



JRC SCIENCE FOR POLICY REPORT

RIO COUNTRY REPORT 2015: Cyprus

Lena Tsipouri
Sophia Athanassopoulou
Robert Gampfer

2016



This publication is a Science for Policy Report by the Joint Research Centre, the European Commission's in-house science service. It aims to provide evidence-based scientific support to the European policy-making process. This publication, or any statements expressed therein, do not imply nor prejudice policy positions of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of this publication.

Contact information

Address: Edificio Expo. c/ Inca Garcilaso, 3. E-41092 Seville (Spain)

E-mail: jrc-ipts-secretariat@ec.europa.eu

Tel.: +34 954488318

Fax: +34 954488300

JRC Science Hub

<https://ec.europa.eu/jrc>

JRC101174

EUR 27856 EN

PDF ISBN 978-92-79-57791-8 ISSN 1831-9424 doi:10.2791/926454 LF-NA-27856-EN-N

© European Union, 2016

Reproduction is authorised provided the source is acknowledged.

How to cite: Lena Tsipouri, Sophia Athanassopoulou, Robert Gampfer; RIO Country Report 2015: Cyprus; EUR 27856 EN; doi:10.2791/926454

All images © European Union 2016 except for the ERA Dashboard image on the first page by Niels Meyer licensed under CC BY 2.0

Abstract

The 2015 series of RIO Country Reports analyse and assess the policy and the national research and innovation system developments in relation to national policy priorities and the EU policy agenda with special focus on ERA and Innovation Union. The executive summaries of these reports put forward the main challenges of the research and innovation systems.

Table of Contents

Foreword	4
Acknowledgments	5
Executive summary	6
1. Overview of the R&I system	12
1.1 Introduction	12
1.2 Structure of the national research and innovation system and its governance	14
1.2.1 Main features of the R&I system.....	14
1.2.2 Governance.....	15
1.2.3 Research performers	16
2. Recent Developments in Research and Innovation Policy and systems	18
2.1 National R&I strategy	18
2.2 R&I policy initiatives	19
2.3 European Semester 2014 and 2015	21
2.4 National and Regional R&I Strategies on Smart Specialisation.....	22
2.5 Main policy changes in the last five years	23
3. Public and private funding of R&I and expenditure	24
3.1 Introduction	24
3.2 Smart fiscal consolidation.....	25
3.2.1 Economic growth, fiscal context and public R&D	25
3.2.2 Direct funding of R&D activities	26
3.2.3 Indirect funding – tax incentives and foregone tax revenues	29
3.2.4 Fiscal consolidation and R&D.....	29
3.3 Funding flows	30
3.3.1 Research funders	30
3.3.2 Funding sources and funding flows	30
3.4 Public funding for public R&I	30
3.4.1 Project vs. institutional allocation of public funding	30
3.4.2 Institutional funding	30
3.4.3 Project funding	31
3.4.4 Other allocation mechanisms	31
3.5 Public funding for private R&I	32
3.5.1 Direct funding for private R&I	32
3.5.2 Public procurement of innovative solutions.....	35
3.5.3 Indirect financial support for private R&I	36
3.6 Business R&D	36
3.6.1 The development in business R&D intensity	36
3.6.2 The development in business R&D intensity by sector.....	37
3.6.3 The development in business R&D intensity and value added.....	39
3.7 Assessment.....	40
4. Quality of science base and priorities of the European Research Area	41

4.1	Quality of the science base	41
4.2	Optimal transnational co-operation and competition	42
4.2.1	Joint programming, research agendas and calls	42
4.2.2	RI roadmaps and ESFRI	42
4.3	International cooperation with third countries.....	43
4.4	An open labour market for researchers.....	44
4.4.1	Introduction	44
4.4.2	Open, transparent and merit-based recruitment of researchers.....	45
4.4.3	Access to and portability of grants	48
4.4.4	Doctoral training	48
4.4.5	Gender equality and gender mainstreaming in research	48
4.5	Optimal circulation and Open Access to scientific knowledge.....	49
4.5.1	e-Infrastructures and researchers electronic identity	49
4.5.2	Open Access to publications and data.....	49
5.	Framework conditions for R&I and Science-Business cooperation	51
5.1	General policy environment for business.....	51
5.2	Young innovative companies and start-ups	51
5.3	Entrepreneurship skills and STEM policy	52
5.4	Access to finance	53
5.5	R&D related FDI.....	54
5.6	Knowledge markets	54
5.7	Knowledge transfer and open innovation	55
5.7.1	Indicators	55
5.7.2	Policy Measures	58
5.7.3	Assessment.....	59
5.8	Regulation and innovation	59
5.9	Assessment of the framework conditions for business R&I.....	60
6.	Conclusions.....	61
6.1	Structural challenges of the national R&I system	61
6.2	Meeting structural challenges.....	64
	References.....	67
	Abbreviations	70
	List of Figures.....	73
	List of Tables.....	74
	Annex 1 – List of the main research performers.....	75
	Annex 2 – List of the main funding programmes	76
	Annex 2B – List of all funding programmes under proposed DESMI 2015-2020	77
	Annex 3 – Evaluations, consultations, foresight exercises.....	78

Foreword

The report offers an analysis of the R&I system in Cyprus for 2015, including relevant policies and funding, with particular focus on topics critical for EU policies. The report identifies the main challenges of the Cypriot research and innovation system and assesses the policy response. It was prepared according to a set of guidelines for collecting and analysing a range of materials, including policy documents, statistics, evaluation reports, websites etc. The quantitative data is, whenever possible, comparable across all EU Member State reports. Unless specifically referenced all data used in this report are based on Eurostat statistics available in February 2016. The report contents are partly based on the RIO Country Report Cyprus 2014 (Tsipouri and Athanassopoulou, 2015).

Acknowledgments

The report draft has benefited from comments and suggestions of Christos Aspris and Nikos Ioannou from the Cypriot Directorate General for European Programmes, Coordination and Development, and Nick Harrap from JRC-IPTS.

Comments from DG RTD are gratefully acknowledged.

Peter Fako, Lorenzo Isella and Athina Karvounaraki produced the statistics and the analytical assessments for sections 3.2 and 3.6 of the report.

We would like to thank Sophie Bodart for her assistance in preparing this report for publication.

Authors' affiliation:

Lena Tsipouri, National and Kapodistrian University of Athens

Sophia Athanassopoulou, National and Kapodistrian University of Athens

Robert Gampfer, European Commission, Directorate-General Joint Research Centre, Directorate J - Institute for Prospective Technological Studies, Innovation Systems Analysis unit (Brussels, Belgium)

Executive summary

Context

The Cypriot economy has been experiencing a sovereign debt crisis, which started with the losses that the local banking system suffered in 2011 from the restructuring haircut of Greek state bonds. Real GDP contracted by 5.4% in 2013 and by 2.3% in 2014. It is estimated to have started growing again by 1.2% in 2015¹.

The fiscal consolidation process over the last few years has reduced budgets in all policy areas, including for public funding for research and innovation. R&D appropriations decreased significantly after 2009 and in particular after 2011, when the sovereign debt crisis fully hit the Cypriot economy. Although cuts in budget appropriations for R&D were more severe than the decline in actual expenditure, the fiscal adjustment process during the sovereign debt crisis has clearly been at the expense of public support to R&D.

At the end of 2014, total GERD was at €82.7m (0.47% of GDP), marking a decrease of 1.3% compared to 2013. Cyprus ranks last before Romania in terms of R&D intensity among all EU member states (GERD has been fluctuating around 0.5% of GDP in the period 2009-2012, less than 1/4 of the EU average). The significant fluctuations of GDP determine to a large extent the evolution of R&D intensity. The R&D intensity target has been set at 0.5% of GDP. Although this target is not planned to be revised after Cyprus has exited the Economic Adjustment Programme (March 2016), there are plans to strongly increase public R&I expenditures until 2020.

To put the issues discussed below into perspective, it has to be stressed that the Cypriot R&I system is not only very small, but also very young. The first public university was established in 1989, the first national research funding programme launched in 1998, and the first R&I strategy finalised in 2004 in the context of EU accession. A comparison of input and output indicators ranks the Cypriot R&I system 6th within the EU-28 in terms of efficiency². Cyprus was rather successful in FP7 project funding, receiving 0.2% of total funding (for comparison, Malta, Luxembourg, Latvia and Lithuania all received 0.1%).

GERD increased from 0.43% of GDP in 2012 to 0.47% in 2014 (latest available data). However, the significant fluctuations of GDP have determined to a large extent the evolution of this indicator over the past few years. Cyprus ranks last in the EU-28 in terms of R&D intensity. BERD stood at 0.08% of GDP in 2014, far below the EU-28 average (1.3%). Business performed 17.3% of total GERD in Cyprus in 2014. Government intramural expenditure (GOVERD) and expenditure on higher education R&D (HERD) accounted for 0.06% and 0.25% of GDP in 2014 (EU-28: 0.25% and 0.47%, respectively). In terms of R&D financing, the Cypriot private sector funded 12.7% of overall R&D expenditure in 2013 (most recent available data). The public share in funding of GERD was 67.7%, and the share of GERD financed from abroad was 19.6%.

Key developments in the R&I system in 2015 were the adoption of the smart specialisation strategy by the Council of Ministers in March, and the release and public consultation of the first national policy document on open access.

Cyprus has a good science base with a research output well above comparable EU Member States. It ranks 11th among terms of number of publications per thousand of population with 1.99 publications, compared to 1.08 for Malta and an EU-28 average of 1.43. The small size of the country has fuelled international co-publications (61.6%, only surpassed by Luxembourg)³. The proposed framework programme for public research

¹ European Commission, European Economic Forecast Autumn 2015

² Edquist, Charles and Jon Zabala-Iturriagoitia (2015)

³ Based on SciVal/Scopus data; see Table 6 in report

funding 2015-2020 allocates €14.5m to cooperation with EU and third countries. The labour market for researchers is highly regulated, with no institutional autonomy.

However, the level of science-industry collaboration is very low in Cyprus. The share of public-private co-publications is 0.7% (EU-28 average: 1.8%). Private funding for public R&D was just €672,000 in 2013 (see Challenge 3).

The identified challenges for Cyprus's R&I system are:

- (1) Lack of strategic guidance and evaluation in R&I governance
- (2) Low private sector R&I activity
- (3) Little knowledge transfer and commercialisation of research results

R&I Challenges

Challenge 1: Improve guidance and evaluation at strategic level of R&I governance

Description

The National Council for Research and Innovation (NCRI), composed of six cabinet ministers, is the top-level body in Cypriot R&I governance and responsible for formulating long-term strategy. Since 2007, it has met only once, without taking any policy decisions⁴. Similarly, the Cyprus Scientific Council (CSC), which is the country's main R&I advisory body composed of 19 internationally recognised scientists, has met only a few times since its establishment in 2010, mostly without the necessary quorum to adopt recommendations⁵. Its only formal decision was endorsement of the EU2020 R&I intensity target. As a consequence, R&I governance lacks guidance and vision, as well as a coherent strategy. Funding programmes used to allow for proposal submissions in any subject, which encouraged uptake of R&D activities in many different fields. This was initially intended to activate as strong and diverse research dynamics as possible, but has led to funding being spread thinly over many research areas without regard for the country's competitive advantages and the economy's small size⁶.

These shortcomings in strategic governance are compounded by the absence of an evaluation culture at this level. Whereas evaluations of individual proposals and projects are carried out conforming to FP7 and Structural Funds procedures, and are deemed largely efficient⁷, tools for strategy and policy design and adaptation are underdeveloped. Systematic programme evaluations or foresight exercises are not being undertaken. This weakens the system's capacity to react to changes in the economic situation or in funding recipients' needs.

Policy response

A National Committee for Research, Innovation and Technological Development (NCRITD, not to be confused with NCRI mentioned in the description above) was created in 2013 to prepare suggestions on a new R&I structure and governance. It presented its report to the government in spring 2014. For top-level governance, it recommended the creation of the post of a Commissioner of Entrepreneurship and Innovation who is to hold political responsibility for R&I strategy and policy, and to be advised by a National Council of Research, Innovation and Entrepreneurship, which designs and monitors R&D strategy.

⁴ Stairway to Excellence expert report Cyprus
(http://s3platform.jrc.ec.europa.eu/documents/20182/117536/S2E_Report_CY.pdf)

⁵ Ibid.

⁶ Smart Specialisation Strategy Cyprus, September 2014

⁷ Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus, Facts & Figures, July 2015

Since 2015, the country's Smart Specialisation Strategy (Cyprus consists of a single region) doubles as the national R&I strategy. It was developed jointly by the Directorate General for European Programmes, Coordination and Development (the main body responsible for research policy implementation), the Research Promotion Foundation (main funding agency) and the Cyprus University of Technology, thus involving also research funders and performers. The strategy was formally submitted to the EC in December 2014 after having passed a peer review⁸, and was approved in July 2015. It establishes as thematic priority areas tourism, energy (mainly solar), agriculture/food, construction/building materials, maritime transport, and health; and the cross-sectoral priorities environment, ICT, social innovation and general application technologies⁹. Specific measures and concrete sub-fields are listed under each priority, complemented with sketches of corresponding programmes, indicative budgets and implementation timetables. The strategy is fully compatible with the 2014-2020 Operational Programme for Competitive and Sustainable Growth¹⁰. It will largely be implemented through the 2015-2020 R&I framework programme ("Desmi"), which was published in July and was expected to be launched in December 2015. The preparation of Desmi involved extensive consultations with stakeholders (public and private universities, public research organisations, enterprises, chambers of commerce, NGOs).

The Cyprus Agency of Quality Assurance and Accreditation in Higher Education has been established in 2015. Its task is to ensure and evaluate the quality of higher education in the country, and to identify weaknesses and disadvantages of the higher education system¹¹.

Assessment

A political decision is still to be made on how to implement the NCRITD recommendations, making the prospects for swift implementation difficult to assess. On the development of programme evaluation systems and foresight capacities, no tangible progress has been made. However, the establishment of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education is a positive first step in the right direction.

In the absence of a stand-alone national R&I strategy, the Smart Specialisation Strategy represents at least in the shorter term a usable substitute that can guide policy formulation and development. While its choice of priority areas seems very broad, it identifies concrete sub-fields for specialisation and sets out a plan for implementation¹². This result seems to have been greatly facilitated by the May 2014 peer review, which also led to improvements in plans for how to monitor and measure RIS3 implementation (S3 Platform 2014). Apart from "construction/building materials", which could be a result of path-dependence following the pre-crisis construction boom, the priority areas seem to well reflect Cyprus' competitive advantages and have received favourable reviews from peer evaluators and the EC. The implementation of the smart specialisation strategy might be facilitated by the R&I system's young age, which implies few institutional rigidities.

⁸ S3 Platform (2014) RIS3 Peer-Review Report Cyprus

⁹ Smart Specialisation Strategy Cyprus, September 2014

¹⁰ Tsipouri, Lena and Sophia Athanassopoulou (2015) RIO Country Report Cyprus 2014

¹¹ Ministry of Education and Culture (2015) Agency of Quality Assurance and Accreditation in Higher Education.

http://www.highereducation.ac.cy/en/cy_agency_quality_assurance_aaccre.html

¹² Tsipouri, Lena and Sophia Athanassopoulou (2015) RIO Country Report Cyprus 2014

Challenge 2: Strengthen and support private sector R&I activities

Description

In 2012, Cyprus received a Country-Specific Recommendation to "take appropriate policy measures on the demand side to stimulate business innovation". Whereas the Economic Adjustment Programme agreed in 2013 has shifted attention in the context of the European Semester to macroeconomic stability and the financial system, the problem of low private sector R&I activities persists. Business R&D spending is one of the lowest in the EU and has been continuously decreasing between 2008 and 2012 from €16.7m to €11.9m, although it has recovered during 2013 and 2014 to €14.3m. The Innovation Union Scoreboard puts Cypriot business R&D expenditure at only 5% of the EU median¹³.

The reasons for low private R&I investment and demand lie to a large extent in geography and the structure of the economy. Cyprus' peripheral and remote location – far away even of the closest EU Member State, Greece – and the small domestic market (700,000 inhabitants) are a disincentive for high-tech companies' location choices. The service sector dominates the economy (84.5% of Gross Value Added). Whereas some financial service firms may perform well in terms of process innovations, these activities are not measured reliably and R&D intensity of Cypriot service firms is low. Employment in medium-high and high-tech manufacturing was at 0.9% of total employment in 2014, lower than Luxembourg (1.3%), Malta (4.2%) and Estonia (3.5%).

However, there are also institutional reasons for low business R&D activity, among them complex and lengthy procedures in public support programmes, and a policy tradition that favours academia over enterprises' competitiveness. Low awareness among SMEs of support programmes and funding opportunities has also been identified as an obstacle to higher R&D activity¹⁴.

Policy response

A number of instruments have been put in place or are planned to support SMEs' investment in R&D. Among them is a grant programme by the Ministry of Energy, Commerce, Industry and Tourism for co-funding R&I activities with a budget of €17m for 2015-2017 (which exceeds current total annual business R&D expenditure). Further initiatives launched in 2015 include Business Innovation Centres, which will provide advisory services to public and private businesses for the development of competitive products, the creation of clusters in ICT, transport, viticulture and construction, and an innovation voucher system ("Innovation Packages") providing limited funding support (€5,000-€20,000) for joint ventures, start-ups or collaborations with public research organisation. All direct funding instruments are to be co-financed by Structural Funds. Core R&D Structural Funds amounted to €42m in the period 2007-2012 (for comparison, this equals about half of Cyprus' 2012 GERD). "Innovation Houses" will be established from 2015 to provide entrepreneurship training and guidance to the unemployed and students. The scheme is expected to help create 40 new SMEs. In June 2015, RPF issued a call for expressions of interest for participating in the planned programme "Enhancing the Innovation Management Capacity of Cypriot SMEs"¹⁵.

¹³ European Commission, Innovation Union Scoreboard 2015

¹⁴ Tsipouri, Lena and Sophia Athanassopoulou (2015) RIO Country Report Cyprus 2014; Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015

¹⁵ RPF – Research Promotion Foundation (2015) Enhancing the Innovation Management Capacity of Cypriot SMEs. <http://www.research.org.cy/EL/news/3830.html>

Indirect support has been introduced in 2014 in the form of tax exemptions for R&D and innovation expenses. To be eligible, companies must have allocated at least 10% of their operating expenses on R&D over the past 3 years, or be vetted by an expert committee as being capable of producing innovative/improved results (Tsipouri and Athanassopoulou 2015). Estimates of foregone tax revenue from this measure are currently not available.

Assessment

To address the structural economic deficiencies, a suitable way forward seems to be the renewal and expansion of productive capacities in high-tech niche areas. Some of the above instruments, notably the clusters initiative, have the potential to contribute to such a development.

The impacts of the new direct funding measures need to be evaluated in a few years, for which evaluation capacity might have to be strengthened (see Challenge 1). Expectations should remain realistic regarding the extent of innovative activities of SMEs to be created with the help of Innovation Houses, as the establishment of many of those firms may be driven more by the difficulty to find other employment than by innovative business ideas.

It is also too early to assess the effect of R&D tax exemptions, but the eligibility rules leave room for some doubt whether the incentive can induce SMEs to newly take up R&D activity. Lastly, putting more emphasis on raising SMEs' awareness of available support measures could be valuable to improve uptake of R&D activities.

Challenge 3: Intensify knowledge transfer and commercialisation of research results

Description

While Cyprus occupies a mid-field position in turnover from innovation (rank 14) and SMEs innovating in-house (rank 15), these innovations are incremental and largely marketing/organisational innovations in the service sector (especially in financial intermediaries)¹⁶. Similarly, Cyprus performs reasonably well in academic research output (11.83% of top-10% most highly cited publications, higher than Estonia or Malta). However, exploitation of knowledge and research results is weak, as the PCT applications indicator in the IUS shows (18% of the EU median). Science-business cooperation is low, with only 4.6% of innovative companies cooperating with universities or public research organisations. The country's high score on community trademarks is largely due to the existence of an IPR Box scheme (see "Policy response" below).

Support for science-based entrepreneurship is very weak. An existing incubator scheme does not receive funding anymore, and the establishment of a Science and Technology Park has been postponed several times for lack of a real estate investor. The supply of venture capital or business angel funding, which could support university spin-offs, is almost negligible (business angel investments totalled €600,000 and were concentrated in 2 companies in 2013; data on VC is not available).

Further contributing to this situation is a lack of awareness and underestimation among SMEs of the benefits they can reap from cooperation with research organisations¹⁷.

Policy response

6 Industry Liaison Offices have been created at Cypriot universities until 2014 to facilitate knowledge transfer, among other means by placing university graduates in companies. The Research Promotion Foundation, Cyprus' principal R&I funding agency, runs a Business Support Centre that also provides intermediary services for knowledge

¹⁶ European Commission, Innovation Union Scoreboard 2015.

¹⁷ Tsipouri, Lena and Sophia Athanassopoulou (2015) RIO Country Report Cyprus 2014; Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015

and technology transfer. The NCRITD report on improving R&I governance (see Challenge 1) recommended the establishment of a National Knowledge Transfer Office (NKTO), with the task to facilitate collaboration between all potential public and private R&D performers to promote commercialisation of R&D results. A business plan for the NKTO has been completed in March 2015 and an accompanying legal study was being prepared in early 2016.

In 2014 the Research Promotion Foundation started to implement support measures for the development of institutional IPR Policies in nine major academic and research institutions in Cyprus. Isis Innovation, the Technology Transfer Office of the University of Oxford, has been contracted to provide consulting and coaching services to the participating organisations. By end-2015, each institution had formulated a "Draft Institutional Policy Document for IPR Management", which are currently awaiting formal adoption.

In 2012 Cyprus introduced the Intellectual Property Rights Box. It provides for tax exemption of dividends resulting from IP exploitation, and 80% tax deduction of profits from selling IP rights. By setting up a Cyprus International Trust, total tax exemption of IPR income can be achieved, provided that the owner of the shares held by the trust is a resident in Cyprus.

Assessment

To some degree, commercialisation of research results can only be improved if the private sector's low demand for R&D is addressed (see Challenge 2). Given that most parts of the country's R&I system are very young, as explained in the introduction, it might be unrealistic to expect a rapid improvement in the smoothness of science-business interactions. New support schemes have not been in place long enough to robustly assess their effectiveness.

A formal assessment of the IPR Box's effect on research and innovation activities has not been carried out yet, but so far it seems that the scheme merely encourages transfers of IPR acquired elsewhere to a Cypriot trust, rather than setting up R&D activities in Cyprus proper. One indication backing this assessment is that most top patent applicants are IPR management holdings¹⁸.

¹⁸ WIPO (2013) Statistical Country Profiles Cyprus

1. Overview of the R&I system

1.1 Introduction

Cyprus is the third largest Mediterranean island and one of the smallest member states of the European Union (9.251km²) with a population of 847,000 people at the end of 2014 (less than 0.2% of the EU-28)¹⁹.

The economy is under financial distress since 2011, which culminated in March 2013, when the EU-ECB-IMF Troika and the Cyprus government agreed to an Economic Adjustment Programme including a financial rescue package. A haircut of 47.5% on all cash deposit bank balances in excess of € 100,000 was imposed and restrictions on daily withdrawal amounts from the banks (€300/day), as well as on monthly money transfers abroad (€3,000 per month). These capital controls were lifted in two stages in December 2014 and in January 2015²⁰.

The Troika-supported financial programme for the period 2013-2016 foresees a total of €10.0b of funding, 90% of which will be provided from the European Stability Mechanism (ESM) and just €1.0b from the International Monetary Fund (IMF)²¹. By July 2015, €5.8b had been disbursed by the ESM²². Non-Performing Loans (NPL) continue to be a big problem in Cyprus, in spite of the creation of arrears management units within Cypriot banks. Deposit outflows from Cypriot banks have started to stabilise from early 2015 onwards.

As a result of the crisis, GDP in current prices decreased by more than 10% in the period 2012-2014: GDP per capita declined from €22,500 in 2012, to €21,000 in 2013 and €20,500 in 2014 (75% of EU-28 average)²³. GDP is expected to bottom out in 2015, recording a marginal contraction of about 0,4%.²⁴ The recovery of economic activity is forecasted to continue in the following quarters²⁵. Real investment continued to decrease and was just 12% of GDP in 2014 compared to 27% of GDP in 2008²⁶. Government debt has been steadily increasing from 79.5% of GDP in 2012 to 107.5% of GDP at the end of 2014 (EU-28 average at 86.8%)²⁷. It is expected to decline to 106% by the end of 2015^a and 80% by 2020²⁸. Budget deficit was at 8.8% of GDP in 2014, after a stabilisation at about 5.5% of GDP, on average, in 2012 and 2013²⁹. The increase was attributed to the recapitalisation of Cooperative Credit Institutions (COOPS)³⁰. A primary surplus target was achieved in 2014³¹. The 2015 end year target was revised from a primary deficit of 1.6% of GDP to a surplus of 1.5% of GDP. For 2017, a primary surplus of 3% of GDP is forecasted³².

In 2014, unemployment exceeded 16% of the labour force, compared to 11.9% in 2012 (35.3% increase) and an EU-28 average of 10.2%³³. Total employment rate in the age group 20-64 years old reached 67.6% in 2014, compared to 67.3% in 2013 and a

¹⁹ Eurostat, Population (tps00001)

²⁰ COMMISSION STAFF WORKING DOCUMENT, [Country Report Cyprus 2015, February 2015](#), pg. 11

²¹ Ibid. pg. 5

²² http://ec.europa.eu/economy_finance/assistance_eu_ms/cyprus/index_en.htm

²³ Eurostat, GDP (nama_gdp_c)

²⁴ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 1

²⁵ http://ucy.ac.cy/erc/documents/EconomicOutlook_Oct15.pdf

²⁶ [European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#), pg. 9

²⁷ Eurostat (gov_10dd_edpt1)

²⁸ [European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#), pg. 42

²⁹ Eurostat (gov_10dd_edpt1)

³⁰ [European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#), pg.15

³¹ http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip007_en.pdf Ibid. pg.22

³² [European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#), pg.29

³³ Eurostat (tsdec450)

national target of 75%-77% by 2020³⁴. Exit from long-term unemployment remains limited. About 60% of the unemployed between 12 and 18 months remain unemployed 2 quarters later³⁵. The economy is dominated by microenterprises and SMEs, which together account for 99.8% in terms of number of establishments and 58.4% of GDP. Micro companies alone account for 92.2% of entrepreneurship and contribute 21.5% to GDP³⁶. The service sector (tourism, shipping and financial services) leads while the manufacturing industry's share are insignificant; this partly explains the low R&I intensity. Employment in knowledge-intensive service sectors accounts traditionally for more than 35% total employment and has been steadily increasing since 2011. High and medium high technology sectors accounted for less than 1% of total employment in the period 2011-2014, compared to a EU28 average higher than 5%³⁷.

