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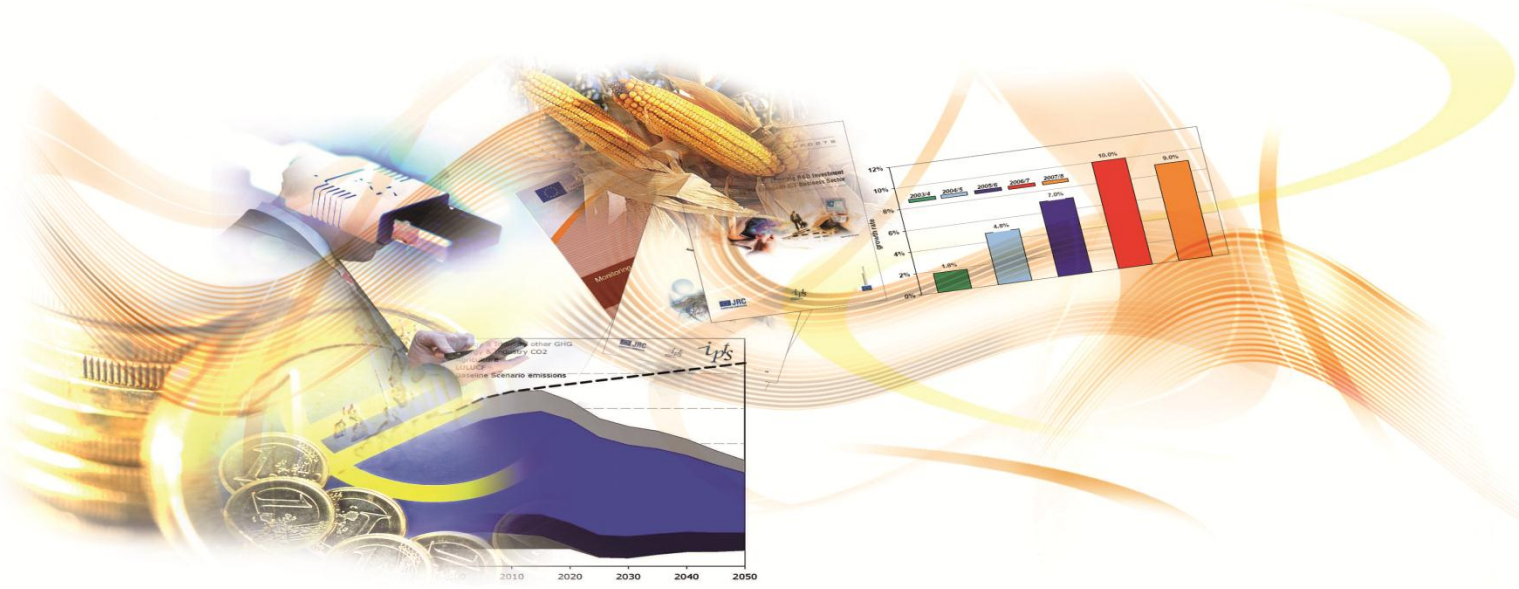

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Abstract

The Analytical Country Reports analyse and assess in a structured manner the evolution of the national policy research and innovation in the perspective of the wider EU strategy and goals, with a particular focus on the performance of the national research and innovation (R&I) system, their broader policy mix and governance. The 2013 edition of the Country Reports highlight national policy and system developments occurring since late 2012 and assess, through dedicated sections:

- national progress in addressing Research and Innovation system challenges;
- national progress in addressing the 5 ERA priorities;
- the progress at Member State level towards achieving the Innovation Union;
- the status and relevant features of Regional and/or National Research and Innovation Strategies on Smart Specialisation (RIS3);
- as far relevant, country Specific Research and Innovation (R&I) Recommendations.

Detailed annexes in tabular form provide access to country information in a concise and synthetic manner.
The reports were originally produced in December 2013, focusing on policy developments occurring over the preceding twelve months.

ACKNOWLEDGMENTS AND FURTHER INFORMATION

This analytical country report is one of a series of annual ERAWATCH reports produced for EU Member States and Countries Associated to the Seventh Framework Programme for Research of the European Union (FP7). ERAWATCH is a joint initiative of the European Commission's Directorate General for Research and Innovation and Joint Research Centre.

The Country Report 2013 builds on and updates the 2012 edition. The report identifies the structural challenges of the national research and innovation system and assesses the match between the national priorities and the structural challenges**,** highlighting the latest developments, their dynamics and impact in the overall national context.

The first draft of this report was produced in December 2013 and was focused on developments taking place in the previous twelve months. In particular, it has benefitted from the comments and suggestions of Dimitris KYRIAKOU from JRC-IPTS. The contributions and comments from DG-RTD and Dr. Kalypso Sepou, Head of the European Research Programmes and International Collaboration Unit of the Research Promotion Foundation and JRC National Contact Point for HORIZON 2020 are also gratefully acknowledged.

The report is currently only published in electronic format and is available on the ERAWATCH website. Comments on this report are welcome and should be addressed to jrc-ipts-erawatch-helpdesk@ec.europa.eu.

EXECUTIVE SUMMARY

The developments of the R&I system in Cyprus are determined by the late entry of the country into the knowledge society and its current unprecedented economic problems. The Research and Innovation (R&I) system in Cyprus emerged in its current form in the mid-1990s and is evolving with the aim to increase efficiency and economic impact. The Planning Bureau, which has changed status and is now the Directorate General for European Programmes, Coordination and Development under the Ministry of Finance is a government agency engaged in the formulation of strategy, the identification of objectives and the introduction of policy measures aiming (among other economic development dimensions) at the promotion of research activities in Cyprus. At the implementation level, research and innovation support measures are the responsibility of the Research Promotion Foundation (RPF), which is an autonomous agency . The Ministry of Energy, Commerce, Industry and Tourism (MECIT) is responsible for industrial policy, including the promotion of entrepreneurship and innovation. The most recent development is the creation of National Committee for Research, Innovation and Technological Development (NCRITD) in September 2013. Its work has been completed and presented at the end of March 2014.

GERD/GDP is among the lowest in the EU, fluctuating around 0.5% of GDP in the period 2009-2012, less than 1/4 of the EU average. BERD has been steadily decreasing in the last years, from € 21.6 per capita at the end of 2008 to €13.3 per capita at the end of 2012, compared to a EU-27 average of €304.8. In the same period, HERD per capita increased from € 41.3 to €53.9 at the end of 2012, compared to a EU-27 average of €119.5.

The main *source of research* funding is the government, accounting for 70.5% of the total, followed by external funding, mainly European, at 14.07%% and by business contribution at 11%. The remaining 4.3% is derived from funding offered by HEIs and private non-profit institutions (2011 latest available data). Cyprus ranks 22nd in EU-27 in terms of number of applicants to FP7 programmes and 21st in terms of requested EC contribution. Public expenditure on research was at €82.8m in 2012 marking an annual decrease of about 6.8% compared to 2011. The largest *R&D performer* are HEIs, absorbing 56.2% of total expenditure, followed by the government and the business enterprise sector, absorbing 16.7% and 13.9%, respectively. Most of the government contribution to GERD goes to the HEIs with 56.4% of total public funding (2011 latest available data). Public research organisations rank second with a 22% contribution.

Competitive funding comes mainly from the RPF "Desmi", a multi-annual research support programmes as well as from targeted innovation and entrepreneurship support measures of MECIT. In "Desmi 2008-2010", key thematic areas in the period 2009-2011 were "ICT/ information processing and telecommunications", the "Social and economic aspects", "Biological science", "Industry and technology" and "Materials and construction", accounting for 70% of total funding[1]. There were delays in Desmi implementation and a new multi-annual programme is expected in the current programming period.

The main structural challenges are:

1. ***Limited human resources for research,*** although there is a large potential in terms of highly educated young people (44.7%, which is among the highest rates in the EU-27). Efforts at all educational levels are undertaken to address this point. The gap comes from brain-drain, deteriorating employment conditions and mis-match of skills.

[1] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013

2. ***Limited demand for R&D:*** The business sector shows limited interest in investing in R&D&I, despite generous incentives offered by the public sector before the crisis. This has obviously deteriorated since 2009. The sectoral composition of the Cypriot business sector is one explanation of the reluctance to invest in R&D accompanied by long-term embedded behavioural characteristics and partial failures in policy design.
3. ***Limited propensity to innovate:*** There is no innovation culture for risk-taking; increasing efforts to create incentives (despite serious public budget limitations) had limited results. The business sector is dominated by services (80% of GDP), whereas innovation support is not sufficiently oriented towards the service sector. The lack of availability of seed capital and venture capital is one of the problems that need to be overcome.
4. ***Limited number of high-tech companies in the country:*** The best way to address the current deficiencies in terms of the number of high tech companies in the business sector is through the renewal of the productive capacities by placing emphasis on the development of high-tech companies in niche areas. Again seed capital and market exit capitalisation are important instruments lacking for such a policy priority.
5. ***Too broad research orientation in need of more prioritisation:*** thematic priorities are still too broad. The Smart Specialisation Strategy and the operation of the NCRITD are expected to narrow down priorities and concentrate support to few areas only.

National priorities recognise the structural challenges (identified above) and there have been several announcements addressing them in policy terms. Effective implementation has, however, been slower than expected. Support measures have suffered from R&I having relatively low priority in the economic agenda and from the crisis. Stronger emphasis and response to challenges is expected in the new programming period, supported by Structural Funds' resources.

Regarding national progress towards Innovation Union Commitments, Cyprus is characterised by a shortage of researchers in spite of the attractive salary packages that was able to offer up until recently. Its main problem lies in the limited R&D activity on the island. Improvements in national research infrastructure are under way through an on-going study using 22 R&D indices and 2 structured questionnaires. There are preparations for the ESFRI Roadmap, as evidenced by the total of 40 proposals submitted by July 2013. Access to finance is considered as one of the major bottlenecks for R&D and its commercialisation. Efforts are channelled towards SMEs through the tender launched by MECIT for the scheme "Enhancement of Business Innovation in Cyprus". Financial engineering instruments promoted under JEREMIE are the main mechanisms allowing SMEs to access finance.

The government had announced a public procurement for innovation scheme, which has been postponed. Nevertheless, Cyprus ranked second in the list of countries with the largest public procurement of innovations in the Public Sector Innovation Scoreboard.

The importance of most bilateral agreements in Cyprus is minimal, with limited chances to perform ground-breaking cooperation. The National Smart Specialisation Strategy does not prescribe specific measures for the maximisation of social and territorial cohesion.

With respect to national progress towards the realisation of ERA, a new Innovation strategy is under way, aiming to increase support programmes for the enhancement of research in universities, research institutes and the business sector. The new Smart Specialisation Strategy for Research and Innovation (RIS3) covers three key dimensions, research / technological infrastructure, linkages with the rest of the world as well as the position of Cyprus in the European and in the global economy and the dynamics of the business environment. There is a commitment to enhance transnational cooperation and competition through funding allocation

to Joint Programme Initiatives. The labour market is open. Gender equality is not an important topic. Open access is an issue discussed at HEIs but not yet an explicit policy. At the end of 2013, there were 3 open access repositories in Cyprus.

