of labour compensation, with an average annual rate of 4.36% within the period of 1997-2007, a much lower rate than the Czech Republic (7.48%) and Poland (9.33%), and almost one third of Hungary's growth (11.15%). This fact might be explained by the rise in demand for low-cost labour force in the Eastern countries and by the exit of qualified labour pool professionals to other countries in search of better wages.

[99] Source: IMD World Competitiveness Yearbook 2009
[100] Source: OECD Factbook 2009

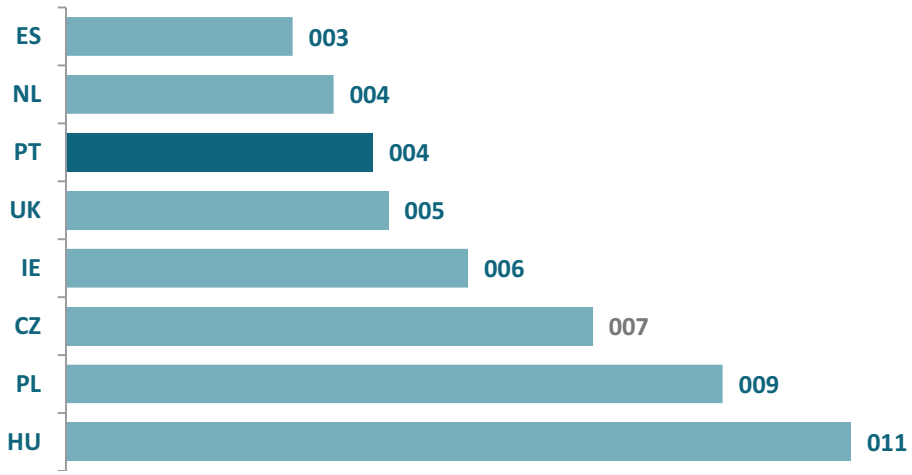


Figure 24: Labour Compensation per unit labour input – average growth 1997-2007[101]

Companies intending to invest in these Eastern countries should evaluate carefully the associated benefits, considering that in the upcoming years with the inflation on wages, cost may not be a differentiating factor, reaching values similar to those in Portugal.

Concerning the costs of personnel, as in any other country, the wages in Portugal vary significantly according to the sector and the function, yet the statutory minimum wage increased by 5.6% in 2009 to €450. Lisbon, the capital of Portugal, has been ranked as one of the top three cities in terms of cost of staff by a selection of 500 of the largest European companies interviewed in a study by Cushman & Wakefield. According to the statistics of the International Labour Organisation (ILO), the average value of monthly earnings in 2008 in Portugal for the category of Real Estate, Renting and Business Activities, which includes Computer and related activities, was 1,331€, e.g., 18,634€/year. From 2004 to 2008, the salaries in this economic activity increased approximately 15%, with yearly raises decreasing over time from 4.9% in 2005 to 2% in 2008. Focusing on the IT sector in Portugal, at present the wages of a top manager can reach up to 61,666€/year, whereas a mid-range manager earns up to 50,500€/year[102].

Infrastructure and Costs of Living

Regarding the costs of real estate, the relevant values are location-based and the costs of renting or buying land or buildings in Lisbon for business purposes are the highest in the entire country. For instance, in the first few months of 2009, the values for a monthly rent and for the total occupancy cost (besides the rent, this value includes other costs such as management, property taxes and basic ongoing building maintenance) of a prime

[101] Source: OECD Factbook 2009
[102] Source: Hays Information Technology Salary Tables, http://laborsta.ilo.org/

office per square meter in Lisbon went up to 20.5€ and 23.75€, respectively, while average rents could go up to 16.50€. Due to the current economic situation, these values have been decreasing but not as much as in other major European cities.

In terms of "Value for Money for Office Space Index" Lisbon ranked 2nd in 2008 and 4th in 2009 in the European Cities Monitor Report by Cushman & Wakefield.

	2009	2008
Leeds (UK)	1st	1st
Lisbon (PT)	**4th**	**2nd**
Warsaw (PL)	3rd	5th
Barcelona (ES)	6th	14th
Bucharest (RO)	9th	13th
Budapest (HU)	10th	3rd
Prague (CZ)	11th	6th
Dublin (IE)	16th	15th
Amsterdam (NL)	18th	12th

Table 9: Value for Money for Office Space Index[103]

There are several hotels in the major Portuguese business centres, namely Lisbon and Oporto and the respective quality and cost depends on the classification and location of each hotel. For instance, in Lisbon, in 2009, the price per night of 3 to 5 star hotels, ranged from £57 to £105, respectively, whilst in other major business centres such as London, Amsterdam and Madrid, the average prices per night of 3 to 5 star hotels range from £77 to £193 respectively[104].

[103] Source: Cushman & Wakefield - European Cities Monitor 2009 (Top cities of the selected countries)
[104] Source: Hotels.com - Hotels Price Index

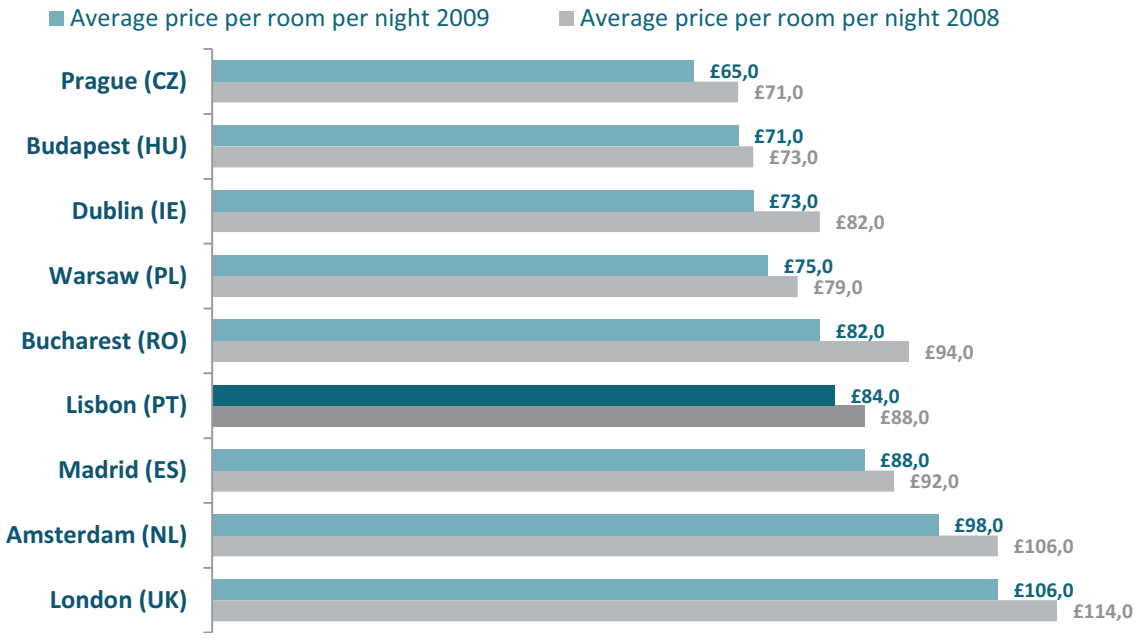


Figure 25: Average hotel prices in 2009 compared to 2008[105] (United Kingdom Pounds – GBP)

In terms of procuring visas, work and residence permits, the costs and ease of obtaining them depends on the country of origin of those coming to Portugal. As to temporary visas, all foreigners must possess identification documents to enter Portugal, but whereas EU nationals must simply carry either their passport or identity card, non-EU nationals must have valid passports to enter for short stays and entry visas might be required, in the case of non-EU nationals from countries with which Portugal has no reciprocal agreement regulating the rights of entry. Concerning work permits, EU nationals are allowed to undertake employment without any kind of authorisation, whilst non-EU nationals must apply for work visas, without which they may not engage in any type of employment. The process of obtaining a work visa is somewhat time-consuming as it involves proving that the foreign national is required by the company for a fixed period and, for some non-EU states, demonstration of a signed employment contract with a Portuguese employer is required. In addition, several personal documents must be translated into Portuguese and the authorities will be considering the type of work proposed, the availability of local and EU workers capable of performing the work, the level of the salary and the availability of accommodation.

Regarding residence permits, EU nationals staying for a period longer than three months may be required to obtain residence cards, valid for 5 years, which serve for identification and statistical purposes. On the other

[105] Source: Hotels.com - Hotels Price Index

hand, non-EU nationals wishing to have their residence in Portugal must apply for residence visas, temporary or permanent, which can be obtained at the Portuguese consulates in their home countries.

In terms of cost of living[106], Lisbon is ranked 64th out of 143 cities, after London (16th), Dublin (25th) and Madrid (37th).

	2009	2008
Warsaw (PL)	113rd	35th
Budapest (HU)	108th	61st
Bucharest (RO)	107th	71st
Prague (CZ)	70th	29th
Lisbon (PT)	**64th**	**57th**
Madrid (ES)	37th	28th
Amsterdam (NL)	29th	25th
Dublin (IE)	25th	16th
London (UK)	16th	3rd

Table 10: Worldwide ranking of cost of living

For instance, with regard to spending on goods and services (excluding U.S. or foreign income taxes, retirement contributions, life insurance premiums, personal savings, investments or contributions to charity, housing and child education), for an American expat in Portugal[107] to live in a style comparable to (or better than) the standard of living that he/she is likely to enjoy in the U.S., the allowance recommended by the U.S. Department of State to be paid by the employer would amount to a 48% increase of the employee's spendable income, i.e., the portion of basic compensation available for expenditure after deduction of taxes, gifts and contributions, savings (including insurance and retirement) and U.S. shelter and household utility expenses.

According to the Economist Intelligence Unit's quality-of-life index 2005, Portugal ranked in 19th place out of 111 countries. Several indicators were used to calculate this index, such as health, political stability and security, climate and geography and political freedom.

Portugal seems to be attracting more and more low cost airlines as a result of the great effort conducted by the Portuguese Government to promote Portugal as a tourism destination. As an example, in the recent past, Ryanair set up a base in Oporto with 16 routes in a 140 million Euros investment creating 1500 new jobs. For 2010,

[106] Source: Mercer Cost of Living 2009. The study measures the comparative cost of over 200 items in each location, including housing, transport, food, clothing, household goods and entertainment.
[107] U.S. Department of State

Ryanair announced it will create another base (Faro) with 27 routes, creating 300 new jobs, in a 400 million Euros investment. The new airport in Beja will be strictly dedicated to low cost airlines and will assure Portugal as a low cost destination throughout the years to come.

In terms of hidden or indirect costs of doing business in Portugal, the country has been wagering on reducing these costs, especially those related to excessive bureaucracy and delays, by improving the quality, accessibility, and availability of public services through online channels, thereby increasing the transparency of the administration, facilitating the life of citizens and encouraging business activity. In addition to offering top level electronic Government services, the country has also enacted a program, the SIMPLEX program, which includes 200 measures which specifically target the reduction of bureaucracy for ordinary citizens and companies.

On a related subject, regarding the investment made in the reduction of bureaucracy and on building citizen intimacy, Portugal was ranked first overall on the eGovernment ranking published by the European Commission (regarding the UE27), a fact which translates the effort made by the Portuguese Government since 2005 to simplify the access of citizens and companies to several Government services, reducing bureaucracy.