On a positive note in 2014 there was a high export growth in national accounts due to the change of ESA2010 treatment for ship owners³⁸. But for the open economy of Cyprus instability in Greece and Russia are key risk factors³⁹.

At the end of 2014, total GERD was at € 82.7 m (0.47% of GDP), slightly lower compared to 2013 (€83.8m) and 0.7% lower compared to 2012. Cyprus ranks last before Romania in terms of R&D intensity among all EU member states (GERD has been fluctuating around 0.5% of GDP in the period 2009-2012, less than 1/4 of the EU average)^{40,41}. BERD remains low at 17.3% of total GERD (0.08% of GDP-2014 data)⁴². Innovation expenditure was steadily decreasing from 16.1% in 2008 to 14.7% in 2010 and 11.4% in 2012, compared to EU-28 average of 11.9%⁴³. There are no official statistical data since 2012. The R&D intensity target has been set at 0.5% of GDP by 2020 and R&D will need to increase by 1.0% annually to meet this target⁴⁴. The significant fluctuations of GDP determine to a large extent the evolution of R&D intensity. Although the target is unlikely to be revised upwards, there are plans to significantly increase R&I expenditures after Cyprus has exited the current Economic Adjustment Programme (March 2016).

³⁴ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 3

³⁵ [European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#), pg. 14

³⁶ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 90

³⁷ Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

³⁸ Under the ESA2010 if vessels are registered in Cyprus they are now treated as Cypriot economic residents irrespective of where the principal activities of the ship owners are.

³⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 2

⁴⁰ Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)

⁴¹ Eurostat, Research and Development Expenditure by Sectors of Performance (tsc00001)

⁴² Eurostat, Business enterprise R&D expenditure (BERD) by economic activity and source of funds (NACE Rev. 2) (rd_e_berdfundr2)

⁴³ Eurostat- Turnover from Innovation as % of total turnover (tsdec340)

⁴⁴ [Europe 2020 targets Research and Development](#), pg. 5

Table 1 Main R&I indicators 2012-2014

Indicator	2012	2013	2014	EU average (2014)
GDP per capita	22,500	21,000	20,500	27,400
GDP growth rate	-2.4	-5.4	-2.5	1.4
Budget deficit as % of GDP	-5.8	-4.9	-8.9	-3.0
Government debt as % of GDP	79.5	102.2	108.2	86.8
Unemployment rate as percentage of the labour force	11.9	15.9	16.1	10.2
GERD in €m	83.3	83.8	82.7	283,009.4 (Total for EU 28)
GERD as % of the GDP	0.43	0.46	0.47p	2.03
GERD (EUR per capita)	96.7	96.8	96.4p	558.4
Employment in high- and medium-high-technology manufacturing sectors as share of total employment	0.7	1.0	0.9	5.7
Employment in knowledge-intensive service sectors as Share of total employment	36.1	38.3	39.9	39.8
Turnover from innovation as % of total turnover	11.4	n.a.	n.a.	11.9 (2012)
Value added of manufacturing as share of total value added	12.1	11.6	n.a.	26.2 (2012)
Value added of high tech manufacturing as share of total value added	n.a.	n.a.	n.a.	2.5 (2012)

p: provisional data

Source: Eurostat GDP.xls file, GERD.xls file

1.2 Structure of the national research and innovation system and its governance

1.2.1 Main features of the R&I system

Cyprus is a single region and policy is drafted and implemented centrally. Local authorities, namely districts, municipalities and communities only exceptionally play a role in implementing RTDI policies. Research organisations are concentrated in the capital area (Nicosia). There are initiatives to reach out to smaller municipalities mainly through awareness raising events.

The system is persistently dominated by public funding. Universities account for the major and increasing part of public research execution. HERD and GBAORD account for about 68% of GERD (last available data 2013). GBAORD declined by 8.3% in the period 2009-2013⁴⁵.

1.2.2 Governance

RTDI policy is not a priority at the moment, as financial consolidation is absorbing most of the energy of economic policy. The R&I strategy is adopted by the Council of Ministers upon proposal of the National Council for Research and Innovation (NCRI). The NCRI is supported by the Cyprus Scientific Council (CSC). NCRI is composed of cabinet ministers from 6 Ministries, namely Finance, Energy-Commerce-Industry and Tourism, Education and Culture, Transport, Communications and Works, Agriculture, Rural Development and Environment and Health. CSC is a technical advisory board composed of 19 high calibre scientists, responsible for strategy and planning. This structure was devised more than five years ago and has never been really activated with the exception of few meetings before the crisis.

The design of the overall national Research and Innovation policy, in cooperation with all interested stakeholders, is carried out by the Directorate General for European Programmes, Coordination and Development (DG EPCD), an independent governmental body under the Minister of Finance. The latest major policy initiative undertaken was the preparation of the Smart Specialisation Strategy for Cyprus.

DG EPCD is also responsible for the representation of the Republic Cyprus in the relevant European institutions, bodies and working groups, including bodies dealing at strategic level with the implementation of HORIZON 2020. DG EPCD is also responsible, at technical expert level, for the preparation of bilateral and multilateral transnational agreements on the promotion of Research and Innovation Cooperation.

DG EPCD defines the multi-annual financial programming for RTDI (with the exception of funding to higher education institutions and to some research institutes falling under the competencies of specific ministries) and provides institutional funding to Research and Innovation Bodies as well as Research Institutions. More specifically, the annual budget of the Research Promotion Foundation (RPF) is provided through DG EPCD. Moreover DG EPCD provides funding at the Institute of Neurology and Genetics and the Cyprus Institute and is responsible for monitoring their budgets.

The Industry and Technology Service of the Ministry of Energy, Industry, Commerce and Tourism is responsible for the formulation of industrial policy, including the promotion of technology and entrepreneurship and the implementation of Business Innovation Policy. The "Industry and Technology Service" launches among others the innovation policy measures which are included in the action plan of the Smart Specialization Strategy.

Implementation is mainly entrusted to the Research Promotion Foundation (RPF), the main funding agency under the supervision of the DG EPCD.

In the current governance scheme there are no dedicated bodies for policy advice. DG EPCD organises policy advice internally. The Technology Unit of the Ministry of Energy, Commerce, Industry and Trade (MECIT) launches innovation policy measures. Public policy is backed up by networks of stakeholders through public consultation processes.

The RPF is an autonomous agency under private law. Its operation is supervised by DG EPCD and its Board of Directors is chaired by the Permanent Secretary of DG EPCD. The main Ministries involved in RTDI matters, as well as representatives from the business, academic and research community also participate in this Board.

⁴⁵ [COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Research and innovation as sources of renewed growth, June 2014](#), pg.4

The RPF is responsible is (a) to provide funding for the implementation of research and technological development projects and innovation activities through the development and monitoring of competitive programmes and (b) managing European research and innovation projects by establishing the network of National Contact Points for Cyprus' participation in the EU Framework Programmes, thus it provides assistance to applicants for research funding and implements international agreements in S&T.

The NCRTDI, which was appointed in 2013 to come up with proposals for a more effective governance, delivered a report in March 2014 proposing that NCRI evolves into a National Council of Research, Innovation and Entrepreneurship (NCRIE) and a new independent Directorate General of Research, Innovation and Entrepreneurship (DG RIE) is created for coordinating innovation efforts across all Ministries and DG EPCD. At the operational level, RPF is to evolve into an Organisation of Research and Technology Transfer (ORTF) to include technology transfer and spin off policies. Political decisions on the adoption of the recommendations are still pending at government level.

A Unit for Administrative Reform was established in 2015 by the Council of Ministers for the monitoring of growth issues and the progress of the public administrative reform. The Unit prepared the National Reform Programme for 2015 and operates under the supervision of the Presidency of the Republic⁴⁶.

A major problem on effective policy design is the complete lack of RTDI evaluations. There have been no formal evaluations of R&I programmes or measures. The RPF launched an international RTDI evaluation tender in 2012 but the response from a number of European consortia was not considered to be meeting the requirements of the ToR, hence it was not awarded.. The (then) Planning Bureau considered the idea of a thematic evaluation focusing on competitiveness but it was eventually not launched.

There is no macroeconomic model assessing R&I impact on economic growth.

1.2.3 Research performers

Research performers are the Higher Education Institutes (HEIs), Research Performing Organisations (RPOs), enterprises and the private non-profit sector.

The role of the 3 public universities (University of Cyprus, Cyprus University of Technology, Open University) is pivotal for research. The Open University has very few R&D projects. HEIs account for more than 50% of total GERD from 2011 onwards.⁴⁷. In the period 2009-2014, R&D performance shifted further from the business enterprise sector and the government to the HEI, accounting at the end of 2014 for 52.7% of total GERD (€47.1m), as opposed to 46.1% at the end of 2009 (€38.3m). There are five accredited private universities (Frederick University (www.frederick.ac.cy), European University Cyprus (www.euc.ac.cy), University of Nicosia (www.unic.ac.cy), Neapolis University – Pafos (www.nup.ac.cy), and the University of Central Lancashire - Cyprus. They focus more on teaching and to a lesser degree on research. The third mission is emergent, as HEIs increasingly recognise cooperation with the business sector and attracting funds from abroad or companies as a positive aspect for the career of faculty members.

The three State Universities of Cyprus (University of Cyprus, Technology University of Cyprus and Open University) follow an RTDI policy that to an extent agrees with the national policy priorities of the Smart Specialisation Strategy, so as to be eligible for funding under the various schemes implementing this Strategy. At the same time, they also set and pursue RTDI goals based on their own interests and research capacities through funding they receive from the Ministry of Education and Culture. Same goes with the Agriculture Research Institute funded by the Ministry of Rural Development,

⁴⁶ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 1

⁴⁷ Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)

Agriculture and Environment and the State General Laboratory financed by the Ministry of Health.

Major RPOs undertaking research are the Agricultural Research Institute (ARI), the Cyprus Institute of Neurology and Genetics (CING), the Cyprus Institute (CyI)⁴⁸ which operates three Research Centres⁴⁹, the State General Laboratory, the Department of Fisheries and Marine Research and the Meteorological Centre. Additionally the Cyprus International Institute (CII) for the Environment and Public Health, a joint venture with the Harvard School of Public Health, implements research in the respective sectors.

Research in the business sector is dominated by a few large domestic companies in pharmaceuticals as well as medium-sized companies and start-ups in ICT (total R&D expenditure of pharma and ICT in 2011 approximately €4m each). Multinationals do not invest in research in the country.

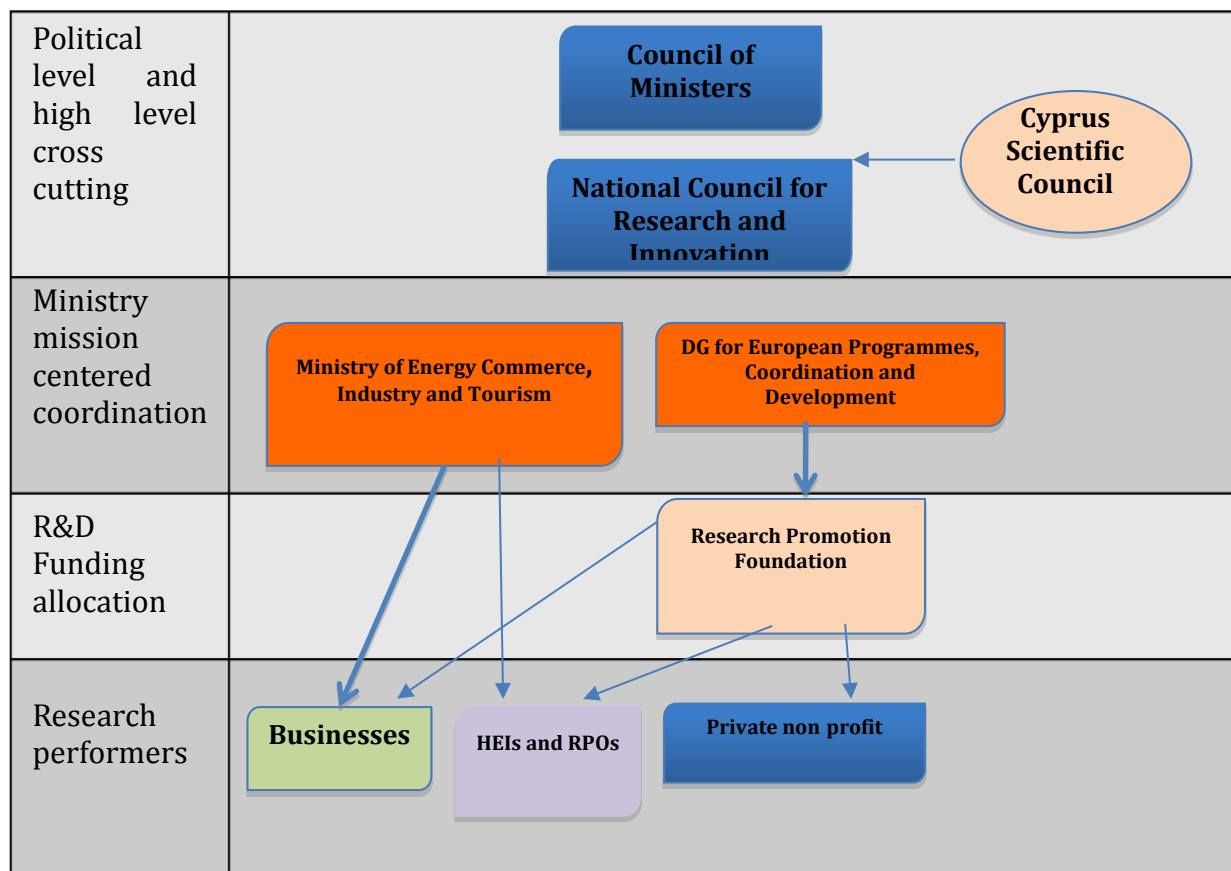


Figure 1 Governance of R&I system

⁴⁸ Including the MIT, the University of Illinois and Centre de Recherche et de Restauration des Musées de France

⁴⁹ The Energy, Environment and Water Research Centre (EEWRC), the Science and Technology in Archaeology Research Centre (STARC) and the Computation-based Science and Technology Research Centre (CSTRC)

2. Recent Developments in Research and Innovation Policy and systems

2.1 National R&I strategy

In the past the *de facto* strategy was reflected in RTDI programmes (DESMI) of the RPF, which included a policy mix of measures addressing academic research, business research, the R&D cooperation programme, support of infrastructure and human resources development. MECIT played a limited role until 2012; its main contribution was the idea of a Cyprus Technology Park. This changed in 2012, with the active involvement of MECIT through a pilot project supporting business innovation. This developed into a fully operational innovation policy in the current programming period.

NCRTDI provided the guidelines for a new strategy for Research, Innovation and Entrepreneurship (RIE) in its final report in spring 2014. The proposed strategy was structured around nine axes reflecting proposals for new governance and policy focus⁵⁰. The Unit for Administrative Reform has formulated certain proposals for the strengthening of the current governance system at technocratic level, which only partially coincide with all the study's recommendations. Political decisions on making changes to the governance system have not been taken.

The main findings and recommendations of the NCRITD study as regards the national priorities have been identified as well in the Smart Specialisation Strategy (S3CY). As a result, their application/implementation is promoted through the S3CY Action Plan, which will be implemented over the period 2015-2022, with measures amounting to €139,5m (ESIF €82,3m + €57,2 m national funds).

Furthermore, the Action Plan for Growth prepared by the Presidency's Unit for Administrative Reform provides support to the R&I ecosystem through relevant measures/actions in various areas, the most important of which being entrepreneurship. The National Policy Statement of the Entrepreneurial Ecosystem⁵¹ includes concrete measures for the enhancement of research conducted by enterprises, the creation of Technology Transfer Centres, the promotion of academic laboratories' utilisation by enterprises, the promotion of linkages with foreign Excellence Centres.

The National Strategy is now identical with the Smart Specialisation Strategy, prepared by DG EPCD (hereafter referred to as S3CY) with the support of RPF and a research group from the Cyprus University of Technology (CUT). S3CY was adopted by the Council of Ministers on 26/3/2015. Its priority areas are: Energy, Tourism, Structured Environment, Construction, Transport-Maritime Services, Agro-Food and Health. ICT, the Environment and Human Resources are horizontal priority areas. The S3CY is currently the main source of strategic direction for R&I policy until 2020.

In July 2015, the RPF published a draft new RTDI programme (DESMI 2015-2020)⁵², which will implement the national Smart Specialisation Strategy. The proposed DESMI is structured upon 3 pillars (Smart Growth, RTDI Sustainability and Modernisation of RTDI). Each pillar includes Strategic Axes, which are themselves broken down into programmes and measures. The total budget amounts to € 98.7 m, 44.3% out of which (€ 43.8 m) will be covered by the ERDF⁵³. Smart growth will receive more than 55% of available funding, followed by RTDI Sustainability (37.4%) and Modernisation of RTDI

⁵⁰ Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, (National Committee for Research, Innovation and Technological Development, March 2014 - in Greek), pg. 224-244

⁵¹ <https://issuu.com/presidency-reform-cyprus/docs/fc7917ffc2122a>

⁵² [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#)

⁵³ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 8-9

(7.4%), as presented in Annex 2B. The proposed programmes were open to a public consultation process, which ended in September 2015. They were expected to be officially launched in December 2015. DESMI is traditionally open to EU and international cooperation; however details of the new DESMI are not yet announced in that respect.

Despite past efforts, policy recommendations and study findings (of which the NCRTDI proposal is the most recent example), the problem of lack of effective coordination remains.

The budgetary framework follows the 7-years cycle of the Structural Funds (SF). The European Structural and Investment Funds (ESIF) will be the main sources of R&I funding in the period 2014-2020. There are no systematic budget evaluations (ie every 6 months) but there are clear guidelines for flexibility.

2.2 R&I policy initiatives

The last three years have not been particularly active in RTDI policies, as all policy energy was absorbed in order to be able to deal with the crisis. No new R&I law or regulation was adopted in 2015. R&D measures by the RPF and innovation support measures launched by the MECIT were completed. Preparations for launching new programmes by the RPF have started.

The long awaited Science and Technology Park (STP) is taking a new form; the austerity budget has provoked a shift of strategy towards looking for a strategic private investor to co-fund the Park in the form of a real estate development project. To this end, MECIT launched an Expression of Interest (EOI) addressed to investors wishing to undertake the establishment and operation of the STP⁵⁴. Tender documents were initially expected to be published in 2015 for the selection of a strategic investor⁵⁵; this has been postponed to 2016

A total of €11.2m is envisaged in the proposed S3CY for investments in new research infrastructures (RI)⁵⁶. The budget is broken down into initiatives for:

- the development of new RI in the designated thematic priorities (proposed programme New Strategic Infrastructure Units - New Scientists undertaken by RPF);
- the upgrading of existing RI through additional grants programme;
- the enhancement of open access to RI;
- the facilitation of access to foreign RI of high calibre, which are non-existent in Cyprus⁵⁷.

The government is forming a new national policy for the enhancement of entrepreneurship in the country⁵⁸. Digital schemes are also envisaged in the period 2015-2017 for increasing ICT use by SMEs⁵⁹.

Public action in all relevant policy areas is currently not designed and implemented in a strategic, coherent and integrated framework, but a change is expected through the implementation of the S3CY.

⁵⁴ [Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014](#), pg.13

⁵⁵ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 13

⁵⁶ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015.](#), pg. 336

⁵⁷ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015.](#), pg. 328

⁵⁸ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 25

⁵⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 30

The House of Representatives has adopted the law for the establishment and operation of the Cyprus Agency of Quality Assurance and Accreditation in Higher Education on the 9th of July 2015. The new Agency assumes the responsibilities of three pre-existing councils / committees and it is expected to ensure the quality of higher education in Cyprus. In addition, the Agency will identify weaknesses and disadvantages of the Cypriot higher education institutions and, consequently, will enable them to enhance their quality. It is also the competent authority of the Cyprus Republic to evaluate the cross-border education offered in member states or third countries by local institutions. The legislation of the Cyprus Agency is consistent with the procedures and the evaluation and accreditation criteria of the European Standards and Guidelines (ESGs), which are the most basic requirement for membership in the European Network of Quality Assurance (ENQA)⁶⁰.

The first national policy document on open access is expected to be approved in the first months of 2016 (see section 4.5.2 below).

Evaluations, consultations, foresight exercises

The country lacks an evaluation culture and RTDI policies have not been evaluated in the last 10 years. Similarly there was no foresight exercise. Reporting was extensive only regarding the participation to FP7:

Statistics of FP7 funded programmes for the period 2007-2013 were analysed in the context of S3CY for Cyprus. The overall success rate of Cypriot companies in securing EU funding was among the lowest in EU at 15.53% (21.9% EU average)⁶¹. Key results of the programmes are summarised as follows:

- COOPERATION received the bulk of funding (46% of total) and recorded a rather low success rate (13.1%). Most popular was the thematic priority Information Technologies and Communications which received 52% of the funding of the programme (€ 19 m). A Cypriot coordinator was only in 2 out of 65 projects⁶²;
- IDEAS received 16.4% of EU funding (€ 13 million) with only 5% of submitted proposals by Cypriot companies. All projects had a Cypriot coordinator and the University of Cyprus was the prime contractor in 7 out of total 9 projects⁶³;
- PEOPLE recorded the highest success rate (20.9%) and the highest number of Cypriot coordinators (36 in a total of 54 projects) in Cypriot projects among all FP7 funded projects⁶⁴;
- CAPACITIES had a success rate of 19.8% and a high number of Cypriot coordinators (50 in a total of 98 projects). The activity Research Infrastructures had a success rate triple the programme average (54.6%). An equally important activity was Research for the benefit of SMEs, which received more than half of available programme funding (€ 8.7 m)⁶⁵.

The University of Cyprus received about 34% of available funding (€ 27 m), followed by the Cyprus Institute (€ 8.5 m). Participation from the private sector was also significant but with low success rates⁶⁶.

⁶⁰ http://www.highereducation.ac.cy/en/cy_agency_quality_assurance_aaccre.html

⁶¹ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 120-126

⁶² http://www.dgepcd.gov.cy/dgepcd/dgepcd.nsf/page44_gr/page44_gr?OpenDocument Ibid, pg. 121

⁶³ Ibid, pg. 123

⁶⁴ Ibid, pg. 123

⁶⁵ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 124

⁶⁶ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 126

Table 2 Statistics of FP7 funding programmes

FP7 FUNDED PROGRAMMES	TOTAL EU FUNDING (€ million)	FUNDING PARTICIPATION (%)	AVERAGE SUCCESS RATE	NO. OF PROJECTS WITH CYPRIOT COORDINATOR/TOTAL
COOPERATION	36.5	46.0%	13.1%	3/169
IDEAS	13.0	16.4%	7.0%	9/9
PEOPLE	12.4	15.6%	20.9%	36/54
CAPACITIES	17.2	22.0%	19.8%	50/98
EURATOM	0.3	0.0%	n/a	n/a
TOTAL	79.4	100.0%		

Source: [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 117-118

Consultations were extensive during the year for the preparation of RPF's National Framework Programme for 2015-2020.. Public and private universities, RPOs, enterprises, chambers, investors, utilities and NGOs, as well as researchers and policy makers in their individual capacities were invited to participate in a consultation process which was concluded in September 2015, following two consecutive rounds of discussions:

- April 9th-May 15th 2015: Main topics of discussion were the Action Plan for Dialogue and Consultation, the approved Smart Specialisation Strategy and supporting documents of the programmes (proposal evaluation, programme monitoring, participation rules, general and legal issues);
- July 30th – September 30th 2015: In this period the proposed programmes were reviewed and discussed through structured questionnaires of maximum 10 questions each.

Discussions were supplemented by 2-3 workshops during each round⁶⁷. A separate web link on the RPF website has been created for facilitating the public consultation⁶⁸ through the upload of all related documents and interactive exchange of information.

In August 2015, RPF launched a new public consultation for the [Social Innovation Programme](#)⁶⁹. Social innovation is part of the planned new DESMI and may as well be adopted by the Ministry of Labour in the context of the ESF share of funding. No calls have been launched yet.

2.3 European Semester 2014 and 2015

Innovation is a priority in the current programming period (2014-2020). The grant scheme for innovative products and services implemented in 2012 progressed smoothly. The scheme covers innovative products and processes. It is addressed to newly created companies, encouraging cooperation between enterprises and research centres and within the corporate sector itself. It is expected that the scheme will help develop approximately 100 innovative products, services, and/or processes, 30 cooperation agreements of enterprises with research centres, create 80 new jobs, raise €5m in private funding and help establish 30 new SMEs⁷⁰. About 35 innovative products were expected to enter the market in 2015. Based on the knowledge accumulated, a new grant scheme with certain improvements has been launched in 2015⁷¹ and is in the process of project selection.

⁶⁷ [Action Plan for Dialogue and Consultation, Research Promotion Foundation, New RPF Programmes 2015-2020](#), pg.5-6

⁶⁸ http://www.research.org.cy/EL/cy_research_fund/dimosios-dialogos.shtml

⁶⁹ <http://www.research.org.cy/EL/news/3847.html>

⁷⁰ [Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014](#), pg.12

⁷¹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 12

Innovation Houses will be established in 2015 to provide guidance to the unemployed and students. It is expected that the scheme will help create 40 new SMEs by its completion (see section 3.5.1 on direct funding for private R&I)⁷².

The Scheme for Supporting Business Innovation between universities and enterprises received 15 applications for cooperation in March 2015. They will be evaluated in close cooperation with academia⁷³.

In addition, funds were allocated to schemes for the enhancement of collaboration between secondary education graduates, university graduates and the enterprise sector.

Vocational training and Industry Liaison Offices (ILOs) are expected to increase collaboration between academia and the university and narrow the gap between supply and demand.