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1 BASIC CHARACTERISATION OF THE RESEARCH AND INNOVATION SYSTEM

Cyprus is the third largest Mediterranean island and one of the smallest member states of the European Union with a population of 865,878 people in 2012 (0.2% of the EU-27). Wholesale and retail trade, transport, accommodation and food service activities account for over 23.5% of Gross Value Added (GVA) at basic prices, followed by public administration, defence, education, human health and social work activities (21.8% of GVA). Real estate activities account for 11.5% of GVA, financial and insurance activities account for 9.6% of total GVA, while industry (except construction) accounts for 9.1% of GVA[2].

The economy is experiencing financial distress since 2011, initiated by the crisis but exacerbated by the losses suffered from a restructuring of Greek state bonds, in which the local banking system had invested heavily. The debt crisis culminated in March 2013, when the EU-ECB-IMF Troika and the Cyprus government agreed to a Memorandum of Economic and Financial Policies including a financial rescue package, structural reforms and a mandatory deposit taxation of bank deposits above €100,000 to save the over-indebted banks and ease credit pressures on the public sector. As a result of the crisis, GDP in current prices is projected to contract by 12.6% cumulatively in 2013-14. GDP per capita grew from 80% of the EU average in 2004, when Cyprus joined the EU, to 85.7% in 2010 reaching €21,000 euro per inhabitant, but decreased to 80% of the EU-27 in 2012 (20,500 euro per inhabitant)[3]. Despite a slight improvement of the economic climate in the last quarter of 2013 growth will not take up in 2014. Slow recovery is forecasted for 2015.

Cyprus ranks last in terms of GERD as a percentage of GDP among all the 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). BERD has been steadily decreasing in the last years, from € 21.6 per capita at the end of 2008 to €13.3 per capita at the end of 2012, compared to a EU-27 average of €333.6. In the same period, HERD per capita increased from € 41.3 to €53.9 at the end of 2012, compared to a EU-27 average of €125.9[4].

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.

The National Council for Research and Innovation (NCRI) composed of cabinet ministers (Finance, Energy-Commerce-Industry and Tourism, Education and Culture, Transport and Public Works, Agricultural-Natural Resources and Environment and Health) is the highest body in hierarchy, with the exclusive task of formulating long term R&D strategy.
The CSC is a technical advisory board composed of high calibre scientists, responsible for strategy and planning. CSC is composed of 18 members of qualified scientists to the government.

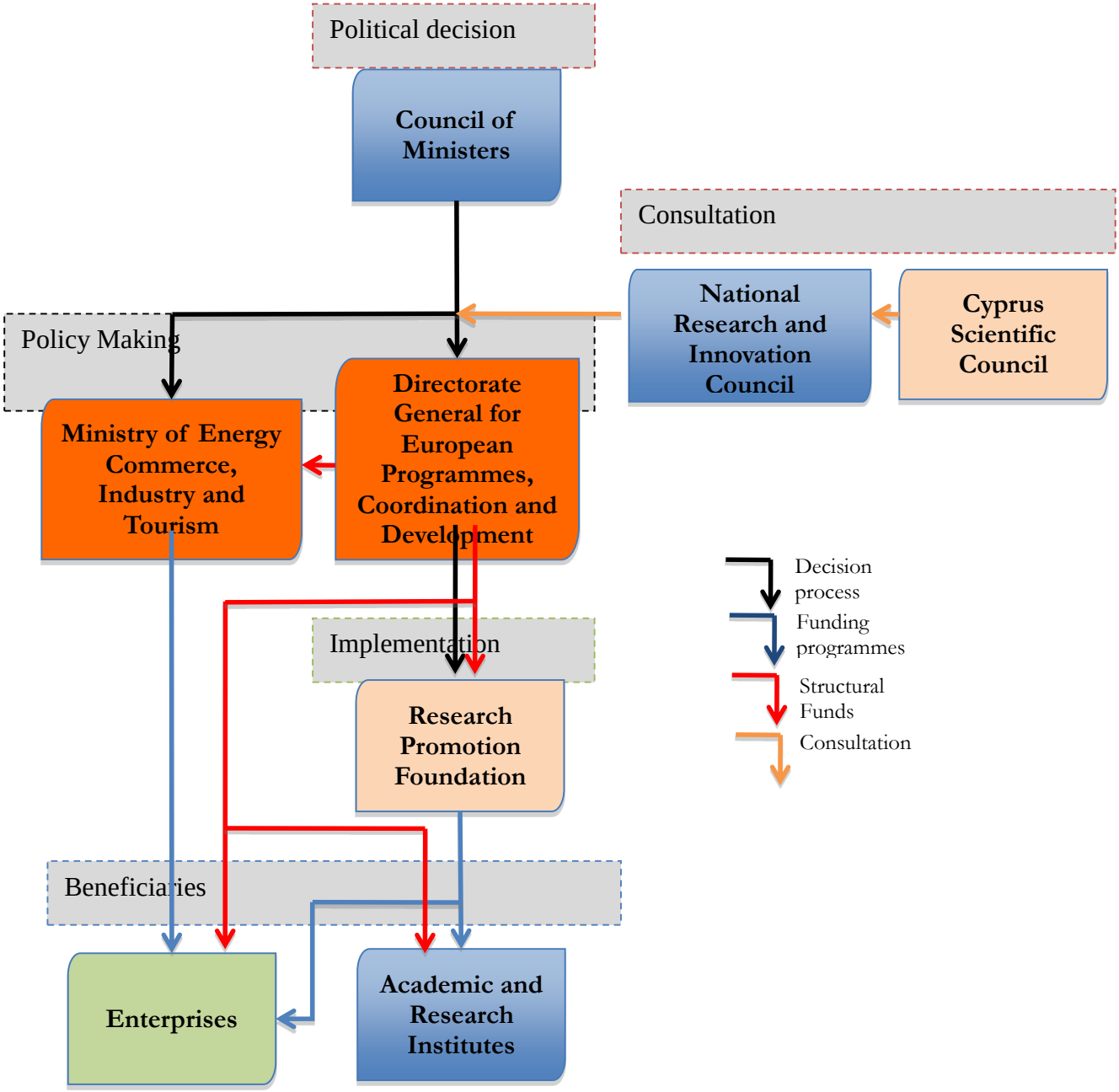
[2] Eurostat, Gross Value Added at basic prices
[3] Eurostat, GDP
[4] Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance

As the two Councils have been slow in their addressing the key challenges a National Committee for Research, Innovation and Technological Development (NCRITD) was created in September 2013 expected to propose the restructuring of the system in the coming months.

At the operational level the Directorate General for European Programmes, Coordination and Development, is a government agency responsible for strategy formulation, identification of objectives and the introduction of policy measures aiming at the promotion of research activities in Cyprus.

At the implementation level, research and innovation activities are integrated under the RPF, an autonomous agency under the supervision of the Directorate General for European Programmes, Coordination and Development. The Ministry of Energy, Commerce, Industry and Tourism (MECIT) is responsible for industrial policy, including the promotion of technology and entrepreneurship. A "Technology Unit" was created in 2011 within the Ministry, which is expanding the activities of the already existing Technology Department and is expected to play a more active role.

Figure 1: Overview of the Cyprus RTDI system governance structure



The government principally funds RDI in Cyprus, accounting for 70.5% of total expenditure; private sector contributes 11% of total, while 14.07% is funded from the EU[5]. Among EU-27, Cyprus ranks 22nd in terms of number of applicants to FP7 programmes and 21st in terms of requested EC contribution. Success rate is below the EU average (21.6%) at 17.3%.

The main research performer group is composed of the public universities (University of Cyprus and Cyprus University of Technology). The Open University has very few R&D projects. Other major organisations undertaking research are the ARI, the Cyprus Institute of Neurology and Genetics (CING) and the Meteorological Centre. The Cyprus International Institute (CII) for the Environment and Public Health, the joint venture with the Harvard School of Public Health, implements research in the respective sectors. Another top-class venture, the Cyprus Institute

[5] Eurostat, Total intramural R&D expenditure (GERD) by sectors of performance and sources of funds

(CyI), operates three Research Centres[6] in close collaboration with foreign establishments of international reputation.[7] No Cypriot universities figure among the top 100 SHANGHAI universities.

As there are both capabilities and needs for e-government, ICT is considered a potential area where public procurement for innovation can play a role stimulating demand-driven research. The government focuses on the development of an integrated National Strategy for the Information Society.

[6] 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)

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

2 RECENT DEVELOPMENTS OF THE RESEARCH AND INNOVATION POLICY AND SYSTEM

2.1 National economic and political context

The economy of Cyprus is experiencing financial distress since 2011. Annual average unemployment increased from 7.9% in 2011 to 11.8% in 2012 and reached 15.5% in March 2013[8].

The government adopted new fiscal measures to reduce the budget deficit, such as increasing the tax rate on dividends from 15% to 17% (first phase) and then to 20% for a period of two years, introducing a €350 levy on all registered companies, increasing the withholding tax on interests on deposits to 15% from 10%, increasing the tax rate for personal income above €60,000 to 35% from 30%[9]. These measures, necessary for addressing immediate fiscal imbalances and complying with the Euro zone criteria, are curtailing growth.

A series of measures were announced by the government in April 2013, aiming to address the high level of unemployment rates and boost corporate growth:

- Three new schemes for the creation of about 8,000 new jobs through the reallocation of ERDF funds. The estimated budget is at about €30 million;
- Tax relief to enterprises for new recruitments;
- Fast track processes for clearing all permit needs for private sector investments within three months;
- Lower interest rates and electricity charges (by 9.5%) for SMEs;
- Measures for the enhancement of the already existing One Stop Shop for investments;
- Simplification of procedures for setting up a company;
- Setting up of the Cyprus National Guarantee Fund for Small and Medium Enterprises;
- Re-activation of the JEREMIE initiative;
- Continuation of the schemes for the promotion of innovation, for female and youth entrepreneurship[10].

In the medium to long term Cyprus is expected to overcome difficulties, thanks to the positive attitude of the people and the business sector (typically claiming that they have experienced a war, they will not go down from a financial crisis) as well as to the the expected extraction and exploitation of natural gas in its continental shelf towards the end of the decade[11]. Until then the economy is expected to benefit from the development of infrastructure for the extraction, the Structural Funds and a world post-crisis recovery.

At this stage the economic distress has already affected and is expected to further affect public funding for RTDI. Within this context, education expenditure is expected to decrease by 7.7% in 2013.

[8] Cyprus Statistical Authority

[9] Cyprus National Reform Programme 2012

[10] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[11] Budget 2013

2.2 Funding trends

2.2.1. Funding flows

At the end of 2012, total GERD was at €82.8m, marking a decrease of 6.8% compared to 2011. The national target for R&D expenditures as a percentage of GDP has been set at 0.50% by the year 2020, from 0.42% in 2008. At the end of 2012, GERD was at 0.47% of GDP (96.1 euro per inhabitant).

As a result of the recent financial crisis, government budget appropriations for R&D (GBAORD) have decreased by 14.7% in 2012 to €68.7m from a rather stabilised period in 2010 and 2011 of GBAOARD at about € 80.5m.