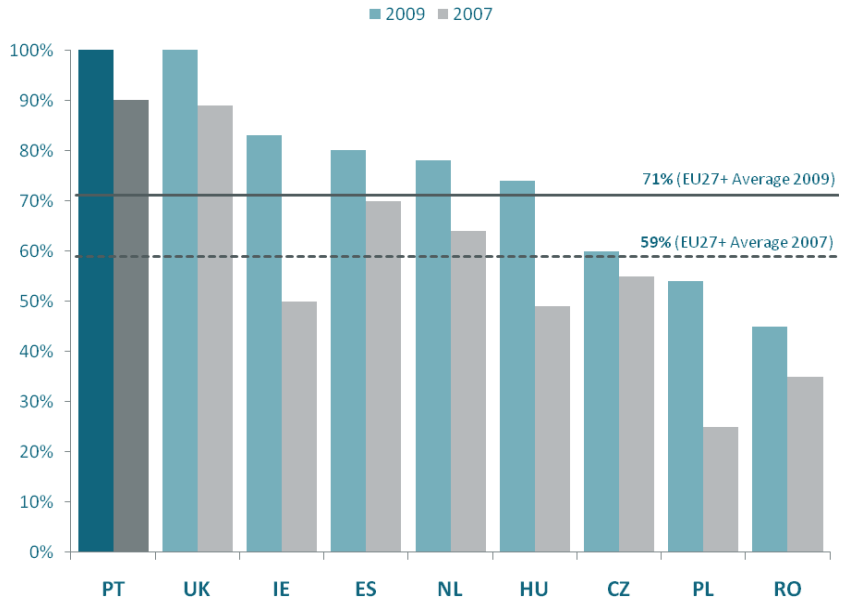


Figure 26: Full Online Availability, 2007-2009[108]

[108] Source: European Commission 8th eGovernment Benchmark Measurement 2009 - Full online availability: A core benchmark indicator used to assess the 20 basic services against the fourth and fifth stages of the 5-stage maturity model.

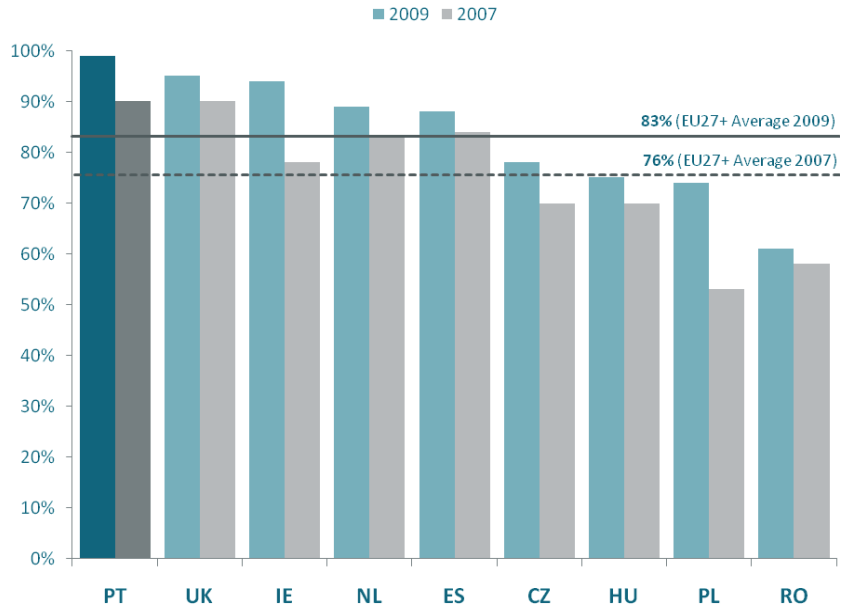


Figure 27: Sophistication 2007-2009[109]

Furthermore, in Portugal, companies and individuals are subject to direct - Income Taxes and Social Security Contributions - and indirect taxes - Value Added Tax, Municipal Tax on Non-Gratuitous Transmissions of Real Estate Property, Municipal Tax on Real Estate Property, Vehicle Tax (ISV), Road Tax (IUC) and Stamp Duty over contracts.

Income Taxes comprise two different types: one type is levied on the Individuals' Personal Income (IRS) and the second type is levied on the Company' Income (IRC). The first type is a seven tax bracket progressive system and the minimum tax threshold for a 0% charge on income is 1,850€/year. Tax rates vary between 10.5% and 42%, levying incomes under 4,639€/year and equal or above 62,000€/year, respectively. This tax regime applies to Portuguese tax residents, while non-residents are taxed at a flat rate of 20% of their income. Due to the need to control and reduce the deficit, a new 45% IRS tax rate will be levied on contracts in 2010 for individuals with a personal income above €150,000 (Growth and Stability Pact).

Whereas the worldwide income of residents in Portugal[110] is taxed for the period of residency, non-residents are only taxed on the earnings obtained in Portuguese territory and travel, cost of living, or other allowances paid by companies are not included in the taxable income.

[109] A core benchmark indicator used to assess the 20 basic services against the 5-stage maturity model.
[110] A person is considered to be a Portuguese tax resident and, consequently, so is his/her family (spouse and dependent children), after 183 days or more of living in Portugal in any tax year, or if one's permanent residency is in Portugal.

Regarding the taxes charged on Company income, two rates exist, 20 and 25%, depending on the type of business. The standard tax charged on most businesses is, however, of 25% accrued of a municipal surcharge which depends on the location of the head office or on where the company carries out its main business in Portugal. In the case of non-residents, this rate is usually 1.5% of taxable profit.

As to Social Security, contribution is compulsory for all individuals working for a third party. The employer and the employee are obliged to pay 23.75% and 11% of the gross monthly wage, respectively. Expatriates who are deducting for mandatory regimes in their country of origin are entitled to do so up to a period of two years of working in Portugal.

Concerning indirect taxes, VAT (Value Added Tax) is the rate charged by the Portuguese Government on the consumption of goods and services in every phase of the economic circuit, varying between 5%, 12% and 20%, depending on the good/service; the Municipal Tax on Non-Gratuitous Transmissions of Real Estate Property and the Municipal Tax on Real Estate Property are real estate taxes. The first is payable when there is a transfer of property rights (or of portions of such rights) of real estate assets located in Portugal, while the second is levied on the taxable value of urban, rural or mixed properties situated in Portugal; the Vehicle Tax (ISV) and the Road Tax (IUC) are taxes applied on the purchase of a new vehicle and on the vehicle's C02 emissions, respectively; Stamp Duty is payable in the case of the items included in the General Table attached to the Stamp Duty Code, such as documents required for transactions (document duty) and the transactions themselves (transaction duty).

3.5. Country

Summary

This dimension of the study report analyses the country in terms of political and economic stability, Government support, cultural compatibility and global and legal maturity.

In the recent years the Portuguese membership of the European Union (EU) has contributed to the stabilisation of the economic growth and has brought about exchange rate stability, lower inflation, lower interest rates and greater availability of credit.

A Competitive Country

Portugal is amongst the five European countries that improved its competitiveness rating in 2009 and is also classified as the most competitive country of Southern Europe.

The Portuguese Government, concerned with the country's ability to attract investment, created a Government agency to promote investment in Portugal: API (Invest in Portugal Agency). The API has tailored incentives packages and schemes that depend on the nature of the investment. Examples of the said incentives are tax cuts, interest-free loans and grants.

Moreover, the Portuguese Government has defined a technology plan that outlines the main innovation policy objectives and measures spread over three lines of action: Knowledge, Innovation and Technology.

Portugal is well positioned in terms of quality of life and as a tourism destination, with significant comparative advantages in terms of leisure.

The Portuguese legislation is overall consistent with WTO rules and the EU directives and the business environment has improved significantly in the recent years due to Government measures aimed at reducing business environment burdens, such as the regulations imposed on citizens and firms.

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
GDP growth rate (%)[111]	2.5	0.9	0.6	-3.0	1.9	5.0	**0.0**	7.3	-0.1
R&D and innovation investments (% of GDP)[112]	1.53	1.20	0.97	1.36	1.73	0.56	**1.18**	-	1.78
Ease of doing business rank[113]	74th	62nd	47th	7th	30th	72nd	**48th**	55th	5th
Governance matters (score)[114]	78	78	76	93	94	70	**84**	57	89
Enabling Trade Index[115]	4.39	4.72	4.39	5.02	5.27	3.98	**4.63**	4.05	4.93
E-Readiness Score[116]	6.46	7.24	6.04	7.84	8.64	5.80	**6.86**	5.07	8.14

Table 11: Country dimension main indicators benchmark

Political and Economic Stability

Portugal is the western most country in mainland Europe and has enjoyed territorial and national cohesion long since the 12th century, being one of the oldest independent states in Europe.

Portugal held its first democratic elections after a 40-year dictatorship and approved its Constitution in 1976 and has, ever since, functioned successfully as a democracy. Its institutional architecture supports and enhances political stability, in particular through the independent executive, legislative, and judicial branches. Portugal has

[111] Source: Eurostat
[112] Source: OECD Factbook 2009
[113] Source: World Bank - Doing Business 2010
[114] Source: World Bank - Governance Matters VIII - Aggregate and Individual Governance Indicators, 1996-2008
[115] Source: World Economic Forum - The Global Enabling Trade Report 2009
[116] Source: Economist Intelligence Unit e-readiness rankings, 2009

been a member of the European Union since 1986 and an active member of other international organisations like NATO, WTO, as well as a founding member of the OECD (1961). Furthermore, Portugal, along with 14 other European countries, signed the Schengen Agreement in 1990, allowing for free movement of workers in this region.

The Portuguese economic policy during the last years has been largely determined by the European Union (EU), through its convergence criteria and standards established under the Growth and Stability Pact, contributing to stabilise economic growth, mainly through the increase in trade and the inflow of EU funds for infrastructure improvements. Furthermore, Portugal's 1999 entry into the European Monetary Union (EMU) brought exchange rate stability, lower inflation, lower interest rates and greater availability of credit. In addition, Portugal is subject to all the European Union Free Trade Arrangements. EU laws and regulations state that member states may designate parts of the customs territory of the Community as free trade zones and free warehouses. Portugal has two foreign trade zones/free ports in the autonomous regions of the islands of Madeira and the Azores. These were authorised in conformity with EU rules or incentives granted to member states. Industrial and commercial activities, international service activities, trusts and trust management companies and offshore financial branches are eligible activities.

The Lisbon Agenda for economic and structural reforms, established in March 2000 by the European Council in Lisbon, is also an important factor to take into account when discussing the Portuguese political and economic policies during the last years. The Lisbon Strategy set a 10-year timeline to make the EU “the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth with more and better jobs and greater social cohesion”. Following the Lisbon agenda, the National Technological Plan was established in 2005, aiming to improve the growth and competitiveness of Portugal based on knowledge, technology and innovation.

Governance Indicators and other international rankings and reports

Portugal has consistently been rated favourably in international ratings measuring the maturity of institutions and the political and economic conditions, aligned with and in some dimensions ahead of its European peers. The following examples illustrate this:

- Regarding the governance performance, the Governance Matters report, published by the World Bank in 2009, provides a summary of the six aggregated governance indicators which are Voice & Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. The study covers 212 countries and territories over the period 1996–2008. Portugal improved in five of the six dimensions of governance considered and scored on average 84% in a percentile ranking, where zero (0) corresponds to the lowest rank and 100 to the highest;

	Voice & Accountability	Political Stability No Violence	Government Effectiveness	Regulatory Quality	Rude of Law	Control of Corruption	Average
NL	99	80	96	97	95	97	94
IE	95	89	92	99	94	92	93
UK	92	66	94	98	92	93	89
PT	**88**	**84**	**82**	**84**	**84**	**83**	**84**
ES	87	43	80	88	85	85	78
CZ	82	79	82	82	77	67	78
HU	78	68	73	88	76	72	76
PL	73	74	68	74	65	68	70
RO	59	56	50	68	54	57	57

Table 12: Governance Matters 2009 report ranks for Portugal and the reference countries

- As regards to Democracy, the World Audit ranks Portugal as the 17th out of 150 countries in the World Audit's Democracy Ranking.

- Continuing on the subject of democracy, Portugal scores 8.05 in the Economist Intelligence Unit's democracy index for 2008, placed in 25th out of 167 countries and being, therefore, considered a full Democracy. The country scores particularly well in what concerns the electoral process, which measures the freedom and fairness of elections and civil liberties, and focuses on freedom in the civil sphere. Portugal's score is restrained by an average score for political participation.

- Ever since Portugal emerged from the dictatorship in the 1970s it has functioned successfully as a democracy and its institutional architecture both supports and enhances political stability. The Economist Intelligence Unit classifies Portugal in terms of Political stability risk with an A rating and a score of 20, being E and 100 the most risky.