2.4 National and Regional R&I Strategies on Smart Specialisation

The preparation of the new National Innovation Strategy on Smart Specialisation (S3CY) for Cyprus started in 2014 by DG EPCD, the RPF (as a Coordinator) and Cyprus University of Technology (CUT) research group⁷⁴. S3CY was peer reviewed in May 2014 in the context of S3 platform EU project, with the participation of 9 EU countries (excluding Cyprus) at national level and 6 EU countries at a regional level⁷⁵. The study was endorsed, in November 2014 by a Governing Board composed of representatives of stakeholders (MECIT, the Ministry of Education and Culture, Ministry of Agriculture, Natural Resources and Environment, RPF, the University of Cyprus, CUT, The Open University of Cyprus, the CSC, the Rectors Committee, the Association of Research Organisations, the Cyprus Productive Centre, the Human Resource Development Authority, Cyprus Employers & Industrialists Federation, the Cyprus Chamber of Commerce and Industry, the Association of Cyprus Banks, the Cyprus Consumers Association and the Technical Chamber of Cyprus) and chaired by the Secretary General of DG EPCD and Chairman of RPF⁷⁶. The report on Smart Specialisation Strategy was finalised, published and adopted by the Council of Ministers in March 2015. Its implementation includes calls from MECIT, the RPF and two smaller calls by the Ministry of Agriculture. As yet one call by MECIT has been launched (see 2.3). There is no governance mechanism for following up the SSS progress.

S3CY distinguishes between general and thematic priorities. Expanded innovation, Social Innovation, General Application Technologies⁷⁷, Sustainability-Environment and ICT⁷⁸ are acknowledged as general priorities, while Tourism, Energy, Agriculture-Food Industry, Urban development-Construction, Transportation, Shipping and Health are the thematic priorities. The policy mix is structured upon 3 pillars; smart growth, sustainable RTDI system and support of the RTDI system⁷⁹.

For each of the three pillars, S3CY has identified specific measures. Explicit programmes address these measures and for each programme there is an indicative budget and an annual allocation of budget for the period 2015-2022. All R&D funding is co-funded by

⁷² [Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014](#), pg.13

⁷³ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 13

⁷⁴ [Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014](#), pg.7

⁷⁵ <http://s3platform.jrc.ec.europa.eu/portoroz-may-2014>, November 2014

⁷⁶ [Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014](#), pg.6

⁷⁷ IT, Communications, Biotechnology, Biomedicine, Agrosience, Industrial Technology, Advanced materials, Nanotechnology, Advanced Manufacturing and processes, Emerging Technologies

⁷⁸ Hardware, Software, Networks, Digital Tourism, Education and Quality of Life

⁷⁹ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 298

ESIF⁸⁰. Public funding is provided through fiscal measures (tax incentives) and grants and there is a proposed budget allocation per measure and type of public funding⁸¹.

S3CY also includes measures to stimulate private investment under the pillar for the support of the RTDI system through programmes promoted by MECIT (Entrepreneurial Innovation Centres, innovation Packages and Innovation Houses) with a total budget of € 10.8 m. R&I infrastructures are included in S3CY under the smart growth pillar with a total budget of € 11.2m for the development of new infrastructure units⁸².

The S3CY foresees monitoring and evaluation mechanisms based on result indicators, namely general ratios (number of beneficiary companies, employment increase, participation of new scientists etc.), research, technological development and innovation ratios (total R&D expenditure, number of patents, percentage of employees trained in new technologies etc.) and social ratios (poverty level, development of social entrepreneurship, percentage of crimes per 1000 inhabitants etc.)⁸³. It proposes that DG EPCD undertake monitoring of the implementation of S3CY⁸⁴.

2.5 Main policy changes in the last five years

Main Changes in 2011

- Creation of a Technology Unit in MECIT for the promotion of technology and entrepreneurship

Main changes in 2012

- Involvement of MECIT in the absorption of structural funds

Main changes in 2013

- Planning Bureau changed its name to Directorate General for European Programmes, Coordination and Development (DGEPCD) and its role was extended to the coordination and implementation of the MOU between Cyprus, IMF and ECB, the implementation of Europe 2020 strategy, the coordination and implementation of EU programmes and the establishment of an information centre for the public and businesses for all the horizontal EU Programmes
- Ministry of Commerce, Industry and Tourism (MECIT) was renamed to Ministry of Energy, Commerce, Industry, Tourism (MECIT)
- Appointment of a National Committee for Research, Innovation and Technological Development (NCRITD) to recommend new, more effective RTDI governance

Main Changes in 2014

- Finalisation of NCRITD report on new RDI governance
- S3CY report was presented to EU
- Merge of the Technology Unit with the Industrial Unit of MECIT
- Publication of [Law 115/2014 introducing the definition of innovative business](#)

Main Changes in 2015

- Release of Final Report on S3CY
 - Release and public consultation of the first national policy document on open access
-

⁸⁰ Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015, pg. 336

⁸¹ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 341-343

⁸² Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015, pg. 336

⁸³ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 350-352

⁸⁴ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 348

3. Public and private funding of R&I and expenditure

3.1 Introduction

In spite of the recent financial crisis and the shortage of R&D public funding it entailed, still the government represents the largest source of funding, constantly contributing over 62% of total GERD in the period 2010-2013. In absolute numbers, public funding of GERD has been steadily decreasing from 2011 onwards, from €62.7m in 2011 to €55.3m in 2012 (11.9% annual decrease) and €52m in 2013 (5.9% annual decrease); R&D intensity increased slightly from 2012-2014 because of the GDP decline. The government predominantly funds HEIs and RPOs, albeit at a decreasing pace. At the end of 2013, total funding to HEIs and RPOs was at € 41.7, 80.0% of total government funding, compared to 81.8% of total government funding at the end of 2012.

In the same period (2010-2013), the business sector steadily contributed about 12% of total R&D funding, about 0.05% of GDP, far below than the EU28 average (1.12%). Private non profit organisations are practically non-existent. The business sector funds almost exclusively intramural R&D activities, namely (€9.8m out of a total €10.2m (96.4% of total) in 2013).

Table 3 Basic indicators for R&D investments

Indicator	2011	2012	2013	2014	EU average (2014)
GERD (as % of GDP)	0.5	0.43	0.46	0.47p	2.03
GERD (Euro per capita)	105.8	96.7	96.8	96.4p	558.4
GBAORD (€m)	80.605	69.851	60.297	61.401	92,828.145 (Total for EU 28)
R&D funded by BES (% of GDP)	0.05	0.05	0.06	n.a.	1.12 (2013)
R&D funded by PNP (% of GDP)	0	0	0	n.a.	0.03 (2013)
R&D funded from abroad (% of GDP)	0.06	0.08	0.09	n.a.	0.66 (2013)
R&D performed by HEIs (% of GERD)	53.5%	56.0%	56.2%	52.7%	0.2 (2013)
R&D performed by government sector (% of GERD)	16.6%	16.4%	14.7%	13.7%	0.47
R&D performed by business sector (% of GERD)	14.4%	14.4%	15.9%	17.3%	0.25

Total FP7 funding that accrued to Cyprus in the period 2007-2013 was at € 91.7 m, as opposed to €132.3 m accrued from Structural Funds⁸⁵. 48.6% of FP7 funding came from the Cooperation Programme, 21.9% from Capacities (SME Measures, Research infrastructures initiatives etc.), 15.4% from Ideas, 14% from People (mobility) and just 0.1% from EURATOM⁸⁶. Higher or secondary education institutions received the bulk of FP7 funding in the period 2007-2014, accounting for 51.4% and 37% respectively of

⁸⁵ [Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\). Facts & Figures, July 2015](#), pg. 4

⁸⁶ [Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\). Facts & Figures, July 2015](#), pg. 8

total EU contribution⁸⁷. A total of 64 SMEs (29.6% of FP7 budget) participated in FP7 cooperation programmes⁸⁸.

Compared to FP6, participation in FP7 improved, totalling 442 participations and 73 project coordinations. The FP7 financial contribution per inhabitant (111.9 €/inhabitant) was higher than the EU15 average (95.2 €/inhabitant)⁸⁹.

A total of €612m from Structural Funds were allocated to Cyprus in the 2007-2013 programming period. RTDI accounted for 8% of the total Structural Funds allocated to Cyprus in the period 2007-2013(€ 50 m).⁹⁰

3.2 Smart fiscal consolidation

3.2.1 Economic growth, fiscal context⁹¹ and public R&D

During the financial crisis the Cypriot economy registered a relatively small loss of its real GDP of 2%. However, after a weak recovery in the subsequent two years the economy fell back into recession in 2012-14, losing an additional 11.5% of income during these years. However, the recession is gradually losing momentum and the economy is estimated to have grown by 1.4% in 2015 driven by domestic demand supported by euroland low inflation. Growth is forecast to gradually gain further strength in 2016 (1.5%) and 2017 (2.0%).

Cypriot public finances were improving before the crisis, with low headline deficit (2005: 2%) turning into surpluses (2007: 3%). Coupled with strong economic growth (2005-08: 4-5%) this maintained public debt on a declining path (45% of GDP in 2008 from 65% in 2005). The crisis had a strong negative impact, the government deficit reached 5.6% in 2009 and it has practically "stabilised" at this level until 2012, decreasing slightly to 4.9% in 2013 (Figure 2). It worsened again to 8.9% in 2014, but this worsening may reflect the impact of Eurostat's decision to treat the recapitalisation of cooperative banks as part of the government deficit⁹². As a result of protracted deficits and weak GDP growth public debt increased to 108.2% of GDP by 2014.

In 2014 the primary budget balance has performed better than expected as a result of both higher outturn of revenues (dividends from the Central Bank and stronger private consumption), and lower expenditures (due to consolidation measures). As a result of phasing-out of consolidation measures and improving economic conditions further adjustment is expected in 2015 (headline deficit estimated to be 1.0%) and in 2016-17 when a balanced budget as well as a small surplus (0.5%) is expected. Public debt is expected to peak in 2015 (108.4% of GDP) and to gradually decline to 95% by 2017.

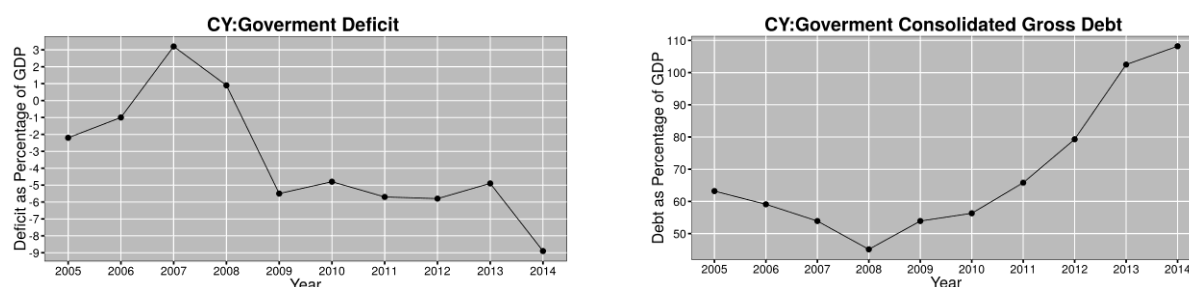


Figure 2 Government deficit and public debt. Data source: Eurostat

⁸⁷ [Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\), Facts & Figures, July 2015](#), pg. 14

⁸⁸ [ibid](#), pg. 14

⁸⁹ [ibid](#), pg. 4

⁹⁰ [European Commission, Research and Innovation Performance in the EU, Innovation Union progress at country level, 2014](#), pg. 62

⁹¹ Sources: DG ECFIN, Country report for Cyprus http://ec.europa.eu/europe2020/pdf/csr2015/cr2015_cyprus_en.pdf, RIO

⁹² More details on this discussion: <http://ec.europa.eu/eurostat/documents/1015035/3991219/Final-findings-EDP-dialogue-visit-CY-24-25-Sep-2014.pdf/6ed78cd1-6c1a-499e-97d5-53bac3a10bec>, p. 15ff.

Total GERD in Cyprus was €83.3m in 2013 and €82.7m in 2014. There are three main sources of R&D funding (2013 figures): the business sector (€10.2m), the government (€52m), and foreign funding (€16.4). Direct funding from the government goes to business enterprises (€1.9m), the government (€11.9m), the higher education sector (€30m) and the private non-profit sector (€8.5m).

Table 4 Key Cypriot Public R&D Indicators

	2007	2009	2013
GBAORD, % of gov. exp.	0.92	0.97	0.72
GERD, % of GDP	0.40	0.45	0.46
out of which GERD to public, % of GDP	0.28	0.30	0.33
Funding from GOV to, % of GDP			
Business	0.02	0.02	0.01
Public (GOV+HES)	0.22	0.25	0.23
Total	0.26	0.31	0.29
EU funding, % of GDP	0.04	0.05	0.08

Source: Eurostat

3.2.2 Direct funding of R&D activities

The sources of R&D funding according to the Frascati manual are: Government sector (GOV), Higher education sector (HES), Business enterprise sector (BES), Private non-profit sector (PNP) and Abroad (including EC). In this analysis the public sector as source of funds is given by the GOV part of the total intramural R&D expenditure (GERD), whereas the public sector as a sector of performance is the aggregation of GOV and HES. Because of the small size of the country and its economy, even small changes in the amounts can have visible and significant impact on the trends analysed.

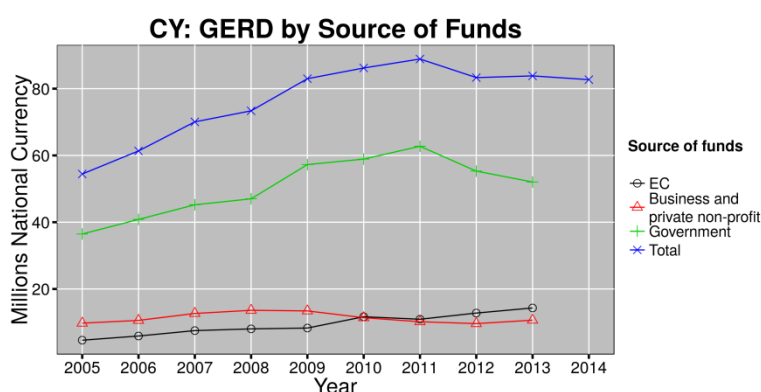


Figure 3 Funding of the total GERD. Data source: Eurostat

Figure 3 shows the evolution of GERD financing in current prices in Cyprus. GERD followed an upward trend from 2005 to 2011, including the financial crisis period, but dropped in 2012 during the sovereign debt crisis, due to the simultaneous decrease in the funding from the public and private sectors.

R&D expenditures in Cyprus are financed mainly by the government. The contribution from the business sector has been low and even decreasing between 2010 and 2012. During the same period funding from abroad and particularly from the European Commission has increased, but it was not sufficient to counteract the negative trend. Between 2012 and 2014 total GERD stagnated slightly below the 2011 peak. The lack of detailed data does not allow to draw conclusions on the source of this evolution, i.e. changes in the public or private sector financing.

Direct public funding from the government

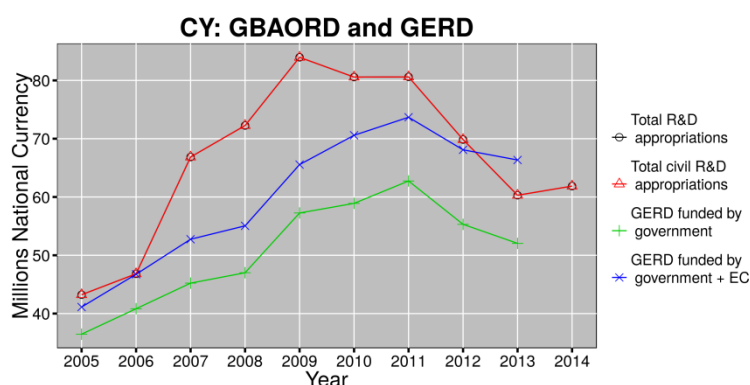


Figure 4 R&D appropriations and government funded GERD in millions of national currency.

Data source: Eurostat

Regardless of the metric deployed, (current prices or % GDP) the budget for R&D (GBAORD) shows a continuous increase from 2005 to 2009 at various paces, followed by a decline along the subsequent years and in particular after 2011. The levels of 2014, despite the small rise, are still inferior to those of 2007. Similarly, the GERD funded by the government in absolute volumes grows linearly from 2004 to 2011 and declines from the following year (i.e. later than the GBAORD). This behaviour reflects the crisis in the Cypriot economy due to which R&D expenditure was reduced in terms of both GBAORD and GERD funded by the government.

Figure 4 shows that the difference between the civil and total appropriations is negligible which indicates the marginality of the military R&D in Cyprus.

The gap between the government funded GERD and the R&D allocations progressively closes from 2010 onwards. This is an indication that the cuts in the budget for R&D were more severe than the cuts in the actual investments. It can also be seen that the contribution from the EC is substantial and its importance has increased in recent years. As a result in 2012⁹³, the public funding for R&D provided by the Cypriot government and the EC together almost equals the R&D budget.

Direct public funding from abroad

Table 5 Public Funding from Abroad to Cypriot R&D (millions of national currency, i.e. euro from 2008)

Source from abroad	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total	5.95	7.43	10.19	10.75	10.01	12.90	12.51	14.57	16.41
BES	0.58	0.68	0.34	0.32	0.31	0.18	0.23	0.10	0.10
EC	4.65	5.91	7.53	8.05	8.30	11.68	10.93	12.79	14.31
GOV	0.12	0.07	0.35	0.21	0.04	0.11	0.08	0.47	0.61
HES	0.03	0.33	0.72	0.87	0.71	0.45	0.33	0.33	0.48
International Organizations	0.55	0.41	1.08	0.84	0.37	0.27	0.42	0.46	0.42
Total as % GERD	10.93	12.11	14.55	14.65	12.06	14.97	14.07	17.48	19.58
EC as % GOVERD	12.76	14.48	16.64	17.12	14.49	19.83	17.42	23.12	27.49

⁹³ Last available data for all variables involved in this analysis

Depending on the year, external funding for the Cypriot R&D activities accounts for 11-17 % of the total GERD. EU funding plays an important role since most of the external funding comes from Structural Funds for R&D and participation in the Framework Programmes.

Table 5 shows an increasing trend in the support from the European Commission. In 2012 funding from Abroad-EC accounted for more than 23% of the direct public funding.

Based on data from DG REGIO, the total Structural Funds for the period 2007-2013 for Cyprus amounted to 612.4 million Euros of which 33.2 million, i.e. 5.4%, is dedicated to 'Core' R&D activities⁹⁴. This percentage is below the corresponding share at EU28 level (9.4%, see Annex).

Distribution of public funding

Figure 5 below shows how the distribution of public funding to sectors of performance evolved over time:

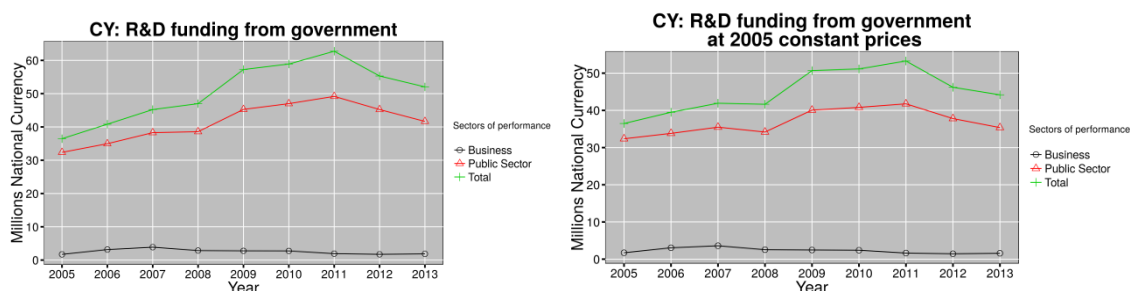


Figure 5 Government intramural expenditure by sectors of performance.

Data source: Eurostat

The public sector receives the lion's share of the government R&D funding. Despite its marginality, direct public support to the business sector R&D increased from 2005 to 2007 and declined afterwards. Public support to the Private Non Profit sector (PNP) follows exactly the reverse trend and in 2011 it represents more than 18% of the total GERD funded by the government.

Aggregating the Business and the Private Non Profit sectors, Figure 6 shows that the public support to the private sector R&D has increased from 11% in 2005 to 21.6% in 2011. Public support to private sector R&D has increased in those years both in absolute numbers and as a share of the total governmental support.

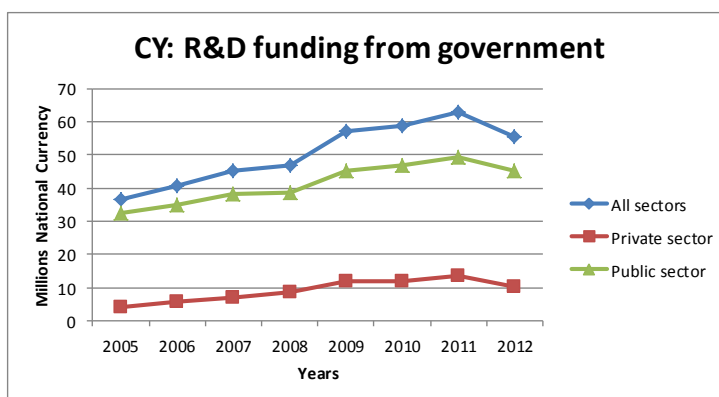


Figure 6 Government intramural expenditure by sectors of performance

⁹⁴ The definition of 'Core' R&D activities, is provided in the study "Cohesion policy and regional research and innovation potential" http://ec.europa.eu/invest-in-research/pdf/download_en/rkf5th_brochure.pdf

3.2.3 Indirect funding – tax incentives and foregone tax revenues

Government funding is mostly direct, but in 2014 tax exemptions for R&D and innovation expenses have been introduced. To be eligible, companies must have allocated at least 10% of their operating expenses on R&D over the past 3 years, or be vetted by an expert committee as being capable of producing innovative/improved results.

Recent developments in Cyprus according to the latest tax report from Deloitte suggest that Cyprus is now seeking to align its incentives more with the rest of the EU. Potentially these incentives could have an impact on local innovation in services e.g. by introducing new forms of intangible assets into existing service activities⁹⁵.

In 2012 Cyprus introduced the Intellectual Property Rights Box. It provides for tax exemption of dividends resulting from IP exploitation, and 80% tax deduction of profits from selling IP rights. By setting up a Cyprus International Trust, total tax exemption of IPR income can be achieved, provided that the owner of the shares held by the trust is a resident in Cyprus. Given its recent nature there is no evidence as to the impact of the policy on business practice in Cyprus. So far it appears that the scheme rather encourages transfers of IPR acquired elsewhere to a Cypriot trust, than setting up R&D activities in Cyprus proper.

3.2.4 Fiscal consolidation and R&D

Post-crisis fiscal consolidation in Cyprus is still ongoing. Figure 7 below shows the scatterplot of the structural balance and GBAORD as % GDP (first panel) as well as GERD as % GDP (second panel)⁹⁶:

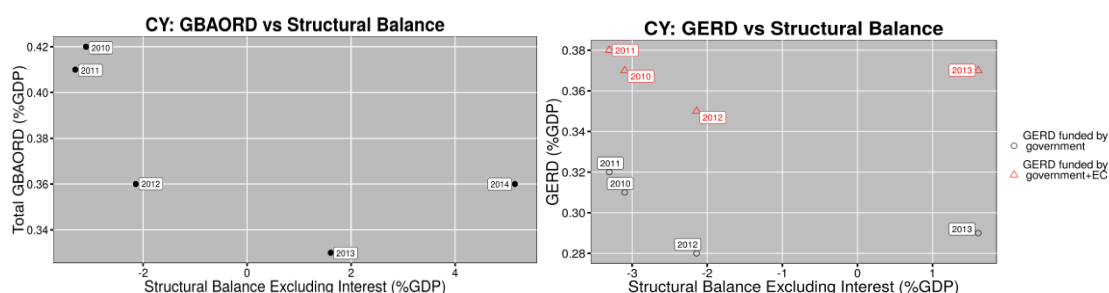


Figure 7 Fiscal consolidation and R&D.

Data source: AMECO, Eurostat

While the structural deficit shrank and turned into a surplus during 2010-2014, GBAORD decreased by ca 0.06% of GDP (Figure 7, left). Government-financed GERD also decreased between 2010 and 2013 although less in relative terms, by ca. 0.03% of GDP (Figure 7, right), amid improvements in the structural balance. Data on foregone tax revenue is not available, but as Cyprus' use of R&D tax incentives is at a low level, adding indirect funding to the calculation would practically have no impact. Post-crisis fiscal consolidation thus had a negative impact on total public support to R&D. EU funding plays an important role but is not increasing strongly enough on an annual basis to compensate for the losses in direct public support.

⁹⁵ DG TAXUD: A Study on R&D Tax Incentives (August 2014)

⁹⁶ Structural balance data comes from the AMECO database the other indicators were taken from Eurostat and OECD.

3.3 Funding flows

3.3.1 Research funders

Institutional funding to HEIs and PROs is provided by the government for the salaries of teaching and research staff. As presented in Chapter 2, DG EPCD is responsible for the allocation of research funds for project funding. The RPF and MECIT are then responsible for distributing the funding according to their priorities and programmes. The business sector is only marginally contributing to research funding and the collapse of the local banking sector has further deteriorated funding opportunities from the private sector.

Private not-for-profit funding is minimal, amounting to about €0.5m in 2013.

3.3.2 Funding sources and funding flows

Public funding comes principally from the government but at a decreasing pace; the share of national public funding decreased from 68.3% of GERD in 2010 to 62.1% of GERD in 2013 (last available data). In the same period, the share of EU/FP funding increased from 15% to almost 20%.

In Cyprus, 10.4% of Structural Funds goes to RTDI (€ 73m), compared to a EU-28 average of 12.1%. Most of these funds (32.9%) are channeled to "Investment in infrastructure, capacities and equipment in SMEs directly linked to research and innovation activities (code 056)", followed by "Technology transfer and university-enterprise cooperation primarily benefiting SMEs (code 062)" and "Research and innovation public infrastructure (code 058)", which account in total for more than 78% of total available Structural Funds for RTDI.

3.4 Public funding for public R&I

3.4.1 Project vs. institutional allocation of public funding⁹⁷

Although there are no official statistics for the allocation between institutional and project-based funding of R&D, it is estimated that about 40% of the funding is project based (2012 data)⁹⁸.

3.4.2 Institutional funding

The Cyprus government plans institutional funding annually through the state budget. Block funding follows historic and size criteria (number of students and researchers) and is not associated to performance indicators. It is directed to HEIs and RPOs.

HERD per capita increased from € 41.3 in 2008 to €56.9 at the end of 2013, compared to an EU-28 average of €125. GERD performed by the government decreased steadily in the period 2008-2013 from €21.7 per capita in 2008 to €14.3 per capita in 2013⁹⁹.