In the period 2009-2012, R&D performance shifted from the business enterprise sector and the government to the HEI, accounting at the end of 2012 for 56.2% of total GERD (€46.5m), as opposed to 46.1% at the end of 2009 (€38.3m). GERD performed by the private non-profit sector fluctuated around €11m, with a peak of €13.8m at the end of 2011.

Table 1. Basic indicators for R&D investments*

	2009	**2010**	**2011**	**2012**	**EU (2012) ****
GDP growth rate	-1.9	1.3	0.4	-2.4	**-0.4**
GERD (% of GDP)	0.49	0.5	0.5	0.47p	**2.06**
GERD (euro per capita)	104.1	105.2	105.8	96.1p	**525.8**
GBAORD - Total R&D appropriations (€ million)	83.966	80.571	80.605	68.722	
R&D funded by Business Enterprise Sector (% of GDP)	0.08%	0.06%	0.05%	n/a	**1.12 (2011)**
R&D performed by HEIs (% of GERD)	46.1%	49.8%	53.5%	56.2%	
R&D performed by Government Sector (% of GERD)	20.4%	19.6%	16.6%	16.7%	
R&D performed by Business Enterprise Sector (% of GERD)	19.8%	17.2%	14.4%	13.9%	
Share of competitive vs. institutional public funding for R&D	**n.a.**	**n.a.**	**n.a.**	**n.a.**	
Venture Capital as % of GDP (*Eurostat table code tin00141)*	**0**	**0**	**0**	0	
Employment in high- and medium-high-technology manufacturing sectors as share of total employment *(Eurostat table code tin00141)*	0.7	0.6	0.7	0.7	
Employment in knowledge-intensive service sectors as share of total employment (*Eurostat table code tsc00012)*	33.8	35.4	35.8	36.1	

p: provisional data
Source: Eurostat, mid December 2013
* The 2012 data will be added once the December 2013 data will be released
**The EU27 (or 28 as far available) average data will be provided by IPTS in December 2013.

In terms of funding in the period 2009-2011, government continues to cover the majority of total funding, accounting for 70.6% of total funding at the end of 2011 (€62.7m), compared to 69% of total funding at the end of 2009 (€57.3m). In the same period, funding from the Business Enterprise Sector has been steadily decreasing. Funding from HEI has been increasing, though still accounting for less than 4% of total funding. There are no data available for 2012.

Overall, funding sources do not change much. Structural Funds play a significant role in RTDI funding, hence the Funds' cycle affects spending. At the national level a slight shift of funding from the RFP to the MECIT is observed.

On a positive note, turnover from Innovation is increasing constantly:

	2004	2006	2008
Turnover from Innovation as % of total turnover (Eurostat table code tsdec340)	**5.6**	**12.3**	**16.1**

Source: Eurostat, mid December 2013

2.2.2. Funding mechanisms

2.2.2.1 Competitive vs. institutional public funding

The Cyprus government plans institutional funding annually through the state budget. The share of funds attributed to institutional funding at the end of 2011 is: €31.4m to HEIs (HERD financed by government sector) and €13.8m to other governmental R&D, including the Ministry of Agriculture, Natural Resources and Environment which conducts most of the research of the governmental sector via its departments, namely the Department of geological Survey, the Department of Fisheries and Marine Research, the Agricultural Research Institute etc. The State General Laboratory also conducts research funded by governmental contributions to R&D. Block funding follows historic and size criteria and is not associated to performance indicators.

The major sources for project-based funding of R&D activities are the programmes of the Research Promotion Foundation (RPF). Grants are distributed through the multiannual competition-based National Framework NFP for Research and Technological Development (DESMI). Currently funding comes from the 2008-2010 programme. However, a new multiannual programme is under preparation; calls will not take place until 2014. Competitive funding addresses both basic and applied research in the context of DESMI. Additional competitive funding comes from the recently adopted MECIT programmes, mainly funding innovation but also partly from those funding entrepreneurship (although the majority of the latter does not go to innovation-oriented companies).

SMEs, academic institutes, SME associations, private companies, non-profit organisations and individuals may participate in the programmes launched by RPF, and the proposals are evaluated on scientific merit; funds are awarded based on excellence. These programmes target bottom up, mission-oriented research. The ex-ante evaluation procedure for 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.

In addition to institutional funding and project-based funding, the Government of Cyprus has launched an Awareness campaign for Innovation and R&D with its main objective to raise awareness among the business community and the public in general on the importance of RTDI.

There are no formally announced annualised statistics comparing block/project funding.

2.2.2.2 Government direct vs indirect R&D funding[12]

Government funding is mainly direct. There is no tax related policy promoting R&D in Cyprus. Taxes are low in general; hence the incentive created by additional reductions would be negligible. However, in May 2012, Cyprus introduced the Intellectual Property Rights Box (IP Box), namely a set of tax incentives to boost intellectual property rights (see Section 4.2 below).

Innovation funding was only implicitly included in R&D support programmes, where the borders between development and innovation were sometimes blurred. Only in 2013 MECIT launched an Innovation Support Measure, explicitly addressed to innovation. Seed and venture capital, as well as funding streams covering the entire value chain are practically non-existent in Cyprus.

2.2.3 Thematic versus generic funding

The priority areas in the multi-thematic call of the Research Promotion Foundation (RPF) include: technology, ICT, sustainable development, Health and bio-sciences, Social Sciences and Humanities. From the past calls one can see that funds are concentrated in the thematic priorities of ICT, bio- sciences and Social Sciences & Humanities. This is not a top down decision but the reaction of researchers to the FP and DESMI 2008-2010 opportunities of competitive funding.

The ministries supervising research centres play a considerable role in thematic research policy formulation, particularly the Ministry of Agriculture, Natural Resources and Environment, which has created a variety of research sub-institutes such as the Agricultural Research Institute, Geological Survey Department, Department of Fisheries and Marine Research etc.

Agriculture and General advancement of knowledge (R&D financed from General University Funds (GUF) and other sources) accounted for over 90% of total GBAORD in 2011 and in 2012. Grand challenges (Energy, Health and Environment) accounted for less than 4% of GBAORD in the same period (Table Annex 4). However, Cyprus had the highest scientific impact in the energy field in the period 2006-2010, along with Israel, Switzerland, Denmark, Germany, Portugal and Spain, with the greatest percentage of its publications in the 10 % most-cited publication[13].

In "Desmi 2008-2010", key thematic areas in the period 2009-2011 were "ICT/ information processing and telecommunications", the "Social and economic aspects", "Biological science", "Industry and technology" and "Materials and construction", accounting for 70% of total funding[14].

[12] ***Government direct R&D funding*** includes grants, loans and procurement. *Government indirect R&D funding* includes tax incentives such as R&D tax credits, R&D allowances, reductions in R&D workers' wage taxes and social security contributions, and accelerated depreciation of R&D capital.

[13] Innovation Union Competitiveness report 2013, Research and Innovation

[14] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013

2.2.4 Innovation funding

All DESMI measures addressed to the business sector (directly the development of research and innovation in companies but also multi-thematic research and human resources) are implicitly related to innovation as well.

The only scheme addressing exclusively innovation is the new innovation scheme promoted by the Ministry of Energy, Commerce, Industry and Tourism called "Enhancement of Business Innovation in Cyprus with a total budget of €4m, co-funded by ERDF and the Cypriot Government. The programme is addressed to SMEs wishing to invest in research and technology for the development of market oriented competitive innovative products and services. 84 applications were submitted for participation in the programme and 41 proposals were approved (16 in the area of ICT, 8 in manufacturing area, 5 in the area of medical equipment and pharmaceuticals, 4 in education area, 2 in energy, 2 in the area of electronics and 1 proposal in each of the areas of building installations, nanotechnology, aeronautical and agricultural production and livestock) for a total budget of € 6m, €3.9 million out of which will come from public funds.

Innovation is also supported through the company incentive scheme for SMEs in the manufacturing sector, which runs from 2010, and provides subsidies for the development of a specific business plan that will increase their competitiveness and enhance quantitatively and qualitatively the employment within the specific enterprise. A grant scheme addressed to companies engaged in the manufacturing and trading of agricultural and forestry products has been devised, offering grants for investments in new machinery/equipment and the transfer of know-how. It is impossible to distinguish the part of the support budget that addresses innovation in the context of these broader programmes.

In the next programming period 2014 -2020, the Cyprus government plans to develop the infrastructure for an Innovation Centre near universities, in order to enhance cooperation of research centres and private companies with labs, workshops and fast prototype facilities.

Based on the Cyprus National Reform Programme 2013, research efforts in 2012 focused on the development of an innovation ecosystem, the enhancement of innovation culture and the establishment of Business Innovation Centres (with EBN certification).

The Cyprus Innovation Strategy is currently under review and a series of public consultations are taking place in order to finalise it; new support schemes for the enhancement of cooperation between HEIs and industry, as well as incentives for opening up to European cooperation are being considered. Social innovation is expected to gain ground in an effort to mitigate the effects of the financial crisis.

Based on the Global Competitiveness Report 2013-2014, Cyprus qualifies as an innovation driven economy, ranking 58th place among total 148 economies according to the Global Competitiveness Index (same ranking as in 2012-2013 among 144 economies). On the negative side, we have the poor macroeconomic environment (126th place) and its small market size (110th place), but health and primary education (8th place), goods market efficiency (29th place) and higher education and training rank high (32nd place). The most problematic factors for doing business are access to finance, government bureaucracy and insufficient capacity to innovate[15].

[15] World Economic Forum, The Global Competitiveness Report 2013–2014, Full Data Edition, Insight Report

2.3 Research and Innovation system changes

The only change at the level of governance was in September 2013 the sudden and unexpected creation by the Council of Ministers of a National Committee for Research, Innovation and Technological Development (NCRITD). The Committee is composed of scientists from the Cypriot Research and Academic Centres, and the Business Sector. Although the tasks of this committee are yet to be defined in detail; its main task is to review the situation in other member states and propose a more effective governance structure in Cyprus. This has come as a surprise after the long-time expecting the current structure to become fully operational.

At the level of performers the establishment of Liaison Offices is progressing.

2.4 Recent Policy developments

While there is no explicit new policy document the Smart Specialisation study has been finalised and launched for public consultation in October 2013. Its final form and adoption is still pending.

2.5 National Reform Programme 2013 and R&I

Based on the analysis presented in the Cyprus National Reform Programme 2013[16], there were no significant achievements in the research sector in 2012.

Regarding innovation, efforts focused on the development of an innovation ecosystem, the enhancement of innovation culture and the establishment of Business Innovation Centres (with EBN certification). The programme "Promoting Innovative Entrepreneurship – Develop and introduce products and services to the market" attracted significant interest from the market.

The Cyprus Innovation Strategy is currently under review and a series of public consultations are taking place in order to finalise it; new support schemes for the enhancement of cooperation between HEIs and industry, as well as incentives for opening up to European cooperation are being considered. A specific scheme in this direction is an Innovation Centre near universities. The infrastructure will also be supported by soft services from Incubators and other Innovation support service providers

Social innovation is expected to gain ground in an effort to mitigate the effects of the financial crisis.

2.6 Recent evaluations, consultations, foresight exercises

There is no recent analysis of strengths and weaknesses of Cyprus at national level or of emerging opportunities except for the "Smart specialisation" report[17] and the European Commission, European Public Sector Innovation Scoreboard, A pilot exercise 2013 which covered the period 2003-2012.