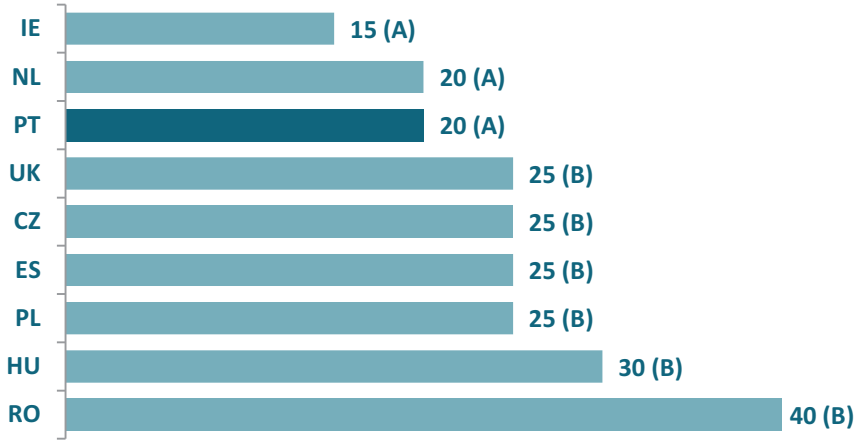


Figure 28: Political stability risk ratings and scores for Portugal and the reference countries for the year of 2010

- Corruption is a relatively limited but enduring aspect of the business culture in Portugal. According to the Corruption Perceptions Index for 2009 by Transparency International, Portugal ranked 35th out of 180 countries, in which 1 is the best and 163 is the worst;

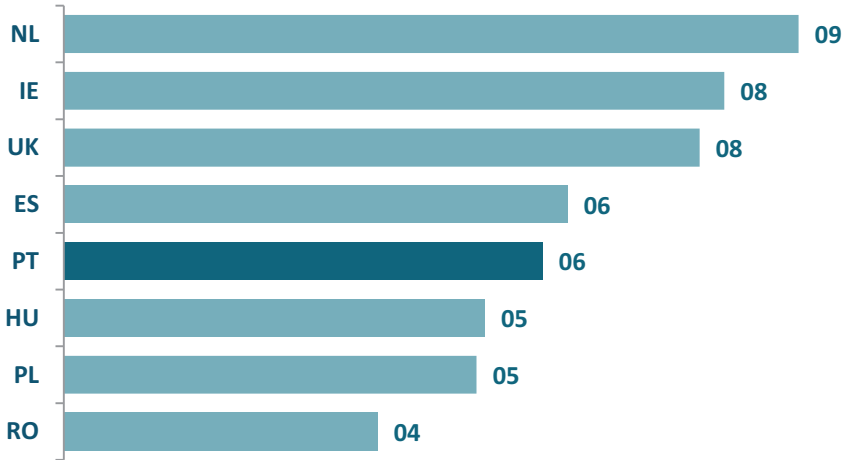


Figure 29: Corruption Perceptions Index rankings and scores for 2009 for Portugal and the reference countries

- Portugal is a stable republic with a homogenous population and a politically pluralistic society. The Fund for Peace evaluates social, economic and political indicators in its Failed States Index. In 2009, out of a list of 177 countries, Portugal ranks as the 15th least failed. In the lead is Norway, where Somalia is considered the most failed country. The ranking order of the states is based on indicators such as Demographic Pressures, Economic Decline, Public Services, Human Rights and Security Apparatus.

  The competitiveness of nations and the environment to create and sustain the competitiveness of enterprises are analysed in the World Competitiveness Scorecard by the Institute for Management and Development (IMD). In this ranking Portugal is amongst the five European countries that improved their rating in 2009 and is also classified as the most competitive country of Southern Europe - ahead of Spain, Italy and Greece. Within the 57 economies ranked by IMD, Portugal is in the 34th place. The economies are ranked from the most to the least competitive and the results from the previous year's scoreboard are also shown.

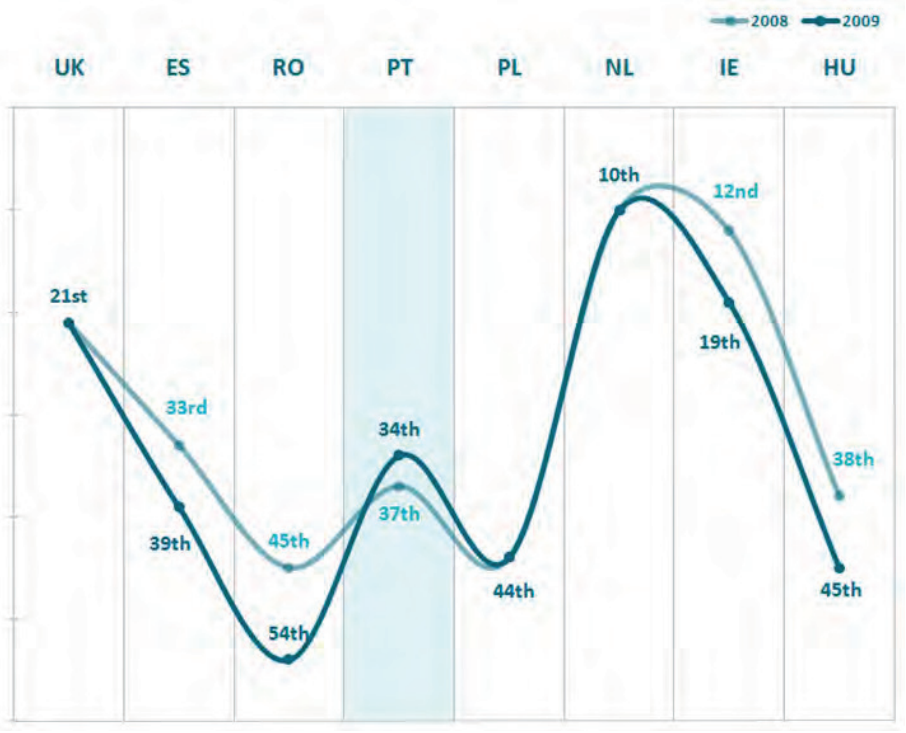


Figure 30: World Competitiveness Scorecard 2009 rankings for Portugal and the reference countries

- The World Economic Forum analyses the competitiveness of 133 countries on the Global Competitiveness Index (GCI), a highly comprehensive index that captures the microeconomic and macroeconomic foundations of national competitiveness. In the GCI 2009-2010, Portugal ranked 43rd out of 133 countries. The index includes economic data such as growth, health data, number of internet users and also survey results regarding, for example, the Government's efficiency and the flexibility of the labour market.

- The European Innovation Scorecard provides a comparative assessment of the innovation performance of the EU Member States under the EU Lisbon Strategy. The 2008 scoreboard revealed that Portugal was the 5th country in the EU that made most progress in terms of innovation, coming first in crucial indicators such as human resources qualification and private investment in R&D. Portugal moved from the Catching-up countries in the EIS 2007 to a Growth leader for the Moderate innovators group, a result that can be explained by the strong growth in innovation performance. Also, Portugal is the second fastest improving country, climbing seven positions, just after China, for the period of 1995 to 2005.

  Comparing the innovation performance with the reference countries, UK (innovation leaders), Ireland and Netherlands (both Innovation followers) have innovation performance above the EU average. The remaining reference countries have innovation performance below the EU average. Portugal, Bulgaria and Romania have been improving their performance the fastest.

	Growth rate	Growth leaders	Moderate growers	Slow growers
Innovation leaders	**1.6%**	Switzerland (CH)	Germany (DE) Finland (FI)	Denmark (DK) Sweden (SE) United Kingdom (UK)
Innovation followers	**2.0%**	Ireland (IE) Austria (AT)	Belgium (BE)	France (FR) Luxemburg (LU) Netherlands (NL)
Moderate innovators	**3.6%**	Cyprus (CY) Portugal (PT)	Czech Republic (CZ) Estonia (EE) Greece (GR) Iceland (IS) Slovenia (SI)	Italy (IT) Norway (NO) Spain (ES)
Catching-up countries	**4.1%**	Bulgaria (BG) Romania (RO)	Latvia (LV) Hungary (HU) Malta (MT) Poland (PL) Slovakia (SK) Turkey (TR)	Croatia (HR) Lithuania (LT)

Table 13: Innovation Growth Leaders[117]

- The European Reform Barometer provides a comprehensive review of the structural reform across EU member states based on a survey performed by Business Europe. According to the European Reform Barometer in 2009, Portugal is one of the countries where the overall performance of the reform progress was close to the EU average. In particular, it was above the average in the aspects of Public Finance and Social System, Innovation and Research and Business Environment.

[117] Source: EIS - European Innovation Scoreboard 2008

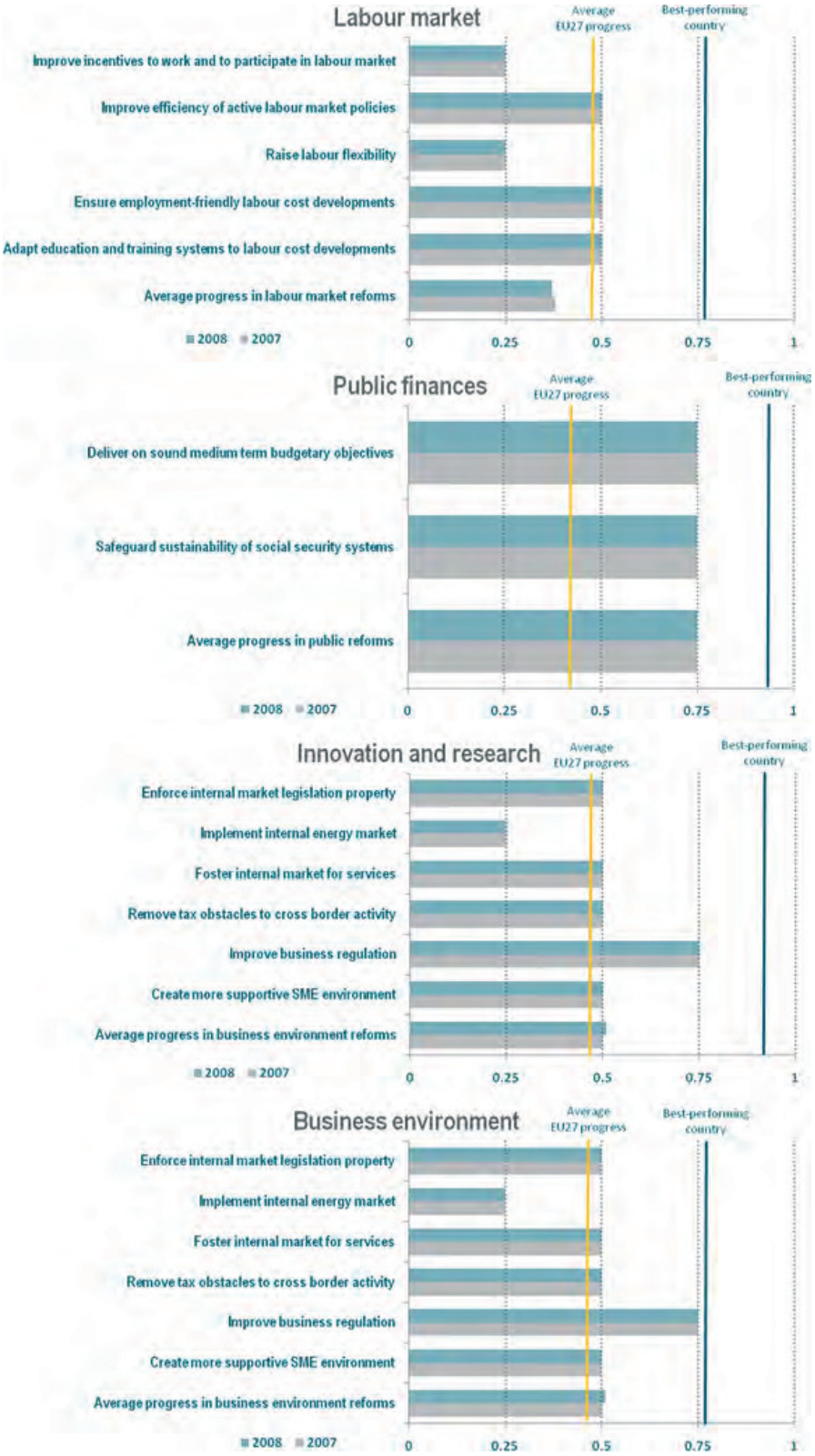


Figure 31: Portuguese reform progress in four major policy areas in 2007 and 2008

- The WEF Global Enabling Trade Report measures and analyses institutions, policies and services enabling trade in national economies around the world. In 2009, Portugal is ranked in 30th out of 121 countries.