⁹⁷ Institutional funding is defined as the total of national budgets in a given country, attributed to an institution, with no direct selection of R&D project or programmes and for which money the organisation has more or less freedom to define the research activities to be performed. Institutional funding can be in the form of non-competitively allocated Block funding. Institutional funding may also be allocated in a variable/competitive manner tied to institutional assessments. Project funding is defined as the total of national budgets in a given country, attributed to a group or an individual to perform an R&D activity limited in scope, budget and time, normally on the basis of the submission of a project proposal describing the research activities to be done (Steen, J. v. (2012), "Modes of Public Funding of Research and Development: Towards Internationally Comparable Indicators", *OECD Science, Technology and Industry Working Papers*, 2012/04, OECD Publishing. <http://dx.doi.org/10.1787/5k98ssns1qzs-en>).

⁹⁸ Based on the published budget of R&D for 2012, 40% of the funding came from the State, 27% from HEIs, 15.5% from the private sector and 17.5% from abroad. Out of these funds, competitively were allocated 15%-20% of state funds, 2%-3% of private funds and 17.5% of foreign funds, in total about 40%. This is a rough estimate undertaken for the purposes of this report. In the European Research Area, Progress Report 2014 the responses of 13 RPOs suggest that 100% of its funding is project based; however, this cannot be accurate since public sector R&D salaries and operational costs are block funded with no assessment mechanism. I consider the rough estimate more accurate ([European Research Area, Progress Report 2014](#), pg. 104).

⁹⁹ Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)

HEIs have introduced mechanisms within the universities (specialised offices) for the selection and management of research proposals and an internal HEI Committee bases project selection on a review process. Based on a study on the degree of diversification of university budgets and the share of project funding, 86 % of the university budget of the University of Cyprus comes from block funding, 2 % comes from national project funding and 12 % comes from EU funds (all project funding) (data collected in the period May 2009-January 2010)¹⁰⁰.

There are no evaluation mechanisms related to HEI/PRO funding in place .

3.4.3 Project funding

The major sources for project-based funding of R&D activities are the programmes of the RPF and recently MECIT (for innovation). Grants are distributed through the RPF's National Framework Programme. Project funding addresses both basic and applied research in the context of the RPF's National Framework Programme for 2015-2020. Additional project funding comes from the recently adopted MECIT programmes, mainly funding innovation but also partly entrepreneurship (although the majority of the latter does not go to innovation-oriented companies). Indicative programmes include Excellency Islets, New Strategic Infrastructure Units, DIDAKTOR, Research in corporations, European Initiatives-Local Development; presented in summarised format in Annex 2. There are no evaluations of these programmes. Data on FP7 absorption is presented above under section 2.2.1.

Peer review principles are implemented in some of the calls for project funding and are performed by national funders¹⁰¹.

Project selection is systematically and meticulously organised: Because of the small size of the national research community, evaluations are organised in Athens using Greek peers to avoid any conflicts of interest. As from 2011, RPF has been using the European Commission's evaluators database for the selection of experts to perform remote evaluation of Proposals submitted.

For MECIT-funded projects, selection is done by local evaluators. They are mainly academics, in order to give them the opportunity to get to know the business research community of Cyprus. The contact of academics and business through the evaluation process has naturally led to cooperation in projects. MECIT's new call for innovation projects has attracted approximately 30 cooperative proposals between business and universities (that is 15% of all proposals).

Second-chance programmes have been introduced for ERC Programmes, Marie Curie fellowships and the SME Instrument. A representative from RFP has assumed the responsibility of monitoring partnerships between Cypriot agencies and the EC on R&I programmes. In total €5.5m are foreseen for 2nd Chance programmes (including the SME Instrument for the private sector).

3.4.4 Other allocation mechanisms

GERD performed by the private non-profit sector is minimal and fluctuated around €11m, with a peak of €13.8m at the end of 2011. There are no other forms of public funding for public R&D.

¹⁰⁰ JRC Scientific and Technical Reports, European university funding and financial autonomy, A study on the degree of diversification of university budget and the share of competitive funding, (Dominicis L.,Susana E., Zubieta A.F., 2011), pg. 30

¹⁰¹ [European Research Area. Progress Report 2014](#), pg. 23

3.5 Public funding for private R&I

3.5.1 Direct funding for private R&I

Direct funding included in the past R&D support schemes from the RPF and Innovation support measures from MECIT. Financial engineering instruments (JESSICA, JEREMIE, ESIF initiatives) were adopted in the previous programming period for the first time. In the last years there were limited calls but recently the ESIF-supported actions started to be gradually announced:

- In June 2015, RPF invited Cypriot SMEs to express their interest in participating in the programme "Enhancing the Innovation Management Capacity of Cypriot SMEs"¹⁰².
- In June 2015 RPF invited research organisations, researchers, SMEs and public benefit organisations established in Cyprus to submit patents for funding of up to €20,000/proposal. Total budget for the call was at €100,000 and the deadline for the submission of proposals is at the end of September 2015.¹⁰³
- The SME instrument-2nd Chance with a total budget of €1.5 m (proposed DESMI 2015-2020) has been adopted.
- In addition, RPF has launched in June 2015 a new call for Innovation Vouchers¹⁰⁴. SMEs (Host Organisations) were invited to submit by December 2015 applications for the request of innovation services up to the amount of up to €5,000/company. Innovation services could include advisory services for the development of technological applications, technology transfer services, feasibility studies, measurements, testing and certification, access to databanks and technical libraries, protection and trade in Intellectual Property Rights (IPR), hosting of research personnel, subcontracted research and prototype development. Corporations, RPOs, academic institutions and public benefit organisations established in Cyprus are acknowledged as Knowledge Providers and can redeem innovation vouchers up to the amount of € 15,000/organisation. Total budget of the initiative is equal to € 70,000¹⁰⁵. The call received great response from the market and by August 2015 the budget was oversubscribed¹⁰⁶.
- In the structural funds period of 2007-2013 the Ministry had only one grant scheme for supporting innovation entrepreneurship of €4m. By mid-2015 all projects had concluded their activities and by the end of 2015 all final reports had been submitted,. The results are very encouraging, since 37 of the 39 SMEs have finished successfully and have introduced 37 innovative products or services in the market.
- A number of schemes in the form of grants were made available since December 2014 from MECIT, including the enhancement of Youth and Women Entrepreneurship, the scheme for the enhancement of SMEs' competitiveness in the manufacturing sector and other specific economic activities and the scheme for strengthening Business Innovation Development for Products, Services and Processes¹⁰⁷.

¹⁰² <http://www.research.org.cy/EL/news/3830.html>

¹⁰³ [RFP Call for the Submission of Proposals, Patenting](#)

¹⁰⁴ <http://www.research.org.cy/EL/news/3831.html>

¹⁰⁵ [Call for Proposals under the Programmes of the Research Promotion Foundation, Innovation Vouchers](#)

¹⁰⁶ <http://www.research.org.cy/EL/news/3846.html>

¹⁰⁷ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 27

- MECIT also supports innovation through the Business innovation grant scheme addressed to both established and newly established SMEs for the support of innovative products/services. Grants may cover up to 60% of the proposed budget for the established SMEs and 80% for the newly established SMEs with a maximum of €50,000 per new newly established SMEs. For established SMEs, grants may cover up to 60% of the proposed budget with a maximum of €250,000 per SME¹⁰⁸. The Scheme received 30 applications for cooperation between universities and businesses¹⁰⁹, which represents 15% of all projects.
- Cyprus supports the participation of national companies in EUREKA cooperation proposals.

By mid-2013 an amount of €22.7 m had been disbursed from JEREMIE funds to around 315 eligible SMEs, € 10 m out of which came from the ERDF. In the period January-April 2015, an additional €16 m was made available to SMEs and by end of February 2015, 105 more companies had been supported with approximately € 6 m of new loans. Maximum loan size is at € 100,000 but there are considerations to raise this amount to € 300,000 and also include medium size companies¹¹⁰. The implementation of Financial Engineering Instruments will continue in 2015. The government has announced a new call of Cyprus Entrepreneurship Fund (CYPEF) in November 2014. Total funding is €200 m, 50% of which will come from the Cyprus government through an EIB loan while the rest will be provided by local banks¹¹¹. EIF has been appointed as manager of the CYPEF and the maximum loan size for each company has been set to € 1.5 million¹¹². The system became operational in April 2015.

Looking into the future:

- DESMI 2015-2010, the main public programmes which stimulate research and innovation in the private sector may be found under the pillar Smart Growth and are the programmes "Research and innovation in Enterprises" (for existing and newly established enterprises), "Investigation of Industrial Applications of Technology/Technical know". All programmes covered the thematic priorities identified by the Smart Specialisation strategy (see chapter 2.4).
- The programme Research and Innovation in Enterprises aims at assisting enterprises in the development of new products, services, high added value production methods and to enhance their participation in RTDI. SMEs are the principal beneficiaries of products and services provided by other Cypriot enterprises and research organisations. Maximum funding per project is equal to €500,000 and projects are selected based on predefined evaluation criteria (Innovation, excellence of the business, added value and benefit, implementation). Funding may cover up to 60% of the recognised expenses. Three calls are expected in the period 2015-2020¹¹³.
- A similar programme is planned for newly established enterprises (less than 5 years life span) and a maximum funding of €50,000 per project. Funding may cover up to 80% of the recognised expenses. One call is expected in 2015 and another one will be scheduled soon after. Total budget of the programme is set at € 4.5m¹¹⁴.

¹⁰⁸ <http://www.mcit.gov.cy/mcit/mcit.nsf/All/640363631A687F1DC2257DC1002A9A20?OpenDocument>

¹⁰⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 13

¹¹⁰ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 27

¹¹¹ http://www.fundingprogrammesportal.gov.cy/easyconsole.cfm/page/prog/prog_id/2660_November_2014

¹¹² [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 27

¹¹³ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 23-24

¹¹⁴ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 24-26

- The programme Investigation of Industrial Applications of Technology/Technical knowhow aims at supporting SMEs in investigating the feasibility of their proposed solutions through pilot proofs of concept. Maximum funding per project is set at €25,000. Funding may cover up to 70% of the recognised expenses. Projects are selected based on predefined evaluation criteria (Excellency, added value and benefit, implementation). One call is expected in 2015 and another one will be scheduled soon after. Total budget of the programme is set at € 1m¹¹⁵.
- EUREKA and EUROSTARS Programmes with a total of €3,7m are included in RPF's National Framework Programme for 2015-2020, aim to encourage local enterprises to participate in international consortia and involve in R&I activities for the development of new products, processes and services to be commercially exploited for the benefit of the participating enterprises.

All other RPF Programmes to be included in the RPF's Framework Programme for 2015-2020 are open to enterprises.

As indicated in the proposed DESMI 2015-2020, funding streams will cover all R&I stages/aspects from fundamental research to market innovation. Under the RTDI modernisation axis there are two dedicated programmes "Commercialisation of R&D results by RPOs" and "Commercialisation of R&D results by Enterprises" analysed in 2 phases (business plan, innovation) with a total budget of € 1.3 m each programme¹¹⁶.

Public private cooperation is encouraged under the programme Research and innovation in Enterprises both for established and new enterprises since it is structured upon the cooperation of Enterprises with RPOs (private and public).

A number of schemes have been announced by MECIT for the period 2015-2020 for the financial support of innovation through collaborations rather than grants:

- ✓ The funding of RTDI of SMEs with a total budget of € 18 m (45%-70% funding from Structural Funds). The first call is expected in 2015 and the programme will last 2-3 years. The target is to finance 210 companies by the end of the programme¹¹⁷.
- ✓ The establishment of Innovation Houses, addressed to the unemployed and students, and aiming to provide guidance and training for the establishment of innovative businesses. The programme is expected to last 2-3 years with a total budget of € 1.2m. It will bring together academics and successful businessmen for training young people. It is envisaged that 4 innovation houses will be established by the end of the programme, encompassing 100 groups of 5 people each¹¹⁸;
- ✓ The establishment and operation of Business Innovation Centres (BIC) accredited by the European Business Network, which will provide advisory services to public and private businesses for the development of competitive products. The foreseen budget is € 1.3 m and the programme will last 2-3 years; the first call is expected in 2015¹¹⁹.
- ✓ The provision of Innovation Packages to innovative businesses, businesses cooperating with RPOs, start-ups and joint ventures. The programme will provide limited funding (€5,000, €10,000 or € 20,000) for a specific purpose and it will run for 2-3 years, with the first call expected in 2015. Total funding will amount

¹¹⁵ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 27-29

¹¹⁶ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 69-76

¹¹⁷ Information provided by the Ministry of Energy, Commerce and Industry

¹¹⁸ Smart Specialisation Strategy Cyprus, September 2014 pg. 371

¹¹⁹ Smart Specialisation Strategy Cyprus, September 2014 pg. 369

to €4.0 m. The target is to have offered 200 Innovation Packages by the end of the programme¹²⁰.

In terms of policy processes: Peer review is ensured through the participation of international independent evaluators¹²¹. The weakness of the system is that funding schemes are neither regularly evaluated nor benchmarked against comparable schemes in other countries. Policies are based mainly on internal assessments in the funding agencies. The RPF and the Industry and Technology Service of the Ministry of Energy, Commerce Industry and Tourism are working on certain simplification measures, i.e. adopting the Horizon 2020 procedures but changing the weightings, adopting the eligibility rules of the ESIFs (to avoid double reporting), and making budget transfers within categories easier.

3.5.2 Public procurement of innovative solutions

The total value of R&D public procurement contracts in Cyprus was about €1,5m in 2011, 43% less than in 2010 (€13,3m)¹²².

Cyprus transposed the two 2004 Directives on public procurement (2004/17/EC and 2004/18/EC) into national law in 2006 with Law 11(I)2006 on the Coordination of the Contracting Process For Supplies, Work And Services in the Water, Energy, Transport and Postal Services Sectors and other related items, and Law 12(I)2006 on the Coordination of the Contracting Processes for Commissioners, Projects and Services and other related items. A law that transposes Directive 2007/66/EC ("improving the effectiveness of review procedures concerning the award of public contracts") had not yet been adopted by the Cypriot Parliament at the beginning of 2015. Directives 2014/24/EU and 2014/25/EU have not yet been transposed into Cypriot law.

There has never been a dedicated national PPI or PCP policy in Cyprus. A PPI scheme was being planned in 2012, but the project was abandoned following the public budget reductions triggered by the financial crisis¹²³. Interestingly, in the 2011 Innobarometer survey 45% of companies in Cyprus nevertheless responded that their public procurement activities included the possibility to sell one of their innovations to public bodies, which puts Cyprus on rank two in this indicator after Denmark (48%)¹²⁴. Whereas these survey results are partly based on firms' perceptions and need to be interpreted with caution, general public procurement might thus have had a stimulating effect on innovation, even in the absence of a PPI/PCP policy.

In 2015, the preparation of an action plan on smart regulation has been started. General rules for the public procurement process will likely be revised in this context, but it is not yet clear whether these revisions will consider PPI/PCP¹²⁵.

¹²⁰ Smart Specialisation Strategy Cyprus, September 2014 pg. 370

¹²¹ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice. Research Promotion Foundation. July 2015](#), pg. 102

¹²² European Commission, DG CONNECT, 2014, "Quantifying public procurement of R&D of ICT solutions in Europe". Forthcoming.

¹²³ Tsipouri and Athanassopoulou, 2015, RIO Country Report Cyprus 2014.

¹²⁴ European Commission, DG Enterprise and Industry, 2013, [European Public Sector Innovation Scoreboard 2013](#), p. 48.

¹²⁵ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), p. 27

3.5.3 Indirect financial support for private R&I

Government funding is mostly direct through grants. Indirect financial support to business R&I comes through tax incentives on R&D and innovation expenses (Law 118(I)/2002 and Law 115(I) 2014). Law 115(I)/2014 introduced the definition of innovative companies¹²⁶ and allowed tax exemptions on the purchasing shares of innovative companies¹²⁷.

In 2012, tax incentives were introduced to boost intellectual property rights, including accelerated amortisation (five years) for the acquisition or the development of an IPR, up to four-fifths revenue deduction from exploitation of IPRs (maximum tax of 2.5% on income earned from IP assets based on the low tax rate of Cyprus), tax exemption of dividends resulting from IPR exploitation, four-fifths deduction of profits on disposal of IP rights. In addition, total tax exemption on IP rights may be achieved through the introduction of a Cyprus International Trust that could hold the shares and provide financing to the Cypriot IPR owner¹²⁸.

The revision of the tax system is among the objectives of the Unit for Administrative Reform in the context of the revision of the National Action Plan on Smart Regulation, expected within 2015¹²⁹.

No evaluation has been undertaken on the impact of these tax incentives.

3.6 Business R&D

3.6.1 The development in business R&D intensity

Since its accession, Cyprus has had the lowest BERD intensity among the EU-28. As Figure 8 shows, BERD intensity has declined by one third during and after the financial crisis of 2009-2012, but given the low absolute amounts involved, this drop is not as substantial as it appears. Since the inception of the Economic Adjustment Programme agreed between Cyprus and the European Commission in 2013, BERD intensity has recovered somewhat and was back at 0.08% of GDP in 2014.

Per-sector BERD data is available only from 2008 onwards. The services sector was the most R&D-intensive until 2012, when it was overtaken by the manufacturing sector. This outcome is largely the result of a continuous fall in services' R&D intensity, and only to a small degree due to a rise in the manufacturing sector. One reason for this development is the long-term dominance of the Cypriot economy by financial intermediary services, which suffered heavily in the wake of the financial crisis. Few of these companies carried out highly knowledge-intensive activities, but their relative contribution to the overall low BERD was nevertheless substantial. Human health and social work activities have increased their R&D intensity noticeably in recent years from a starting point close to zero, equalling manufacture's BERD intensity in 2013.

¹²⁶ Companies acknowledged by experts as capable of producing innovative/improved results or companies that allocate at least 10% of their operating expenses on R&D in the last 1-3 years before the year the exemption is claimed.

¹²⁷ [Law 115\(I\)2014](#)

¹²⁸ http://www.mondaq.com/x/243428/Trademark/The+Cyprus+Intellectual+Property+Rights+x0027Box_November_2014

¹²⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 27

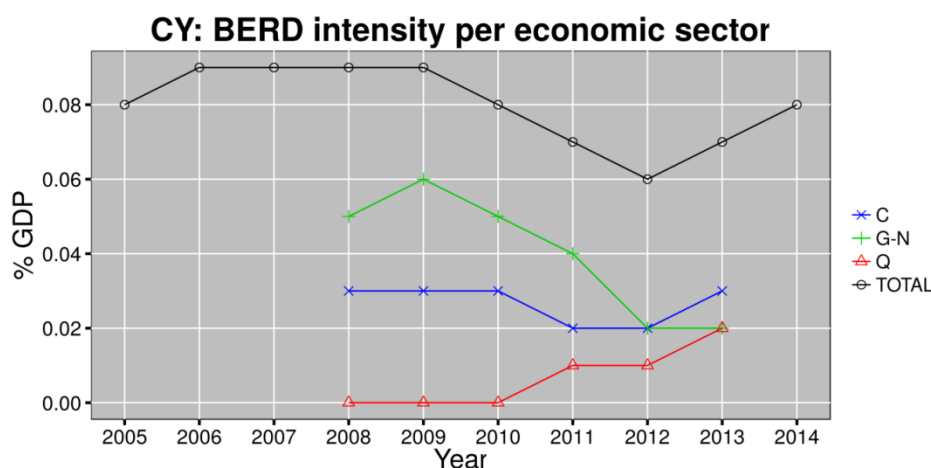


Figure 8 BERD intensity broken down by most important macro sectors (C= manufacture, G_N=services, Q=Human health and social work activities).

The private sector has been the largest contributor to Cypriot BERD for the whole period under study. Its contribution has however declined strongly after 2009 during the financial and sovereign debt crises, and has only slightly recovered in 2013, reaching 0.05% of GDP.

Funding of BERD from Abroad is almost negligible, having flat-lined at 0.01% of GDP since 2005. Due to its remote geographical situation vis-à-vis the rest of the EU territory, and a tiny domestic market, the island is an unattractive location for multinational companies to set up R&D facilities.

Funding by government, which had slightly increased shortly after Cyprus' EU accession, has fallen back to 0.01% since the financial crisis set in. The public contribution to BERD has stagnated since then, due to fiscal austerity measures and an R&D policy tradition that favours academia over business.

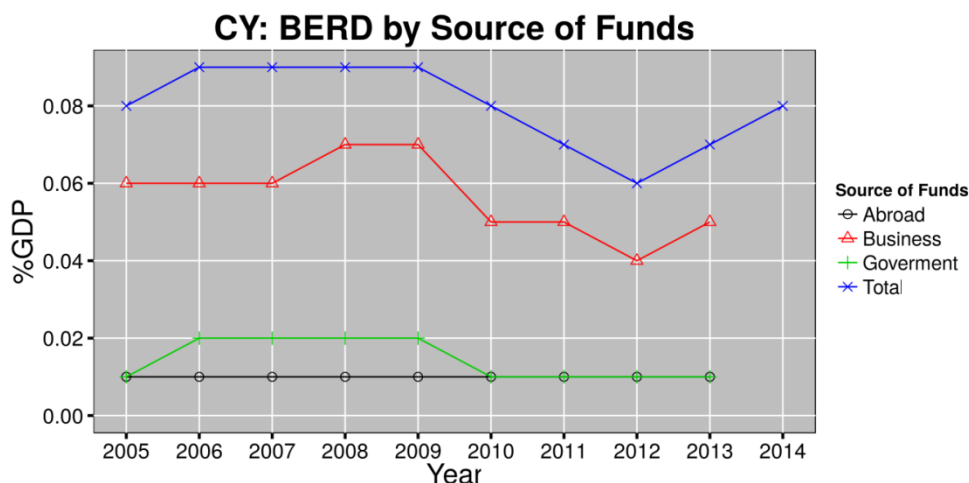


Figure 9 BERD by source of funds

3.6.2 The development in business R&D intensity by sector

In 2013, Cyprus ranked last in the EU in terms of R&D expenditure as a percentage of GDP, both in the manufacturing (0.03%) and the services sector (0.02%).

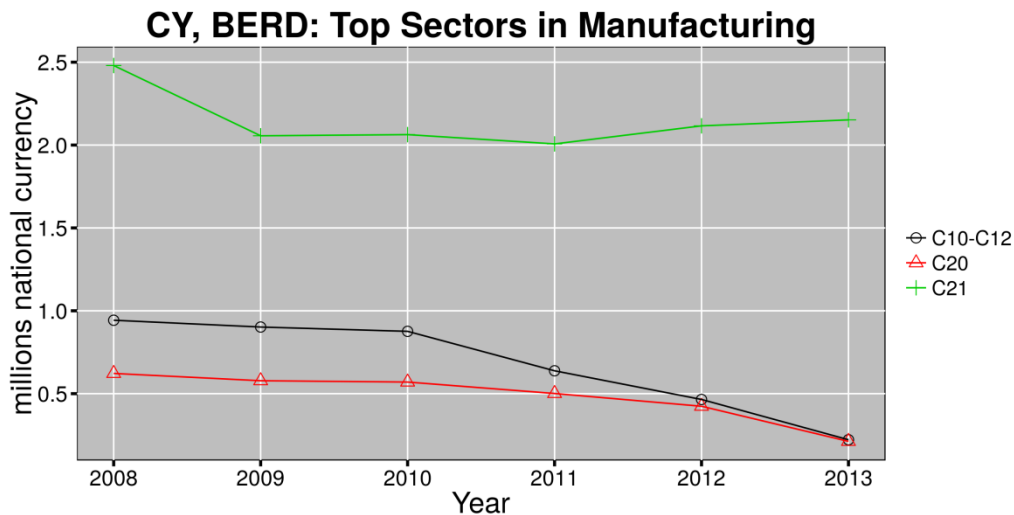


Figure 10 Top sectors in manufacturing (C10-C12: Manufacture of food products; beverages and tobacco products; C20= Manufacture of chemicals and chemical products; C21= Manufacture of basic pharmaceutical products and pharmaceutical preparations).

Within manufacturing, the pharma industry is by a wide margin the top investor in R&D. Whereas its R&D expenditure in absolute terms is still small compared to EU countries of similar size, at least spending seems not to have been affected by the crisis and has slightly increased since 2011, to €2.2m. The expenditure of the second and third largest sectors in terms of R&D spending, food and chemicals manufacture, has been below €1m already in 2008 and declined continuously to around €200,000 in 2013.

Turning to the service sector, Figure 11 clearly shows the decline of information and communication services, which had been the largest overall R&D investor until 2012. This drop was connected to the losses and closures of financial intermediary services already mentioned in section 3.6.1. Still, this sector remains the top R&D spender within services, closely followed by professional, scientific and technical activities, whose expenditure is rather stable between 2008 and 2013. The wholesale and retail trade sector's R&D expenditure has fluctuated slightly during the period under study and it shows a small increase in 2012 and 2013.

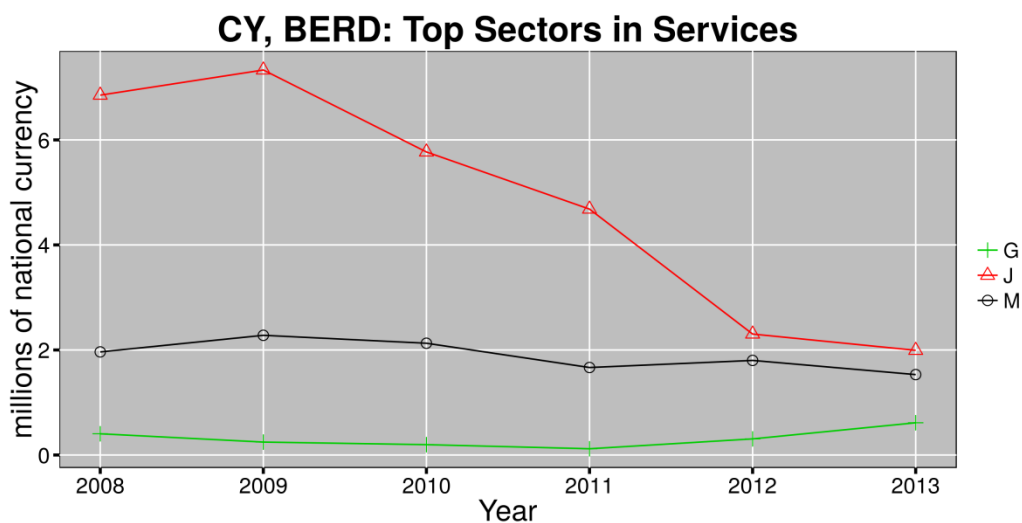


Figure 11 Top service sectors (J=information and communication, G=wholesale and retail trade; repair of motor vehicles and motorcycles, M=professional, scientific and technical activities).

