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# INDEPENDENT ASSESSMENT OF PORTUGUESE COLLABORATION WITH US UNIVERSITIES IN RESEARCH AND EDUCATION

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July 9<sup>th</sup> Lisboa



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## The science policy objectives of the Portuguese collaboration with US universities were fourfold

- to contribute to the internationalisation of Portuguese universities and research organisations,
- to increase cooperation between Portuguese institutions,
- to increase access to high-tech R&D equipment, and
- to promote cultural change in the Portuguese R&D sector.

Programme financing came from the Foundation for Science and Technology (Fundação para a Ciência e a Tecnologia)

# The goals for the research and education programmes

- to improve educational and training ability
- to increase the number of national consortia
- to promote internationalisation
- to strengthen the recruitment of professors and faculty members
- to support the economic growth through science-based innovation
- to improve the attractiveness of and access to international markets

## The motivation of the evaluation

- To analyse and assess outputs and scientific, technological and academic returns from Portuguese collaboration programmes implemented in 2007–2011.
- In addition, to obtain advise on the eventual renewal of the programmes.

The evaluation was undertaken in a period of four months and included documentary material, an e-survey, a benchmarking exercise and statistical analysis, as well as an extensive round of interviews and two independent evaluation panels.

The evaluation was commissioned by the Portuguese Ministry of Education and Science.

## The main objectives of the evaluation

- To establish the real outputs from the three Programmes and the UTEN network, and their relevance in international terms.
- To determine whether the scientific, technological and academic returns from the Programmes represent “good value” for the investments made.
- To advise on the eventual renewal of the Programmes, in the context of current budgetary restrictions, where investment in these Programmes represents a significant proportion of the funds available in the support of local groups and projects, through open, national competition.

# The methods and data sources used in the evaluation

- Documentary analysis (monitoring and reporting materials, future plans etc.)
- Interviews
- E-survey to Programme stakeholders (ranging from Master's and PhD students to faculty and Programme management, as well as external stakeholders such as industrial affiliates)
- Statistical analysis
- Evaluation panels:
  - Two panels, whose task was to assess initial results and need for further data, as well as to provide a meta-analysis of the findings and conclusions.
    - By so doing they helped to provide both additional benchmarking perspectives and strengthen the comparative international context.
    - By their important contribution they also helped validate the methodology used and clarify knowledge and information gaps.

## Conclusions

1. Overall, the present instrument Research and Education Collaboration is seen as unique. It has great potential in promoting R&D&I, and cultural change, and contains an ambitious agenda for taking Portugal to the next level in innovation activity.
2. Internationalisation, increasing collaboration within Portugal, access to R&D infrastructure and equipment, and cultural change have all been positively influenced. 'The access to equipment' objective is least relevant, while the other three are all equally important.
3. The present Portuguese Research and Education Collaboration can be regarded as a pilot instrument in which monitoring, assessment, financial management etc. systems have not been adequately developed.

## Conclusions

4. The objectives require somewhat different timeframes, though they all demand a long-term perspective. Achieving cultural change in particular is a long process, perhaps the main goal under which the sub-headings fall, i.e. attaining a new quality level in research and teaching and promoting a new mindset in terms of more entrepreneurial thinking.
  
5. All Programmes have aspects that are worth maintaining:
  - MIT has been particularly successful in PhD training
  - CMU and UTA have concentrated more on project collaboration and technology transfer, and CMU in particular is perceived to have been successful in them
  - UTEN activity is valuable and welcomed by stakeholders in the technology transfer sphere, though it could be implemented separately.

## Conclusions

6. Positive international attention and visibility have been gained through the Programmes.
7. The overall Programme approach and model are well-thought-out and the focus areas (education and training, collaborative projects, innovation and entrepreneurship) complement each other very well. They need, however, to be systematically coordinated to ensure that the flow of information is maintained and the lessons learned are adequately disseminated.
8. The strategy of focusing Portuguese public funding so strongly on US universities was not supported by all of the stakeholders. In the European context, 'collaboration' and 'partnership' are terms that imply financial commitment from both parties.

## Conclusions

9. The outputs from the Programmes, and their relevance in international terms, are significant, though in many cases it is too early to estimate their long-term impacts, in some cases even impacts (e.g. academic publications, PhDs in training, etc.).
10. The scientific, technological and academic returns from the Programmes are significant, but the cost has been quite high if calculated per PhD, student, academic publication, etc.
11. Financial inputs are significant and have enabled a broad system change in the fields selected for the Programmes. Cost-effectiveness is seen in a critical light, while return on investment cannot yet be assessed, as the goals are more long-term.