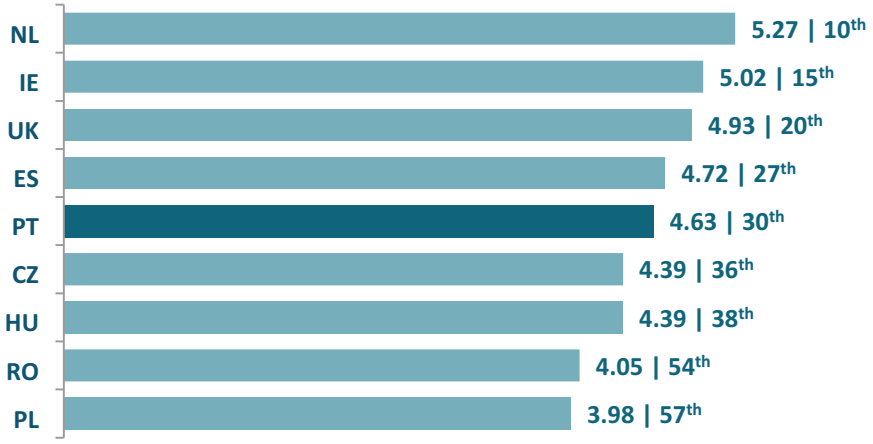


Figure 32: Enabling Trade Index for Portugal and the reference countries (score/rank)

Religion and society

The Constitution and Portuguese laws forbid discrimination on the basis of gender, race, sexual orientation, religious faith or political views and openly discriminatory practices are effectively restricted by the law and shunned in the Portuguese society.

The Portuguese Constitution provides for freedom of religion and other laws and policies contribute to the free practice of religion, religious association and temple building. All major religions are represented even though more than 90% of the Portuguese are Roman Catholics; the groups that constitute the remaining 10 percent include various Protestant denominations (including 250,000 evangelicals) and non-Christian religious groups (Muslims, Hindus, Jews, Buddhists, Taoists, and Zoroastrians, amongst others).

Portugal is an ethnically homogenous country with a Mediterranean dominance, but there are also minority groups from Africa (Angola, Cape Verde and Mozambique) and Brazil, with which Portugal has close relations from its colonial ties, and more recently from Eastern Europe (Ukraine, Romania). The immigrants have blended in well with the society and the economy and there have been no significant incidents of racial conflict.

Security

There is no domestic-bred terrorism in Portugal and no record of Islamist fundamentalist Organisations. Crime levels are low according to Western countries' standards. The Economist Intelligence Unit (EIU) classifies Portugal with an A rating and a score of 14 in terms of security risk, being E and 100 the most risky. The EIU classifies Hungary, Poland, Romania and the UK with the same ranking but with different scores. Hungary scores 11, Poland and Romania 14 and the UK 18.

Government Support

Incentives to promote foreign direct investment (FDI)

The Portuguese Government promotes international investment in Portugal as an integral part of its economic development policy and specifically through a Government agency, the API (Invest in Portugal Agency).

The API has a tailored incentives package for large investment projects on a case-by-case basis negotiation, including tax cuts and subsidised or interest-free loans and cash grants and, for smaller investments, incentive schemes. Incentives include interest-free loans and grants, depending on the nature of the investment.

Recent examples of FDI from the IT industry in Portugal are listed below:

- Cisco Systems established the first operational centre of support to Sales at a European level in Portugal, with a portfolio of twenty thousand products. The main reasons for choosing Portugal were factors of cultural and linguistic diversity, of labour culture, of the abundance of qualified resources and of economic competitiveness[118];
- Nokia Siemens has five centres of research and development in Portugal, which represent an investment of 70 million Euros. The key points behind the investment decision were skills, operating and installation costs and economics. The labour pool and languages skills of the country are classified as 'very good'[119];
- Siemens in respect to their established competence centres also considered the society factors of Portugal as a key point in the investment decision compared to other countries evaluated;
- Logica inaugurated in May 2009 the International Utilities Competence Centre. This technology centre will promote and develop solutions in the field of utilities with the key markets of Europe, the Americas and Oceania. The key points behind the investment decision were a large ITO Business opportunity and

[118] Collected from an interview to Cisco's General Manager in November 2009 while launching ""Europe Inside Super Center" service centre.
[119] Collected from testimonies of surveys conducted within this study. See "Excellence Centres in Portugal" chapter.

once again, the skills and operating and installation costs. The Government support and infrastructures criteria were considered as 'very good'[120];

- IBM invested 1 million Euros in 2008 in a competence centre and one of the key points behind the investment was skills. It also considered the infrastructures available as 'excellent'[121];
- Ericsson, in their investment in Portugal competence centres, considered key points for investing the operating and installation costs and the skills and economic factors. Language skills and the country's infrastructures were classified as 'very good'[122];
- The most recent technological development centre of T-Systems was inaugurated in June 2009 in Lisbon. This is the 4th centre in the Iberian Peninsula and it represents a strong investment of Deutsche Telecom in Portugal. The reasons stated for choosing Portugal were the skilled workforce and the incentives given by the Portuguese Government through the Technology Plan;
- Several companies found in Portugal a very attractive place to invest in shared services centres. For example Microsoft, Siemens, IBM, Fujitsu, Santander and Solvay. The most often quoted reasons for the choice were: strong work force skills in finance, language and information technologies, reasonable labour costs, cosmopolitan facilities of leisure and culture, amongst others.

The Foreign Direct Investment flow in the country measured by the FDI Inward (% of GFCF) is one of the lowest within the group of the reference countries. A particular legal framework, considering tax exemption, should be defined to create an IT industry cluster and to attract more foreign direct investment.

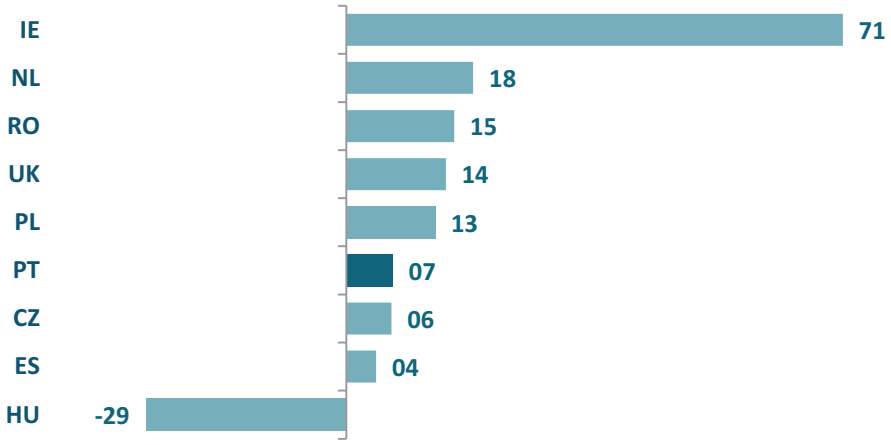


Figure 33: FDI Inward (% of GFCF) 2008[123]

[120] Collected from testimonies of surveys conducted within this study. See "Excellence Centres in Portugal" chapter.
[121] Collected from testimonies of surveys conducted within this study. See "Excellence Centres in Portugal" chapter.
[122] Collected from testimonies of surveys conducted within this study. See "Excellence Centres in Portugal" chapter.

Government investment and support to IT

The Ministry for Science and Technology, created in 1995 and which has contributed to the development of the science and technology system, encourages the development of the industry within the country. The National Strategic Reference Framework (NSRF) for 2007–2013 has the double objective of increasing the skills of Portuguese citizens and of developing innovation in the country. There is also a national coordinator for the Technological Plan and Lisbon Strategy, Prof. Carlos Zorrinho.

The Technology Plan[124] outlines Portugal's main innovation policy objectives and involves 112 continuous measures spread over three lines of action: Knowledge, Innovation and Technology. The plan translates into five transversal focal points of action: a strengthened scientific and technological base, a better-organised competitive base, a modern public administration, a favourable environment for business and a qualified population.

Examples of measures of the Technological Plan are:

- Poles of Competitiveness and Technology. They represent an incentive to innovation networks and translate into integrated partnerships between companies and institutions. This project involves the creation of 11 technology centres and 8 clusters and corresponds to an investment of approximately 2.1 Billion Euros, involving 600 entities (of which 500 are private) and more than 300 companies and 105 anchor projects. Some examples of existing technology parks in Portugal which are members of International Association of Science Parks (IASP) are: Lispolis, Technology Park of Lisbon; TECMAIA, Science and Technology Park of Maia; and Madeira Tecnopolo, Scientific and Technological Park of Madeira;

- SIFIDE, the new system of Fiscal Incentives to Corporate R&D, that places Portugal as one of the countries with the highest level of fiscal incentives for R&D inside the EU, alongside Spain, France and the Czech Republic. Studies by the Centre for European Economic Research[125] and the OECD place Portugal at the top in terms of stimulating packages for R&D, as depicted by the data from the OECD Science, Technology and Industry Scoreboard 2009, below.

[123] United Nations Conference on Trade and Development (UNCTAD) - World Investment Report 2010
[124] The Technology Plan initiative, http://planotecnologico.pt/
[125] "The Impact of R&D Tax Incentives on R&D Costs and Income Tax Burden", Christina Elschner and Christof Ernst, ZEW

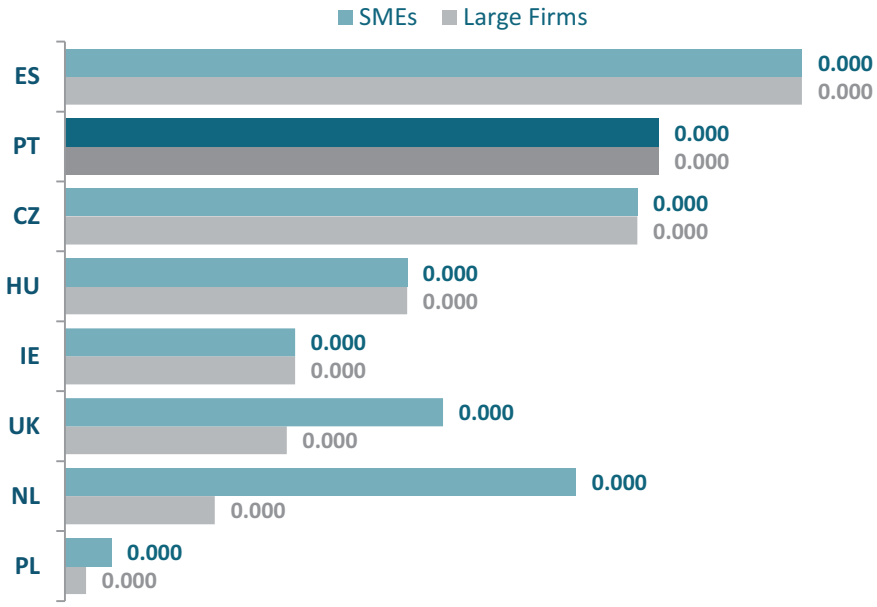


Figure 34: Technology and Industry Scoreboard 2009[126]

- International partnerships in science, technology and higher education, which bring together Portuguese and foreign universities, including the **Massachusetts Institute of Technology (MIT)**, Carnegie Mellon University and the University of Texas in Austin;

- Other measures include the Portugal-Spain Research Institute, the reform of State Laboratories, English in primary education, ICT[127] traineeships, ICT Academies, the creation of centres of expertise in R&D in ICT, the training and certification program of ICT skills, rapid company start-up, amongst others.

