

# ICT R&D and Globalisation

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**A national strategy  
for linking multinational cooperation  
to SMEs and regional excellence**

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## Fraunhofer – Portugal collaboration agreement

In the context of the initiative

### “Partnerships for the Future”

- ▶ Portuguese agencies **FCT** and **UMIC** have signed a long term collaboration agreement with **FhG**
  
- ▶ focused on **emerging technologies, science and technology**
  - oriented towards social **well-being**
  - **economic growth** and **quality of life**

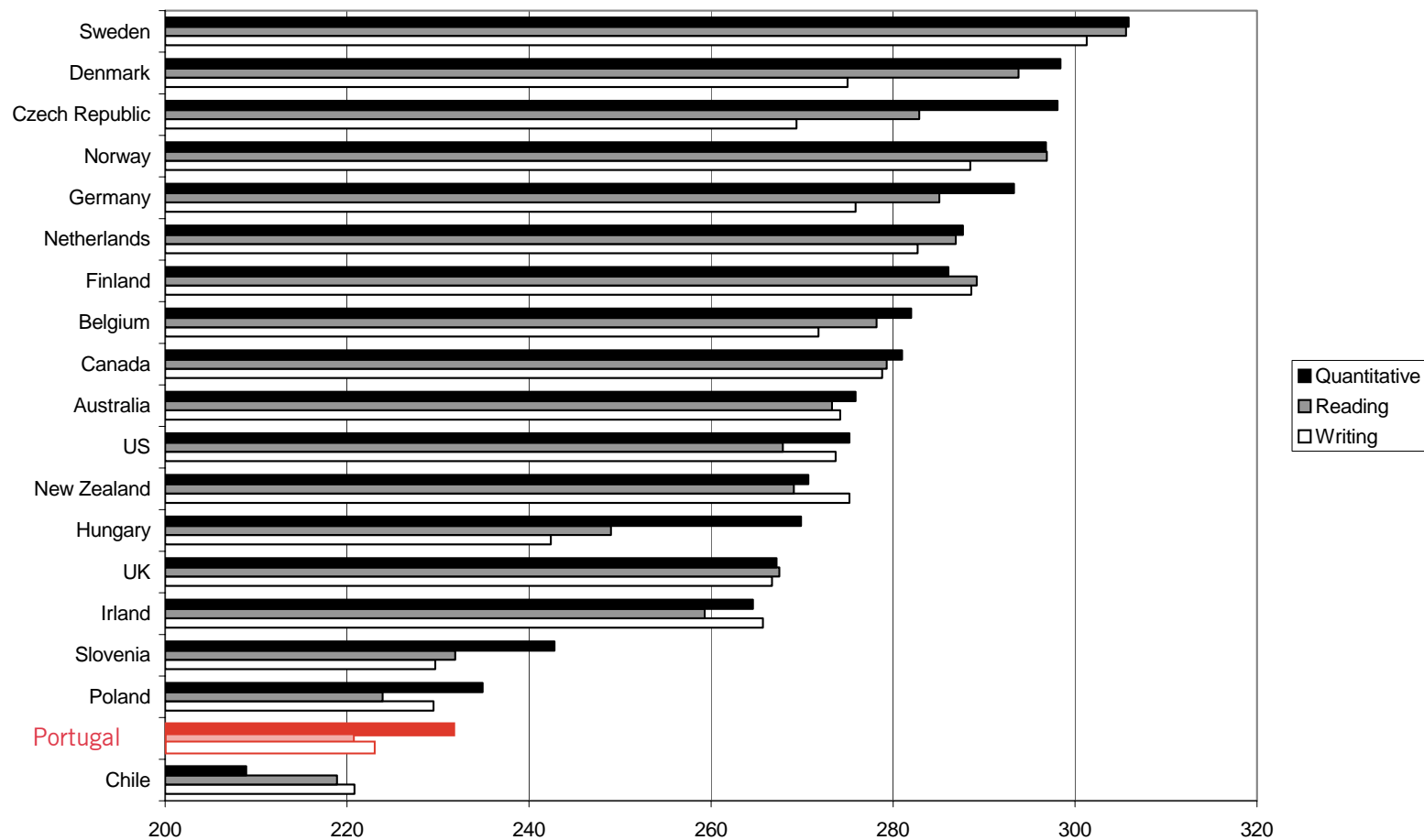
## “Partnerships for the Future”

is a Portuguese Government initiative

- ▶ aiming at transforming existing international collaborations
  - into **institutional partnerships**
  - with **leading Higher Education** and **R&D** players worldwide
  