In the "Smart specialisation" report, the major trends are analysed by identifying the main actors involved, areas of interest and the role of the financing instruments involved. The main sectors responsible for job creation are wholesale and retail trade, accommodation and manufacturing. As far as exports are concerned pharmaceutical products is the best performing sector with a share of 23% followed by waste and scrap (11.5%) and halloumi cheese (8.7%). However, the

[16] Cyprus National Reform Programme 2013: Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, May 2013

[17] Michaelides Alexandros and George Stroggylopoulos (2013), Smart Specialisation Cyprus Report

majority of small and medium-sized companies dominating the Cypriot economy lack the capacity to drive innovation, as they are set up and run by family members. Research is mainly driven by academic institutions with a focus on ICT technologies.

In the European Commission, European Public Sector Innovation Scoreboard, A pilot exercise 2013, it is reported that despite its initial lag, Cyprus ranked top in terms of highest improvements in the e-Government Development Index (providing public services through the use of ICT) and the share of new services out of all services innovations (highest share of new services introduced by public administration recently). Besides, the results of the Innobarometer 2011 show that on average almost 24% of companies in the EU-27 have sold their innovations to the public sector since 2009. The countries with the largest public procurement of innovations are Denmark (48% of companies), Cyprus (45%) and Malta (40%).

2.7 Regional and/or National Research and Innovation Strategies on Smart Specialisation (RIS3)

Cyprus is one NUTS II region and there are no specific regional plans. A new National Innovation Strategy on Smart Specialisation (RIS3) for the country has been drafted, covering three key dimensions, research / technological infrastructure, linkages with the rest of the world as well as the position of Cyprus in the European and in the global economy and the dynamics of the business environment[18].

The priorities for future areas of specialisation are Tourism, Energy and the Environment and Food Processing industry. Tourism encompasses a number of activities (Arts, theatres, museums, sports, extreme sports, spas, beauty salons, together with good food, nightlife, gambling etc) that constitute the *Experience industry* and could revive Cypriot economy. In the energy field, technology transfer and equipment acquisition from natural gas and oil exploitation are expected to increase; international collaborations with Greece, Scotland, Norway and Israel can be developed for that purpose. Food Processing could be diversified through research to provide an improved product line.

Specialisation areas were derived based on the location of the country and its comparative advantages. A stakeholder consultation was launched formally in October. An analysis was made on key research priorities undertaken by SMEs and funded by FP6 and FP7 and on the competences of the local industry.

RIS3 does not include any policy measures or a specific action plan and there are no references to financing requirements[19].

[18] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[19] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013

2.8 Policy developments related to Council Country Specific Recommendations

Although one of the objectives of the EU/IMF financial assistance programme for Cyprus is "to build the foundations for sustainable growth over the long run" there are no R&I commitments. R&I will be indirectly influenced through the structural financial reforms, the restructuring of the banking sector, fiscal consolidation and the planned reforms in the labour market; Cypriot authorities are reforming the wage-setting framework though the application of the wage indexation system (COLA) applicable, as determined in the budget of 2013 and embedded in the Medium-Term Budget. The new system foresees lower frequency of adjustment starting from January 1st each year, a mechanism for automatic suspension of application and derogation procedures during adverse economic conditions and partial indexation[20].

[20] The Economic Adjustment Programme for Cyprus, First Review - Summer 2013, Occasional Papers 161, September 2013

3 PERFORMANCE OF THE NATIONAL RESEARCH AND INNOVATION SYSTEM

3.1 National Research and Innovation policy

According to Innovation Union Competitiveness Report 2013, Cyprus is among the 8 EU countries, which are forecasted to reach the 3% R&D intensity target by 2020, if progress in the period 2000-2011 is replicated in the period 2011-2020[21]. This projection may, however, be considered as overly optimistic, since the 2011-2013 period demonstrated a reverse progress.

In terms of research output, Cyprus is underperforming but experiences a fast growth rate; total scientific publications passed from 181 in 2000 to 1,561 in 2012, only above Iceland, Luxembourg and Malta. Cyprus recorded 7.69 citations per document in the period 1996-2012. Most of the documents were published in the areas of Medicine, Physics and Astronomy, Computer Science and Environmental Science. At the end of 2012, Cyprus recorded 0.854 citations per document, compared to 0.543 cites per document in Western Europe and 0.304 cites per document in Eastern Europe[22]. 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-28 countries, Cyprus ranked low with 38 papers, (43% of total published papers), surpassing only Latvia, Luxembourg and Malta. In terms of repositories, Cyprus ranks low with only 1,000 records contained in institutional repositories[23].

Patenting under the PCT is very low and rates Cyprus only at about 13% of the European average. There were no triadic patents filed by Cypriot inventors or applicants at the end of 2010. Only one triadic patent was filed by Cypriot investors at the end of 2008 and 2 triadic patents were filed by Cypriot applicants. At the end of 2011, there were 51 patent applications by residents, 8 by non-residents and 301 applications from abroad. In the period 1997-2011, patents concentrated in other consumer goods (8.59% of total) and medical technology (6.51% of total). The country is strong in trademarks, with over 14,300 trademarks being filed from residents, non-residents and from abroad in 2011 (about 250% of the EU average)[24]. PCT patents applications per billion GDP (in PPS€) were at 0.51 in 2009, compared to a EU median of 4[25].

Cyprus scores relatively highly on ERC grants, compared with, in particular, their scores for publication and patenting excellence[26].

Based on Community Innovation Survey for Cyprus data 2010, 41.97% of companies received public funding for innovation activities from any public authority, 37.8% out of which came from the central government (including central government agencies or ministries).

Table 2:

[21] Innovation Union Competitiveness report 2013, Research and Innovation
[22] http://www.scimagojr.com/countrysearch.php?country=CY)
[23] Caruso J., Archambault A. and E., Open Access Strategies in the European Research Area, August 2013 produced for the European Commission DG Research & Innovation
[24] World Intellectual Property Organisation, Cyprus
[25] Innovation Union Competitiveness Report 2011, Cyprus
[26] Innovation Union Competitiveness report 2013, Research and Innovation

HUMAN RESOURCES	
New doctorate graduates (ISCED 6) per 1000 population aged 25-34	0.3
Percentage population aged 25-64 having completed tertiary education	39.3
Open, excellent and attractive research systems	
International scientific co-publications per million population	
Scientific publications among the top 10% most cited publications worldwide as % of total scientific publications of the country	
Finance and support	
R&D expenditure in the public sector as % of GDP	0.08
Public Funding for innovation (innovation vouchers, venture/seed capital, access to finance granted by the public sector to innovative companies)[1]	41.97
FIRM ACTIVITIES	
R&D expenditure in the business sector as % of GDP	0.06
Venture capital and seed capital as % of GDP	n/a
Linkages & entrepreneurship	
Public-private co-publications per million population	
Intellectual assets	
PCT patents applications per billion GDP (in PPS€)[2]	0.51
PCT patents applications in societal challenges per billion GDP (in PPS€) (climate change mitigation; health)[2]	0.06
OUTPUTS	
Economic effects	
Medium and high-tech product exports as % total product exports[3]	11.7
Knowledge-intensive services exports as % total service exports[4]	48.48
License and patent revenues from abroad as % of GDP[4]	0.01

[1] Percentage of innovative enterprises receiving public funding for innovation from any public authority — 2010 (as a percentage of all innovative enterprises)
[2] 2009 Data available from Innovation Union Competitiveness Report 2011, Cyprus
[3] Availability of data for High Tech product exports as % of total product exports
[4] 2011 Data available from Innovation Union Scoreboard 2013
Source: Eurostat, World Intellectual Property Organisation, Cyprus, Innovation Union Scoreboard 2013

Based on the Innovation Union Scoreboard 2013, Cyprus is classified as an innovation follower, with a performance close to the EU-27 average, but at the low end among its peers (innovation followers). Innovation performance in Cyprus declined by 0.7% in the period 2008-2012, compared to a growth rate of 1.4% in the period 2006-2010, and a growth rate of its peer group (innovation followers) of 1.9% in the period 2008-2012. Since 2010 (launch of Europe 2020 strategy) innovation performance in Cyprus has improved by 2.2%. Its relative strengths are in Linkages and Entrepreneurship, while its relative weaknesses are in Finance and support[27].

Bibliometric indicators between 2000 and 2009 on information and communication technologies (ICT), as a FP7 thematic priority, show that Cyprus has one of the highest specialisation index values of 2.59, while the collaboration index in ICT was the highest in EU (1.44).

Areas of excellence in the last ten years are:

- new production technologies, where Cyprus has contributed the most collaborative publications relative to its size;
- construction and construction technologies where Cyprus exhibited the second highest growth index value (3.84), and
- energy, where Cyprus exhibited a very high average of relative citations. In the energy field, 21.2 % of Cypriot scientific publications are in the top 10% most cited publications in this field. The same areas also performed well in terms of EPO patents in the period

[27] Innovation Union Scoreboard 2013

2000-2010[28].

As highlighted in the National Reform Programme 2011 (April 2011), the new RTDI shifted focus to non-technological innovation, including "innovation in design, in processing, in organisational reform, in public procurement etc." and recommended emphasis on R&I policies in the service sector (including ICT, health, education, tourism, shipping, financial and legal services). "SMEs innovating in-house" (31%) and "Innovative SMEs collaborating with others" (81%) are well above the EU27 average in the IUS 2013. The indicators in the "Innovators" category are amongst the highest in the EU. The expenditure on non-R&D innovation is also impressive (2.96% of the turnover).

3.2 Structural challenges of the national R&I system

As indicated in the Peer Review of Cyprus 2010, the major constraints in the development of the research and innovation sector in Cyprus are:

1. Limited human capacity available for research:
- Small number of researchers.
- Low number of new doctorate graduates. New doctorate graduates (ISCED 6) per 1000 population was at 0.3 at the end of 2011, the lowest in Europe with Malta. This comes as a contrast to the high percentage of population aged 25-64 years old with tertiary education (37.7% compared to an EU-27 average of 26.7% at the end of 2011).
- Restricted demand from industry and businesses for researchers and PhD holders, which prevents students to pursue a researcher's career.

2. Limited engagement of enterprises to research activities:
- The absence of significant size industries in Cyprus and the very small size of Cypriot businesses, 94% of which employ less than 10 persons.
- Limited research activities in the services sector, which accounts for about 80% of GDP.
- Lack of awareness (and culture) of enterprises for the potential benefits of innovation.
- Lack of availability of seed capital and market exit capitalisation for R&D businesses.
- Limited number of high-tech companies in the country[29].

These constraints, identified in the Peer Review, together with the Structural Challenges identified in the 2012 Erawatch Report can be expanded as follows:

Limited human resources for research

In 2012, Cyprus recorded the highest percentage of population aged 25-34 years old with tertiary education in Europe, 53.6% compared to 50.5% in 2011 and 48.1% in 2010. Still, the labour market for researchers is very small. At the end of 2011, total R&D personnel and researchers accounted for 0.65% of total labour force, the lowest rate after Bulgaria and Turkey. Most of the researchers came from the HEI (50% of total).