For the first time in Portugal the public expenditure for R&D exceeded 1% of GDP in 2008, reaching 1.5%. In terms of the total expenditure in R&D, Portugal registered one of the highest increases between 1998 and 2008, moving from 0.65% to 1.51%, as the private sector also increased its investment.

[126] No data available for Romania.
[127] ICT: Information and Communications Technologies

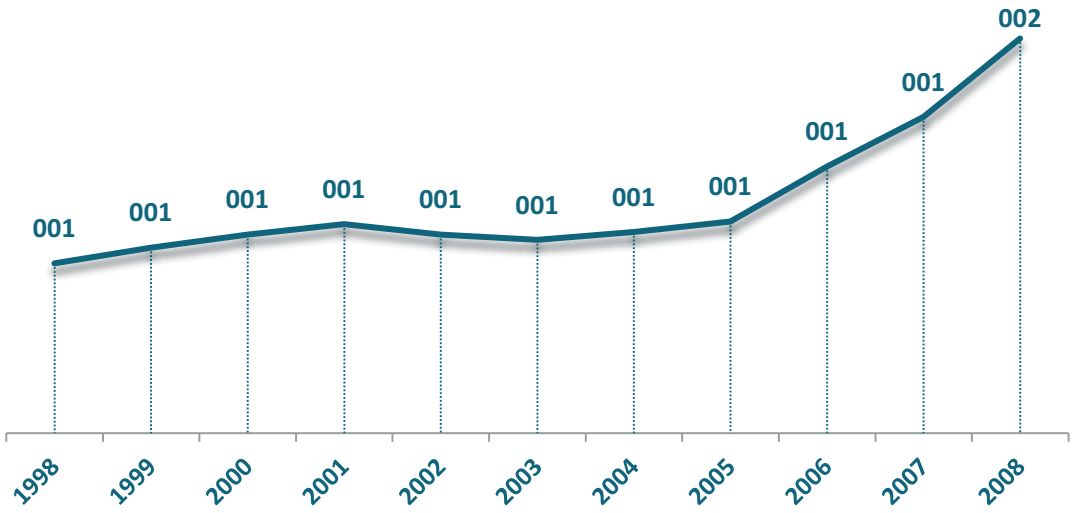


Figure 35: Portugal's Investment on R&D within 1998-2008 (% of GDP)[128]

The promotion of IT capabilities internationally is also done through several EU institutions such as the European Research Council (ERC) that enables the creation of effective public-private partnerships in the field of technology, associating companies and public organisations in key areas for industrial and technological investigation through Joint Technology Initiatives (JTI).

The Government also promotes Forums on ICT and Innovation, such as the Lisbon Forum on ICT and Innovation in education, an association between the Ministry of Education and three IT companies - Cisco, Intel and Microsoft, aiming to share examples of good practice, promoting networking between researchers in this area.

The Government policies concerning the information society and knowledge are influenced by representative bodies that are committed to discussing the major issues. The objective is to provide informed advice and to appeal to the state in political and legal questions. Examples of representative bodies are the APDC (Portuguese Association for the Communications Development) and the APDSI (Association for the Promotion and Development of the Information Society).

According to the Global Information Technology report for 2009-2010, produced by the World Economic Forum in cooperation with INSEAD, Portugal is the 33rd country out of 133 countries in terms of Networked Readiness and the 6th country in the subcategory of Government Readiness. Particularly significant is the importance that the Government gives to technologies, where Portugal is the 4th country in terms of the Importance of ICT to the Government's vision of the future and 8th in terms of the Government's prioritisation of ICT.

[128] Source: OECD Factbook 2010 - Science and technology - Research and Development - Expenditure on R&D

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Networked Readiness	36th	34th	46th	24th	9th	65th	33rd	59th	13th
Government Readiness	48th	72nd	107th	58th	44th	113rd	6th	94th	39th
Importance of ICT to government vision of the future	58th	66th	93rd	56th	49th	122nd	4th	87th	41th

Table 14: Network readiness rankings for Portugal and the reference countries[129]

In the E-readiness Rankings for 2009, published in June by the Economist Intelligence Unit and the IBM Institute for Business Value, Portugal occupies the 28th position in a list of 70 countries organised according to the preparedness of citizens, businesses and Government to use the ICT and exploit its opportunities.

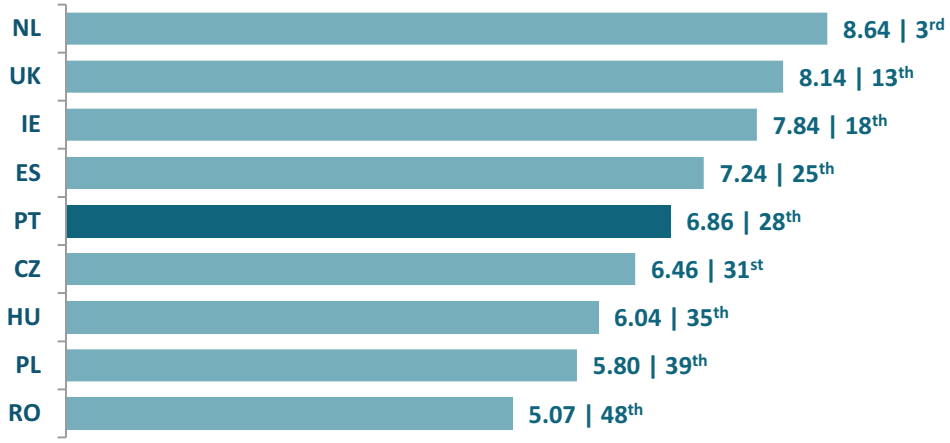


Figure 36: E-readiness Rankings 2009 (score of 10 and ranking)

The ICT Development Index, published last March by the ITU – International Communications Union, ranks Portugal in the 31st position out of 154 countries. This index is composed by 11 indicators and assesses the level of access and use of ICT and the level of ICT skills of the populations.

The index Support for IT industry development, from the Economist Intelligence Unit report, depicts the Portuguese Government as far from providing effective industry support. It considers aspects such as access to

[129] World Economic Forum - The Global Information Technology Report 2009-2010

medium-term finance for investment, the existence of a coherent national government strategy to achieve e-government objectives, government spending on IT hardware, software and services and the existence of an even-handed public policy stance on technology or sector development.

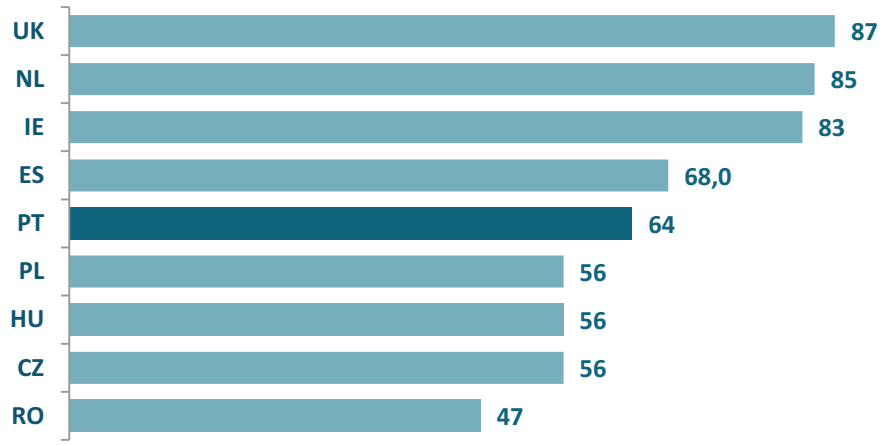


Figure 37: Support for IT industry development[130]

Cultural Compatibility

Portugal has a long history of cultural interchange with all parts of the world, dating back to its period of seafaring exploration in the 15th and 16th centuries. Today, Portugal is ranked 8th out of 208 countries in the 2010 KOF Globalisation Index, ahead of Hungary, Ireland, the Czech Republic, Spain, Poland and the UK. The KOF Index of Globalisation measures the three main dimensions of globalisation: economic, social and political.

Portugal is located in Western Europe and is positioned as a tourism destination, with significant comparative advantages in leisure such as the Mediterranean-like weather, safety, coast proximity, quality of beaches, internationally recognized quality golf courses (overall there are 88 golf courses distributed across the country), broad and diversified offer such as landscape, casinos, marinas, culture, tradition, cuisine and a good airport network with regular direct flights to all major airport hubs in Europe, charters and international low costs.

The touristic activity in Portugal represents more than 10% of the GDP according to the World Travel and Tourism Council – WTTC and Portugal is in the top 10 of tourist receptor countries in Europe and the top 25 worldwide, facts which explain that the Portuguese are widely accustomed to dealing with foreigners.

[130] Source: Economist Intelligence Unit 2009 - Resilience amid turmoil (Benchmarking IT industry competitiveness 2009)

The representation of multinational corporations in Portugal is wide. For example, out of the top 20 companies in the Global 2000 report from Forbes, 12 of those are directly represented with local offices in Portugal.

There are 3 international airports on the mainland, with regular direct flights to all the main Airport Hubs in Europe (Madrid, London, Frankfurt and Paris) with flight times of under three hours, as well as to the US and most international hubs. There are also two other international airports on the islands.

According to the Eurostat, approximately 4% of the Portuguese population is immigrant. The main origins are European (approximately 38%), African (29%), and American (26%). According to the CIA Fact Book, Portugal ranks in 29th out of 181 countries in terms of net migration rate that indicates the contribution of migration to the overall level of population change. In terms of immigrants as a percentage of the state population, Portugal ranks in 64th of 195 countries.

In 2008 Portugal attracted twice as many highly skilled foreigners from outside the European area. In 2008, Portugal attracted approximately 530 highly qualified foreigners from outside of Europe, more than double the number of 2007. The figures were revealed by the Contact Group established in 2006 to promote the simplification of the process of hiring teachers, researchers and other highly skilled foreigners, in the framework of the Simplex Government program.

Global and legal maturity

The business environment has improved significantly since the introduction of Simplex in 2006. It simplified the administrative procedures and improved the efficiency of public services, reducing the costs of Government administration and also alleviating the regulations imposed on citizens and firms. This is exemplified by the reduction of the time to start-up a business and by the amount of documents which need to be completed - one of the flagship reforms.

In terms of justice, Portugal needs to ensure a more confident and efficient judicial system in terms of dispute resolution. Below we present Portugal's position within the Justice System Indicator of the IMD World Competitiveness Yearbook 2009.

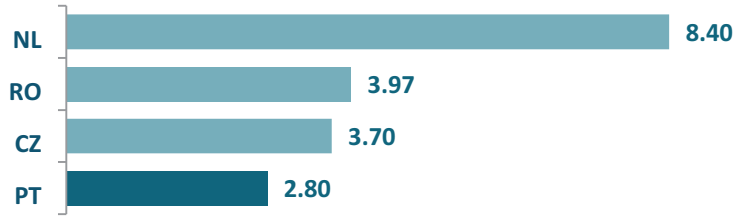


Figure 38: Justice System Indicator[131]

The Portuguese legislation is, overall, consistent with the WTO rules and the EU Directives. In 2003 Portugal adopted the trade-related intellectual property (TRIPS) provisions of GATT and the European intellectual property protection standards and increased the penalties for violators.

The Portuguese economy has been ranked as the 26th most free out of 41 European countries by the Wall Street Journal's index of freedom in 2008. The lowest scores are in labour freedom and freedom from Government indices. Portugal presents high levels of business freedom, freedom of trade, investment freedom, property rights and freedom from corruption.

