Policy Mix for Knowledge Transfer in a non high-tech industrial background: The case of Greece

Dr. Agnes Spilioti
Head of R&DI Policy Planning Directorate

Lisbon, November 8, 2017
Contents

- Setting the Scene
- Policy Challenges
- Policy responses
Setting the Scene: the business sector

A non high - tech industrial background

- Greece is a service economy dominated by tourism and public services - Manufacturing counts for 8% of Gross Domestic Production Value. B2B services are still lagging behind.

- Traditional sectors occupy the major part of the Greek production fabric (agro-food, tourism, commerce, construction).

- Business sector composed mainly by small and very small firms: 95.5% of the Greek firms have less than 10 employees.

- Greek firms used to import mature technology from abroad and perform relatively well in non technological innovation.
Greek enterprises perform mostly organizational and marketing innovations

CIS 2010-2012

- Greece in 11th place of innovative enterprises in EU-28
- 1.9 billion Euros expenditures for innovation activities
- 52.3% innovative enterprises
- 34.3% innovation in product/process
- 45.4% innovation in organisation/marketing
- 19.5% Product innovation
- 25.6% Process innovation
- 30.2% Organisational innovation
- 36.8% Marketing innovation
Setting the scene: the research sector relatively small... (regarding R&D personnel as % of labour force)

Source: Eurostat, 2013
...but highly competitive human research potential...  
(regarding EC financial contribution from H2020)  

EC Financial Contribution per Country  
Data: EC CORDIS, Reference date: 12/10/2017  
Analysis by V. Gongolidis, General Secretariat for Research and Technology, Greece  
Only countries with EC contribution > 50 M€ shown

<table>
<thead>
<tr>
<th>Country</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>DE</td>
<td>4,291,703,657.36</td>
</tr>
<tr>
<td>UK</td>
<td>3,897,904,109.43</td>
</tr>
<tr>
<td>FR</td>
<td>2,688,836,804.38</td>
</tr>
<tr>
<td>ES</td>
<td>2,309,008,624.25</td>
</tr>
<tr>
<td>IT</td>
<td>2,101,877,606.09</td>
</tr>
<tr>
<td>NL</td>
<td>1,981,284,109.27</td>
</tr>
<tr>
<td>BE</td>
<td>1,236,888,926.57</td>
</tr>
<tr>
<td>SE</td>
<td>889,906,219.82</td>
</tr>
<tr>
<td>AT</td>
<td>709,964,811.53</td>
</tr>
<tr>
<td>DK</td>
<td>630,440,520.76</td>
</tr>
<tr>
<td>FI</td>
<td>566,410,915.43</td>
</tr>
<tr>
<td>CH</td>
<td>563,084,336.33</td>
</tr>
<tr>
<td>EL</td>
<td>549,631,648.11</td>
</tr>
<tr>
<td>NO</td>
<td>457,609,277.01</td>
</tr>
<tr>
<td>IL</td>
<td>451,891,912.48</td>
</tr>
<tr>
<td>IE</td>
<td>434,293,977.99</td>
</tr>
<tr>
<td>PT</td>
<td>416,873,943.93</td>
</tr>
<tr>
<td>PL</td>
<td>232,848,669.23</td>
</tr>
<tr>
<td>CZ</td>
<td>171,211,092.56</td>
</tr>
<tr>
<td>HU</td>
<td>163,324,808.10</td>
</tr>
<tr>
<td>SI</td>
<td>150,888,819.98</td>
</tr>
<tr>
<td>TR</td>
<td>103,312,178.90</td>
</tr>
<tr>
<td>RO</td>
<td>90,001,962.81</td>
</tr>
<tr>
<td>CY</td>
<td>85,509,207.52</td>
</tr>
<tr>
<td>EE</td>
<td>79,550,113.11</td>
</tr>
<tr>
<td>SK</td>
<td>73,125,620.68</td>
</tr>
<tr>
<td>LU</td>
<td>66,458,307.29</td>
</tr>
<tr>
<td>IS</td>
<td>51,212,951.63</td>
</tr>
<tr>
<td>RS</td>
<td>50,052,240.88</td>
</tr>
</tbody>
</table>

13th place
...and also excellent...

(regarding citation impact of publications)

Citation impact of publications from Greece, EU and OECD

Web of Science, 2000-2014
...even when compared with the rest of the world

(regarding publications and citations)

Publications, citations and field normalised citation score of Greek publications relative to the world

Web of Science, 2000-2014
The Innovation Gap ....
Overall Greece is a moderate innovator despite the good performance in academic scientific indicators

Figure 1: Performance of EU Member States’ innovation systems
....is linked to a competitiveness gap

Greece is stacked in between knowledge intensive and low cost economies

Source: World Economic Forum
Global Competitiveness Report, 2017-18

Greece ranks in the 87th place among 137 countries
... combined to the impact of the economic crisis.....

* The chart calculates the difference between professionals seeking to leave the country and professionals seeking to come into the country. A negative number indicates more people seeking to leave than those seeking entrance.