Comparatively high shares of education are in social sciences and humanities. Based on 2012 data for Human Resources in Science and Technology (HRST), only 9% of total active population aged 25-64 years with tertiary education has studies in the fields of Science, Mathematics and Computing, compared to 14.6% that has studies in Engineering, Manufacturing and Construction.

[28] European Commission, DG for Research and Innovation, Research and Innovation performance in Cyprus, Country Profile 2013
[29] Cyprus National Reform Programme 2012

Moreover, the lack of adequate conditions for research (narrow research base, absence of large research infrastructures) as well as low interest from businesses to employ researchers further limits the career choices for researchers and leads to significant brain-drain.

Limited demand for R&D

The composition of the Cypriot business sector does not favour demand for R&D. There is insufficient involvement of firms in research activities in terms of funding and performing R&D and innovation. R&D expenditure from the business enterprise sector has been continuously decreasing from 2009 onwards; at the end of 2012, R&D expenditure was at €11.9m, 13.9% of total GERD and just 0.06% of GDP. Venture capital is practically non-existent on the island.

The structure of the productive sector does not favour R&D: very small sized family-run enterprises with limited export orientation dominate the economy. Most firms tend to concentrate on low value added product and services and don't take risks in new products or export markets. Despite the continuous increase in national or European funding opportunities for SMEs, the mobilisation of SMEs is lower than national targets.

As the economy is dominated by the service sector (tourism, transport and finance), with manufacturing representing only 7% it is understandable that demand for R&D is low and the business sector has not developed an innovation culture. Small and micro – enterprises oriented mostly on low value added support services are unlikely to invest in RTDI. University-industry cooperation is in its infancy.

Limited propensity to innovate

The inadequate exploitation of knowledge is one of the major problems. The performance of the "Intellectual Assets" indicators of the IUS, which seem to be the weakest point of the national innovation performance, confirms that knowledge exploitation is limited. The number of patent applications filed under the PCT is very low. This performance does not seem to be improving over time. The country is only strong in trademarks (about 250% of the EU average). This is however compatible with the size and structure of the economy and it can only be improved very slowly.

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.

Limited number of high-tech companies in the country

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. High-tech companies are mainly created in ICT and are of very small size. 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.

Too broad research orientation in need of more prioritisation

The rapid increase of public RTDI funding developed across all disciplines without focusing on a limited number of scientific fields, where the national innovation system could excel. Funding is spread throughout different research areas leading to broad research orientation covering too many areas, which are not justified by the size of the country and its economy. Limited financial resources available for the investment in RTDI require stronger concentration to ensure smart specialisation. DESMI, the main policy implementation package of support measures for RTDI, focused on fewer areas than in the past in its 2009-2010 version but still insufficiently focused.

3.3 Meeting structural challenges

The five major challenges identified are recognised by the government and are increasingly addressed. However, one should recognise that in a country where both supply and demand of research inputs are low, an RTDI culture is missing, and financial resources are scarce it is extremely difficult to address the problems. Nevertheless, efforts are being made:

Limited 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 includes an explicit target to increase participation in Higher education to 46% through the expansion and modernisation of HEIs, strengthening links between training and the labour market and promoting transnational mobility[30]. Cypriot tertiary education graduates have already exceeded this target.

Cyprus University of Technology (CUT) makes a difference with rapid growth in the S&E fields and is expected to cover current and latent market needs of S&E graduates. In addition, 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. University of Cyprus (UoC) also increased its enrolment by 100 students and accepted up to 200 students from abroad[31].

At a general level the Cyprus National Reform Programme includes priorities for the attendance and quality of secondary schools and includes as a priority the upgrading of Vocational Education and Training (VET) for improving the quality and attractiveness of the education and training systems and the establishment of mechanisms of lifelong guidance and validation of acquired skills. Also, Post-Secondary Institutes of VET (PSIVET) will be implemented in 2015, with a budget of € 4.5m each (co-financed at 85% by the ESF), in an effort to enhance cooperation between VET, the social partners and enterprises[32].

Other initiatives at central government level include the enrichment of curricula with R&D programmes, the enhancement of cooperation between HEIs and the industry, as well as the

[30] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[31] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[32] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

cooperation between the Ministry of Education and Culture and other competent ministries that facilitate the link to the labour market[33].

The RPF is also supporting exchange of researchers and keeps a database with Expatriate Researchers' Personal Information Form.

On a negative note, the wage indexation system foreseen in the Medium Term Fiscal Plan, is expected to decrease current salaries of researchers' hence act as a disincentive for their stay in the local market.

Limited demand for R&D (medium to long term)

The government is addressing the problem with financial incentives for business R&D and innovation. Technology transfer offices in HEIs are created to facilitate technology transfer. However, researchers from universities and research centres remain the main recipients of funding provided through the DESMI calls. The financial crisis that triggered budget reductions has affected R&D support in 2012 and may prove a medium term setback in the effort to stimulate demand for R&D.

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). The creation of the Cyprus Association of Research and Innovation Enterprises by the business sector did not change the situation in any visible way. As long as the structure of production is not addressed and the market is not growing, using exports as an opportunity, demand is unlikely to grow, in particular under the current financial crisis. It is important to combine R&D support with business opportunities, if the government wishes to address deeply-rooted business behavioural patterns. The establishment of an Innovation Centre near universities, mentioned above, planned for the next programming period is expected to enhance cooperation of research centres and private companies with labs, workshops and fast prototype facilities[34].

Limited propensity to innovate (short to medium term)

Public policy has addressed the problem with policies and instruments to support the commercialisation of innovative ideas, such as knowledge transfer platforms, and voucher systems. A cluster development policy is expected at the beginning of the current programming period. In order to improve the general framework for research exploitation through limitation of obstacles and creation of incentives for patenting, the RPF has launched an action ("Patents") aiming at motivating individuals, research organisations and enterprises to file patent applications. The recent involvement in 2012 with the Ministry of Energy, Commerce, Industry and Tourism (MECIT) launching for the first time a scheme supporting innovation has created immediate response from the business sector. These efforts contributed to the classification of Cyprus among the "Innovation Followers" countries since 2009 upgraded from the "Catching Up" category.

The situation may change by encouraging SMEs (especially from the services sector) to innovate. To this end, an open tender was launched in August 2012 for participation in the enhancement of business innovation in Cyprus, with a total budget of €4m. The programme was addressed to SMEs wishing to invest in research and technology for the development of market oriented

[33] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[34] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

competitive innovative products and services. 84 applications were submitted for participation in the programme and 41 proposals were approved (16 in the area of ICT, 8 in manufacturing area, 5 in the area of medical equipment and pharmaceuticals, 4 in education area, 2 in energy, 2 in the area of electronics and 1 proposal in each of the areas of building installations, nanotechnology, aeronautical and agricultural production and livestock) for a total budget of € 6m, €3.9 million out of which will come from public funds[35].

As referred in the NRP 2011, the currently elaborated RTDI strategy highlights the importance of other than technological innovation, including "innovation in design, in processing, in organisational reform, in public procurement etc." and recommended to focus the R&I policies in the service sector (including ICT, health, education, tourism, shipping, financial and legal services). "SMEs innovating in-house" (41.55%) and "Innovative SMEs collaborating with others" (21.31%) being well above the EU average in the last IUS indicate progress. The indicators in the "Innovators" category are amongst the highest in the EU. The expenditure on non-R&D innovation is also impressive (1.73% of the turnover). Further efforts are needed to maintain these positive trends.

The foreseen increasing introduction of e-government and public sector innovation in combination with the postponed pre-commercial procurement scheme may be a good opportunity to stimulate innovation in the future. The launch of the e-PS platform ranked Cyprus top in the area of electronic pre-awarding, amongst EU-27.

Limited number of high-tech companies in the country (medium to long term)

This challenge is not sufficiently addressed, although 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 programme[36].

However, more emphasis is needed to increase scale. Only internal university support schemes and the youth entrepreneurship scheme (with no funds left in 2012 for a new call) are the main instruments to support high-tech creation. The lack of a well-organised capital market and venture capital discourage any potential external investors. University support is of limited volume and the Youth Entrepreneurship scheme addresses traditional and high-tech companies alike. The slow and inefficient operation of incubators and technology parks has been a barrier to innovative start-ups.

This challenge is one of the priorities of the Cyprus National Reform Programme 2011. In this respect, it is important to review and reconsider the implementation of measures such as the incubators scheme, a scheme for the development of new high-tech companies, development of a local Business Angels network etc. The creation of young innovative companies is now expected to be supported by a dedicated scheme for the development of new high-tech companies highlighted in the NRP 2011.

Too broad research orientation lacking 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

[35] http://www.philenews.com/el-gr/oikonomia-kypros/146/167687/parousiasi-apotelesmaton-tou-schediou-enischysis-epicheirimatikis-kainotomias

[36] Cyprus National Reform Programme 2011

funds to keep its knowledge basis up-to-date. In addition the RPF does not have the resources to devise such an important decision.

An important development in this direction was the reform of the National Research and Innovation System of Cyprus, which envisaged the establishment of two new autonomous entities; namely the National Research and Innovation Council (NRC) and the Cyprus Scientific Council (CSC). The NRC is responsible for adopting long-term strategies in research and innovation, while the CSC is the advisory board to the NRC and its mandate is to formulate research strategy proposals. The two bodies held their first meetings in 2010 but for internal reasons the prioritisation has not been adopted yet. The enactment of the CSC at the end of 2012 and the National Strategy for Research and Innovation 2011-2015 currently under preparation are expected to address this issue, provided that there are no additional barriers due to the economic crisis of 2012-2013. The Smart Specialisation Strategy and the operation of the NCRITD are expected to narrow down priorities and concentrate support in fewer areas.

Table 3

Challenges	**Policy measures/actions addressing the challenge** [37]	**Assessment in terms of appropriateness, efficiency and effectiveness**
1. Limited human resources for research	- Higher enrolments in CUT and UoC and acceptance of transferred students from abroad - Establishment of PSIVET - Enrichment of curricula wih R&D programmes - Cooperation between HEIs and the industry - Cooperation between HEIs and Ministry of Education and Culture and other competent ministries	In terms of quantity and quality the government is addressing the problem and improving the composition of skills in the labour force As long as the demand side remains limited there is risk that the improvement of skills will not generate employment opportunities and there will be increasing emigration of specialised people.
2.Limited demand for R&D	- Emphasis on collaboration schemes between business and academia - Establishment of Innovation centre	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). As long as the structure of the production is not addressed and the market is not growing, using exports as an opportunity, demand is unlikely to grow, especially under the current financial crisis.
3. Limited propensity to innovate	- RPF emphasis on innovation with appropriate schemes, like innovation vouchers and placement of graduates. - MECIT scheme for business innovation of SMEs - E-PS platform	The new measures started mobilising the business sector as manifested by the demand for the new schemes, which exceeds the corresponding demand for R&D support. It is, however, too early to assess their impact.
4. Limited number of high-tech companies in the country	- Support of local HEIs for spin offs. - Youth entrepreneurship schemes by the MECIT	This challenge is not sufficiently addressed. University support is of limited volume and the Youth Entrepreneurship scheme addresses traditional and high-tech companies alike; demand it for the former. This challenge is under the priorities of the Cyprus National Reform Programme 2011.