Portugal is ranked as the 48th out of 183 economies in the World Bank's Ease of Doing Business Ranking (Doing Business 2010 report), in particular:

- 25th in Enforcing Contracts, which is determined by payment dispute and tracking the time, cost, and number of procedures involved from the moment a plaintiff files the lawsuit until actual payment;
- 41st in the subcategory of Protecting Investors which considers three dimensions: transparency of transactions, liability for self-dealing, shareholders' ability to sue officers and directors for misconduct and Strength of Investor Protection;
- 52nd in Registering Property determined by the ease with which businesses can secure rights to property.

[131] Source: IMD World Competitiveness Yearbook 2009

	CZ	ES	HU	IE	NL	PL	PT	RO	UK
Ease of doing business (rank)	74	62	47	7	30	72	**48**	55	5
Starting a business	113	146	39	9	70	117	**60**	42	16
Registering property	62	48	61	79	29	88	**52**	92	23
Protecting investors	93	93	119	5	109	41	**41**	41	10
Enforcing contracts	82	52	14	37	30	75	**25**	55	23

Table 15: World Bank's Ease of Doing Business Ranking 2009

Accounting System

Legal, regulatory and accounting systems are consistent with international norms. Portugal has adopted a standard accounting system that replaced the Official Accounting Plan (POC) and its complementary legislation. In 2009, adjustments were made in order to modernise it, simplifying it and designing the processes of action and adapting it to new tasks assigned. Also, as part of the EU, it is subject to the Accounting Directives. There is an Accounting Standards Committee pursuing the objectives of creating accounting standards and establishing accounting procedures harmonised with the EU and other international standards.

Corruption

Corruption is a relatively limited but enduring aspect of the business culture in Portugal; still companies do not usually identify corruption as an obstacle for FDI.

Some recent developments have been made in terms of legislation. Portugal has ratified the OECD Anti-bribery Convention and has recently passed legislation to bring its criminal code in compliance with the Convention. For example, on the 22 February 2008 the Portuguese Parliament adopted an “Anti-corruption legislative package”. A new legal framework of criminal liability for bribery in international business transactions and corruption in the private sector was also created. Legislation also provides for an increase in the protection of whistleblowers in the public sector and for the enhanced possibility of breach of professional secrecy in the investigation and collection of evidence relating to corruption crimes.

In the Transparency International’s Corruption Perceptions Index 2008, Portugal ranked 32nd out of 180 countries considered, listed from the least to the most corrupt. In the Progress Report 2008, Transparency International

recommended the creation of an anti-corruption agency, a better coordination between the Public Ministry and the Judiciary Police (*Polícia Judiciária*) and new investigation methods involving multi-disciplinary teams.

According to the 2009 World Democracy Audit corruption rankings for 179 countries, Portugal appears in the 26th position.

NL	6th
IE	11th
UK	14th
ES	24th
PT	**26th**
HU	33rd
PL	34th
CZ	37th
RO	53rd

Table 16: World Democracy Audit corruption rankings

Globalisation and industry framework

In terms of the presence of Multinational corporations (MNCs), there are 2,143 MNCs doing business in Portugal according to Dun & Bradstreet Portugal.

In the aftermath of the 1974 revolution, 244 firms from important sectors of the economy were nationalised. Only after the Constitutional changes in 1989, did the privatisation process occurred in all its extent, making it possible for more than 100 firms to be privatised by the end of 1999. Nationalisation has not been exercised since by the government (except for a single case in 2009 when a bank in distress was rescued) nor is it expected to recur.

Major privatisations in recent years included sales of interest in Portugal Telecom (telecommunications), EDP (electricity), and GALP (petroleum refining and marketing, natural gas distribution), REN (Electricity Transmission System Operator), among others.

However, the Portuguese Government still has “golden shares” in some large domestic companies, like GALP Energia and Portugal Telecom. The golden shares, although representing low nominal ownership shares, grant special voting and extensive veto rights. The European Commission decided in February 2009 to take Portugal to the European Court of Justice over the special shares, after the issue could not be resolved in negotiations.

Due to the requirements imposed by the Growth and Stability Pact, further privatisations and an end to Government special rights is expected.

The Central Government expenditure in 2008 represented 46.3% of GDP and the Economist Intelligence Unit forecasts the same percentage for 2009.

Individual Rights and Press Freedom

The Portuguese Constitution is aligned with the Declaration of Human Rights and all individual rights are enforced by law and the authorities. The death penalty was abolished in the 19th century and the judicial system requires stringent evidence for conviction to prison sentences.

There are no reports of politically motivated disappearances since the end of the dictatorship. A number of local and international groups operate freely, investigating and publishing their findings on human rights cases. Government officials are generally cooperative, although most groups complain of slow investigations or remedial actions.

The press is free and the World Audit Press Freedom Ranking, places Portugal in the 9th place out of 150 countries, in which 1st position is the best. There are more than 80 international newspapers sold and operating in Portugal (Europe, North and South America, Asia and Australia, Africa and Middle East).

4. Centres of Excellence in Portugal (Testimonies of success)

The Portugal Outsourcing association invited a group of foreign companies to share its views on why they decided on Portugal as the right location for shared services centres or any other form of competence centres within their internal global services delivery model.

These companies, which were IBM, Ericsson, Logica, Nokia Siemens Networks and Siemens AG, were invited to answer a set of open questions and this chapter summarises the survey results, their opinions and feedbacks on this matter.

Key points for the investment decision in Portugal

The most important key points that led to the decision to invest in Portugal were the skills of the Portuguese Labour Poll, with a weight of 38%, Operating and Installation Costs with 31%, the Portuguese Economy with 23% and the Portuguese Society as a whole weighed in with 8% in the choices of the surveyed companies.

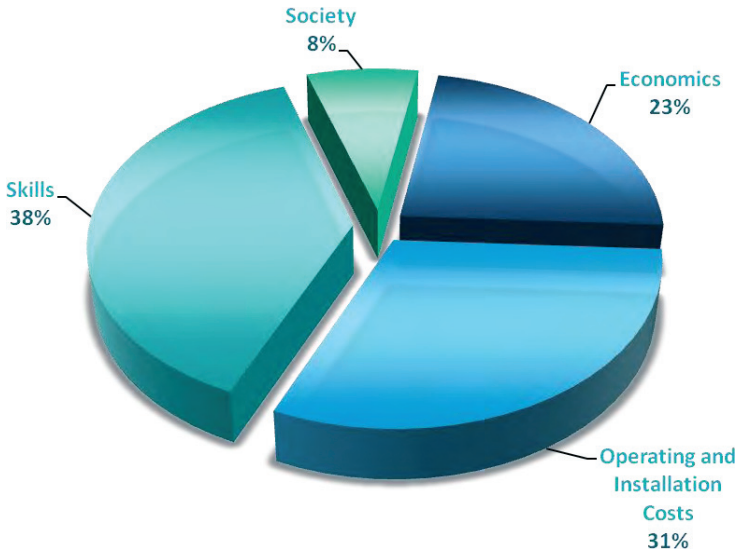


Figure 39: Key points for the investment decision in Portugal

Portugal classification for ITO and BPO Services

The surveyed companies classified Portugal on several areas of criteria for the decision of investment in ITO and BPO services in Portugal.

Country areas of criteria for ITO and BPO services

In the table below is described the criteria for the decision of investment in Portugal:

Language	The country's language proficiency and capability alignment to its major target market including written and verbal competency in the context of technical and business discussions.
Government Support	The degree, to which government agencies and ministries actively promote the Country as an offshore destination and how they communicate their country's attributes, establish agencies for development opportunities, advocate for local service providers and the governments' commitments to develop educational systems that would create skilled workers to support the IT industry.
Labour Pool	The quality and quantity of the current labour pool and its future scalability. The skill level in certain disciplines or areas of expertise, including project management skills, software development competency (including design, business analysis and architecture skills), R&D and business process experience. Taking into account the number of graduates in each country's resource pool today, projecting what might happen in the future. The country's work conditions, career opportunities and the modernity of facilities. The labour advocacy, employee benefits and general adherence to maintaining high standards to ensure that the country can provide the labour skills and experience those companies may need.
Infrastructure	The robustness, quality, stability and pervasiveness of each country's physical infrastructure, including powerlines, telecommunications and satellites, as well as transportation facilities for roads, rail service, air travel and ports into and around the country.
Education System	The quality of each country's educational system, the quantity of colleges and universities and the number of new graduates in IT-related disciplines.
Cost	The costs of labour and other compensation, real estate, infrastructure and telecommunications relative to the most- and least-competitive countries.
Political and Economic Stability	The stability of the government system, levels of corruption, geopolitical risks and security. Also, the degree to which a country's political system and financial strength create a stable environment today and in the future for companies to develop and for the country to evolve as an offshore location. In addition, the potential for terrorism or war, the participation or support of trade unions as well as financial issues such as currency volatility and gross domestic product (GDP) growth.
Cultural Compatibility	The cultural attributes of the offshore location to make it easy to do business with the major buying locations. The cultural affinity and adaptability to multicultural approaches to support an international business environment and the accessibility, including proximity to the major buying locations, ease of travel to that country and time-zone differences.

Global and Legal Maturity	The presence of multinational service providers in each country and the propensity of corporations to locate captive centres there. The degree to which the country's legal system is lawful and legitimate by reasonable international standards, including overall legislation, taxation and intellectual property laws. The legal system's ability to provide support to foreign entities doing business in that country, including reliable means for contractual redress or prosecution and general respect for intellectual property.
Data and Intellectual Property Security and Privacy	The effectiveness of legislation relating to protection of intellectual property, data protection and privacy, copyright, trademark, patent laws and also the enforcement of such legislation, the ethics within the country toward such protection and the maturity of the country's information security industry.

Table 17: Country areas of criteria to ITO and BPO Services[132]

Classification

Figure 40 presents the results of the classification as given by the surveyed companies on the several criteria for the decision of investment in ITO and BPO services in Portugal.

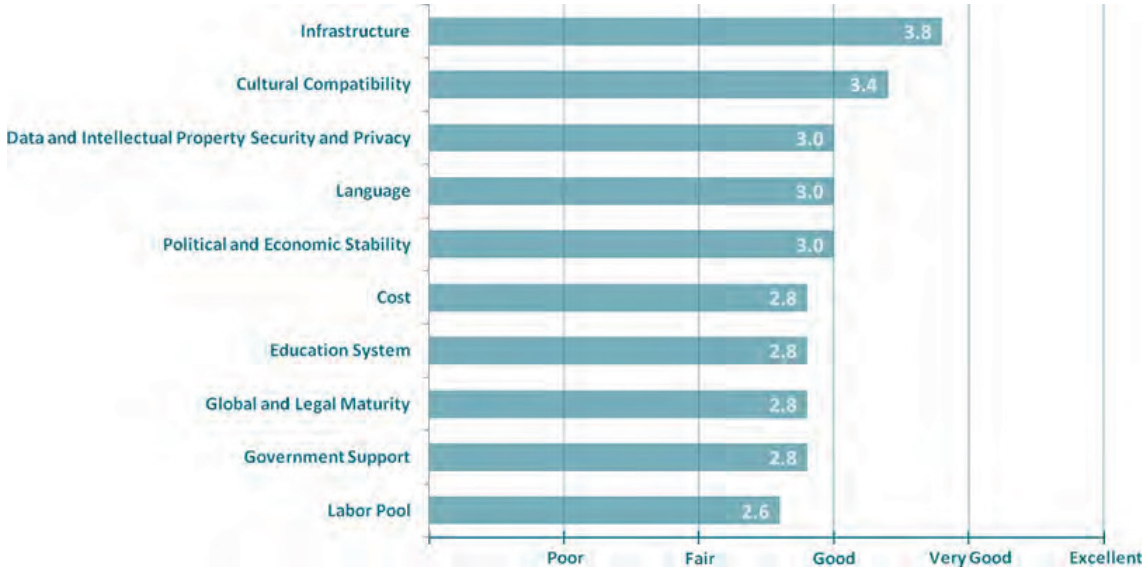


Figure 40: Portugal classification for ITO and BPO Services

[132] Source: Gartner's 30 Leading Locations for Offshore Services.

Portugal Pros and Cons for ITO and BPO Services

The table below presents the companies' opinions of the Pros and Cons in investing in ITO and BPO services in Portugal according to the presented criteria.