Identification of the biggest R&D investors in Cyprus is difficult, as no Cypriot company is large enough (in terms of R&D investments) to be included in the EC's Industrial R&D investment Scoreboard.

3.6.3 The development in business R&D intensity and value added

R&D intensity is not reflected in sectors' share of Gross Value Added in the Cypriot economy (Figure 12). Whereas the leading sectors in terms of GVA share, wholesale and retail trade, is the third-largest R&D investor within services, its absolute R&D expenditure in 2013 was small (€614,000).

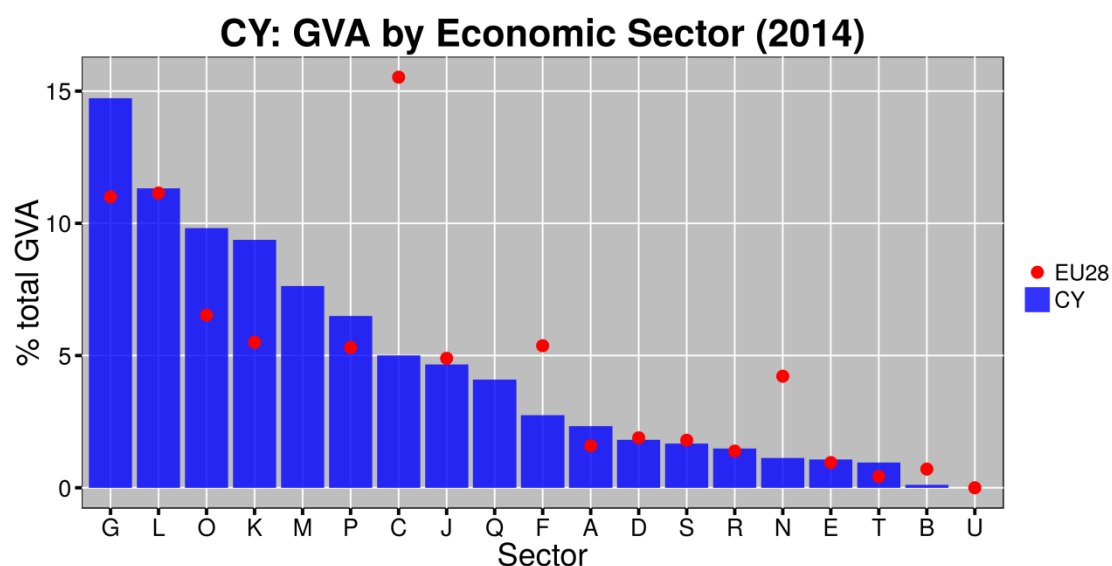


Figure 12 Economic sectors as percentage of the total GVA.

Top 6 sectors in decreasing order: 1) Wholesale and retail trade; repair of motor vehicles and motorcycles; 2) Real estate activities; 3) Public administration and defence; compulsory social security; 4) Financial and insurance activities; 5) Professional, scientific and technical activities; 6) Education.

When further disaggregating the manufacturing sector, manufacture of food products turns out to be the leading sector in terms of share in total GVA (1.9%) by a wide margin. This is the sector with the second-highest R&D expenditure, which in absolute amounts is nevertheless small. The largest manufacturing R&D spender, the pharma sector, generates less than 0.5% of total GVA, ranking 4th.

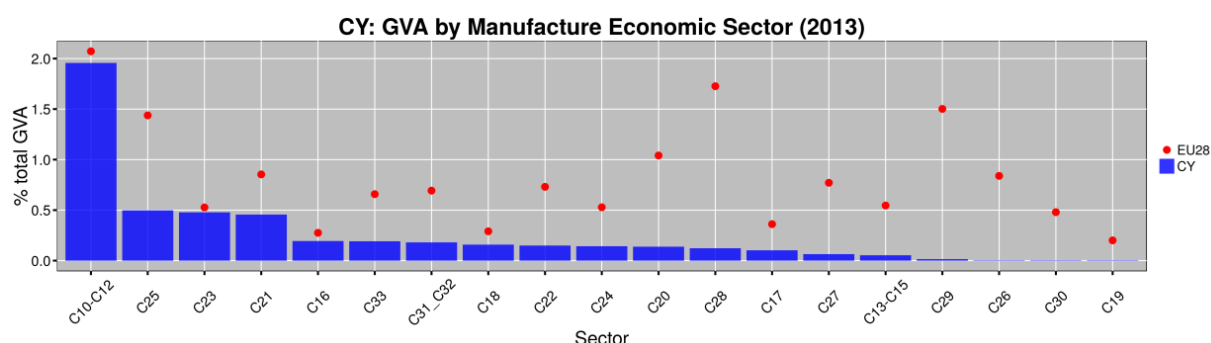


Figure 13 GVA in manufacturing.

Top 6 manufacturing sectors: 1) Manufacture of food products; beverages and tobacco products; 2) Manufacture of fabricated metal products, except machinery and equipment; 3) Manufacture of other non-metallic mineral products; 4) Manufacture of basic pharmaceutical products and pharmaceutical preparations; 5) Manufacture of wood and of products of wood and cork, except

furniture; manufacture of articles of straw and plaiting materials; 6) Repair or installation of machinery or equipment.

This picture does not change much when analysing sectors' value added at factor cost in nominal terms (Figure 14). Here, manufacture of pharmaceutical products exhibits rather low values over the whole period under study. Information and communication services, which spent the most on R&D among service sectors, generate a somewhat higher value added at factor cost, but are still topped by other non-R&D intensive sectors.

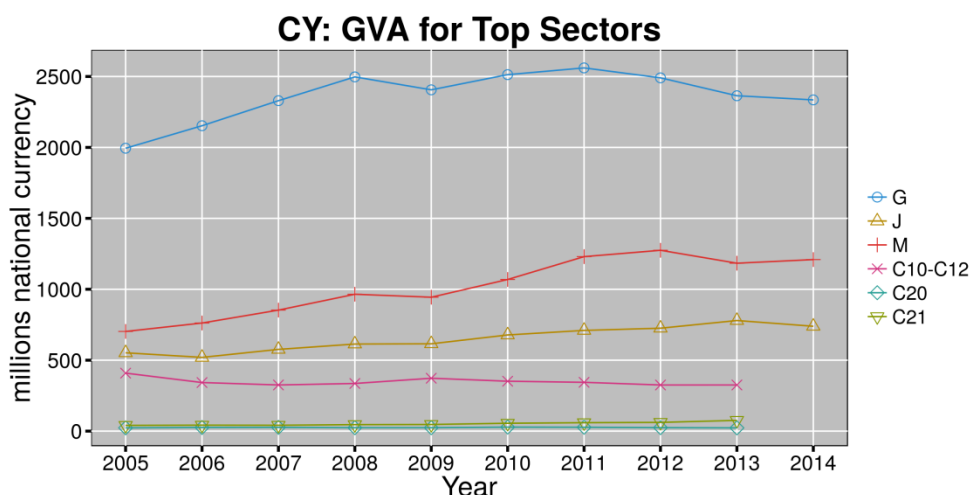


Figure 14 Value added at factor cost for the leading manufacture and service sectors in Figures 10 and 11.

3.7 Assessment

RTDI policy is more recent than in other Member-States and had attracted attention before the crisis. However, due to the financial difficulties it is running out of steam. On a positive note, during the economic distress there was a shift from R&D to innovation support. Plus, in 2015 the creation of the Agency of Quality Assurance and Accreditation in Higher Education is a sign of increasing emphasis on education and skills. A revival is necessary and a new governance scheme will be central to such a revival. Despite several recommendations, of which the most recent one coming from a specially appointed Council by the government, the political decision on it is still pending.

Funding of RTDI is limited and suffering from the crisis. The decline is most visible in GBAORD. Business funding is marginal. BERD has been persistently low (15.4% GERD) and steadily decreasing since 2008 but picked up in 2013. BERD per capita had decreased from € 21.6 at the end of 2008 to €13.9 at the end of 2012, compared to an EU-28 average of €338.1. BERD per capita increased to € 15.4 at the end of 2013 (same level as in 2011).

The current balance between project and institutional block funding follows a historic rationale. Project based funding has increased over the years and has contributed to raising the level of research output. As yet no competitive institutional funding is adopted. Improvements are slow, in particular after the outbreak of the financial crisis, which shifted policy interest away from development support towards the consolidation of public finance.

The new politically responsible agency for RTDI (if and when appointed) will need to review this situation in cooperation with the Ministry of Education.

The effects of indirect public financial support on leveraging business expenditures in R&I are yet to be measured.

4. Quality of science base and priorities of the European Research Area

4.1 Quality of the science base

Cyprus appears to have a good science base with a research output well above its peers. More specific:

- Cyprus ranks 11th among EU-28 countries in terms of number of publications per thousand of population with 1.99 publications, compared to 1.08 of Malta and a EU-28 average of 1.43 (2013 data);
- Citations per document are high with 25.65 per document in 2002, higher than Greece (20) but significantly lower than Denmark (35) in the same year¹³⁰.
- The small size of the country has fuelled international collaborations, raising International co-publications at the high level of 61.6%, only surpassed by Luxembourg (72.7%), compared to Malta (50.4) and a EU-28 average of 36.4% (2013 data);
- International publications per thousand of population were at 1.23 at the end of 2013, more than double compared to Malta (0.54) and EU-28 average (0.52);
- 11.83% of Cypriot publications were among the top 10% most cited publications in the period 2000-2013, compared to 9.92% in Malta. It is worth observing that there is a downward trend of this indicator in Cyprus, at least from 2008 onwards, if not earlier. This comes in contrast to Malta and EU-28 average where the indicator is rising, albeit with small fluctuations;
- The share of public-private co-publications remains low at 0.7%, compared to 1.2% in Malta and an EU-28 average of 1.8 %. It is yet another evidence of the lack of strong collaborations between the public and the private sector.

No specific measure was taken in the last three years to improve the governance of the science systems.

Table 6 Science base indicators¹³¹

Indicator	Year (2013)	EU average (2013)
Number of publications per thousand of population	1.99	1.43
Share of international co-publications	61.6%	36.4%
Number of international publications per thousand of population	1.23	0.52%
Percentage of publications in the top 10% most cited publications	11.83*	12.25% (2010)
Share of public-private co-publications	0,7**	1.8%

* Percentage of publications in the top 10% most cited publications (FULL, 2000-2013)

** Share of public-private co-publications (SciVal, 2011-2013)

¹³⁰ <http://www.scimagojr.com/countrysearch.php?country=CY>, <http://www.scimagojr.com/countrysearch.php?country=GR> and <http://www.scimagojr.com/countrysearch.php?country=DK>

¹³¹ Source: JRC IPTS RIO elaboration on Scopus data collected by Sciencematrix in a study for the European Commission DG RTD (Campbell, 2013). The share of public-private co-publications is derived from the Scival platform and is also based on Scopus data (September 2015). SciVal[®] is a registered trademark of Elsevier Properties S.A., used under license. The data on public-private co-publications is not fully compatible with the data included in the IUS, due to differences in the methodology and the publication database adopted.

4.2 Optimal transnational co-operation and competition

4.2.1 Joint programming, research agendas and calls

In the proposed National Framework Programme for 2015-2020, € 8 m are allocated to calls for participation in Joint Programming Initiatives (JPI), ERA-NETs and Art.169/185 network projects (Smart Specialisation pillar-Strategic axis of Extroversion and Open Horizons)¹³². All JPIs follow the priorities set by S3CY.

More specific, Cyprus is currently involved in 3 ERA-NET and ERA-NET COFUND projects of Horizon 2020 (M.ERA-NET: Materials-Energy, SOLAR ERA-NET: Solar Energy, and MED ERA-NET: Research cooperation with Mediterranean Countries in Energy, Environment and Tourism sectors), 2 Art. 185 Initiatives (Ambient Assistant Living, EUROSTARS) and 4 JPI Water Challenges for a Changing World, URBAN EUROPE: Global Challenges – Local Solutions, Agriculture, Food Security and Climate Change and Cultural Heritage and Global Change: A New Challenge for Europe. Total funding per project may not exceed € 175,000 unless Cypriot companies assume coordinating role whereby maximum funding could reach up to € 200,000 per project. One call per year is expected¹³³ for each Initiative and two projects per call are expected to be selected for funding by RPF.

Each of the above-mentioned initiatives applies its process for proposal evaluations within the evaluation procedures applicable to HORIZON 2020 programmes¹³⁴.

The new S3 strategy provides for support for innovation clusters through calls for Integrated Projects expected at the end of 2016 by the RPF and calls for clusters by MECIT.

There is no participation in Joint Technology Initiatives (JTI), most likely because of the limited interest from the side of the business sector.

Cyprus has signed bilateral agreements with Greece, France, Slovenia, Italy and Romania and programmes are expected within the Bilateral Collaborations programme analysed below under 4.3¹³⁵.

There are no specific actions for the alignment of national research systems at European level or with other European countries.

RPF has decided to streamline important procedures such as the evaluation with H2020, using similar evaluation criteria and scoring method.

4.2.2 RI roadmaps and ESFRI

The proposed National Framework Programme for 2015-2020 includes funding for the upgrading of Research Infrastructures in the areas of IT and Communications, Key Enabling Technologies KETS and applications in at least two priority sectors identified by S3CY or two specific fields of the same priority sector. The programme will provide to research organisations, businesses and third parties a total funding of between €8.2 m to 11.2 m depending on whether Cypriot beneficiaries will secure funding for this purpose from HORIZON 2020 or not¹³⁶. Maximum funding per project is set at € 1m¹³⁷. A total of 8-11 calls are foreseen.

¹³² [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 10

¹³³ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 38-41

¹³⁴ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 40

¹³⁵ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 29

¹³⁶ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 12

Consultations and discussions on the ESFRI roadmap have started on the development of explicit policy. However no schemes and funds are committed for the participation in any ESFRI Projects or Landmarks yet. DGEPCD, started the process for devising a national ESFRI roadmap based on the national priorities identified by the S3CY and the financial constrains.

The Roadmap will include: (i) a mapping of the research facilities and the existing Research Infrastructures in Cyprus for further development based on the capabilities and needs, taking into account the priorities of the Smart Specialization Strategy and (ii) a needs assessment for participation in ESFRI infrastructures (European Strategic Forum for Research Infrastructures) and the assessment procedures and conditions for participation and access of national bodies in these infrastructures.

Currently Cyprus participates at the following ESFRI Infrastructures and projects: European Social Survey (European University of Cyprus), PRACE (Cyprus Institute), DARIAH (Cyprus University of Technology), KM3NeT (University of Cyprus), EU SOLARIS (Cyprus Institute), BBMRI-ERIC (University of Cyprus and Cyprus Institute of Neurology and Genetics). Furthermore, DG EPCD, provided a letter of support for the participation in the preparatory phase to the Cyprus Institute Limited for the new ESFRI projects, namely, ACTRIS and E-RIHS as well to Agriculture Research Institute for the ESFRI project EMPHASIS.

Cyprus participates in the European portal of Research infrastructure services with 3 RI; CyGrid in the area of Grid computing facilities, Nanomanufacture in the area of micro and nanotechnology facilities and Agricultural Research Institute in the area of environmental management¹³⁸.

4.3 International cooperation with third countries

The proposed DESMI 2015-2020 allocates € 2.8m to cooperation with third countries, broken down into two programmes; Bilateral Collaborations (€ 1.6 m) and International collaboration-Dual targeting (€ 1.2 m)¹³⁹. A budget of € 3,7m is allocated to EUREKA and EUROSTARS Programmes which are open to international cooperation (Section 3.5.1).

The programme Bilateral Collaborations supports funding of Industrial or Basic Research and is addressed to research organisations, businesses and third parties from countries that have signed bilateral research agreements with Cyprus. The programme will also support collaborations with European countries. RPF will fund the Cypriot counterparts and funding per project cannot exceed € 100,000. Bilateral agreements have also been signed with Egypt and Israel¹⁴⁰.

The programme International Collaboration-Dual Targeting is addressed to research organisations, businesses and third parties from Cyprus and third countries with which bilateral agreements for research cannot be signed and there is no other way of providing funding. The programme distinguishes between funding collaboration with USA and collaboration with other third countries, with a maximum funding of € 80,000 per project¹⁴¹.

¹³⁷ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 19-21

¹³⁸ <http://www.riportal.eu/public/index.cfm?fuseaction=ri.result>

¹³⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 10

¹⁴⁰ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 29-31

¹⁴¹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 32-34

Cyprus actively participates in the preparation of a Joint Programme for the establishment of PRIMA (Article 185 Initiative) for strengthening R&I cooperation in the fields of Water and Food for the Mediterranean region¹⁴².

Cyprus does not participate in Multi-Annual Roadmaps for international cooperation.

4.4 An open labour market for researchers

4.4.1 Introduction

Cyprus is a highly regulated research market with no institutional autonomy. Based on the University Autonomous Tool (UAT)¹⁴³, Cyprus scored medium-low to organisational and staffing autonomy and medium-high to academic autonomy. The lowest ranking was received in terms of financial autonomy. Regulations of internal academic structures are unusually strict and neither faculties nor departments may be established within HEIs without government agreement¹⁴⁴.

Researchers accounted for 0.46% of total employment in Cyprus (2012 data). Most of them work for HEI (48%), 20% work for the public sector, 19% work for private companies and 13% work for non-profit organisations. About 38% of researchers hold a PhD degree, 29% hold postgraduate degree, and 18% hold a graduate degree while about 16% do not have a graduate degree¹⁴⁵. The recent financial crisis resulted in a “freeze” of all hiring in the public sector, which became official by Law 21(I)/2013. According to this law, the prohibition was foreseen to remain in force until the end of 2014¹⁴⁶. It has not been formally lifted since then, but in several cases (including hiring researchers to undertake research activities funded by Horizon) there are ad hoc provisions which have eliminated problems in HEIs and PROs.

Supply of skilled and medium-skilled labour increased more rapidly than demand in the decade 2000-2010 and it is expected to further increase more rapidly than demand in the current decade¹⁴⁷. Unless there is a serious restructuring and increasing investments this is likely to nurture outmigration of skilled and semi—skilled labour.

Table 7 Labour market skills forecast-demand and supply (% change)

	Demand highly skilled (In brackets medium skilled)	Supply highly skilled (In brackets medium skilled)
2000-2010	62.9 (29.4)	68.2 (40.8)
2010-2020	27.9 (6.6)	31.3 (14.6)

Source: [Innovation Union Competitiveness Report 2013](#)

¹⁴² [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 12

¹⁴³ UAT was compiled at the end of 2010 using 38 indicators, categorised into four autonomy dimensions (organisational, financial, staffing, academic)- <http://www.university-autonomy.eu/about/>

¹⁴⁴ <http://www.university-autonomy.eu/countries/cyprus/>, November 2014

¹⁴⁵ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#),pg.104

¹⁴⁶ [Law 21 \(I\) 2013](#)

¹⁴⁷ [Innovation Union Competitiveness Report 2013](#), pg. 64

4.4.2 Open, transparent and merit-based recruitment of researchers

Researchers are civil servants and their recruitment and promotion is highly inflexible. The hiring and promotion of researchers in HEIs in Cyprus is regulated by individual laws applicable to public and private universities:

- The law regulates the qualifications, which are necessary for the promotion of researchers to a higher rank, and the procedure for their appointment in the University of Cyprus¹⁴⁸. The law stipulates that researchers are hired through open tendering procedures;
- The EURAXESS Cyprus portal is managed by RPF and provides practical information. All universities and research institutes in Cyprus have endorsed the Charter and Code. The University of Cyprus and Cyprus Institute of Neurology and Genetics were acknowledged for their progress in HR Strategy for Researchers and were awarded the HR Excellence in Research logo in 2010. Two more HEIs (Open University and European University) are in the pipeline for receiving this certification.
- Law 234 (I) 2002 for the establishment and operation of Open University of Cyprus specifies that researchers may be transferred from Universities abroad. Its amendment in 2010 introduced experience in open and distant learning as one of the prerequisites for their hiring;
- The qualifications, which are necessary for the promotion of researchers to a higher ranking, and the procedure for their appointment in the Cyprus University of Technology are also defined by Law¹⁴⁹;
- Law 109 (I) 2005 for the establishment and operation of private universities stipulates that the recruitment of researchers is regulated by the statutes of each university and should be in compliance with the procedures applied by the University of Cyprus.

Based on UAT, Cyprus received a total score of 50% un-weighted and 49% weighted terms in terms of organisational autonomy¹⁵⁰, with flexibility in the selection and dismissal of the executive head (100%) and the establishment of other legal entities (60%). In terms of staffing, Cyprus received an overall score of 48% un-weighted and 46% weighted, allowing flexibility in the recruitment procedures of senior academic and administrative staff (100%) and the dismissal of senior academic staff (60%)¹⁵¹.

Recruitment of researchers in Cyprus is considered open and transparent, with all positions and selection criteria advertised in the Government Gazette, in local press, websites and in the Cyprus EURAXESS portal. Most positions are advertised in English. There are clear rules for the composition of selection panels, though the actual composition is rarely disclosed¹⁵². The criteria for assessment of postgraduate candidates are the academic background, letters of recommendation, personal interviews, written examinations and other special criteria set out by each department¹⁵³.

¹⁴⁸ The unofficial codification of laws for University of Cyprus in the period 1989 – 2007.

¹⁴⁹ The unofficial codification of laws for the Cyprus University of Technology in the period 2003 – 2011.

¹⁵⁰ Weighted by the importance of each indicator included in each of the four dimensions.

¹⁵¹ <http://www.university-autonomy.eu/countries/cyprus/>, December 2014

¹⁵² [Researchers' Report 2014 Country Profile: Cyprus. \(Deloitte, 2014\)](#), pg. 7

¹⁵³ European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' (Tsipouri L. September 2013), pg. 19

Cyprus had practically zero net added researchers (head count) in the period 2000-2010¹⁵⁴. Due to the limited financial autonomy there is a large number of researchers coming from academic inbreeding¹⁵⁵. Only a minority of local researchers (about 40%) believe that research posts are sufficiently advertised. About 60% believe that recruitment procedures are sufficiently transparent and 50% believe they are sufficiently on merit¹⁵⁶. More than 50% of Cypriot researchers associated to European universities were 'satisfied' with the extent to which research job vacancies are publicly advertised and made known by their institutions in Cyprus¹⁵⁷.

After their selection following the open tender, lower grade academics, including lecturers and assistant professors, undergo individual peer evaluations every three to four years and they may be dismissed, if they receive a negative evaluation twice in a row. Senior administrative staff in permanent positions is evaluated and can only be dismissed during the first two years of its contract. Higher categories of academic staff, such as full and associate professors cannot be dismissed at all¹⁵⁸.

In the past accreditation was regulated by [Law 68 \(I\) 96](#) and performed by an independent body, supervised by the Ministry of Education, the Council of Recognition of Higher Qualifications (KYSATS). There are two types of accreditation, namely equivalence (if the duration of studies, the conditions of admission, evaluation, promotion and graduation of students and the teaching and learning procedures meet the requirements of the University of Cyprus or the other State Higher and Tertiary Education Institutions of Cyprus) and equivalence and correspondence (if, in addition to equivalence, the specific programme of studies includes at least two thirds of the required subjects including the compulsory subjects of the corresponding programme of the institution which is used as the basis for evaluation)¹⁵⁹. Accreditation is not an access barrier since similar practices apply at a European level. At any rate, the creation of the new Agency of Quality Assurance and Accreditation in Higher Education will probably trigger changes in that respect.

There is a trend of outflow of researchers, which was amplified by the crisis, but there are no official data¹⁶⁰. Based on the findings of a study on the condition and mobility of researchers, in 8 Member States including Cyprus (Austria, Bulgaria, Czech Republic, Cyprus, Greece, Hungary, Slovakia and Switzerland), the main motive for international mobility of researchers in Cyprus was future career development (71% of respondents), reputation of the host organisation (67% of respondents) and interesting research theme (67% of respondents). The main discouraging factor was family and other personal connections (70% of the respondents), while age limitations and adaptation problems were also mentioned¹⁶¹.

¹⁵⁴ [IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\)](#), pg. 21

¹⁵⁵ [IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\)](#), pg. 23

¹⁵⁶ [IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\)](#), pg. 24

¹⁵⁷ ¹⁵⁷ [European Research Area, Progress Report 2014](#), pg. 5

¹⁵⁸ ERA Communication Fiche Cyprus 2013

¹⁵⁹ <http://www.highereducation.ac.cy/en/kysats.html>, November 2014

¹⁶⁰ MORE has no data for Cyprus due to the low response rate in the corresponding survey- [European Commission DG Directorate C-European Research Area Universities and Researchers. Study on mobility patterns and career paths of EU researchers. Part I Mobility Survey of the higher educational sector sector. June 2010](#), pg. 41

¹⁶¹ Challenges for career and mobility of researchers in Europe, Oxford Journal Social Sciences, Science and Public Policy, Vol. 38, Issue 3, (Ivacheva L., Gourova E.,)pg 185-198

The survey was conducted through questionnaires to researchers (PhD students, Post Docs, experienced researchers, university lecturers, etc) and other stakeholders (representatives of industry, research organisations, NGOs, public bodies, etc.). The sample size was fixed at 100 researchers and 30 stakeholders, with the exception of Cyprus where the sample was much smaller.

Cyprus had a relative high number of researchers (post-PhD) having spent a period of at least three months as a researcher in another country in the last 10 years (44.1%) compared to the EU average (31.1%). HEIs encourage academic staff to take 'sabbatical leaves' for the purpose of expanding their research interests/aspirations, but such provision is not provided for non-academic research staff¹⁶². Promotion from within prevents inward mobility¹⁶³. Language is also a problem. The need to obtain residence and work permits poses additional constraints to HEIs¹⁶⁴. The Proselkysi (Greek for Attraction) Programme (ran in 2009-2010) enabled Cypriot researchers as well as researchers from another EU and third countries to participate in international research networks¹⁶⁵.

According to the MORE II study, permanent contracts are the only possibility for leading researchers (category R4)¹⁶⁶. First grade researchers up to the PhD level have fixed term contracts (less than one year), second grade researchers at PhD level but not completely independent have fixed term contracts of 2-4 years and established researchers have fixed term contracts in excess of 4 years¹⁶⁷.

The financial crisis has created instability in the labour market, primarily affecting young researchers. The government placed emphasis on the approval of a National Action Plan for Youth Employment (NAP) and of Youth Entrepreneurship Programme. NAP was approved in 2014, and it allocated € 37.6 m (almost 80% of total budget) to the Youth Guarantee Implementation Plan (YGIP) for the provision of guarantees to school leavers and newly unemployed individuals in the age bracket between 15-24 years old against long term unemployment¹⁶⁸. A total of €3.1 million was allocated to the Youth Entrepreneurship Programme in 2014, for the benefit of 170 enterprises, resulting in about 400 new job positions¹⁶⁹.