[37] Changes in the legislation and other initiatives not necessarily related with funding are also included.

5. Too broad research orientation lacking prioritisation	- Creation of two Councils (political and technical) to devise priorities. - Increasing prioritisation in RPF calls	While the two Councils were created a few years ago, they have not started operating effectively yet and have not met their purpose. The increasing prioritisation is still insufficient.

4 NATIONAL PROGRESS IN INNOVATION UNION KEY POLICY ACTIONS

4.1 Strengthening the knowledge base and reducing fragmentation

Promoting excellence in education and skills development

Cyprus is characterised by a shortage of researchers. Total number of researchers in government and HEI was at 1,475 researchers in Cyprus at the end of 2011, compared to a EU-27 average of more than 1,570,000 researchers. In the same period, Malta recorded 710 researchers Montenegro 1,412 researchers and Iceland 1,883 researchers. The low number of researchers is principally attributed to the late creation of universities on the island. No Cypriot HEIs figure among the top 100 SHANGHAI universities.

Researchers are primarily civil servants and their recruitment or promotion is highly inflexible. The country offered relatively attractive salary packages to university professors until the recent financial crisis. High salaries have attracted in particular academic personnel of Greek origin. However, the recent financial crisis leads to significant salary reductions (for all public servants). 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 have affected in particular the number of PhD students.

Cyprus was among the first member states to adopt portability of grants. Moreover, it has adopted the Scientific Visa Package since 2009 (Law 29(I)/2009 Aliens and Immigration), facilitating researchers to obtain a permit to enter, stay and work in Cyprus, for carrying out scientific research in the short run (up to 3 months) or in the long run (more than 3 months)[38].

Cyprus (the RPF) launches since 2000 the Programme for the Support of Young Researchers, which is open to all scientific fields (bottom-up). It includes different activities; Action "Support" aims to support young researchers (PhD students and PhD holders) to participate in high quality research projects; Action "Mobility" targets to support young scientists and researchers to participate in private sector research projects. It also seeks to enhance the competitiveness of the business sector through the involvement of companies in research, technological development and innovation activities. DIDAKTOR is another programme, dedicated to the attraction of young researchers at post-doc level in enterprises and research centres. PENEK (Programme for Young Researchers) is addressed to doctorate candidates in Cyprus or other foreign Universities who wish to combine their studies with research in technology fields of interest in Cyprus.

In terms of outward mobility of researchers, this has been almost stable in the period 2009-2012, but is expected to increase in the next year stimulated by the financial crisis. Cyprus has the highest number of Cypriot students studying in Europe compared to total Cypriot students

[38] ERA Communication Fiche Cyprus 2013

(37.08% first and second stage of tertiary education -levels 5 and 6 - 121.44% second stage of tertiary education leading to an advanced research qualification-level 6)[39].

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 mentioned[40].

A number of research institutions, public and private universities in Cyprus have expressed an interest in the HR Strategy for Researchers (Agriculture Research Institute (ARI), Cyprus College, Cyprus Institute of Neurology and Genetics, Cyprus University of Technology, European University Cyprus, Frederick University, Intercollege, Neapolis University, Open University of Cyprus, the Cyprus Institute, Frederick Institute of Technology, University of Cyprus, University of Nicosia), but only the University of Cyprus and Cyprus Institute of Neurology and Genetics were acknowledged for their progress in HR Strategy for Researchers and have been awarded HR Excellence in their Research logo in 2010[41].

Research Infrastructures

In May 2013, RPF invited interested parties to express their interest in participating in the ESFRI Roadmap. A total of 40 proposals were submitted by July 2013[42]. However, there is no indication at the moment if and when the Research Promotion Foundation will fund Cypriot organisations for these projects[43].

Infrastructure is also supported through the programmes where Cyprus participates as a coordinator, namely in 4 FP7 projects related to research infrastructures through 5 HEIs and research organizations; DARECLIMED (DATA REPOSITORIES AND COMPUTATIONAL INFRASTRUCTURE FOR ENVIRONMENTAL AND CLIMATE STUDIES IN THE EASTERN MEDITERRANEAN), LinkSCEEM (Linking Scientific Computing in Europe and the Eastern Mediterranean), LinkSCEEM-2 (Linking Scientific Computing in Europe and the Eastern Mediterranean - Phase 2), STACHEM (SCIENCE AND TECHNOLOGY FOR ARCHAEOLOGY AND CULTURAL HERITAGE IN THE EASTERN MEDITERRANEAN)[44].

Cyprus also 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 management[45].

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[39] Eurostat 2009 data Outward mobile students as percentage of student population in the country of origin)

[40] Ivacheva L., Gourova E., Challenges for career and mobility of researchers in Europe, Oxford Journal Social Sciences, Science and Public Policy, Vol. 38, Issue 3, pp 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 organizations, 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.

[41] ERA Communication Fiche Cyprus, 2013

[42] http://www.research.org.cy/EL/news/3580.html

[g] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013

[44] http://observatory.euroris-net.eu/euroris/countries/view/Cyprus

[45] http://www.riportal.eu/public/index.cfm?fuseaction=ri.result

Cyprus participates in research infrastructure projects in different thematic areas, but is most active in the fields of ICT as well as Social Sciences and Humanities. In total, 8 organisations participate in the 26 initiatives, namely The Cyprus Institute, the European University of Cyprus, the University of Cyprus, the Cyprus University of Technology, the Centre for the Study of Haematological Malignancies, Cyprus College, The Cyprus Research and Educational Foundation and the Cyprus Research and Academic Network[46].

RPF announced in June 2013 a study for the creation of national roadmap for research infrastructure, in cooperation with the Cyprus Science Council. The study uses 22 R&D indices and 2 structured questionnaires addressed to research institutions and researchers. The deadline for the submission of questionnaires was extended to the end of September 2013[47]. The results are not yet available.

4.2 Getting good ideas to market

Improving access to finance

Access to finance is considered as one of the major bottlenecks for R&D and its commercialisation. RPF grants (diminished significantly in the last years partly for financial and partly for institutional reasons) and the FP are the only sources for R&D grants. Innovation is also supported by MECIT. The tender launched by MECIT for the scheme "Enhancement of Business Innovation in Cyprus", attracted 84 proposals, 41 of which have secured funding as described in the previous chapter.

The financial crisis that Cyprus is experiencing has hindered initiatives for financing innovation and venture capital. The company incentive scheme for SMEs in the manufacturing sector, launched in 2010 for the enhancement of their competitiveness and employment perspectives has limited demand. By March 2012, about € 2.7m worth of subsidies had been approved in a total of 43 signed agreements. Three projects were completed and two were interrupted[48].

Financial engineering instruments promoted under JEREMIE are the main mechanisms allowing SMEs to access finance, following the internal problems of the banking sector. The programme did not run smoothly throughout 2012 due to the financial crisis of the banking system.
Cyprus ranks 22nd in EU-27, in terms of number of applicants to FP7 programmes and 21st in terms of requested EC contribution. Success rate is below the EU average (21.6%) at 17.3%[49].

Protect and enhance the value of intellectual property and boosting creativity

In May 2012, Cyprus introduced the Intellectual Property Rights Box (IP Box), namely a set of tax incentives to boost intellectual property rights. Amendments were introduced to the income tax laws that would apply to all categories of intellectual property, including the rights set out in the Patent Law of 1998 as amended, the Intellectual Property Rights Law of 1976 as amended and the Trademarks Law Cap. 268 as amended. All changes would apply retrospectively from the beginning of 2012.

The 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

[46] Smart Specialisation Cyprus Report, Michaelides A., Strogylopoulos G., September 2013
[47] http://www.research.org.cy/EL/news/3568.html
[48] Cyprus National Reform Programme 2012

exemption of dividends resulting from IP 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 IP owner[50].

In the next programming period 2014 -2020, the government plans to develop the infrastructure for an Innovation Centre near universities, in order to enhance cooperation of research centres and private companies with labs, workshops and fast prototype facilities[51].

Boosting creativity is among the priorities for the next programming period through the *Experience industry* planned, where tourism encompasses a number of creative activities: Arts, theatres, museums, sports, extreme sports, spas, beauty salons, together with good food, nightlife, gambling etc.

Public procurement

The government had announced a public procurement for innovation scheme, which was abandoned after the crisis triggered public budget reductions. Despite the lack of explicit policy instruments, in the Public Sector Innovation Scoreboard Cyprus ranked second in the list of countries with the largest public procurement of innovations following Denmark (48% of companies), Cyprus (45%).

The launch of the e-PS platform ranked Cyprus top in the area of electronic pre-awarding, amongst EU27, based on Benchmark Measurement studies conducted by the European Commission for 2009 and 2010[52].

4.3 Working in partnership to address societal challenges

EU and bilateral R&D cooperation agreements (see Section 4.5) are not focusing exclusively on addressing societal challenges. In particular cooperation agreements are small with limited impact and not focusing on societal challenges.

Cyprus participates in the European Innovation Partnership (EIP) on Active and Healthy Ageing, which aims to increase the average healthy lifespan in the EU by 2 years by 2020[53]. Members are the Open University of Cyprus and Maglid Technologies Holdings Limited; they participate in the initiative for Patient medication adherence programs and the initiative for Knowing Effects on Healthy Life Years.

In 2013, RPF announced its commitment to allocate more than €4m for Joint Programme Initiatives (Water Challenges for a Changing World, URBAN EUROPE: Global Challenges - Local Solutions, Agriculture, Food Security and Climate Change Cultural Heritage and Global Change: A New Challenge for Europe ERA-NET+), EUROSTARS and Ambient Assisted Living programme[54] .

[50] http://www.mondaq.com/x/243428/Trademark/The+Cyprus+Intellectual+Property+Rights+x0027Box

[51] Cyprus National Reform Programme 2013, Europe 2020 Strategy for: Smart, Sustainable and Inclusive Growth, Planning Bureau, May 2013

[52] Cyprus National Reform Programme 2012

[53] https://webgate.ec.europa.eu/eipaha/index/aboutus

[54] http://www.research.org.cy/EL/news/3482.html

4.4 Maximising social and territorial cohesion

The National Smart Specialisation Strategy does not prescribe specific measures for the maximisation of social and territorial cohesion. It is stated that international collaboration in general should be revisited so that a more targeted approach can be adopted based on thematic areas and R&D needs.

This is partly explained by the fact the Cyprus is one NUTS II region. In the context of cohesion policy specific measures are adopted for rural and mountainous areas but they do not include special provisions for R&I.

4.5 International Scientific Cooperation

The lack of a high technology industrial activity is principally the reason behind the low appeal of Cyprus to international researchers.

There are three umbrella agreements at the moment:

- The United States of America: The Science and Technology Cooperation Agreement has been signed in 2009 between the Republic of Cyprus and the United States of America in order to strengthen scientific and technological capabilities, broaden and expand relations between the extensive scientific and technological communities in both countries, and promote scientific and technological cooperation in areas of mutual benefit for peaceful purposes;
- The India Programme for Cultural, Educational and Scientific Cooperation;
- The Cooperation agreement with Cuba.

All three of them are of generic nature and no concrete actions have been implemented as yet.