Areas	PROS	CONS
Language	▪ Quality and Adaptability; ▪ High availability of English, French and Spanish language skills; ▪ Good ability to learn and adaptability to foreign languages; ▪ National language is one of the most spoken worldwide, including growing markets such as Brazil and Angola; ▪ General high proficiency level in English; ▪ Not only English skills, but European languages as well.	▪ When looking for scalability, the numbers are not there for certain languages; ▪ No northern European languages like German, Dutch available; ▪ Reduced availability of German and Japanese language skills; ▪ Mainly English taught in schools, more languages should be mandatory in the school system.
Government Support	▪ Government support and incentives to local installation of international companies; ▪ Government effort to improve educational system to create skilled workers; ▪ Government investments in IT (infrastructures and Education); ▪ Benefits associated with R&D activities; ▪ No known barriers.	▪ High tax rates; ▪ High bureaucratic processes when applying to Government support; ▪ The public debt and the over-dimensioned Public Sector - with an excess of useless bureaucracy - can jeopardise investments.
Labour Pool	▪ Professionalism; ▪ Commitment Skills; ▪ Good availability of software development skills; ▪ University high quality standards; ▪ Big recruiting base, with skills (university degrees and on top of it with an international experience e.g. ERASMUS program meaning language proficiency).	▪ High unemployment but a high percentage of it is non-qualified individuals; ▪ Poor management and innovation skills; ▪ Limited availability of design, business analysis and architecture skills; ▪ Poor BPO experience and tradition; ▪ Poor career opportunities;

Areas	PROS	CONS
		▪ Limited number of new graduates can raise some scalability issues; ▪ No recognition of Portugal as a competitive outsourcing location, while the market already does.
Infrastructure	▪ Modern, reliable and resilient; ▪ Very good stability and pervasiveness of powerlines and telecommunications; ▪ Very good transportation facilities like highways, Airports and Ports Good infrastructures; ▪ Investment in new infrastructures in IT, powerlines and transport; ▪ Roads up to standard with any other western society.	▪ Utilities and telecom costs; ▪ Long lead times for circuits; ▪ Poor rail service - No high speed train network in the country; ▪ Train/metro network in greater Lisbon has to enhance.
Education System	▪ 9 years of mandatory education; ▪ English training from the basic level; ▪ Good quality educational system; ▪ Graduates from University have the necessary skills.	▪ Still a lot to do in terms of language knowledge; ▪ Low level of participation of the universities in business innovation; ▪ Insufficient number of graduates in IT-related disciplines; ▪ Limited availability of mathematics and physics skills; ▪ Short numbers of new graduates when compared to APAC or Eastern Europe.
Cost	▪ Competitive cost of land mobile telecommunications; ▪ Competitive prices related with EU average;	▪ English speaking market is primarily served out of India; ▪ Not competitive when compared to Eastern European Countries that are not in the Euro nor when compared to Egypt, Argentina or Mexico; ▪ Difficult to compete (strictly on Cost basis) with emerging markets (APAC and Eastern Europe).

Areas	PROS	CONS
Political and Economic Stability	▪ Low security risks; ▪ Stable environment; ▪ Low geopolitical and security risks; ▪ Financial strength of the financial institutions; ▪ Normal democracy; ▪ Integration in the European Union, the Euro and the Schengen Agreement; ▪ Low potential for terrorism or war.	▪ Public spending; ▪ High cost of labour and real estate; ▪ Country is very dependent on exportations, with an increased vulnerability to fluctuations of World economics; ▪ The public debt and the over-dimensioned Public Sector - with an excess of useless bureaucracy - can jeopardise economic stability; ▪ High level of perceived corruption Low GDP growth; ▪ Small local market.
Cultural Compatibility	▪ Good adaptability to multicultural approaches and international environment; ▪ Good cultural fit; ▪ Good accessibility and ease of travel to major buying locations; ▪ Short time-zone differences to Central Europe; ▪ Open and friendly people open to work with different cultures.	▪ Long distance to central Europe.
Global and Legal Maturity	▪ Progressive alignment of laws with EU orientations; ▪ High propensity of multinational corporation captive centres; ▪ Legal system relatively fair and impartial; ▪ Good and modern (in terms of legislation) law system.	▪ Labour legislation; ▪ High taxation; ▪ Complex and slow legal system; ▪ Poor means of prosecution and contractual redress; ▪ Some criticism centred on the fact that the courts are slow and overburdened; ▪ Too slow and too complex.
Data and Intellectual Property Security and Privacy	▪ In line with European Standards Alignment of intellectual property protection laws with EU orientations; ▪ High level of privacy protection;	▪ Low Intellectual property ethos.

Areas	PROS	CONS
	▪ Reasonable effective anti-piracy policies; ▪ Good and effective legislation related to intellectual property.	

Table 18: Portugal's Pros and Cons for ITO and BPO Services

Testimonies

This chapter presents a number of testimonies given by some of the companies surveyed about Portugal. Here they share their knowledge and experience based on the company's' investment in Portugal.

Testimony

(...) Investments made so far have been successful, we are very happy with the quality of the service and with the quality of the people. We think that the price is still not competitive, particularly if we take into account the taxation levels, telecom and utilities cost, thus we see Portugal as harbour for specific investment projects that may justify the price due to language specifics, or for more value added services (higher than the basic BPO processes). (...)

(...) The existence of good universities in Portugal is a good know how basis for the creation of high technology centres. Both Development and Service centres have good conditions to install in Portugal. Portuguese engineers are as a rule, very flexible and easily adapt to new activities. In the context of Europe the ratio quality/cost is quite competitive. (...)

(...) The engineers are usually available to travel and to stay abroad for some time. This is usually needed in a global and multinational company (...)

(...) The knowledge and the capability to communicate in several languages is also an added value. (...)

(...) Portugal pays attention to Innovation; the certification innovation is quite advanced in Europe, being Portugal one of the pioneers in this area. (...)

5. Final Conclusions and Future Outlook

5.1. Final Conclusions

Portugal meets all the conditions to be seriously considered by any Investment Team discussing future location for an IT and/or business process outsourcing, since it ranks consistently abreast with its competitors.

Depending on the decision criteria, Portugal will probably rank in the short-list, considering that:

- Portugal is becoming an increasingly attractive country as a nearshore outsourcing location;
- Top performer in Language skills and innate ability to work in multicultural, cross-border working environments; multilingual skills must continue to be part of the companies training plan (12th out of 58 countries, IMD 2009);
- Based on testimonies from companies with shared services centres in Portugal, IT professionals community is amongst the most skilled, creative and committed people when compared with other locations;
- Portugal has a competitive cost/value environment among its competitors within the European Context (Labour Compensation per Unit Labour Input (%), OECD Statistics 2009);
- Committed investments in Education and increasing focus on R&D and its commercial applications, will enhance Portugal competitiveness in the long term (Public Expenditure on Education, IMD 2009);
- According to the World Economic Forum (The Global Competitiveness Report 2009-2010), Portugal is amongst the best in Europe in terms of infrastructures and utilities, the 21st out of 133 world economies and 12th within the European economies;
- Leading position in e-Government with significant improvement in the last 5 years in terms of bureaucracy reduction impacting positively on service levels and perceived quality (1st position, EU Commission e-Government index 2009).

5.2. Opportunities and Challenges

Skills must be aligned to respond to future demands and in more than just changing numbers. The challenge is to review policies, mentalities and paradigms. There are also new challenges and opportunities for the current Government in terms of the country's structural pillars and new technology infrastructures.

CHALLENGES	OPPORTUNITIES
Difficulty of Hiring demands more flexible working arrangements and lower taxes.	**Quality of research is improving** potential for university-industry collaboration and for the creation of strategic investment poles that can be flagships for productivity and generate incremental growth.
Increase business investment on R&D: structure and Organisation of business R&D activities is fragile and requires incentives for development and promotion of initiatives.	**Immigration laws** facilitate the integration of multilingual and multicultural workers and the focus should be to attract more qualified labour pool.
Attract foreign direct investment by implementing a coordinated approach, allocation of capital and defined tax exemptions.	**Special project managers** allocation by the Government to strategic investments to help attract investors and facilitate navigation through the country's regulations.
Guarantee a more effective and reliable judicial system in dispute resolution.	**Development of arbitration and specialised courts** for commercial and labour issues with enforced maximum times for decisions.
Ensure legal labour framework able to accommodate the outsourcing business and delivery models.	**Develop new renewable energy infrastructure technology**: Increase the development of new technology based on piezoelectric materials to create renewable energy; Increase the international sale of Portuguese infrastructural technology (e.g. wind energy towers, ocean wave technology ...).
Bureaucracy and corruption are still perceived as relevant obstacles when compared to other West European countries.	**Develop integrated railway system:** promote more energy efficient cargo (for the Sines logistic hub) and passenger transportation (new Lisbon airport hub).
Telecommunications cost for individuals: difficult to create economies of scale due to reduced market size.	

Table 19: Opportunities and Challenges

5.3. Future Outlook

Portugal is expected to continue the path of structural reforms despite the progress made in 2008 being above the EU average in matters such as Business Environment and Innovation & Research. The reforms priorities and basic guidelines for the national use of Community structural funds are defined in the Portuguese National Strategic Reference Framework (NSRF).

Toward 2013, NSRF aims to promote the qualification of the Portuguese economy, developing and stimulating knowledge, science, technology, innovation, education and culture as the main guarantee of the country's development and its increased competitiveness, promoting sustained growth and improving professional qualifications, and governance efficiency.

The objective set for increased competitiveness and the change in the competitive base of the Portuguese economy makes it necessary to create a more business-friendly environment. Therefore, Portugal will continue to improve the business environment through future developments of the programme of administrative simplification (Simplex). This programme is central to the dematerialisation of countless formalities in the various stages of the life cycle of companies and has contributed to the administrative simplification of a wide range of business activities.

More R&D and a better innovation system

Portugal will continue its efforts to develop and mobilise the Information Society, by implementing and giving special priority to R&D activities in the area of information and communication technologies and to the so-called e-Science instruments; this includes the high-performance network for research and education, digital scientific libraries, the open access information and scientific data stores, the Grid computing and supercomputing and the work platforms for distance research.

Knowledge, skills and innovative potential are the key resource for competitive advantage and Portugal's leaders are engaged with these issues. Looking ahead, it seems that Portugal is well-placed, has considerable strength to make the transition to a knowledge-based economy while implementing deep reforms in education, labour regulations and demonstrating a great performance and progress in innovation capabilities.

Observing the evolution of Portugal in terms of Skills and considering the increase of expenditure on education, improvements on educational participation, advanced English teaching at school and continuous investments in research and development (R&D) - with values above Ireland's-, it is easy to anticipate that results of these investments and cultural changes on educational system's will influence the progression of other indicators and future profile of the Portuguese skills, such as the quality and availability of qualified labour pool, educational achievement, increase on number of graduates and the capacity to attract and retain the most talented and skilled individuals. Furthermore, improvement of skills is seen as a continuous process beyond formal education.

Performance in competitive knowledge environments depends on the quality of human resources; in order to create employment for this knowledge-based economy Portugal has started and will continue a process of changing the skills profile, of accomplishing the necessary technological and educational competences demanded by the competitive knowledge environments, and of furthering specific knowledge in fields such as Science and

Engineering, Mathematics and Languages[133]. Portugal will develop strong affiliations with the English language, with the integration of English teaching from 6 years onward.

Portugal is committed to the country's scientific and technological development starting in schools. The Government's goal is to advance Portugal to become the 5th most highly developed European Country in technology education innovation by 2010; driven by the Technological Plan this change is already improving education and will position Portugal in the vanguard of Europe's education.

In terms of infrastructures it seems that the next steps are towards the implementation of the so called "Next Generation Networks". In a 1 Billion Euros investment these Next Generation Networks will enable state enterprises, especially ICT service providers, to improve and move as a country that wants to be at the forefront of innovation and driving into an area crucial to help overcome the current economic crisis and to meet the challenges of the future.