The proposed Framework Programme for 2015-2020 allocates a total of € 13.4 m to programmes addressed to researchers:

- A new DIDAKTOR programme; 3 calls are expected in the period 2015-2017 with a total budget of € 9.4m¹⁷⁰;
- Young Researchers second change programme (budget € 4m) for the support of young post doctorate researchers who did not manage to get funding from HORIZON 2020¹⁷¹.

¹⁶² 2012 data, [Researchers' Report 2014 Country Profile: Cyprus. \(Deloitte, 2014\)](#), pg. 4

¹⁶³ [IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\)](#), pg. 27

¹⁶⁴ [IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\)](#), pg. 40

¹⁶⁵ [Deloitte, Researchers' Report 2014 Country Profile: Cyprus](#), pg. 12

¹⁶⁶ MOREII study defines category R4 as leading researchers-researchers leading in their research or field (pg. 16 of the study) which is probably the same as established researchers but we use the terminology of the study

¹⁶⁷ [MORE2 Remuneration Cross country Report, April 2013](#), pg. 49

¹⁶⁸ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 5

¹⁶⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 4

¹⁷⁰ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 48-50

¹⁷¹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 5--52

4.4.3 Access to and portability of grants

In Cyprus portability of national grants is allowed within the country but not to other EU countries¹⁷². RPF Programmes are open to research organisations and to individual researchers from abroad¹⁷³.

4.4.4 Doctoral training

HEIs/departments have full autonomy in designing doctoral training curricula and deciding on the requirements for awarding PhDs. There is no explicit policy regarding the Principles for Innovative Doctoral Training (IDT) either at the national level or at the institutional level¹⁷⁴. Funding and the lack of employment opportunities are acknowledged as major barriers for the implementation of IDT¹⁷⁵. However, similar principles (excellence and international cooperation) are adopted internally and independently of the IDT. Departments try to ensure the funding means for PhD students to attend international conferences.

The financial crisis in Cyprus has led to limited funding of doctoral training and almost no funding of post-doctoral research¹⁷⁶.

4.4.5 Gender equality and gender mainstreaming in research

In Cyprus, the government, through the Ministry of Justice and Social Order (Woman Issues Gender Equality Unit) and the National Machinery for Women's Rights, is principally responsible for introducing gender issues in academic curricula¹⁷⁷. The [National Machinery for Women's Rights](#) is a system of four bodies established by the government (Council of Ministers) in 1994 within the auspices of the Ministry of Justice and Social Order. This system composed of representatives from organisations, trade unions and government departments advises the Council of Ministers on women rights issues and programmes, monitors their implementation, subsidises women initiatives and serves as a liaison between the government and NGO's working in this field¹⁷⁸.

Equal payment between men and women is ensured by Law 177(I)/2002 and its amendments (Law 193 (I)/2004, Law 38 (I)/2009)¹⁷⁹ but there is no explicit reference to the R&D sector. The Ministry of Labour and Social Insurance monitors the gender pay gap¹⁸⁰.

The first National Action Plan for Gender Equality was approved by the Council of Ministers in 2007. Gender equality in employment, professional training, education, R&D, as well as the enhancement of women participation in political, social and financial realm were among the six pillars of this Action Plan¹⁸¹.

¹⁷² [Researchers' Report 2014 Country Profile: Cyprus. \(Deloitte, 2014\)](#), pg. 12

¹⁷³ [Researchers' Report 2014 Country Profile: Cyprus. \(Deloitte, 2014\)](#), pg. 12

¹⁷⁴ European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' (Tsipouri L. September 2013), pg.10

¹⁷⁵ European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' (Tsipouri L. September 2013), pg.14

¹⁷⁶ [European Commission DG RTD, Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe. Final Report](#), pg. 24

¹⁷⁷ [European Commission Gender Equality Policies in Public Research. Based on a survey among Members of the Helsinki Group on Gender in Research and Innovation, 2013](#), pg. 21

¹⁷⁸ http://www.cyprusnet.com/article_cyprus-machinery-for-women--s-rights

¹⁷⁹ [Ministry of Justice and Social Order. Gender Equality Legislative Measures](#)

¹⁸⁰ [European Commission Gender Equality Policies in Public Research. Based on a survey among Members of the Helsinki Group on Gender in Research and Innovation, 2013](#), pg. 27

¹⁸¹ [Cyprus Government. Ministry of Justice and Social Order. Annual Report 2012](#), pg. 46

Research funders in Cyprus believe in gender equality in the evaluation process of research projects and projects monitoring¹⁸². Extensions are granted for the award of PhD titles beyond the 5year timeframe in case of maternity leaves or military obligations to compensate for the respective time spent¹⁸³.

27% of Cypriot RPOs had adopted gender equality plans by 2013. However, the assessment is not representative since it refers to a sample of just 11 RPOs¹⁸⁴. Cyprus ranks third from last in terms of percentage of women PhD graduates, accounting for 39% of total compared to a EU27 average of 46%¹⁸⁵.

The proposed DESMI 2015-2020 makes reference to gender equality and equal opportunities in research groups and the selection of research topics¹⁸⁶. The way in which this will affect project selection is yet to be determined.

4.5 Optimal circulation and Open Access to scientific knowledge

4.5.1 e-Infrastructures and researchers electronic identity

In 2012, a Digital Strategy was adopted, aiming to provide a comprehensive plan for the period 2012-2020 and introduce a holistic approach for the development of information society in Cyprus.

The Action Plan for the period 2015-2017, approved by the Council of Ministers in September 2014, describes specific initiatives that will be undertaken in the next 3 years for the promotion of the Digital Strategy, focusing on six strategic objectives, (i) Connect Cyprus, (ii) Modernise public administration and provide public electronic services, (iii) Digital Entrepreneurship, (iv) Digital Skills, (v) Digital entrepreneurship, (vi) National Plan for the Coalition for Digital Jobs¹⁸⁷.

Cypriot universities are neither members of an identity federation nor of the eduGAIN service. About 10% of RPOs provide federated identities to their researchers¹⁸⁸.

Collection and processing of personal data within the implementation of RPF's proposed Framework Programme for 2015-2020 is dealt according to the national legislation for Management of Personal Data.

4.5.2 Open Access to publications and data

In October 2015, the Library of the University of Cyprus (designated as the Cyprus OpenAIRE National Open Access Desk), RPF and DGECPD presented the first open access national policy document in Cyprus. The policy document was based on support material provided by the coordinators of the programme PASTEUR4OA. Following a public consultation, which was closed in November, the document is expected to be revised and submitted for approval in the first months of 2016 by the Council of Ministers¹⁸⁹.

Open access initiatives are undertaken by HEIs and other research organisations:

- INTRA was initiated by the Library of UCY to aggregate and record all scientific publications by the academic staff of UCY¹⁹⁰;

¹⁸² [European Commission Gender Equality Policies in Public Research, Based on a survey among Members of the Helsinki Group on Gender in Research and Innovation, 2013](#), pg. 33

¹⁸³ [Ibid.](#), pg. 34

¹⁸⁴ [Preliminary results of She figures 2015](#)

¹⁸⁵ [European Commission She figures 2012, Gender in research and innovation, Statistics and Indicators](#), pg. 51

¹⁸⁶ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 141

¹⁸⁷ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 29-31

¹⁸⁸ [European Research Area, Progress Report 2014](#), pg. 55

¹⁸⁹ <http://blog.openaccess.gr/?p=4141>

¹⁹⁰ http://dl114.madgik.di.uoa.gr/openaire/index.php?option=com_content&view=article&id=89&Itemid=211, November 2014

- The Cyprus Academic Library Consortium (CALC) signed a nationwide subscription contract with BMC (Biomed Central) for an open access model of BMC journals¹⁹¹;
- In October 2013, the Library of the Cyprus University of Technology and the pharmaceutical company REMEDICA launched the «Cyprus University of Technology Open Access Author Fund». The Fund will provide total funding of €14,000 per year and €3,000 per researcher for the funding of academic publications which will be in compliance with OASPA Code of Conduct and published in Open Access journals. Books must be published in the Directory of Open Access Books¹⁹².

Green open access is the main modality of public policy in Cyprus¹⁹³. According to an ERA survey 73.7% of RPOs declared that they do not support open access to publications and open access data, while the remaining 26.3% considered that this question is not applicable for them (2013)¹⁹⁴.

The majority of open access papers in Cyprus in the period 2008-2013 were other type (223 papers 67.8% of total OA papers and 53.3% of total accessed papers), based on a sample of accessed papers (584). Green journals came second, accounting for almost 22% of OA papers and 12.3% of total accessed papers. OA papers were 53.3% of total¹⁹⁵. For the future calls it is envisaged that support schemes will accept open access fees as eligible costs, leaving the decision on gold or green to the individual researchers

In a survey conducted by Science-Metrix using DOAJ, PubMedCentral, and Scopus regarding papers published on open access in the period 2008-2011 among EU 27 countries, Cyprus ranked low with only 1,000 records contained in institutional repositories. Only 38 papers were published open access, (43% of total published papers), surpassing only Latvia, Luxembourg and Malta¹⁹⁶.

In October 2015, there were 3 open access repositories in Cyprus, all in HEIs (Cyprus University of Technology, Open University of Cyprus, Cyprus University) listing 13,811 items; 2 of the repositories provide access to digital collections and 1 repository provides access to research data of the HEI (Cyprus University of Technology)¹⁹⁷. Traffic was rather low in the period 2014-2015, with only 532 new items being added, excluding the creation of the new repository (see table 8 below).

Table 8 Open access repositories in Cyprus

Repository name	Num. Items 2014	Num. Items April 2015	Confs	Theses	Unpub	Other
Ktisis	3,324	3,800				+
KYPSELI	1,643	1,699	+	+		+
LEKYTHOS	8,312	8,312	+		+	
TOTAL	13,279	13,811				

Source: <http://www.opendoar.org/find.php>

¹⁹¹ http://dl114.madgik.di.uoa.gr/openaire/index.php?option=com_content&view=article&id=89&Itemid=211, December 2014

¹⁹² http://library.cut.ac.cy/el/openaccess_fund,December_2014

¹⁹³ [European Research Area. Progress Report 2014](#), pg. 43

¹⁹⁴ [ibid.](#) pg. 110

¹⁹⁵ [Proportion of Open Access Peer-Reviewed Papers Published in Peer-Reviewed Journals at the European and World Levels 1996-2013, October 2014, Science Metrix](#), pg. 26

¹⁹⁶ Open Access Strategies in the European Research Area, produced for the European Commission DG Research & Innovation, (Caruso J., Archambault A. , August 2013)

¹⁹⁷ <http://www.opendoar.org/find.php>

5. Framework conditions for R&I and Science-Business cooperation

5.1 General policy environment for business

Cyprus ranks 33.5% away from the frontier¹⁹⁸ constructed from the best performances across all economies and across time in doing business (2015), and has slightly improved compared to 2014 (34.1%). Cyprus ranks 64 out of 189 economies in the World Bank indicator starting a business, scoring high in the indicator *number of days for concluding the process* (8 days compared to EU average of 12.1 days and OECD average of 9.2 days) and *Paid-in min. capital* (% of income per capita), which is 0.00 compared to OECD high-income average of 9.6. Cost of starting a business is relative high at 12.6% of per capita income, compared to an EU and Central Asia average of 5.3% and OECD average of 3.4%¹⁹⁹.

A new solvency system was part of the reforms required by the Troika. Following the approval of the new insolvency framework (Personal Insolvency Law, Personal Bankruptcy Law, Companies Law amended regarding companies' liquidation, Companies Law amended regarding companies' debt restructuring and the Insolvency Practitioners Law which adopted the Personal Insolvency Plan)²⁰⁰ in April 2015, insolvency regulations are being modernised. In particular: the provisions of the Companies Law amended the provisions for companies' debt restructuring ([Law 62 \(I\)/2015](#)), viable companies may be restructured with the help of an examiner (insolvency practitioner) while its directors remain in charge of the business. Debt is discharged. A Cypriot Insolvency Service was created by [Law 64\(I\)/2015](#), aiming to set out the eligibility criteria, training and licensing of insolvency practitioners²⁰¹. Secondary legislation is yet to be finalised for the operation of this Service, which currently operates within the Registrar of Companies and Official Receiver of MECIT.

A major challenge for Cyprus is to enhance science-industry collaboration, despite the absence of high value manufacturing in Cyprus. Pillar I of the Smart Specialization Strategy (S3Cy) and the new RPF's Framework Programme aim at Smart Growth, focusing on selected priority areas, by linking academic and research Institutions with the productive base of the economy, enhancing the quality and effectiveness of Research, Technological Development and Innovation system of Cyprus, strengthening the extroversion and the links and interaction between the elements of the RTDI system.

5.2 Young innovative companies and start-ups

In the past support to innovative start-ups was limited and mostly indirect, i.e. young companies would benefit from voucher systems under the same conditions as incumbents. MECIT had a Youth Entrepreneurship programme and it also supports innovation through the Business innovation grant scheme addressed to both established and newly established SMEs for the support of innovative products/services and the programme "[Enhancement of Business Innovation in Cyprus](#)" (see details under 3.5.1 above).

In June 2015 a new call for Innovation Vouchers was launched²⁰² (see details under 3.5.1 above).

¹⁹⁸ 66.5% Distance to Frontier index

¹⁹⁹ <http://www.doingbusiness.org/data/exploreeconomies/cyprus/#starting-a-business>

²⁰⁰ <http://www.bakertillyklitou.com/latest-news/2015/april/insolvency-law-2015/>

²⁰¹ [European Commission, The Economic Adjustment Programme. Cyprus, 6th Review – Spring 2015, July 2015](#), pg.27

²⁰² <http://www.research.org.cy/EL/news/3831.html>

The proposed DESMI 2015-2020 offers several funding opportunities for young innovative SMEs:

- the programme Research and innovation in Newly Established Enterprises provides funding to companies with a life span of less than 5 years for the development of new products, services, high added value production methods and to enhance their participation in RTDI²⁰³;
- Newly established companies may also apply for funding from the programme Investigation of Industrial Applications of Technology/Technical know-how pilot testing of their research ideas²⁰⁴;
- Extroversion and the creation of clusters in S3CY thematic priorities are enhanced through EUREKA Cyprus²⁰⁵ (see details under 3.5.1 above).

For the commercialisation of research results of innovative companies, the proposed DESMI 2015-2020 provides a total of €1.3m, broken down into two phases ("Preparation" when the feasibility of the idea is investigated, "Investment" when the idea is implemented). Maximum funding per project is € 30,000 for phase A and € 250,000 for phase B. All proposals will be selected in phase A, until the depletion of the allocated budget for this phase (€ 270,000). In phase B, proposals will be reviewed and selected based on the terms specified in the tender documents. Within 2015, one call is expected for phase A. The first call for phase B is expected in 2016²⁰⁶.

An association composed of start-ups was created with a vision and a manifesto trying to mobilise forces in favour of the start-ups community²⁰⁷. A variety of events and prizes, like the Disrupt Cyprus Cup^{208,209}, are now active paving the way for a more start-up pro-active policy.

5.3 Entrepreneurship skills and STEM policy

In 2014 the tertiary education attainment level increased to 51.1%, compared to 47.8% in 2013 and a national target of 46% (EU target 40%)²¹⁰. In the fields of science, technology, engineering and mathematics, there is not a sufficient supply of postgraduates and there are no specific policies in place or incentives to ensure a sufficient supply in the medium-to-longer term. The creation of the Cyprus University of Technology was the main instrument to address this need. There were 608 active postgraduate students (MSc and PhD) in the academic year 2013-2014 as opposed to 454 in the academic year 2012-2013²¹¹. Private universities are also teaching STEM (ICT and Engineering in particular). European University Cyprus operates a School of Sciences with degrees in the fields of Computer Science, Computer Engineering, Information Systems and Nursing²¹². University of Nicosia offers degrees in Computer Engineering, Computer Science, Mathematics, Civil and Environmental Engineering and Electrical Engineering (School of Sciences and Engineering)²¹³. Frederic University offers degrees in Civil Engineering, Computer Engineering, Electrical Engineering, Automotive Engineering, Mechanical Engineering and Computer Science (School of Engineering and Applied Sciences)²¹⁴. Neapolis University Pafos offers degrees in Applied Informatics Presentation

²⁰³ [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 24-26

²⁰⁴ *Ibid.*, pg. 27-29

²⁰⁵ *Ibid.*, pg. 35-37

²⁰⁶ *Ibid.*, pg. 73-76

²⁰⁷ <http://startupcyprus.org/about/>

²⁰⁸ <http://industrydisruptors.org/index.php/cyprus/cyprus-events/disrupt-cyprus>

²⁰⁹ <https://www.bestinvestcyprus.com/en/content/BestInvestCyprus-Conference-Agenda>

²¹⁰ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 3

²¹¹ <http://www.cut.ac.cy/studies/postgraduate/statistics/>, February 2015

²¹² <http://www.euc.ac.cy/en/schools--departments/school-of-sciences>

²¹³ <http://www.unic.ac.cy/schools-programmes/school-of-sciences-and-engineering/programmes>

²¹⁴ <http://www.frederick.ac.cy/school-of-engineering-and-applied-sciences-postgraduate-programs>

(School of Information Sciences)²¹⁵ and in Civil Engineering (School of Economics and Business)²¹⁶.

Cyprus places emphasis on the improvement of the skills of the employment workforce and has scheduled for 2015 schemes for the employment and training of tertiary education graduates, of long-term unemployed, schemes for the job placement of unemployed young tertiary education graduates as well as young unemployed graduates of lower secondary, upper secondary and post-secondary education of up to two years, for the acquisition of work experience in enterprises/organisations and multi-company training programmes for the unemployed²¹⁷. There are no specific measures aiming to support staff training in young SMEs.

HEIs are adapting their curricula to address interdisciplinarity and entrepreneurship but this differs from faculty to faculty and HEI to HEI, based on individual initiatives rather than national or institutional policy.

Vocational training and the role of Industry Liaison Offices (ILOs) are expected to increase collaboration between academia and the university and narrow the gap between supply and demand. Through the System of Vocational Qualifications (€ 9 m budget) it is foreseen that 80 new Standards will be developed and around 10,000 persons will be assessed in order to have their vocational qualifications recognised in 2015²¹⁸. By 2014, the existing seven ILOs (in three public and four private Universities) had placed 1,980 students in businesses, compared to about 940 at the end of 2013. A total of 36 collaboration agreements had been signed between Universities and businesses, 6 workshops had been organised, 756 academic profiles from all Universities and 844 enterprise profiles and 209 research lab profiles had been collected in order to facilitate academic-business cooperation²¹⁹.

5.4 Access to finance

In Cyprus, there is neither an organised VC market nor fiscal incentives for VCs²²⁰. As yet the JEREMIE scheme was not used for VC backing. The banking sector does not differentiate between credits to innovative enterprises and others.

The numbers for Angel investments are minimal and hence not leading to any trends and conclusions. The angel market in Cyprus is the smallest in the EU with less than a million of investments in 2013 (€600,000) and practically no activity in 2012. Cyprus was the country with the highest average investment per company (€310,000) in EU. Nevertheless, the average investment size per business angel remains low at about €16,000²²¹.

The Cyprus Business Angels Network (CYBAN)²²² created in 2013 is now increasingly active. It is the only Angel Investment Network in the country; it is a member of the EBAN and the MENA Business Angel Network indicating its global vision. Members are successful entrepreneurs and former CEOs, chairmen and non-executives of large private and public companies. The network assesses about 100 applications per year, of which 20 are presented to CYBAN. The first deals have been concluded.

²¹⁵ <http://www.nup.ac.cy/school-of-information-sciences/>

²¹⁶ <http://www.nup.ac.cy/schools/school-of-architecture-environmental-sciences/>

²¹⁷ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 6

²¹⁸ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 6

²¹⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 10

²²⁰ [EVCA Tax Benchmark Study 2012, June 2013](#)

²²¹ [The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players, Statistics Compendium 2014](#)

²²² <http://www.cyban.com.cy/>

5.5 R&D related FDI

FDI has been a major driving force of economic development in the past, thanks to the generous tax regime of investments. But in the past FDI was irrelevant to RTDI:

1. The main sectors attracting FDI were tourism, banking and shipping²²³, all of them with no R&D departments in the country.
2. The economic downturn has affected inward investments, which declined significantly to 679 million US \$ in 2014, compared to 3,497 million US \$ in 2013²²⁴.

The Cyprus Investment Promotion Agency²²⁵ is active in attracting and supporting FDI in the country but has no specific policies for attracting R&D intensive FDI.

5.6 Knowledge markets

Cyprus introduced in May 2012 a set of tax incentives to enhance the registration of intellectual property rights (IPR), the Intellectual Property Rights Box. The new set of rules amended prior legislation (1998 Patent Law, 1976 Intellectual Property Rights Law, Trademarks Law Cap. 268) and applied retrospectively from the beginning of 2012. More specific, amendments included:

- accelerated amortisation (five years) for the acquisition or the development of an IPR;
- four-fifths deduction of revenue from exploitation of IPRs (maximum tax of 2.5% on income earned from IP assets based on the low tax rate of Cyprus);
- tax exemption of dividends resulting from IP exploitation;
- four-fifths deduction of profits on selling IPR; and
- total tax exemption on IPR through the introduction of a Cyprus International Trust that could hold the shares and provide financing to the Cypriot IP owner²²⁶.

The introduction of a new Code of Practice for a uniform approach in the management of IPR lies among the research priorities of the new R&I strategy in the current programming period²²⁷. The protection of IPR will be entrusted with the NKTO²²⁸, if and when it will be created.

Based on the results of a public consultation some years ago, RPOs did not have internal IPR policies; it is for this purpose that a tender for a specialised consultant was launched by RPF. Following the assignment of the project to ISIS Innovation (Oxford University) a number of recommendations are addressed to individual HEIs and RPOs ; it is up to each HEI/PRO to adopt them or not. In the same report there are recommendations for the business plan of the National Knowledge Transfer Office.

The number of patents in the country is low, though rising; there were 4 patent applications in 2014, the same as in 2013. Given the size of the IPR market and the quasi monopoly of the RPF in the matter there is no specific coordination mechanism.

²²³ <http://anaktisis.teiwm.gr/7413/>

²²⁴ http://unctad.org/sections/dite_dir/docs/wir2015/wir15_fs_cy_en.pdf

²²⁵ <http://www.cipa.org.cy/>

²²⁶ <http://www.mondaq.com/x/243428/Trademark/The+Cyprus+Intellectual+Property+Rights+x0027Box,+November+2014>

²²⁷ Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, (National Committee for Research, Innovation and Technological Development, March 2014 - in Greek), pg. 17

²²⁸ Ibid., pg. 305

5.7 Knowledge transfer and open innovation

5.7.1 Indicators

BES-funded/publicly-performed R&D

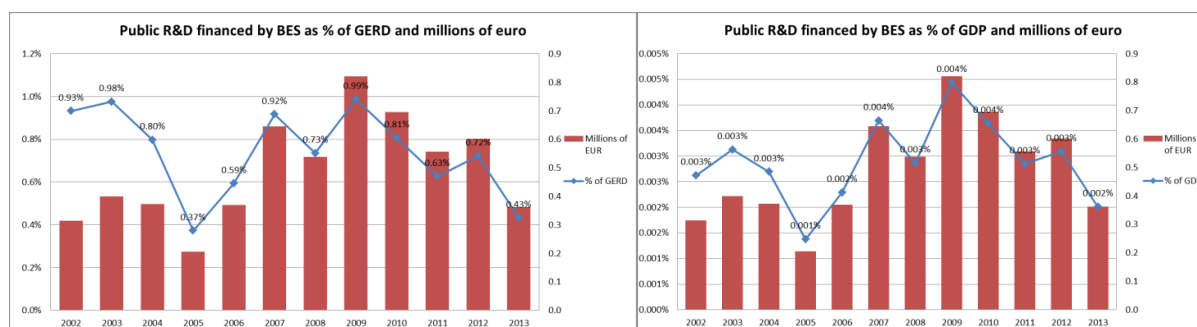


Figure 15 BES-funded public R&D in Cyprus as % of GERD (in €MLN) and % of GDP

The level of Cyprus business enterprise sector (BES)-funded public R&D expenditure as a percentage of GERD decreased from 2002 to 2005, then increased between 2006 (0.59%) and 2009 (0.99%), then then dropped again to 0.43% in 2013. BES funding never exceeded €1m.

The indicator expressed as a percentage of GDP shows a very similar movement between 2002 and 2013, and never exceeded 0.004% of GDP. Since overall amounts are very low, the observed fluctuations in both indicators are not large in absolute terms.

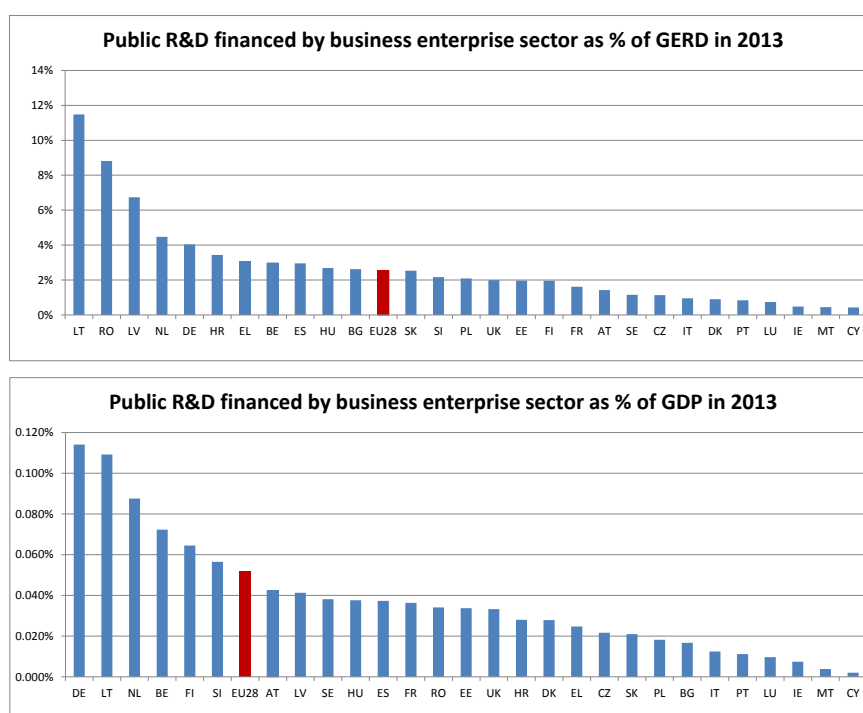


Figure 16 BES-funded public R&D as % of GERD and as % of GDP in 2013 in Member States²²⁹

²²⁹ 2013 was chosen as the latest data series providing a full comparison within EU-28.