- ▶ to foster the establishment of research-based collaborative programmes
  - involving **Portuguese universities, research institutes** and **enterprises**
  - in a way to promote pools of **distributed** and **shared knowledge**
  - and new modes for its **creation, dissemination** and **usage**

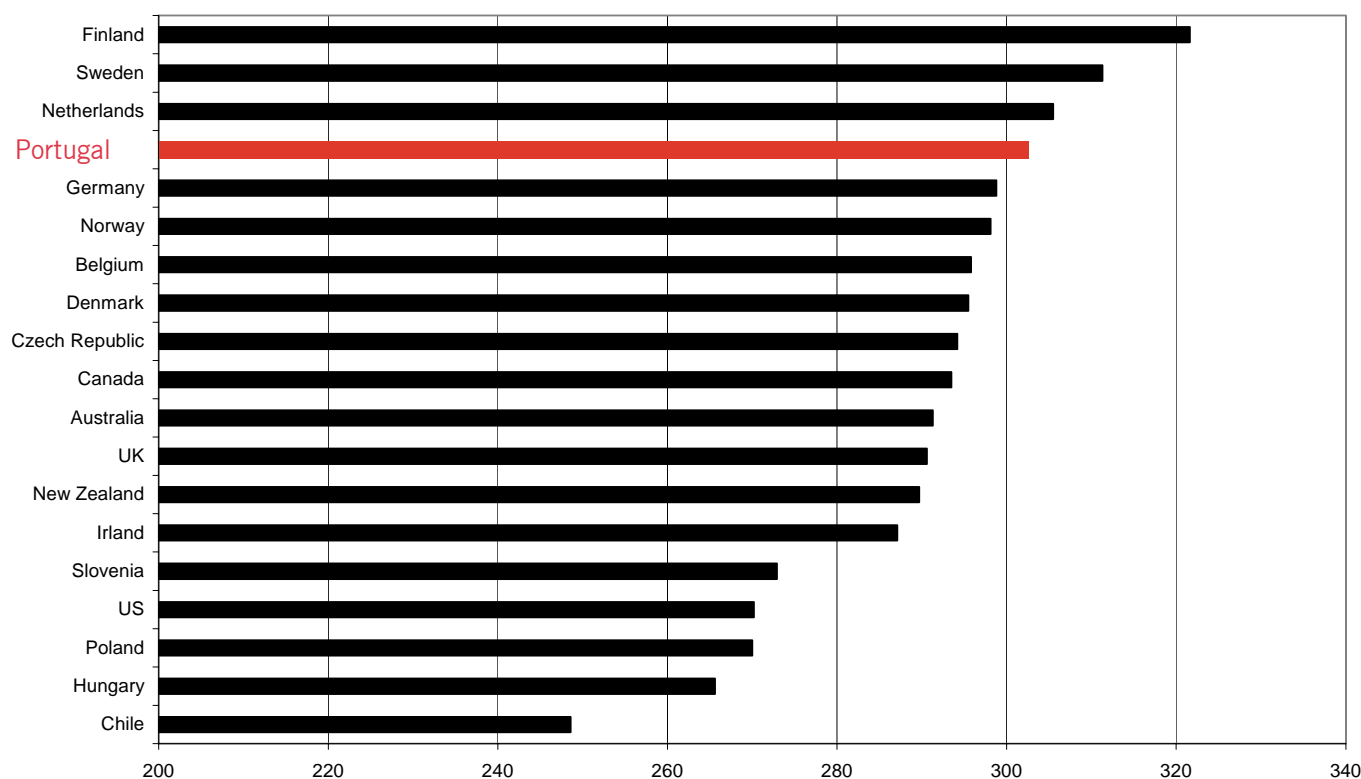
## Portugal as a Dual Society (1)