A paradigmatic shift of the business opportunities to a structural and materialised knowledge economy is taking place, as a result of the network innovation, business models, cultural behaviour and skills. This will bring Portugal to a new cycle of growth based on sectors with higher added value. It will also impact on the public sector, with the launch of services in the public sector and the creation of regulatory frameworks and funding conducive to investment and innovation.

In addition to supporting the development of new services, thus promoting the creation of a national cluster of advanced new generation, the aim is to allow the Portuguese to be the first Europeans to have the benefits of these investments and access to these networks. Portugal came first in the world ranking of countries with the highest penetration of fibre-to-the-home[134].

In an effort to attract further international direct investment Portugal must ease the tax overload (measured by the total collected tax revenue in percentage of GPD), permitting even more tax exemptions carefully chosen in the areas where it will add significant added value to the country, namely in expertise or knowledge brought into the country.

Furthermore, Portugal should look at the piracy rate as an issue to be addressed quickly and resolved by contracting legislation, increasing inspection and working together with the ISP's in order to reduce piracy access to the internet, to reduce share of non licensed software (cracked software), as well as to decrease sales of counterfeit and copied software.

[133] Principles in "The skills of the future", Accenture
[134] Ranking report produced by the European Council of optical fibre.

6. Acronyms

ACRONYM	DESCRIPTION
ADSL	Asymmetric Digital Subscriber Line
ANACOM	Autoridade Nacional de Comunicações (National Communications Authority)
APAC	Asia Pacific, and Japan
APDC	Associação Portuguesa para o Desenvolvimento das Comunicações (Portuguese Association for the Development of Communications)
APDSI	Associação para a Promoção e Desenvolvimento da Sociedade da Informação (Association for the Promotion and Development of Information Society)
API	Agência Portuguesa para o Investimento (Portuguese Agency for Investment)
APO	Associação Portugal Outsourcing (Portugal Outsourcing Association)
Atlantis 2	Fibre optic transatlantic telephone cable connecting Argentina, Brazil, Senegal, Cape Verde, Canary Islands and Portugal
ATM	Automated Teller Machine
BP	Business Process
BPO	Business Process Outsourcing
CAN	Climate Action Network
CIA	Central Intelligence Agency
CLIL	Content and Language Integrated Learning
CMU	Carnegie Mellon University
Columbus-II	Optical transatlantic telephone cable
CZ	Czech Republic
DSL	Digital Subscriber Line
EDP	Energias de Portugal
EIU	Economist Intelligence Unit
ERASMUS	European Region Action Scheme for the Mobility of University Students
ES	Spain
eTOM	Enhanced Telecom Operations Map
EU	European Union
Eutelsat	French-based satellite provider covering the entire European continent, as well as the Middle East, Africa, India and significant parts of Asia and the Americas.
GATT	General Agreement on Tariffs and Trade
GDP	Gross Domestic Product

ACRONYM	DESCRIPTION
GEPE	Gabinete de Estatística e Planeamento da Educação (Bureau of Statistics and Education Planning)
GMT	Greenwich Mean Time
GPEARI	Gabinete de Planeamento, Estratégia, Avaliação e Relações Internacionais (Office of Planning, Strategy, Evaluation and International Relations)
HU	Hungary
Iberian Festoon	Domestic submarine communications cable
IBM	International Business Machines
ICT	Information and Communications Technologies
IDC	International Data Corporation
IE	Ireland
IMD	International Institute for Management Development
Intelsat	International Telecommunications Satellite Organisation
IRC	Imposto sobre o Rendimento das Pessoas Colectivas (Corporate Income Tax)
IRS	Imposto sobre o Rendimento de Pessoas Singulares (Individual Income Tax)
IRTDA	International Road Traffic and Accident Database
ISCTE	Instituto Universitário de Lisboa (Lisbon University Institute)
ISV	Imposto Sobre Veículos (Vehicle Tax)
IT	Information Technology
ITIL	Information Technology Infrastructure Library
IUC	Imposto Único de Circulação (Circulation Tax)
MIT	Massachusetts Institute of Technology
MNC	Multinational corporation
NATO	North Atlantic Treaty Organisation
NSRF	National Strategic Reference Framework (QREN - Quadro de Referência Estratégico Nacional)
NU	Netherlands
OECD	Organisation for Economic Co-operation and Development
PhD	Philosophiæ Doctor (Doutor)
PO	Poland
PT	Portugal
R&D	Research & Development
REN	Rede Eléctrica Nacional
RNSI	Rede Nacional de Segurança Interna (National Network for Homeland Security)

ACRONYM	DESCRIPTION
RO	Romania
S&E	Science and Engineering
S&T	Science & Technology
SAT-2	Submarine communications cable linking Melkbosstrand, South Africa, to El Medano, Tenerife Island, Spain and Funchal, Madeira Islands, Portugal
SEA-ME-WE-3	Optical submarine telecommunications cable linking South-East Asia, Middle East and Western Europe
SIBS	Sociedade Interbancária de Serviços (Interbank Services Company)
SIFIDE	Sistema de Incentivos Fiscais à I&D Empresarial (System of Tax Incentives for Business R&D)
SIOPS	Sistema Integrado de Operações de Protecção e Socorro (Integrated Operations Protection and Rescue System)
SIRESP	Sistema Integrado de Redes de Emergência e Segurança de Portugal (Portugal's Integrated Network Security and Emergency System)
SNESup	Sindicato Nacional do Ensino Superior (National Union of Higher Education)
SOX	Sarbanes–Oxley Act
SSH	Social Sciences and Humanities
Tagide-2	International submarine communications cables
TECMAIA	Parque de Ciência e Tecnologia da Maia (Maia Science and Technology Park)
TGV	Train à Grande Vitesse (High-Speed Train)
TOGAF	The Open Group Architecture Framework
TRIPS	Trade-Related Aspects of Intellectual Property Rights
UK	United Kingdom
UN	United Nations (Organisation)
US	United States
WEF	World Economic Forum
WTO	World Trade Organisation
WTTC	World Travel and Tourism Council

Table 20: Acronyms

7. Sources

References

ANACOM	IMD World Competitiveness Yearbook 2008, 2009
Cushman & Wakefield - European Cities Monitor	Mercer - Cost of Living 2009
Economist Intelligence Unit	MSN Encarta
Ernst & Young - FDI in Portugal	OECD
European Commission	Ministry of Education
GEPE – National Bureau of Statistics and Education Planning	Ministry of Science and Technology (Ciência Viva)
Germanwatch & CAN/Europe 2009	SNESUP - National Union of Higher Education
GPEARI	The Black Book for Outsourcing 2008, Brown-Wilson Group
Hays Information Technology Salary Tables	The Technology Plan website, www.planotecnologico.pt
Hotels.com	World Bank
IDC - International Data Corporation	World Economic Forum

Table 21: References

Indicators

INDICATOR	DESCRIPTION	SOURCE	SOURCE DATE
Availability of Skilled Labour	Assess if skilled labour (in general) is readily available in the labour market.	IMD World Competitiveness Yearbook	2009
Climate Change Performance Index 2010	Overall score on several environment performance categories, including emission levels and climate policies (higher is better).	Germanwatch & CAN/Europe	2009
Collected total tax revenues in percentage of GDP	Percentage of tax collected by state relatively to GNP.	IMD World Competitiveness Yearbook	2009
Completion rate in tertiary education	Refers to the percentage of students who follow and successfully complete tertiary programs; indicator of human capital formation and school system quality and efficiency. Data from year 2005.	OECD - Education at a Glance 2009	2009
Cost of hotels - (priciest come first)	Average cost of night spent in hotel.	Hotels.com - Hotel Price Index	2008
Cost of living	Average cost of living - The indices are based on Mercer's cost of living database and are modified to include rental accommodation costs and to reflect constant weighting and basket items.	Mercer Cost of Living Survey – Worldwide Rankings, 2009	2009
Cost of staff (cheapest come first)	Wages paid to labour force. Includes business and IT staff.	Cushman & Wakefield - European Cities Monitor	2009
Cost of telecommunications	Broadband prices monthly subscription.	OECD communications outlook	2009
Difficulty of Hiring Index (0-100)	Included fixed-term contracts prohibited for permanent tasks, maximum duration of fixed-term contracts and ratio of mandated minimum wage to the average value added per worker.	World Bank – Doing Business 2010	2010
Ease of Doing Business Rank	Country overall rankings in terms of starting a business, registering property, protecting investors and enforcing contracts (1 is best).	World Bank – Doing Business 2010	2010
E-government (EU commission eGovernment index)	Overall rank out of the countries surveyed.	European Commission eGovernment index	2009
Enabling Trade Index	Score measures and analyses institutions, policies, and services enabling trade in national economies	World Economic Forum - The Global Enabling Trade Report 2009	2009

INDICATOR	DESCRIPTION	SOURCE	SOURCE DATE
E-Readiness Score	Measures preparedness of citizens, businesses and government to use of ICT and exploit its opportunities.	Economist Intelligence Unit	2009
FDI Inward (% of GFCF) (2008)	Foreign Direct Investment in the country.	UNCTAD	2008
Foreign language learning (starting age)	Assess to what extent foreign languages are being taught at an increasingly early age.	European Commission, "Key Data on Teaching Languages at School in Europe"	2008
GDP Growth rate (%)	Gross domestic product real growth rate.	Eurostat	2008
Governance Matters Score	Provides an average summary of the six aggregated governance indicators, which are Voice & Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption (0 corresponds to the lowest rank and 100 to the highest).	World Bank - Governance Matters VIII - Aggregate and Individual Governance Indicators, 1996-2008	2009
Immigration laws	Immigration law does not prevent your company from employing foreign labour.	IMD World Competitiveness Yearbook	2009
Intellectual property protection	Intellectual property protection, including anti-counterfeiting measures - 2009–2010 weighted average (1 = very weak; 7 = very Strong).	World Economic Forum - The Global Competitiveness Report 2009-2010	2009
Internet penetration	Describes the total communications paths (or subscribers) per 100 habitants.	OCDE Communications Outlook	2009
IT industry competitiveness index	Composed by sub-indicators of Overall Business Environment, IT infrastructure, Human Capital, Legal Environment, R&D Environment, Support for IT Industry Development.	The Economist Intelligence Unit	2009
IT infrastructure	Includes Market spending on hardware, software and IT services, Desktop and laptop computers, Broadband connections, Secure Internet servers, Mobile-phone penetration.	The Economist Intelligence Unit - Resilience amid turmoil (Benchmarking IT industry competitiveness 2009)	2009
Justice System	Indicates if a justice system is fairly administered. (Survey).	IMD World Competitiveness Yearbook 1995-2009	2009
Labour Compensation per Unit Labour Input (Total Economy) - annual growth	Defined as compensation of employees divided by total hours worked by employees of businesses,	OECD Factbook 2009	2009

INDICATOR	DESCRIPTION	SOURCE	SOURCE DATE
	or if hours are not available then by total employees. Data from 2007.		
Language skills score	Refers to the level at which language skills are meeting the needs of enterprises in the country.	IMD World Competitiveness Yearbook	2009
Piracy rate	Percentage of total revenue subtracted from pc packaged software and software legally acquired non packaged.	Annual Piracy Study by IDC - Business Software Alliance	2008
Public expenditure on education (% of GDP)	Refers to total spending of public authorities at all levels, as a % of GDP.	IMD World Competitiveness Yearbook	2009
Quality of overall infrastructure	General infrastructures (e.g., transport, telephony, and energy) - 2009–2010 weighted average (1 = extremely underdeveloped; 7 = extensive and efficient by international standards).	World Economic Forum - The Global Competitiveness Report 2009-2010	2009
R&D and Innovation Investments (% of GDP)	Total Investment in R&D as a percentage of GDP.	OECD Factbook 2009	2008
Support for IT industry development	Includes access to medium-term finance for investment from domestic and foreign sources, Government spending on IT hardware, software and services, Existence of a coherent national government strategy to achieve e-government objectives.	The Economist Intelligence Unit	2009

Table 22: Indicators