There are also 2 signed MOUs one with Austria and one with the UK.

RTD Bilateral European Agreements have been signed with Greece, Italy, France, Slovenia and Romania. These agreements oversee the exchange of short-term visits of a number of researchers, thus, enhancing networking and international cooperation, with no research focus on specific areas. In November 2012, Cyprus signed a bilateral agreement with Ukraine for cooperation on maritime merchant shipping, public health, civil aviation, agriculture and foodstuffs, sports, investment promotion, and education. The importance of most bilateral agreements in Cyprus is minimal. In most instances, bilateral cooperation funds small projects, with limited chances to perform ground-breaking cooperation.

RPF relaunched the common Research Programme "Cyprus-France" (ZENON), aiming to increase scientific cooperation between the two countries, through joint research proposals in the area of "Environment/Energy" for a maximum support of €60,000 (€ 30,000 from each country) and for a duration of up to 2 years. By December 2012, 9 proposals had been submitted in the area of Environment and Energy and one proposal was selected for funding by RPF and Campus France.

The Department of State's Bureau of Oceans, and International Environmental and Scientific Affairs, Office of Science and Technology Cooperation (OES/STC) signed an agreement between the Government of the United States of America and the Government of the Republic of Cyprus on Science and Technology Cooperation.

Other S&T instruments include Cross Border Cooperation Programme Greece-Cyprus 2007-2013, Transnational Cooperation Programme MED, Cross-Border Cooperation Programme of the Mediterranean Basin ENPI, Interregional Cooperation Programme Interreg IVC.

With regard to non EU member states, cooperation agreements are in place with International Centre for Agricultural Research in Dry Area (ICARDA), Aleppo – Syria.

In January 2012, RPF invited researchers to submit proposals in the context of "EURATOM" of the 7th CSF of the EU and in the fields of Management of Radio-active Waste, Reactor Systems, Radiation Protection, and Access to Infrastructures, Mobility and Training Activities. In July 2012, RPF invited researchers to submit proposals in the context of "EURATOM" of the 7th CSF of the EU and in the field of Nuclear Fission, Safety and Radiation Protection.

Cyprus (Directorate General for European Programmes, Coordination and Development) participates since 2008 in MIRA, the Mediterranean Innovation and Research Coordination Action, for the enhancement of S&T cooperation and dialogue between EU Member countries and Mediterranean Partner countries. The project has a total duration of 60 months. Except for the Directorate General for European Programmes, Coordination and Development, there are also 29 partners from Spain (3), Morocco (2), France (2), Tunisia, Egypt (2), Germany (2), Turkey (2), Malta, Jordan, Italy (2), Algeria (2), Lebanon (2), Portugal, UK, Montenegro, Herzegovina, Directorate General of Development & Scientific Research, Occupied Palestinian Territories, Greece and Israel[55].

There is an active bilateral agreement with Egypt, a non-EU member and negotiations are under way with China and Israel to conclude similar agreements. In order to fulfil the ambition to play a prominent role as a centre of excellence in the Eastern Mediterranean, Cyprus should and has in mind to develop tight links with the broader region. The Agreement with Israel was signed in 2011. The first Call was launched in January 2014 with a deadline for submitting proposals the 10th April 2014.

In terms of research collaborations, top three links are with UK (200 links) Germany (199 links) and France (165 links)[56].

[55] European Commission, DG for Research and Innovation, Projects in support of international research and innovation cooperation, International cooperation activities of the FP7 Capacities programme, 2012

[56] European Commission, DG for Research and Innovation, Innovation Union Competitiveness report 2011, Country profile – Cyprus

5 NATIONAL PROGRESS TOWARDS REALISATION OF ERA

5.1 More effective national research systems

The national research system in Cyprus is young and evolving. GERD and BERD were and remain among the lowest in the EU, despite efforts to increase them. Competitive funding has been introduced with a Framework Programme (DESMI), with increasing resources until three years ago. Competitive funds were allocated following an international peer review with Greek researchers playing a prominent role as reviewers. Both institutional constraints and overall economic austerity affected this trend negatively. Efforts to restructure the governance system and focus on clear and long-term priorities are under way for a long time but have delayed for internal reasons. Institutional evaluations are foreseen but not systematically pursued and are not linked to the distribution of block funding.

Cyprus is preparing a new Innovation Strategy, aiming to increase support programmes for the enhancement of research in universities, research institutes and the business sector. The programmes will be funded by structural funds will not only address product/service innovation but also processes and organisational innovation with a focus on social innovation.

The new Smart Specialisation Strategy for Research and Innovation (RIS3) covers three key dimensions, research / technological infrastructure, linkages with the rest of the world as well as the position of Cyprus in the European and in the global economy and the dynamics of the business environment.

5.2 Optimal transnational co-operation and competition

The size of the research system in Cyprus and its peripheral geographical location are significant barriers to transnational cooperation. Joint research agendas are mainly adopted through EU incentives in the context of ERAnets, JTIs and Territorial Development Programmes of the Structural Funds. National funding schemes are open to European researchers.

In 2013, RPF announced its commitment to allocate more than €4m for Joint Programme Initiatives (Water Challenges for a Changing World, URBAN EUROPE: Global Challenges - Local Solutions, Agriculture, Food Security and Climate Change Cultural Heritage and Global Change: A New Challenge for Europe ERA-NET+), EUROSTARS and Ambient Assisted Living programme[57].

5.3 An open labour market for researchers

The labour market is open; thanks partly to a long-term tradition of cooperation with the UK and Greece, originating from the time the country did not have its own HEIs.

Recruitment is open and there is portability of grants. Although the market conditions are good in higher education, private demand is minimal leading to substantial brain-drain mainly towards other EU countries and in particular the UK and Greece. Salaries that were attractive in HEIs were reduced due to the austerity package adopted to restore public finances.

[57] http://www.research.org.cy/EL/news/3482.html

5.4 Gender equality and gender mainstreaming in research

Gender equality is not an important topic. General provisions for the public sector apply in research as well. Gender issues are to be addressed with more emphasis in the future and are subject to a specific evaluation currently contracted by the Directorate General for European Programmes, Coordination and Development concerning all ERDF funding. There are no explicit targets for female participation at the moment but in December 2012, Cyprus joined a COST project on "Gender, Science, Technology and Environment". A training course was also organised - Gender in EU-funded Research (Toolkit and Training) in cooperation with Yellow Window. Skill enhancement and incentives are established priorities. Moreover, the RPF participates in the GENDER-NET ERANET project and represents Cyprus in the Helsinki Group.

5.5 Optimal circulation, access to and transfer of scientific knowledge including via digital ERA

Open access is an issue discussed at HEIs but not an explicit policy at the moment. SMEs do not have their own research laboratories and are thus not involved in such a debate.

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 Strategy focuses on six strategic objectives, (i) Connect Cyprus, (ii) Modernize public administration and provide public electronic services, (iii) Inclusion of all into digital Cyprus, (iv) Education and learning, (v) Digital entrepreneurship, (vi) ICT for the environment.

At the end of 2013, there were 3 open access repositories in Cyprus, all in Universities (Cyprus University of Technology, Open University of Cyprus, Cyprus University,); 2 of the repositories provide access to digital collections and one repository (Cyprus University of Technology) provides access to research data[58].

[58] Open DOAR Countries and Organisations

ANNEX 1. PERFORMANCE THE NATIONAL AND REGIONAL RESEARCH AND INNOVATION SYSTEM

Feature	Assessment	Latest developments
1. Importance of the research and innovation policy	(+) There is increasing awareness of the need for R&I policy and system restructuring (-) There is a lack of coordination of R&D activities and public action in relevant policy areas lacks emphasis on a strategic, coherent and integrated way (-) Policies and funding are not focused on specific priorities and address grand challenges only marginally	(+) In September 2012, a National Committee for Research, Innovation and Technological Development was created (+) The Smart Specialisation strategy introduced priorities for future areas of specialisation; Tourism, Energy and the Environment and Food Processing industry.
2. Design and implementation of research and innovation policies	(-) R&I rank low in the political agenda in particular after the emergence of the crisis (-) There were no new calls for R&D tenders in the period 2011-2013 (-) Despite efforts to narrow down priorities funds are still thinly spread (-) No evaluations of RTDI are yet launched	(+) New support schemes such as the MECIT Innovation Initiative and the Innovation Centre near universities are being reviewed (+) Efforts towards the development of an innovation ecosystem, the enhancement of innovation culture and the establishment of Business Innovation Centres (with EBN certification)
3. Innovation policy	(-) There is no active promotion of innovation (+) A new MECIT scheme lays the foundations for more active future innovation policy	(+) The Cyprus Innovation Strategy is currently under review and a series of public consultations are taking place in order to finalise it
4. Intensity and predictability of the public investment in research and innovation	(-) The financial crisis has decreased public funding for education and RTDI (-) There was hardly a response from the private sector to increasing incentives until the crisis (+) JEREMIE and a new IPR tax incentives are innovative financing solutions	(-) Education expenditure is expected to decrease by 7.7% in 2013 (-) €12m were moved by the government from RDTI budget to other general budget lines
5. Excellence as a key criterion for research and education policy	(-) Research is primarily funded by the government (-) Block funding follows historic and size criteria and is not associated to performance indicators (+) Grants are distributed through the multiannual competition-based National Framework NFP for Research and Technological Development (DESMI) (+) Public universities and public research organisations are autonomous in their recruitment policy (-) The legal, financial and social frameworks for research careers, including doctoral studies lacks competitiveness	(+) A new multiannual programme is under preparation
6. Education and training systems	(-) There is a shortage of human resources for research	(+) Increase in the number of postgraduate courses in local universities

	(+) Despite lacking HEIs for a long time Cyprus ranks top in the share of educational attainment (-) Education in S&E is limited	(+) Increase in the enrolment of students in CUT and UoC (+) Upgrading of VET (+) Establishment of PSIVET in 2014
7. Partnerships between higher education institutes, research centres and businesses, at regional, national and international level	(+) There are clear rules on IP rights (+) Certain initiative have been enforced to support commercialisation of innovative ideas (+)There are no obstacles to setting up and operating transnational partnerships and collaborations.	(+) In May 2012, Cyprus introduced the Intellectual Property Rights Box (IP Box), namely a set of tax incentives to boost intellectual property rights (+) Creation of innovation/knowledge clusters, knowledge transfer platforms, and voucher systems (+)Action "Mobility" targets young scientists and researchers, promoting their participation in private sector research projects. (+) Creation of an Innovation Centre near universities in the next programming period 2014 -2020
8. Framework conditions promote business investment in R&D, entrepreneurship and innovation	(-) Number of filed patent applications is very low (-) Schemes supporting entrepreneurship do not focus on innovation (-)There is a lack of awareness (and culture) of enterprises for the potential benefits of innovation (+) The rules for starting up and running a business are simple and rules are properly enforced (-) There is no venture capital market	(+) RPF has launched an action ("Patents") aiming at motivating individuals, research organisations and enterprises to file patent applications (+) Tender launched by MECIT for the promotion of Business innovation in SMEs. 41 proposals secured funding
9. Public support to research and innovation in businesses is simple, easy to access, and high quality	(-) Bureaucracy is considered to be very high for the allocation of ERDF funds, (-) The business sector considers that there is a mismatch between is needs and focus of support to high-tech (+) International peer review and project selection is established	(+) RPF launched the Public Dialogue Committee
10. The public sector itself is a driver of innovation	(-)The government had announced a public procurement for innovation scheme, which was abandoned after the crisis triggered public budget reductions (+) Public Sector Innovation Scoreboard Cyprus ranked second in the list of countries with the largest public procurement of innovations	

ANNEX 2. NATIONAL PROGRESS ON INNOVATION UNION COMMITMENTS

		Main changes	Brief assessment of progress / achievements
1	**Member State Strategies for Researchers' Training and Employment Conditions**	(-) Important salary cuts	(-) Shortage of researchers, reduction in curricula offered by HEIs
4	**ERA Framework**		
5	**Priority European Research Infrastructures**	(+) Launch of the EOI for participation to ESFRI Roadmap projects	(+) A total of 40 proposals were submitted in July 2013
7	**SME Involvement**	(+) Introduction of new schemes addressing the enhancement of Business Innovation in SMes in Cyprus (+) Increased financing to COSME	- (+) An additional €30million will be released in 2014
11	**Venture Capital Funds**	-	-
13	**Review of the State Aid Framework**	-	-
14	**EU Patent**	-	-
15	**Screening of Regulatory Framework**	-	-
17	**Public Procurement**	(+) launch of an e-PS platform	(+) aggregation of all public procurement into a single platform
20	**Open Access**	-	-
21	**Knowledge Transfer**	(+) Creation of liaison offices in the six Cypriot universities	(+)Two pilot offices (University of Cyprus, Cyprus University of Technology) are more advanced.