The two charts in Figure 16 show the values of BES-funded public R&D in all EU-28 as percentages of GERD and GDP, respectively. In both indicators, Cyprus' has the lowest level among all EU-28 MS.

The low level of the BES-funded public R&D indicator can largely be explained by the extremely low private demand for R&D. Total BES spending on R&D was only €13.3m, or 0.07% of GDP, in 2013. Underlying reasons for this lack of R&D activity are a structural dominance of the non-knowledge intensive service sector, and a small domestic market and peripheral location within Europe, which are disincentives for setting up R&D operations in the country.

Structural funds devoted to knowledge transfer

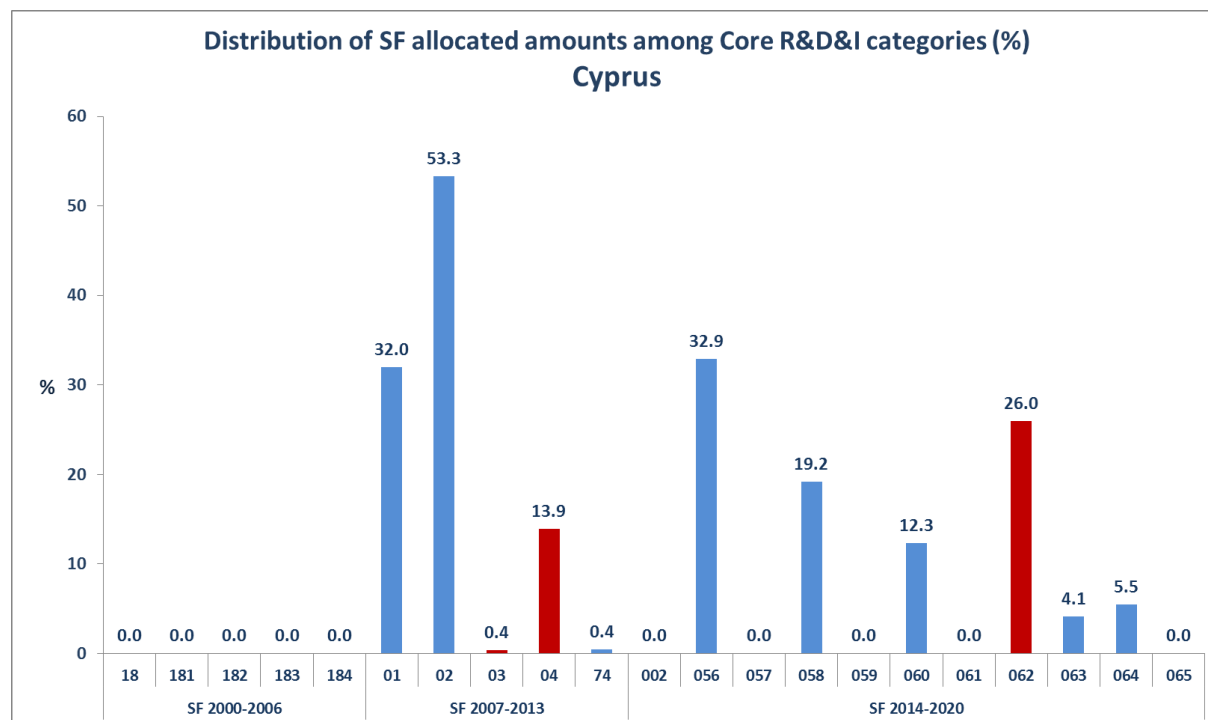


Figure 17 Structural Funds for core R&D activities 2000-2006, 2007-2013 and 2014-2020²³⁰. We use the categories: 182 (2000-2006), 03 and 04 (2007-2013) and 062 (2014-2020) as proxies for KT activities.

²³⁰ Figure 17 provides the Structural Funds allocated to Cyprus for each of the above R&D categories. The red bars show the categories used as proxies for KT. Please note that the figures refer to EU funds and they do not include the part co-funded by the Member State. The categories for 2000-2006 include: 18. Research, technological development and innovation (RTDI); 181. Research projects based in universities and research institutes; 182. Innovation and technology transfers, establishment of networks and partnerships between business and/or research institutes; 183. RTDI infrastructures; 184. Training for researchers.

The categories for 2007-2013 include: 01. R&TD activities in research centres; 02. R&TD infrastructure and centres of competence in specific technology; 03. Technology transfer and improvement of cooperation networks; 04. Assistance to R&TD particular in SMEs; 74. Developing human potential in the field of research and innovation.

The categories for 2014-2020 include: 002. Research and Innovation processes in large enterprises; 056. Investment in infrastructure, capacities and equipment in SMEs directly linked to Research and Innovation activities; 057. Investment in infrastructure, capacities and equipment in large companies directly linked to Research and Innovation activities; 058. Research and Innovation infrastructure (public); 059. Research and Innovation infrastructure (private, including science parks); 060. Research and Innovation activities in public research centres and centres of competence including networking; 061. Research and Innovation activities in private research centres including networking; 062. Technology transfer and university-enterprise cooperation primarily benefiting SMEs; 063. Cluster support and business networks primarily benefiting SMEs; 064. Research and Innovation processes in SMEs (including voucher schemes, process, design, service and social innovation); 065. Research and Innovation infrastructure, processes, technology transfer and cooperation of enterprises focusing on the low carbon economy and on resilience to climate change

Cyprus has allocated 26% of its structural funds for core R&D activities to "Technology transfer and university-enterprise cooperation primarily benefiting SMEs" (compared to 14.3% in the 2007-2013 programming period). In the current programming period this value is higher than the EU average of 15.7% (the EU average was 30.1% for 2007-2013).

Share of innovative companies cooperating with academia

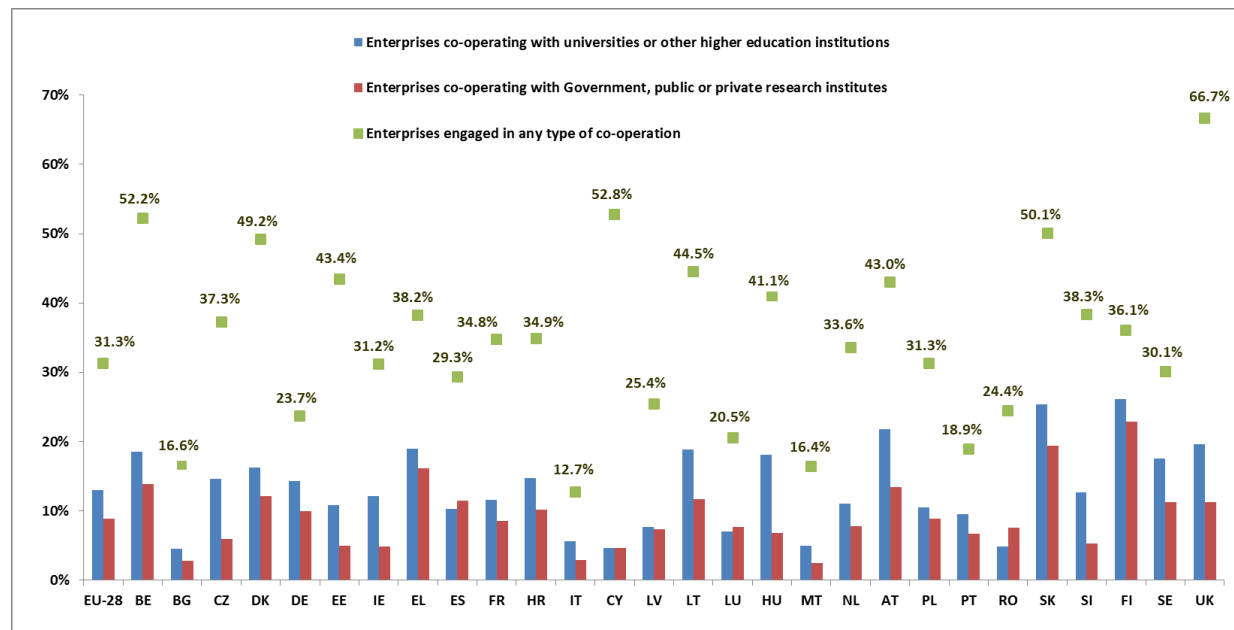


Figure 18 CIS survey 2012 – share of enterprises cooperating with academia

Figure 18 depicts the level of cooperation activities of innovative companies in the EU-28, according to the CIS 2012. The percentage of "enterprises engaged in any type of co-operation" (green dot) in Cyprus is one of the highest in the EU (52.8%), far above the EU-28 average of 31.3%. However, the percentage of enterprises involved in cooperation with universities or other HEIs (blue bar) or government, public or private research institutes (red bar) is only 4.6%. Both indicators are well below the EU-28 average, which are 13.0% and 8.9% respectively; Cyprus is second-to-last in enterprise-university cooperation and fourth-to-last in enterprise-government cooperation.

Technology Transfer Offices (TTOs), incubators and technological parks

Cyprus has seven Industry Liaison Offices, one each in every public and private university. In 2014 they placed 1,980 graduates in businesses. A total of 36 collaboration agreements have been signed between universities and companies. However, ILOs seem to focus more on mere job seeking than on facilitating knowledge transfer²³¹. A Science Technological Park in Limassol has been in planning for a decade, but in 2015 the search for a real estate investor was still ongoing.

²³¹ [Smart Specialisation Strategy for Cyprus. Final Report, Nicosia, March 2015](#), pg. 175

Share of public-private co-publications

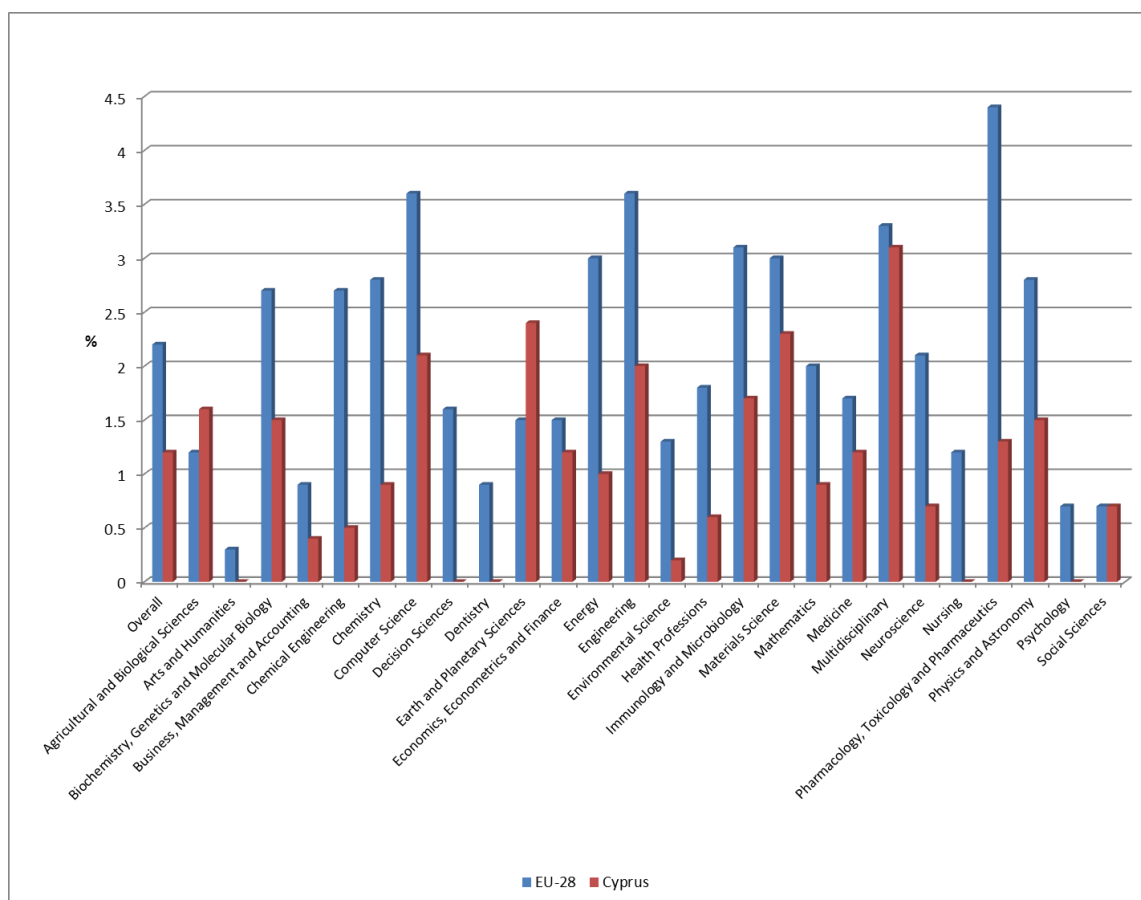


Figure 19 Co-publications by field 2003-2013 in Cyprus. Scopus database

Figure 19 shows the 2003-2013 average percentage of academia-industry co-publications by field in Cyprus compared to the European average. The total share of co-publications, displayed by the red "overall" bar on the left of the chart, is 1.2%, below the EU-28 average of 2.2%. Excluding multidisciplinary publications, the domains recording the highest share of co-publications are earth and planetary science, materials science, computer science, engineering, and immunology and microbiology. Cyprus' share of co-publication exceeds the EU-28 average in earth and planetary science, and agricultural and biological sciences.

With 13.9 co-publications per million population, Cyprus is far below the EU-28 average of 29.0.

Patenting activity of public research organisations and universities together with licensing income

Information on patent applications by scientific institutions in Cyprus is not available.

Companies

There is no data available on the number of spin-offs from public research organisations or the sectors they are active in.

5.7.2 Policy Measures

Cyprus does not have a specific strategy for knowledge transfer. There are no measures to incentivise and reward academics engaged in cooperation with industry/users (although academics are increasingly interested in cooperation responding to the direct grants from the RPF and Horizon 2020). There is no national regulation for university spin-offs.

Cooperation between academia and enterprises is achieved through the implementation of Industry Liaison Offices (ILOs). By 2014, the existing seven ILOs (in three public and four private Universities) had placed 1,980 students in businesses, compared to about 940 at the end of 2013. A total of 36 collaboration agreements had been signed between Universities and businesses and 6 workshops had been organised²³². However, ILOs seem to focus more on mere job seeking than on facilitating knowledge transfer²³³.

The Business Support Centre provides intermediary services for the transfer of knowledge and technology. The Research Promotion Foundation, Cyprus Chamber of Commerce and European Office Cyprus coordinate the efforts of the Centre, which is co-founded by the EU via COSME.

The establishment of a National Knowledge Transfer Office (NKTO) was proposed in a 2014 report of a task force on improving R&I governance (NCRITD). The role of the NKTO would include providing information on the commercialisation of R&D and on the protection of IP rights, facilitating collaboration between the research community (RPOs, HEIs) and industry and supporting patent agreements. A central NKTO seems preferable to individual KTOs within HEIs due to the rather small size of the Cypriot R&D market. The country's smart specialisation strategy intends to allocate €1.5m to the establishment of a KTO which will be linked to the existing Industry and Liaison Offices of universities²³⁴.

5.7.3 Assessment

Cyprus has not introduced any specific strategy on knowledge transfer, and supporting Technology Transfer was identified as a major weakness of the R&D system in the spring 2014 governance report of the NCRITD. The results of open innovation and knowledge transfer policies cannot be easily assessed since there are no available statistics on invention disclosures. The only institutions dedicated to supporting knowledge transfer activities are the Industry Liaison Offices and the Business Support Centre. Business sector funding for public research is extremely low and the level of cooperation between academia and business (as measured by the CIS survey) is one of the lowest in the EU. Facilitating knowledge transfer has been named a priority in a 2014 R&I governance review report, and the creation of a National Knowledge Transfer Office recommended.

5.8 Regulation and innovation

As of 2015, there are no systematic impact assessments of regulation on innovation. Concerning monitoring implementation of the Small Business Act, there are only initial thoughts on how to address the subject. The introduction of a new Impact Assessment mechanism (action also included in the Action Plan for Better Regulation, see below), including an SME Test (analyzing impact on SMEs and proposing mitigating measures), also aims to reduce administrative burden imposed by new regulation/legislation.

The new Action Plan for Better Regulation, approved by the Council of Ministers on 29 October 2015, includes a series of actions aiming to reduce the administrative burden for businesses to set-up and operate in Cyprus. These include, amongst others, the overall reform of the the Department of the Registrar of Companies and Official Receiver (DRCOR) including measures to reduce administrative burden for registering a business (e.g. unification of DRCOR procedures/forms), further simplification measures (for setting up and running a company) by the Tax (e.g. Single Registration to VAT and Income Tax registries), SI (e.g. employer's registration) and Migration (e.g. entry/resident permits for 3rd countries' nationals incl. for purposes of employment)

²³² [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 10

²³³ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 175

²³⁴ Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, (National Committee for Research, Innovation and Technological Development, March 2014 - in Greek), pg. 304

departments as well as by the Treasury (e.g. use of bank transfers in all transactions with the government, abolishing checks).

5.9 Assessment of the framework conditions for business R&I

The proposed DESMI 2015-2020 supports business investment in research and innovation through EUREKA Cyprus (see chapter 4.2.1 above) and the programmes "Research and innovation in Enterprises" (for existing and newly established enterprises) and "Investigation of Industrial Applications of Technology/Technical know" (see chapter 3.5.1 above). Innovation Houses will be established in 2015 and are expected to create 40 new SMEs by the completion of the programme (see chapter 2.3 above). A new grant scheme for innovative products and services was launched in 2015, after the success of the scheme in 2012 (see chapter 2.3 above). While there is no formal evaluation of these grant schemes, their subscription is satisfactory and the business sector has expressed positive opinions.

Supply-side measures have traditionally been the only ones applied by the RPF and MECIT. Demand side policies have not been used with the exception of supporting energy saving projects in public buildings, which did not trigger any innovation in the energy market.

6. Conclusions

This chapter provides an assessment of the performance of the national research and innovation system and identifies the main structural challenges faced by the national innovation system.

6.1 Structural challenges of the national R&I system

The national innovation system is characterised by a lack of strategic guidance and too broad research orientation, limited business demand for R&D, and a limited propensity to innovate with weak knowledge transfer linkages. In addition to those main challenges that are also discussed in more detail in the executive summary above, the system suffers from, a shortage and mismatch of human resources for research.

Lack of strategic guidance and need for stronger prioritisation

Funding in the previous programming period (2007-2013) was spread throughout different research areas leading to broad research orientation, not justified by the size of the country and its economy and without reference to its competitive advantages. ICT, Security and Environment accounted for almost 65% of FP7 allocated funding in the period 2007-2014²³⁵. Tourism, Energy, Agriculture, Construction, Transportation and Health are the designated Smart Specialisation areas in the period 2014-2020²³⁶.

Limited business demand for R&D

The composition and the culture of the Cypriot business sector does not favour demand for R&D. The economy is dominated by micro, small & medium enterprises, which make up 99.8% of the entrepreneurship²³⁷. Small and micro – enterprises are oriented mostly on low value added support services, hence are unlikely to invest in RTDI. Despite the continuous increase in national or European funding opportunities for SMEs, the mobilisation of SMEs is lower than national targets.

There are some encouraging signs on SME policy and performance. Some have stated that their image has improved and have managed to attract new customers after completing their research because they have proved that they can do research successfully. The small size of companies is not a limited factor for R&D I activities taking into consideration that start-ups start as small companies and then through high acceleration they become big. In almost all the countries R&D activities are heavily subsidized, so that the risk is shared between business and government, in Cyprus the only subsidies for R&D activities come from the structural funds and from FP7 and Horizon. Cypriot SMEs have one of the highest share of programs and grants, received as compared to research organization and public sector, proving that the Cypriot SMEs are very active. Moreover the applications for the innovation grand scheme, call 2014, had tripled compared first call of 2012, and there was at least 50% of the companies that have done applications on the first call. It is also important that 15% of the proposals have a University in the consortium.

R&D expenditure from the business enterprise sector has been steadily decreasing since 2008 and in 2013 accounted for about 15% of total GERD. In 2013, there were signs of recovery with BERD per capita reaching 2011 levels (€ 15.4 per capita). Multinationals do not invest in research in the country.

²³⁵ [Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\). Facts & Figures, July 2015](#), pg. 13

²³⁶ [Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\). Facts & Figures, July 2015](#), pg. 11

²³⁷ [Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014](#), pg. 10

As evidenced by the analysis in the context of RIS3, enterprises do not participate in R&D projects due to bureaucracy, unawareness of the existence of funding and development programs and opportunities²³⁸. Based on a field survey conducted in 827 Cypriot companies from all sectors of economic activity, about 67% of the respondents believed that it is very difficult to establish research collaborations with universities²³⁹. However, the results of the innovation scheme 2014 call suggest an improvement, with 15% of the proposals coming from business-university cooperations (see 3.5.1).

The challenge is compounded by the limited number of high-tech companies in the country. Total R&D expenditure performed by high tech companies in Cyprus is the lowest in EU, reaching € 13 m in 2013²⁴⁰. Employment in high tech sectors was among the lowest in EU at 2.9% of total employment in 2014, compared to an EU 28 average of 4%²⁴¹. High and medium high technology sectors accounted for less than 1% of total employment in the period 2011-2013²⁴². The lack of seed and venture capital, the small size of the market and the peripheral location of the country are important barriers to high-tech company development.

Limited propensity to innovate through exploitation of research results and knowledge transfer

Cyprus is a moderate innovator with a negative innovation growth rate (-0.1%) in the period 2007-2014²⁴³. Turnover from innovation, has been steadily decreasing from 16.1% in 2008 to 14.7% in 2010 and 11.4% in 2012, compared to EU-28 average of 11.9%²⁴⁴.

Cyprus is a medium-low performer in all categories of innovation output indicator (Number of PCT patent applications per billion GDP, PPS, Employment in knowledge-intensive activities in business industries as % of total employment, Innovativeness of high-growth enterprises, Combination of sub-components), except for employment in Knowledge Intensive Activities²⁴⁵. Based on European Patent Office (EPO) statistics, out of the total 65,667 patents granted in 2012, only 12 came from researchers established in Cyprus²⁴⁶.

This is associated with the lack of awareness (and culture) of enterprises for the potential benefits of innovation, the limited involvement of SMEs, the limited collaboration between business and academia (which could encourage companies to exploit university research results in the market) and last but not least a divide: the composition of the business sector is dominated by services (80% of GDP), whereas innovation support is not sufficiently oriented to the service sector. The lack of availability of seed capital and market exit capitalisation for R&D businesses deprives the country from an instrument that is effective in other countries.

Shortage of human resources for research

The increase in the number of researchers in the country represents a major challenge: researchers in the public sector suffer from reduced salaries, whereas the business sector does not employ research personnel.

²³⁸ [Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014](#), pg. 20

²³⁹ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 154

²⁴⁰ Eurostat, Business enterprise R&D expenditure in high-tech sectors - NACE Rev. 2 (htec_sti_exp2)

²⁴¹ Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

²⁴² Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

²⁴³ [European Commission, Innovation Union Scoreboard 2015](#), pg. 13

²⁴⁴ Eurostat- Turnover from Innovation as % of total turnover (tsdec340)

²⁴⁵ [European Commission, Research and Innovation Performance in the EU, Innovation Union progress at country level, 2014](#), pg. 68

²⁴⁶ [Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#), pg. 106

Still, at the end of 2012 (latest available date), total R&D personnel and researchers accounted for 0.62% of total active population, the lowest rate after Romania²⁴⁷. Most of the researchers are employed in HEI (66% of total)²⁴⁸.

The lack of adequate conditions for research (narrow research base, absence of large research infrastructures), the small size of the business market and the low salaries (after the reduction of salaries of the public service) further limit the career choices for researchers and leads to significant brain-drain.

In 2014, the tertiary education attainment level in Cyprus increased to 51.1%, compared to 47.8% in 2013 and a national target of 46% (EU target 40%)²⁴⁹. However, brain drain and a mis-match of demand and supply indicate that, despite improvements, human resources development is still a challenge for the economy. In spite of the exceptional tertiary education attainment levels, unemployment in science and technology sector (age group 25-64 years old) has increased from 7.6% in 2012 to 9.8% in 2014. Youth unemployment (age group 25-34 years old) remains high at 15.4%, compared to 11.2% in 2012²⁵⁰. Supply of skilled and medium-skilled labour increased more rapidly than demand in the decade 2000-2010 and it is expected to further increase more rapidly than demand in the current decade (see chapter 4.4.1 above).

Challenges	Justification
1. Lack of strategic guidance and need for stronger prioritisation	<ul style="list-style-type: none"> Funding in the previous programming period (2007-2013) was spread throughout different research areas leading to broad research orientation.
2. Limited business demand for R&D	<ul style="list-style-type: none"> Existence of micro, small & medium enterprises, unlikely to invest in RTDI. Economy oriented towards trade and services that do not require research. BERD is low and steadily decreasing though showing signs of recovery. The crisis has shifted business focus to survival and not long term investments, like R&D
3. Limited propensity to innovate through exploitation of research results and knowledge transfer	<ul style="list-style-type: none"> Low performance of Cyprus in relation to the production, patenting and exploitation of research results. Absence of internal institutional management policies for Intellectual Property Rights (IPR) issues in most of the research organizations. Limited Technology Transfer infrastructure Low number of patent applications filed under the PCT. Limited collaboration between business and academia
4. Shortage of human resources for research	<ul style="list-style-type: none"> Total R&D personnel is one of the lowest in EU in spite of the high rank of Cyprus in the number of people with tertiary education. Limiting factors are the narrow research base, the absence of large research infrastructures, and the small size of the business market and the lowering of salaries after the crisis.

²⁴⁷ Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex (rd_p_perslf)

²⁴⁸ Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex (rd_p_perslf)

²⁴⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 3

²⁵⁰ Eurostat, Unemployed persons by HRST category and age (hrst_st_nuneage)

6.2 Meeting structural challenges

Lack of strategic guidance and need for stronger prioritisation

The RPF has made successive efforts to limit the areas for which it launches competitive calls to avoid thinly spread budgets. This is, however, difficult and meets with resistance from the disciplines neglected. This is understandable, since the research budget is very low and the country needs to maintain and improve an effective education system, which needs research funds to keep its knowledge basis up-to-date. In addition the RPF does not have the resources to devise such an important decision, as there is reluctance to dedicate more of the very limited resources; the higher the focus the higher the protest from disciplines out of focus.