### Average Literacy Survey Results in OECD Countries

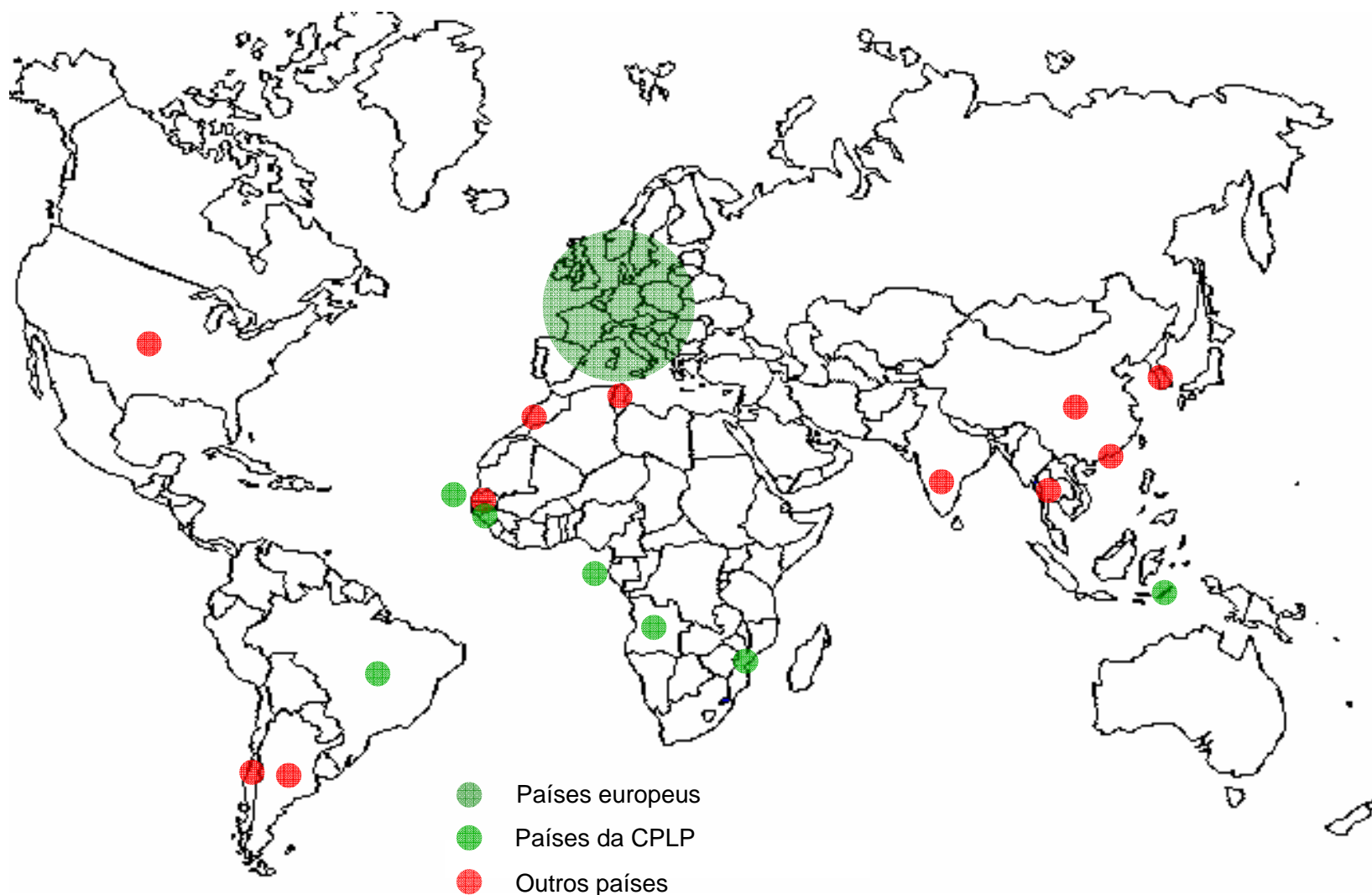


## Portugal as a Dual Society (2)

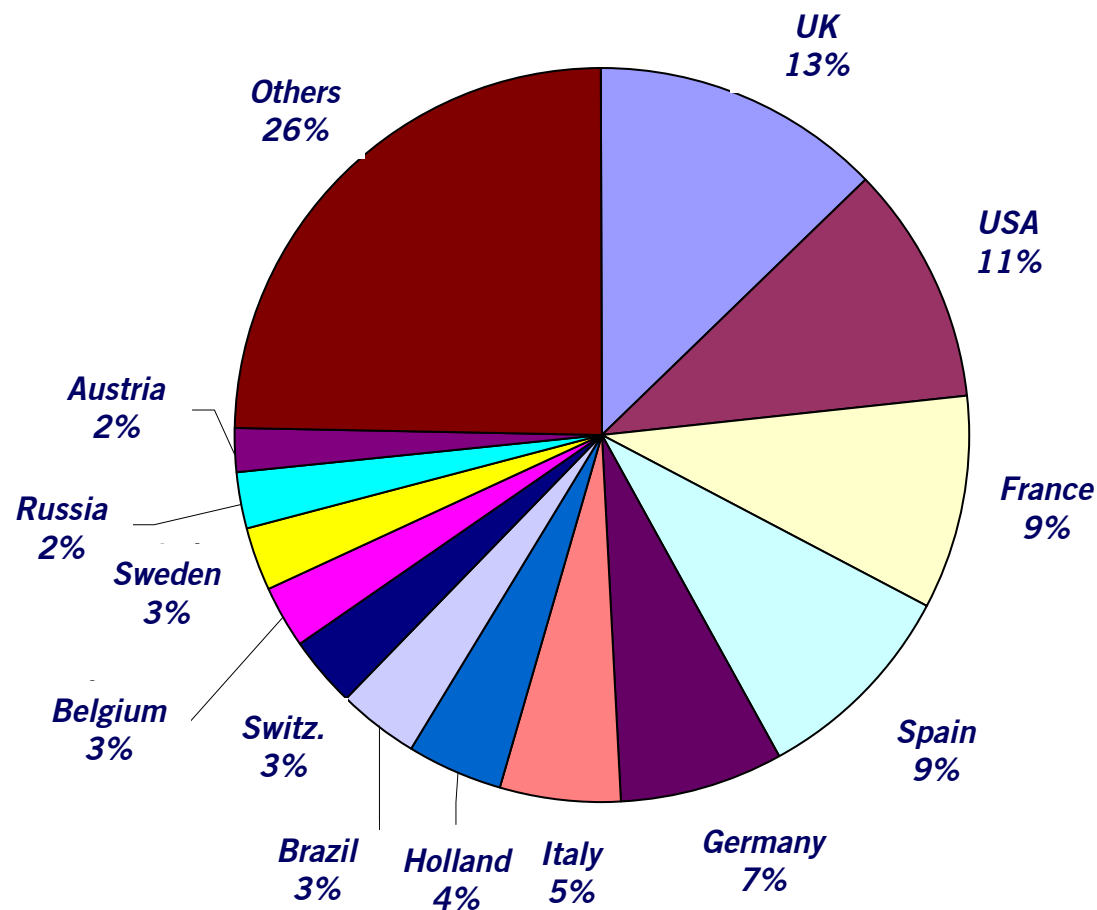
### Literacy Scores of People Aged 20-25 Years and with Upper Secondary Education in OECD Countries



## Bilateral cooperation with other countries, in Science and Technology



## Percentage of ISI registered publications of Portuguese scientists in co-authorship with scientists of different countries



\* Número de publicações científicas registadas no ISI  
Fonte: Thompson Scientific, ISI

## New challenges

**Institutional collaboration**

***in science and technology***

**and**

***in graduate education***

## Goal

- ▶ A strategy to strengthen the country's **knowledge base**,  
to foster **economic growth** and  
to enhance the **quality of life** in Portugal
- ▶ by exploring **international cooperation** and  
**industry-science relationships**
- ▶ with leading institutions worldwide,  
in a way to sustain strategic investments  
in **people, knowledge** and **ideas**.

## Objectives

- ▶ To implement **specific initiatives** with high visibility and impact
- ▶ To develop **advanced educational and research programmes** at an international level, oriented towards strengthening the science base, as well as fueling the economy and the social well-being
- ▶ To make **Portugal an attractive setting to study** and perform research
- ▶ To **reinforce the entrepreneurial capacity** of the students, scientists and engineers through the commercialization of science and technology and the access to new and dynamic markets worldwide

## Collaborative tools

- Student exchange
- Research Opportunities for students
- One-year graduate degree programs
- Joint Ph.D. Programmes