22	**European Knowledge Market for Patents and Licensing**	(+) Tax incentives on IP rights (IP Box)	(+) IP box combined with the low applicable tax rate in Cyprus make Cyprus very competitive in the European market for patents and licensing
23	**Safeguarding Intellectual Property Rights**	-	-
24	**Structural Funds and Smart Specialisation**	(+) A new Smart Specialisation strategy was drafted	(+) Emphasis on Tourism, Energy and the Food Processing Industry
25	**Post 2013 Structural Fund Programmes**	(+) An idea of refraining from using Structural Funds for small programmes is discussed	(+) Reduction of bureaucracy and improvement in the simplification for smaller projects (avoid the need to comply with two systems).
26	**European Social Innovation pilot**	-	-
27	**Public Sector Innovation**	-	-
29	**European Innovation Partnerships**	(+) Participation in EIP for Active and Healthy Ageing	(+) The partnership is new and there are no measurable results yet. Cyprus participates in two initiatives
30	**Integrated Policies to Attract the Best Researchers**	-	-
31	**Scientific Cooperation with Third Countries**	(+) Existence of cooperation agreements with Greece, Italy, France, Slovenia, Romania, Ukraine (+) Relaunch of common Research Programme "Cyprus-France" (ZENON) (+) Participation in MIRA	(-) No significant impact due to their small size (-) No focus on specific research areas (+)By December 2012, 9 proposals had been submitted in the area of Environment and Energy and one proposal was selected for funding. (+) No record of achievements
32	**Global Research Infrastructures**	(+) €4m of funding to the MED ERA-NET programme for cooperation in the Mediterranean network and Joint Programming Funds (+) Launch an EOI for participation in ESFRI Roadmap projects	(+)Initiatives in cooperation with other participating countries in the areas of Agriculture, Food Security and Climate Change, Urban Europe, Water Challenges and Cultural Heritage. (+)A total of 40 proposals were submitted by July 2013
33	**National Reform Programmes**	(+) Revision of R&D target/GDP by 2020	(+) R&D /GDP set at 0.5% of GDP by 2020

ANNEX 3. NATIONAL PROGRESS TOWARDS REALISATION OF ERA

ERA Priority	ERA Action	Recent changes	Assessment of progress in delivering ERA
1. More effective national research systems	Action 1: Introduce or enhance competitive funding through calls for proposals and institutional assessments	A call for innovation in business for the first time in 2013	(-) No new R&D calls because of the financial crisis
	Action 2: Ensure that all public bodies responsible for allocating research funds apply the core principles of international peer review		(-) International peer review is increasingly adopted but difficult in many cases because of the small size of programmes.
2. Optimal transnational co-operation and competition	Action 1: Step up efforts to implement joint research agendas addressing grand challenges, sharing information about activities in agreed priority areas, ensuring that adequate national funding is committed and strategically aligned at European level in these areas		(+)Cyprus is actively pursuing international collaboration in the context of EU cooperation opportunities. (+) National funds earmarked for international collaboration are in place
	Action 2: Ensure mutual recognition of evaluations that conform to international peer-review standards as a basis for national funding decisions		(-)There is mutual recognition of evaluations in programmes with EU matching funds (Eureka, Eurostars, ERAnets)
	Action 3: Remove legal and other barriers to the cross-border interoperability of national programmes to permit joint financing of actions including cooperation with non-EU countries where relevant		(+) There are no barriers
	Action 4: Confirm financial commitments for the construction and operation of ESFRI, global, national and regional RIs of pan-European interest, particularly when developing national roadmaps and the next SF programmes	RPF announced in June 2013 a study for the creation of national roadmap for research infrastructure, in cooperation with the Cyprus Science Council	(-) RPF started devising a national roadmap, but progress is constrained by the limited financial resources.

	Action 5: Remove legal and other barriers to cross-border access to RIs		(+) There are no barriers.
ERA priority 3: An open labour market for researchers	Action 1: Remove legal and other barriers to the application of open, transparent and merit based recruitment of researchers		(+)Cyprus has adopted the Scientific Visa Package since 2009. (+)The hiring and promotion of researchers in Cyprus is regulated by individual laws applicable to HEIs, which is general respect international recruitment
	Action 2: Remove legal and other barriers which hamper cross-border access to and portability of national grants		(+) Cyprus was among the first member states to adopt portability of grants
	Action 3: Support implementation of the Declaration of Commitment to provide coordinated personalised information and services to researchers through the pan-European EURAXESS3 network		(+)Existence of EURAXESS network (+)107 researcher posts per thousand researchers in the public sector were advertised through the EURAXESS Jobs portal in 2011, compared to 47 among the Innovation Union reference group and a EU average of 245.
	Action 4: Support the setting up and running of structured innovative doctoral training programmes applying the Principles for Innovative Doctoral Training.		(-)There is no explicit policy regarding the Principles for Innovative Doctoral Training at the national level or at the institutional level. (+) The three public universities adopt some of the principles (in particular international publications) without formally adopting the IDT.
	Action 5: Create an enabling framework for the implementation of the HR Strategy for Researchers incorporating the Charter & Code		(+)A number of research institutions, public and private universities in Cyprus have expressed an interest in the HR Strategy for Researchers.
ERA priority 4: Gender equality and gender mainstreaming in research	Action 1: Create a legal and policy environment and provide incentives		(-) There are no barriers, as gender equality is legally provided for the country as a whole but there are no specific incentives foreseen for female researchers
	Action 2: Engage in partnerships with funding agencies, research organisations and universities to foster cultural and institutional change on gender	In 2014 RPF joined Gender NET ERA_NET.	(-) Partnerships need to be enhanced.

	Action 3: Ensure that at least 40% of the under-represented sex participate in committees involved in recruitment/career progression and in establishing and evaluating		(-)There are no explicit quotas or quantitative targets.
ERA priority 5: Optimal circulation, access to and transfer of scientific knowledge including via digital ERA	Action 1: Define and coordinate their policies on access to and preservation of scientific information	National experts have been appointed to the EU committees for Open Access	(-) Open access is discussed but a formal policy is yet to be formulated.
	Action 2: Ensure that public research contributes to Open Innovation and foster knowledge transfer between public and private sectors through national knowledge transfer strategies	Creation of a network of liaison offices in progress Creation of a Business Support Network.	(+) Efforts to set up a national infrastructure
	Action 3: Harmonise access and usage policies for research and education-related public e-infrastructures and for associated digital research services enabling consortia of different types of public and private partners		(+) In 2012, a Digital Strategy was adopted.
	Action 4: Adopt and implement national strategies for electronic identity for researchers giving them transnational access to digital research services		(-) There is no national strategy.

ANNEX 4 GBAORD SHARE ALLOCATED FOR SPECIFIC PRIORITIES (€ MILLION)

	2011	2012
Exploration and exploitation of the earth	0.521	0.248
Environment	0.828	0.458
Exploration and exploitation of space	0	0
Transport, telecommunication and other infrastructures	0.935	0.625
Energy	0	0
Industrial Prodiction and Technology	0	0
Health	2.309	1.853
Agriculture	**9.663**	**8.828**
Education	2.812	2.213
Culture, recreation, religion and mass media	0.442	0.388
Political and social systems, structures and processes	0.019	0.018
General advancement of knowledge: R&D financed from General University Funds (GUF)	**27.316**	**26.829**
General advancement of knowledge: R&D financed from other sources than GUF	**35.76**	**27.262**
Defence	0	0
Total civil R&D appropriations	**80.605**	**68.722**

Source: Eurostat, Total GBAORD by NABS 2007 socio-economic objectives

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LIST OF ABBREVIATIONS

BERD	Business Expenditures for Research and Development
CERN	European Organisation for Nuclear Research
CII	Cyprus International Institute for the Environment and Public Health
CING	Cyprus Institute of Neurology and Genetics
CSC	Cypriot Scientific Council
CUT	Cyprus University of Technology
CyNet	Cyprus Research and Academic Network
DESMI	Research Promotion Foundation's Framework Programme for Research, Technological Development and Innovation
EPO	European Patent Office
ERA	European Research Area
ERA-NET	European Research Area Network
ESFRI	European Strategy Forum on Research Infrastructures
FDI	Foreign Direct Investments
FP7	7th Framework Programme
GBAORD	Government Budget Appropriations or Outlays on R&D
GDP	Gross Domestic Product
GERD	Gross Domestic Expenditure on R&D
GUF	General University Funds
HEIs	Higher Education Institutions
HERD	Higher Education Expenditure on R&D
HRST	Human Resources in Science and Technology
ICT	Information Communication Technology
IP	Intellectual Property
IU	Innovation Union
IUS	Innovation Union Scoreboard
JEREMIE	Joint European Resources for Micro to Medium Enterprises
MECIT	Ministry of Energy, Commerce, Industry and Tourism, Industry and Tourism
NCRI	National Research Council for Research and Innovation
NCRITD	National Committee for Research, Innovation and Technological Development
NRP	National Reform Programme
OECD	Organisation for Economic Co-operation and Development
OP	Operational Programme
PCT	Patent Cooperation Treaty
PRO	Public Research Organisations
PSIVET	Post-Secondary Education Institutes of Vocational Education and Training
R&D	Research and development
R&I	Research and innovation
RES	Renewable Energy Sources
RPF	Research Promotion Foundation
RTDI	Research Technological Development and Innovation
S&E	Science and Engineering
S&T	Science and technology
SF	Structural Funds
SME	Small and Medium Sized Enterprise
UCY	University of Cyprus
VET	Vocational Education and Training
VC	Venture Capital

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JRC Mission

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