When comparing scientific and technological specialisation in Cyprus, a mismatch is observed in Environment and Health sectors, where the country appears to have a significant technological advantage. Co-specialisation is observed in new production technologies, energy and the ICT sector²⁵¹.

S3CY has for the first time introduced very clear priorities: it distinguishes between general and thematic priorities (see section 2.4 above). Expanded innovation, Social Innovation, General Application Technologies²⁵², Sustainability-Environment and ICT²⁵³ are acknowledged as general priorities, while Tourism, Energy, Agriculture –Food Industry, Urban development-Construction, Transportation, Shipping and Health are the thematic priorities.

Prioritisation will also benefit from a better governance scheme, announced for the near future.

Limited business demand for R&D

The government places emphasis on industry-academia collaboration schemes such as ILOs and the establishment of a Business Support Centre.

A cluster development policy is also expected between competing or complementary businesses, with the aim to create 5 clusters by the end of the programme and a total budget of €3.5m²⁵⁴. EUREKA Cyprus also enhances collaborations and clusters.

However, the problem of limited R&D demand is associated with the structure of the business sector (sectors, share of traditional SMEs and size of the market). Changes in the production structure need to be addressed, in order for demand to grow. It is important to combine R&D support with business opportunities, if the government wishes to address deeply rooted business behavioural patterns.

Regarding the low number of high-tech companies in the country, a few success stories exist with the establishment of a number of innovative companies that export to Europe and to the USA. Most of these companies have graduated from the business incubators programme²⁵⁵. The best way to address the current deficiencies of the business sector is through the renewal of the productive capacities by developing high-tech companies in niche areas. Such initiatives are yet to be implemented, but the creation of clusters through strategic partnerships between competing or complementary businesses (EUREKA Cyprus) and the establishment of the STP presented under section 2.2 above are steps towards the right direction.

²⁵¹ [European Commission. Research and Innovation Performance in the EU. Innovation Union progress at country level. 2014](#), pg. 65

²⁵² IT, Communications, Biotechnology, Biomedicine, Agrosience, Industrial Technology, Advanced materials, Nanotechnology, Advanced Manufacturing and processes, Emerging Technologies

²⁵³ Hardware, Software, Networks, Digital Tourism, Education and Quality of Life

²⁵⁴ Smart Specialisation Strategy Cyprus, September 2014 pg. 346

²⁵⁵ Cyprus National Reform Programme 2011

However, more emphasis is needed to increase scale. Measures introduced in 2015 and aiming to support high tech creation are the following:

- University support schemes for training of tertiary education graduates, of long term unemployed, schemes for the job placement of unemployed young tertiary education graduates as well as young unemployed graduates of post-secondary education of up to two years, for the acquisition of work experience in enterprises/organisations and multi-company training programmes for the unemployed (presented under 5.3 above)
- The enhancement of Youth and Women Entrepreneurship introduced by MECIT (see section 2.3 above);
- The scheme for the enhancement of SMEs' competitiveness in the manufacturing sector, introduced by MECIT in 2015 (see section 2.3 above); and
- The creation of CYBAN announced by S3CY (see section 5.4 above).
- Several measures supporting infrastructure for Technology Transfer and SMEs planned for 2016

Limited propensity to innovate through exploitation of research results and knowledge transfer

The propped DESMI 2015-2020 addressed the problem with:

- policies and instruments to support the commercialisation of innovative ideas (Commercialisation of R&D results by RPOs and Commercialisation of R&D results by Enterprises)
- instruments to enhance pilot testing (Investigation of Industrial Applications of Technology/Technical know).

The grant scheme for innovative products and services, which was launched in 2012, progressed smoothly. It is expected that the scheme will help develop approximately 100 innovative products-services-processes, 30 cooperation agreements of enterprises with research centres and create 80 new jobs, as presented in section 2.3 above.

Technology transfer offices in HEIs have been created to facilitate technology transfer. The governance report of the NCRITD calls for the establishment of NKTO to facilitate collaborations also with other parties (i.e. private R&D organisations, industry), promote ideas for the commercialisation of R&D results and promote synergies.

The Scheme for Supporting Business Innovation between universities and enterprises received 15 applications for cooperation in March 2015. They will be evaluated in close cooperation with academia (see chapter 2.3 above).

Other initiatives announced in the current programming period and described under section 2.3 above include:

- The establishment of Business Innovation Centres (BIC) accredited by the European Business Network, for the provision of advisory services to public and private businesses for the development of competitive products;
- The provision of Innovation Packages;
- The establishment of Innovation Houses.

A public consultation for a new programme for the enhancement of Social Innovation was launched in August 2015 (see section 1.2.1 above). In June 2015 RPF launched a new programme for patents (see section 3.5.1 above).

Shortage of human resources for research

The government has addressed the problem with the continuously rising number of postgraduate courses in universities. The Cyprus National Reform Programme 2013 included a target to increase participation in Higher education by 2020 to 46% through

the expansion and modernisation of HEIs, strengthening links between training and the labour market and promoting transnational mobility²⁵⁶. The CUT increased its enrolment in September 2013 by 35 students and allowed up to 30 students already studying abroad but not being able to sustain tuition to get transferred to CUT. UoC also increased its enrolment by 100 students and accepted up to 200 students from abroad²⁵⁷. The government announced the increase of students enrolled in UoC and CUT in 2014-2015 by 486 and 191, respectively²⁵⁸.

In addition, funds were allocated to schemes for the enhancement of collaboration between secondary education and university graduates and the enterprise sector. A total budget of €17 m was equally allocated to the placement of up to 2,500 secondary school graduates (aged up to 25) and up to 2,500 university graduates in enterprises/organisations for acquiring work experience in the field of their studies. Success rate was almost 41% (1,023 placements) in the first scheme and over 76% in the second scheme (1,916 placements)²⁵⁹.

The Cyprus National Reform Programmes for 2014 and 2015 do not include explicit measures for the increase of R&D personnel but focuses on more general measures addressing overall unemployment, including training programmes for upgrading the skills of unemployed persons, initiatives for the enhancement of cooperation between universities and enterprises, the development of a competence-based system of vocational qualifications and the reform of the curricula at the secondary and tertiary education²⁶⁰.

On a negative note, Law 168 (I)/2012, as amended by Law 31(I) 2013 introduced decreases in the salaries of public sector employees that range from 0.8%-14.5%, depending on the salary level. Salary reductions affected in particular the number of PhD students²⁶¹. Unless salaries and benefits are increased it is unlikely that researchers will be attracted.

²⁵⁶ [Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013](#), pg. 14

²⁵⁷ [Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013](#), pg. 15

²⁵⁸ <http://newpost.gr/post/360723/kypros-ayksanontai-oi-theseis-gia-foithtes-sta-kratika-panepisthmia>, December 2014

²⁵⁹ [Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#), pg. 6

²⁶⁰ [Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014](#), pg. 7

²⁶¹ [Deloitte, Researchers' Report 2014 Country Profile: Cyprus](#), pg. 11

References

[Action Plan for Dialogue and Consultation, Research Promotion Foundation, New RPF Programmes 2015-2020](#)

Bankruptcy and second chance for honest bankrupt entrepreneurs, Cyprus (Tsipouri L., 2014)

Campbell, D., Lefebvre C., Picard-Aitken M., Côté G., Ventimiglia A., Roberge G., and Archambault E., 2013, *Country and regional scientific production profiles*, Directorate-General for Research and Innovation, Publications Office of the European Union.

[Cohesion Policy and Cyprus, June 2014](#)

[Commission Staff Working Document, Assessment of the 2014 National Reform Programme for Cyprus, June 2014](#)

[COMMISSION STAFF WORKING DOCUMENT, Country Report Cyprus 2015, February 2015](#)

[COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS, Research and innovation as sources of renewed growth, June 2014](#)

Council of the EU (2012) Council Recommendation on the National Reform Programme 2012 of Cyprus.

[Cyprus Government, Ministry of Justice and Social Order, Annual Report 2012](#)

Cyprus National Reform Programme 2011

[Cyprus National Reform Programme 2012](#)

[Cyprus National Reform Programme 2014 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2014](#)

[Cyprus National Reform Programme 2015 Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, April 2015](#)

[Economic Adjustment Programme for Cyprus](#)

Edquist, Charles and Jon Zabala-Iturriagagoitia (2015) The innovation Scoreboard is flawed: the case of Sweden – not being the innovation leader of the EU. CIRCLE Papers in Innovation Studies 2015/27.

[Europe 2020 targets Research and Development](#)

[European Commission DG RTD, Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe, Final Report](#)

European Commission (2015a) European Economic Forecast Autumn 2015

[European Commission, Innovation Union Scoreboard 2015](#)

[European Commission, Research and Innovation Performance in the EU, Innovation Union progress at country level, 2014](#)

European Commission, DG RTD, Study Visit, Institution: University of Cyprus, Country: Cyprus, Case study undertaken in the context of the 'Exploration of the implementation of the Principles for Innovative Doctoral Training in Europe' (Tsipouri L. September 2013)

[European Commission Gender Equality Policies in Public Research, Based on a survey among](#)

[Members of the Helsinki Group on Gender in Research and Innovation, 2013](#)

[European Commission, The Economic Adjustment Programme, Cyprus, 6th Review – Spring 2015, July 2015](#)

[European Commission, Research and Innovation Performance in the EU, Innovation Union progress at country level, 2014](#)

[European Commission She figures 2012, Gender in research and innovation, Statistics and Indicators](#)

[European Research Area, Progress Report 2014](#)

ERAWATCH Communication Fiche Cyprus 2013

ERAWATCH Country Report 2013: Cyprus

ERAWATCH Country Fiche 2013: Cyprus

Eurostat, Business enterprise R&D expenditure (BERD) by economic activity and source of funds (NACE Rev. 2) (rd_e_berdfundr2)

Eurostat, Business enterprise R&D expenditure in high-tech sectors - NACE Rev. 2 (htec_sti_exp2)

Eurostat, Employment in technology and knowledge-intensive sectors at the national level, by sex (from 2008 onwards, NACE Rev. 2) (htec_emp_nat2)

Eurostat, GDP (nama_gdp_c)

Eurostat, Population (tps00001)

Eurostat, Research and Development Expenditure by Sectors of Performance (tsc00001)

Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance (rd_e_gerdtot)

Eurostat, Total R&D personnel and researchers by sectors of performance, as % of total labour force and total employment, and by sex (rd_p_perslf)

Eurostat, Turnover from Innovation as % of total turnover (tsdec340)

Eurostat, Unemployed persons by HRST category and age (hrst_st_nuneage)

Eurostat, Total unemployment rate (tsdec450)

[EVCA Tax Benchmark Study 2012, June 2013](#)

[IA study on the Open, transparent, and merit-based recruitment of researchers. \(Technopolis group, March 2014\).](#)

Innovate Cyprus, Proposal for the creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus, (National Committee for Research, Innovation and Technological Development, March 2014 - in Greek)

[Innovation Union Competitiveness Report 2013](#)

[JRC Scientific and Technical Reports, European university funding and financial autonomy. A study on the degree of diversification of university budget and the share of competitive funding. \(Dominicis L., Susana E., Zubieta A.F., 2011\)](#)

[Law 68 \(I\) 96](#)

[Law 118 \(I\)2002](#)

[Law 177 \(I\) 2002](#)

[Law 234\(I\) 2002](#)

[Law 193\(I\)/2004](#)

[Law 109\(I\)/2005](#)

[Law 38\(I\)/2009](#)

[Law 168 \(I\) 2012](#)

[Law 21 \(I\) 2013](#)

[Law 31 \(I\) 2013](#)

[Law 115\(I\)2014](#)

[Law 62 \(I\)/2015](#)

[Law 64\(I\)/2015](#)

Ministry of Education and Culture (2015) Agency of Quality Assurance and Accreditation in Higher Education. http://www.highereducation.ac.cy/en/cy_agency_quality_assurance_aaccre.html.

[Ministry of Justice and Social Order, Gender Equality Legislative Measures](#)

[MORE2 Remuneration Cross country Report, April 2013](#)

NCRITD (2014) Innovate Cyprus. Proposal for the Creation of a new Integrated National Framework for Research, Technology Development and Innovation in Cyprus (*available in Greek only*).

[NETWATCH Platform on transnational R&D programme collaboration](#)

[Open Access for Research Infrastructure in Europe](#)

Open Access Strategies in the European Research Area, produced for the European Commission DG Research & Innovation, (Caruso J, Archambault A. , August 2013)

[Preliminary results of She figures 2015](#)

[Proportion of Open Access Peer-Reviewed Papers Published in Peer-Reviewed Journals at the European and World Levels 1996-2013, October 2014, Science Metrix](#)

[Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#)

RPF – Research Promotion Foundation (2015) Enhancing the Innovation Management Capacity of Cypriot SMEs. <http://www.research.org.cy/EL/news/3830.html>.

[Researchers' Report 2014 Country Profile: Cyprus. \(Deloitte, 2014\)](#)

RIO Country Report Cyprus

[Smart Specialisation Strategy for Cyprus, Executive Summary, Nicosia May 2014](#)

Smart Specialisation Strategy Cyprus, September 2014

[Smart Specialisation Strategy for Cyprus, Final Report, Nicosia, March 2015](#)

S3 Platform (2014) RIS3 Peer-Review Report Cyprus.

[Stairway to Excellence Cohesion Policy and the Synergies with the Research and Innovation Funds Cyprus \(CY\), Facts & Figures, July 2015](#)

[The European Trade Association for Business Angels, Seed Funds, and other Early Stage Market Players, Statistics Compendium 2014](#)

The unofficial codification of laws for University of Cyprus in the period 1989 – 2007

Tsipouri, Lena and Sophia Athanassopoulou (2015) RIO Country Report Cyprus 2014

WIPO (2013) Statistical Country Profiles Cyprus

Abbreviations

	ENGLISH NAME	NATIONAL NAME
BERD	Business Expenditures for Research and Development	-
BIC	Business Innovation Centres	Κέντρα Επιχειρηματικής Καινοτομίας
CEI	Commissioner of Entrepreneurship and Innovation	Επίτροπος Έρευνας, Καινοτομίας και Επιχειρηματικότητας
CERN	European Organisation for Nuclear Research	-
CII	Cyprus International Institute for the Environment and Public Health	Διεθνές Ινστιτούτο Κύπρου για την Περιβαλλοντική και Δημόσια Υγεία
CING	Cyprus Institute of Neurology and Genetics	Ινστιτούτο Νευρολογίας και Γενετικής Κύπρου
COOPS	Cooperative Credit Institutions	Συνεργατικά Πιστωτικά Ιδρύματα
CSC	Cypriot Scientific Council	Επιστημονικό Συμβούλιο Κύπρου
CUT	Cyprus University of Technology	Τεχνολογικό Πανεπιστήμιο Κύπρου
CYBAN	Cyprus Business Angels Network	Κυπριακό Δίκτυο Επιχειρηματικών Αγγέλων
CyNet	Cyprus Research and Academic Network	Κυπριακό Ερευνητικό και Ακαδημαϊκό Δίκτυο
DESMI	Research Promotion Foundation's Framework Programme for Research, Technological Development and Innovation	ΔΕΣΜΗ
DGRIE	Directorate General of Research, Innovation and Entrepreneurship	Γενική Διεύθυνση Έρευνας, Καινοτομίας και Επιχειρηματικότητας
DGEPCD	Directorate General for European Programmes, Coordination and Development	Γενική Διεύθυνση Ευρωπαϊκών Προγραμμάτων, Συντονισμού και Ανάπτυξης
EAFRD	European Agricultural Fund of Rural Development	-
EPO	European Patent Office	-
ERA	European Research Area	-

ERA-NET	European Research Area Network	-
ESIF	European Structural and Investment Funds	-
ESFRI	European Strategy Forum on Research Infrastructures	-
ESM	European Stability Mechanism	Ευρωπαϊκός Μηχανισμός Σταθερότητας
FDI	Foreign Direct Investments	-
FP7	7th Framework Programme	7ο Πρόγραμμα Πλαίσιο
GBAORD	Government Budget Appropriations or Outlays on R&D	-
GDP	Gross Domestic Product	Ακαθάριστο Εθνικό Προϊόν
GERD	Gross Domestic Expenditure on R&D	Ακαθάριστη Εγχώρια Δαπάνη Έρευνας και Τεχνολογικής Ανάπτυξης
GUF	General University Funds	-
HEIs	Higher Education Institutions	Ανώτερα Εκπαιδευτικά Ιδρύματα
HERD	Higher Education Expenditure on R&D	Δαπάνη Έρευνας και Τεχνολογίας Ανώτερων Εκπαιδευτικών Ιδρυμάτων
HRST	Human Resources in Science and Technology	Προσωπικό απασχολούμενο σε Έρευνα και Τεχνολογία
ICT	Information Communication Technology	Τεχνολογία Πληροφορικής
ILO	Industry Liaison Office	Γραφείο Διασύνδεσης
IMF	International Monetary Fund	Διεθνές Νομισματικό Ταμείο
IPR	Intellectual Property Rights	Διπλώματα Ευρεσιτεχνίας
IU	Innovation Union	-
IUS	Innovation Union Scoreboard	-
JEREMIE	Joint European Resources for Micro to Medium Enterprises	-
JPI	Joint Programming Initiatives	Κοινές Προγραμματικές Πρωτοβουλίες
JTI	Joint Technology Initiatives	Κοινές Τεχνολογικές Πρωτοβουλίες
KYSATS	Council of Recognition of Higher Qualifications	Κυπριακό Συμβούλιο Αναγνώρισης Τίτλου Σπουδών
MECIT	Ministry of Energy, Commerce, Industry and Tourism	Υπουργείο Ενέργειας, Εμπορίου, Βιομηχανίας και Τουρισμού
NCRI	National Research Council for Research and Innovation	Εθνικό Συμβούλιο Έρευνας και

		Καινοτομίας
NCRIE	National Council of Research, Innovation and Entrepreneurship	Εθνικό Συμβούλιο Έρευνας, Καινοτομίας και Επιχειρηματικότητας
NCRITD	National Committee for Research, Innovation and Technological Development	Εθνική Επιτροπή Έρευνας, καινοτομίας και Τεχνολογικής Ανάπτυξης
NKTO	National Knowledge Transfer Office	Εθνικό Γραφείο Μεταφοράς Τεχνολογίας
NRP	National Reform Programme	Εθνικό Πρόγραμμα Μεταρρυθμίσεων
NPL	Non Performing Loans	Μη εξυπηρετούμενα δάνεια
OECD	Organisation for Economic Co-operation and Development	Οργανισμός Οικονομικής Συνεργασίας και Ανάπτυξης
OP	Operational Programme	Επιχειρησιακό Πρόγραμμα
ORTF	Organisation of Research and Technology Transfer	Οργανισμός Έρευνας και Μεταφοράς Τεχνολογίας
PA	Partnership Agreement	Συμφωνία Πλαίσιο
PSIVET	Post Secondary Education Institutes of Vocational Education and Training	Ινστιτούτα Δευτεροβάθμιας Εκπαίδευσης και Επαγγελματικής Εκπαίδευσης και Κατάρτισης
R&D	Research and development	Έρευνα και Ανάπτυξη
RI	Research Infrastructures	Ερευνητικές Υποδομές
R&I	Research and innovation	Έρευνα και Καινοτομία
RES	Renewable Energy Sources	Ανανεώσιμες Πηγές Ενέργειας
RIE	Research, Innovation, Entrepreneurship	Έρευνα, Καινοτομία, Επιχειρηματικότητα
RPF	Research Promotion Foundation	Ίδρυμα Προώθησης Έρευνας
RPO	Research Public Organisations	Δημόσια Ερευνητικά Ιδρύματα
RTDI	Research Technological Development and Innovation	Έρευνα Τεχνολογική Ανάπτυξη και Καινοτομία
SF	Structural Funds	Κεφάλαια Διαρθρωτικών Ταμείων
STP	Science Technology Park	Επιστημονικό Τεχνολογικό Πάρκο
SME	Small and Medium Sized Enterprise	Μικρομεσαίες Επιχειρήσεις
UAT	University Autonomous Tool	-
UCY	University of Cyprus	Πανεπιστήμιο Κύπρου
VC	Venture Capital	Κεφάλαια Επιχειρηματικών Συμμετοχών
VET	Vocational Education and Training	Επαγγελματική Εκπαίδευση και Κατάρτιση
YGIP	Youth Guarantee Implementation Plan	Σχέδιο Νεανικής Εγγυοδοσίας

List of Figures

Figure 1 Governance of R&I system.....	17
Figure 2 Government deficit and public debt. Data source: Eurostat.....	25
Figure 3 Funding of the total GERD. Data source: Eurostat	26
Figure 4 R&D appropriations and government funded GERD in millions of national currency.	27
Figure 5 Government intramural expenditure by sectors of performance.....	28
Figure 6 Government intramural expenditure by sectors of performance.....	28
Figure 7 Fiscal consolidation and R&D.....	29
Figure 8 BERD intensity broken down by most important macro sectors (C= manufacture, G_N=services, Q=Human health and social work activities).	37
Figure 9 BERD by source of funds	37
Figure 10 Top sectors in manufacturing (C10-C12: Manufacture of food products; beverages and tobacco products; C20= Manufacture of chemicals and chemical products; C21= Manufacture of basic pharmaceutical products and pharmaceutical preparations).	38
Figure 11 Top service sectors (J=information and communication, G=wholesale and retail trade; repair of motor vehicles and motorcycles, M=professional, scientific and technical activities).	38
Figure 12 Economic sectors as percentage of the total GVA.	39
Figure 13 GVA in manufacturing.	39
Figure 14 Value added at factor cost for the leading manufacture and service sectors in Figures 10 and 11.	40
Figure 15 BES-funded public R&D in Cyprus as % of GERD (in €MLN) and % of GDP ..	55
Figure 16 BES-funded public R&D as % of GERD and as % of GDP in 2013 in Member States	55
Figure 17 Structural Funds for core R&D activities 2000-2006, 2007-2013 and 2014-2020. We use the categories: 182 (2000-2006), 03 and 04 (2007-2013) and 062 (2014-2020) as proxies for KT activities.	56
Figure 18 CIS survey 2012 – share of enterprises cooperating with academia	57
Figure 19 Co-publications by field 2003-2013 in Cyprus. Scopus database	58

List of Tables

Table 1 Main R&I indicators 2012-2014.....	14
Table 2 Statistics of FP7 funding programmes	20
Table 3 Basic indicators for R&D investments.....	24
Table 4 Key Cypriot Public R&D Indicators	26
Table 5 Public Funding from Abroad to Cypriot R&D (millions of national currency, i.e. euro from 2008)	27
Table 6 Science base indicators.....	41
Table 7 Labour market skills forecast-demand and supply (% change)	44
Table 8 Open access repositories in Cyprus.....	50

Annex 1 – List of the main research performers

NO.	UNIVERSITY/RESEARCH INSTITUTE	NUMBER OF PUBLICATIONS (2006-2014)
1	University of Cyprus	8,602
2	Cyprus University of Technology	1,601
3	University of Nicosia	850
4	Cyprus Institute of Neurology and Genetics	726
5	Frederick University Cyprus	669
6	European University Cyprus	402
7	Agricultural Research Institute Nicosia	279
8	Higher Technical Institute Nicosia	162
9	Intercollege Nicosia	139

Source: Scopus

Annex 2 – List of the main funding programmes

Name of the funding programme	Timeline	Budget	Target group
Completed projects	24-48 months/project	20,000,000	Research organisations, corporations, other parties
Excellency Islets	24-36 months/project	17,000,000	Research organisations, corporations, other parties
New Strategic Infrastructure Units	48 months/project	11,200,000	Research organisations, other parties
DIDAKTOR	24-36 months/project	9,400,000	Research organisations, corporations, other parties
Research in corporations	12-24 months/project	9,300,000	Research organisations, corporations, other parties
European Initiatives-Local Development	12-36 months/project	8,000,000	Research organisations, corporations, other parties

Source: [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#)

Annex 2B – List of all funding programmes under proposed DESMI 2015-2020

PILLARS	STRATEGIC AXES	PROGRAMMES	BUDGET (€)
Smart Growth	R&D Partnerships	Completed projects	20,000,000
	Infrastructure	New Strategic Infrastructure Units	11,200,000
	Corporate Participation	Research in corporations	9,300,000
		Research in newly established companies	1,000,000
		Investigation of Industrial Application Technology/Technology Knowhow	1,000,000
	Extroversion-Open Horizons	Transnational cooperation	1,600,000
		International cooperation-Duplication of targets	1,200,000
		EUREKA Cyprus	1,200,000
		European Initiatives-Local Development	8,000,000
	RTDI Sustainability	Excellency	Excellency Islets
Social Innovation			2,500,000
Researchers, New Ideas, New Opportunities		DIDAKTOR	9,400,000
		Youth-2nd Opportunity	4,000,000
Business Excellency		EUROSTARS Cyprus	2,500,000
		SME instrument-2nd Opportunity	1,500,000
Modernisation of RTDI	Support Mechanisms	Innovation Vouchers	260,000
		Patents	400,000
		Participation in International Conference	140,000
		Encouragement of participation in HORIZON 2020	1,000,000
	Alternative Methods of Funding	Commercialisation of research from RPOs	1,270,000
		Commercialisation of research from Corporations	1,270,000
		Supplementary Grants	2,500,000
	RTDI Culture	Development of RTDI Culture	500,000
	TOTAL		98,740,000

Source: [Research, Technology Development and Innovation Programmes 2015-2020 Draft Notice, Research Promotion Foundation, July 2015](#), pg. 10

Annex 3 – Evaluations, consultations, foresight exercises

No evaluations have taken place.

Consultations were oral with no public domain documents.

Europe Direct is a service to help you find answers to your questions about the European Union
Free phone number (*): 00 800 6 7 8 9 10 11
(*) Certain mobile telephone operators do not allow access to 00 800 numbers or these calls may be billed.

A great deal of additional information on the European Union is available on the Internet.
It can be accessed through the Europa server <http://europa.eu>

How to obtain EU publications

Our publications are available from EU Bookshop (<http://bookshop.europa.eu>),
where you can place an order with the sales agent of your choice.

The Publications Office has a worldwide network of sales agents.
You can obtain their contact details by sending a fax to (352) 29 29-42758.

JRC Mission

As the Commission's in-house science service, the Joint Research Centre's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle.

Working in close cooperation with policy Directorates-General, the JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners.

*Serving society
Stimulating innovation
Supporting legislation*

doi:10.2791/926454

ISBN 978-92-79-57791-8