## Recommendations

- The assessment recommends to continue these programmes

### However

- Good management practice and sound financial management must be incorporated into all programme activities. This includes transparent selection criteria, monitoring indicators, reporting practices, and financial model.
- A quality assurance system should be developed to ensure systematic standards applicable across all funded programmes.
- The Research and Education Collaboration Programme could be opened to universities other than the current three US partners and, indeed, to other than US parties. Co-funding should be ensured.
- Technology transfer, innovation and entrepreneurship should be promoted, while possible alternative sources of funding should also be investigated.

## Recommendations

- To ensure commitment and anchoring of different science- and innovation-policy objectives and instruments, a broad strategic dialogue based on relevant information is needed between policy-level actors.
- The significance and added value of the programmes should be assessed by comparing their value added with that from other existing or planned investments.
- As a whole, Portuguese-US university collaboration programme has been **a valuable pilot and it should be followed by a second-generation programme built on the lessons of the current one.**
- The main approach is to find those strategic choices that are most valuable to Portugal through broadly-based, high-level dialogue and collaboration.

## Promoting the internationalisation

- Promoting the internationalisation of the science, education and innovation system lies at the heart of all knowledge-based societies, both in Europe and globally.

This goal can be approached from different perspectives covering a variety of issues:

- international cooperation of universities and research organisations;
- promotion of mobility and building a critical mass; supporting access to research infrastructure innovation and entrepreneurship,
- funding instruments and other incentives; undertaking more concerted coordination efforts etc.

However, one of the main challenges is linked to the possibilities of achieving cultural change.

## Exciting new opportunities

- Internationalisation can create exciting new opportunities for researchers and universities, innovation actors and business enterprises, funding agencies and governments.
- At the same time, it highlights the challenges that need to be met in an informed and sustainable way.
- How do we balance and make the right choices between smart specialization and broad collaboration?
- How do we set indicators and measure success?
- What is the best way to spread excellence and, on the other hand, support open innovation, for instance?
- And how do we assess value for investment?

## A bold example

- Portuguese collaboration with US universities in research and education is a bold example of an international university-government programme with high-profile science and innovation policy objectives.
- These kinds of models are few and far between, and even globally, creating a governmental internationalisation programme with significant public funding is quite uncommon.

## The evaluation steering group

- was chaired by Dr Riitta Mustonen (Vice President for Research, Academy of Finland)

other members were

- Professor Arto Mustajoki (Chair of the Academy of Finland Board, University of Helsinki),
- Dr Leena Treuthardt (Director of Strategy, Academy of Finland),
- Ms Satu Huuha-Cissokho (Manager, EU Affairs, Academy of Finland),
- Mr Juha Latikka (Senior Science Adviser, Academy of Finland),
- Dr David Cristina (Liaison Officer, Secretaries of State for Science and for Entrepreneurship and Innovation, Portuguese Ministry of Education and Science) and
- Dr Joana Mendonca (Head of Department of Science and Education Statistics, Portuguese Foundation for Science and Technology).

The data collection and analysis process was carried out by Dr. Kaisa Lähteenmäki-Smith, Rambøll Management Consulting Ltd.

## Members of the expert panels

The panel of 4 November

- Professor Yannis Caloghirou, National Technical University of Athens, Greece
- Research Director Gabriella Cattaneo, IDC European Government Consulting, Italy
- Professor Seppo Hölttä, University of Tampere, Finland
- Scientific Director Pieter der Pauw, Free Brussels University (VUB), Belgium
- Director of International Affairs Emilie Norrmann, Ahlborg University, Denmark
- Stv. Direktorin Sonja Sheikh, KMU Forschung, Austria

## Members of the expert panels

The panel of 28 October (Finnish panel)

- Professor Arto Mustajoki, Chair of the Board of the Academy of Finland, University of Helsinki
- Professor Kimmo Kaski, University of Helsinki
- Professor Risto Nieminen, Aalto University
- Research Development Manager Johanna Hakala, Tampere University of Technology
- Chancellor Eero Vuorio, University of Turku
- Dr Terttu Luukkonen, Research Institute of the Finnish Economy
- Professor Yrjö neuvo, EIT Executive Committee
- Professor Markku Mattila, President of the Academy of Finland

## Number of Interviewed persons

- MIT-PT: 42 persons
- UTA-PT: 28 persons
- CMU: 32 persons
- UTEN: 14 persons
- Other Stakeholders: 3 persons

Thank you!