- Research Chairs
- Technology management fellowships
- Joint curriculum development

### **and also**

to facilitate the practice of **research and teaching in leading universities**,  
to provide **new experiences**  
and attract **bright students** and **researchers** worldwide

## MIT – Portugal Partnership

### 1. Collaborative research and advanced degree programs

- **Innovation in manufacturing**, focused on automotive and aeronautic industry
- **Critical infrastructures and systems**, encompassing
  - **Power systems**, including renewable energies, but emphasizing key emerging challenges at the integration of co-production and distribution networks;
  - **Transportation systems**, including airport design and management and train systems, as well as intelligent transportation systems
- **Bio - engineering**
- **Entrepreneurship and the commercialization of technology**

### 2. Institutional building

Promoting a **Portuguese Management School**, or a consortium of Portuguese schools, through collaboration with the *Sloan School of Management* and others at MIT, including the *Engineering Systems Division*

## Carnegie Mellon University (CMU) – Portugal Partnership

### 1. Collaborative research and advanced degree programs

- **Information networking**, design and management, including the optimization of **Telecom infrastructures and systems** for the next generation of internet;
- **Information security**, and related software engineering issues;
- **Software engineering** and other computer science and computer engineering areas;
- **Robotics**
- **Applied mathematics** supporting emerging developments in ICT's
- Monitoring and management of coupled systems in **critical infrastructures**
- **Innovation management and policy**

### 2. Institutional building

Creating with Carnegie Mellon CyLab a **public-private collaboration to develop next-generation technologies** in sustainable computing and communication systems and to educate individuals at all levels, including children in primary and secondary schools

## University of Texas at Austin (UTA) – Portugal Partnership

### 1. Collaborative research and advanced degree programs

- **Digital information content and new media production and distribution**
  - **Digital and interactive media**, including new distribution systems for small screens and over IP;
  - **Journalism and documentary systems in interactive environments**;
  - **Advanced digital media solutions and systems**, including wireless technologies and systems for new media distribution and those leading to learning systems for unskilled people;
  
- **High tech entrepreneurship and technology venturing design**

## University of Texas at Austin (UTA) – Portugal Partnership

### 2. Technology Commercialization

Inspired by the experience of the IC2 Institute and the Austin Technology Incubator (ATI), the assessment will explore the possibility of incubating and **accelerating Portuguese technology-based start-up firms** and preparing young entrepreneurs and technology managers

### 3. Institutional building

- In advanced digital media, involving a **consortium of Portuguese research centers and schools** in collaboration with The University of Texas Film Institute, the Digital Media Collaboratory, and the Wireless Research Center, as well as other units at The University of Texas at Austin
- A network of **technology transfer offices and innovation centers** in Portuguese higher education institutions through collaboration with the IC2 Institute and the Austin Technology Incubator

## New partnerships

### 1. Harvard Medical School

focused on the production and delivery of medical contents  
and on related clinical research

### 2. Fraunhofer - Gesellschaft

## Fraunhofer-Gesellschaft – Portugal Partnership

### 1. Collaborative research

- Cooperation programmes will be developed by Portuguese institutions and Fraunhofer Institutes in Germany, regulated by contracts between the parties, in the following areas:
  - **Logistics**, bringing together a consortia of engineering centers and research laboratories in Portugal and specific competencies in logistics at FhG;
  - **Augmented and virtual reality** for advanced engineering design, bringing together a consortia of engineering centers and research laboratories in Portugal and specific competences on computer graphics at FhG, with particular application to the automobile industry;
  - **Advanced manufacturing**, bringing together a consortia of engineering centers and research laboratories in Portugal and specific competences on advanced manufacturing at FhG, to work together with manufacturing firms in Europe;
  - **Biotechnology**, including new contents and services for life sciences, bringing together a consortia of major research laboratories in Portugal and related Fraunhofer Institutes in Germany

## Fraunhofer-Gesellschaft – Portugal Partnership

### 1. Collaborative research (*cont.*)

- Major task forces will be implemented in the areas of grid computing and nanotechnology, in order to foster research and development networks among Portuguese institutions, Fraunhofer Institutes and other European research centers

### 2. Institutional building

- Installation of an FhG-owned research centre as a nucleus for a future Fraunhofer Institute, as follows:
  - The area, scope and mission of the centre will be jointly defined, with emphasis on **content and services for ambient intelligence**
  - The **research team** of the centre will be **internationally recruited** on a competitive basis
  - The development of the centre into a full-fledged Fraunhofer-Institute will depend on a successful **evaluation by year 4**

## A Fraunhofer-owned Institute in Portugal

- ▶ The Institute will undertake applied R&D on technologies, applications and services to **exploit ICT to close up the digital divide** and **to improve the quality of life** of all citizens.
- ▶ The Institute will contribute to spread the reach of the Information and Knowledge Society (IKS) by promoting innovative ways to deliver **ubiquitous access to ICT**, to foster the steady deployment of **innovative content, applications and services for all** and to promote **life-long learning** through emerging forms of edutainment.
- ▶ The Institute will devote particular effort towards **citizens with low qualification**, the **elderly** and **citizens with special needs**, who traditionally lag behind in what concerns the advent of the IKS.

## Conclusion

- ▶ It is our conviction that these initiatives will have a **major impact at different levels** of Portuguese society.
- ▶ On the one hand, they will help **setting new standards**, promote local cooperation and the **growth of groups with critical mass**, creating **internationally recognised graduate schools** and opening a window to **attract talented students** from all over the world.
- ▶ On the other hand, they will focus on the use of ICT to promote the **access to a knowledge society for all**, and help **overcoming the digital divide**.
- ▶ We believe this is an appropriate and innovative setting to **strengthen the S&T system** and incentive **technology based SMEs** for playing on the global stage and will have an impact on the economy and employment
- ▶ Finally, this will promote a **sustained development** that will improve **Portuguese competitiveness** in an aggressive globalised world.

## A national strategy for linking multinational cooperations to SMEs and regional excellence

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**Thank you**