Source: Bloomberg, June 2015

2000-2005: 2.552 young scientists emigrated
2009-2014: 20.281 young scientists
Creates major policy challenges and dilemmas

- Radically **transform the production model** towards higher added value products and services: need for new business models
- Reduce the **gap between technology supply and demand**
- Safeguard **excellence** of the research potential, combat **brain drain** and upgrade research **infrastructure**
- Create **favorable framework conditions** for R&D and **Innovative investments**, despite the rigid fiscal consolidation measures
Need for policy intervention in every part of the innovation chain

Financial Instruments

Research, early stage innovation

Innovation Window

Start ups

Growth

Private investment

Expansion

Venture capital, loans

Public Funding

Risk

240 m€

1.2 b€

80 m€

100 m€

80 m€

Strong dependence on ESIF

ELIDAK Grants
Blue Sky R&D
Human Capital (National, EIB)

RIS3 Grants
Applied Research, Experimental Dev, Innovation pre-seed, seed capital (ERDF)

“Innovation” Fund
Seed, venture capital (ERDF, EIF)

“Start up” Fund
Venture Capital (ERDF, EIF)

“Growth” Fund
Loans, VC, etc. (ERDF, EIF)
Challenge: Transformation of the production model, balance supply and demand

Innovation Platforms

- Cultural Heritage
- Tourism
- Creative Industry
- Transport & Logistics
- Environment
- Energy
- Materials & Construction
- Agro-food
- Health & Pharmaceuticals
- ICT

ENTREPRENEURIAL DISCOVERY PROCESS

RESEARCH AND INNOVATION STRATEGY FOR SMART SPECIALIZATION

ADOPTED BY THE GREEK GOVERNMENT IN AUGUST 2015
Upgrade the technological profile of existing companies

In Greece, firms employ 1,31 researches / 1,000 inhabitants versus an average of 4,48 in OECD countries


"RESEARCH and INNOVATION" 410 m€
- Industrial research in SMEs
- Industry – Academia Collaborative Projects
- Experimental development for R&D results in firms
- Young researchers in firms’ R&D departments

"SPECIFIC ACTIONS IN SELECTED SECTORS" 30 m€
- Cultural Heritage
- Aquaculture
- Industrial Materials
Create new innovative firms in high – tech sectors 
…spin-offs, spin-outs, innovative start-ups…

Data based on external evaluation of the programme

12,2 M€ public funding invested in 2007-2015 for the promotion of spin-offs

45 spin-offs established

40% of spin-offs already export

Increased turnover and exports expected in 2017

12,2 M€ public funding invested in 2007-2015 for the promotion of spin-offs

The activities of the spin-off have resulted to new patents?

YES 40% 
NO 60%

Financial data (€)

Turnover (€) 289,885 264,421 385,020 364,366 242,000 331,933
Profit (€) 0 12,157 45,728 75,425 51,333 62,333
Exports (€) 170,284 160,731 202,347 270,993 162,000 241,333

Support intermediaries: innovation clusters and competence centers

Gaming and creative technologies & Applications (est. 2011)
- ESCA gold-labeled cluster
- 6000 talented professionals
- €2 bil. turnover
- >60 countries exports

Nano/Microelectronics-based Systems & Applications (est. 2006)
- ESCA silver-labeled cluster
- 10000 talented professionals
- €4 bil. turnover
- >120 patents filed

Space Technologies and Applications (est. 2008)
- ESCA gold-labeled cluster
- 2000 talented professionals
- 7% expenditure on R&D
- >53% exports

All cluster initiatives facilitated by Corallia unit of “Athena “ Research Centre and aim to become world-class sustainable innovation ecosystems.

www.mi-Cluster.gr
www.si-Cluster.gr
www.corallia.org
Challenge: Safeguard excellence in research

Greek Foundation for Research and Technology (ELIDEK),
Blue Sky research based on excellence
Funding 240 m € for 3 years (EIB, national funds)
Support of >4.000 young researches (docs and post docs)

Multi-annual budgeting plan for Research Infrastructures

Brain circulation: Networking to the Greek Diaspora
“Knowledge Bridges” Programme
**Challenge: Create favorable Framework Conditions for RD&I**

<table>
<thead>
<tr>
<th>FCs heavily affected by economic crisis</th>
<th>Policy responses RDI field</th>
<th>Policy responses Investments</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Economic uncertainty</td>
<td>• Tax incentives for R&amp;D: 130% super deduction for R&amp;D expenses</td>
<td>• Fast Track Framework: accelerated licensing and permitting, special spatial provisions, tax regulations and 10-year long EU residence permits for strategic investments</td>
</tr>
<tr>
<td>• Capital controls</td>
<td>• Capital assets in R&amp;D can be depreciated over three years</td>
<td>• Investment Law: offers incentives for new investments</td>
</tr>
<tr>
<td>• High tax rates and overall burden for firms</td>
<td>• Patents: income attributable to an international patent is tax free for the first three years of the utilization of the patent</td>
<td></td>
</tr>
<tr>
<td>• Expensive energy and transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Unemployment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Wage cuts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Some Light at the end of the tunnel !!!

Economy returns to positive growth rates, unemployment drops, infrastructure improves, R&D intensity & BERD increase, as well as “opportunity” entrepreneurship.
Despite the economic crisis, R&D intensity is increasing as % of GDP, as well as in absolute numbers - especially BERD

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016 (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BES</td>
<td>485,86</td>
<td>458,60</td>
<td>488,69</td>
<td>504,37</td>
<td>561,59</td>
<td>722,88</td>
</tr>
<tr>
<td>GOV</td>
<td>331,73</td>
<td>331,90</td>
<td>410,13</td>
<td>412,69</td>
<td>479,35</td>
<td>428,86</td>
</tr>
<tr>
<td>HES</td>
<td>559,53</td>
<td>534,30</td>
<td>548,60</td>
<td>553,20</td>
<td>643,77</td>
<td>566,55</td>
</tr>
<tr>
<td>PNP</td>
<td>14,04</td>
<td>12,80</td>
<td>18,25</td>
<td>18,48</td>
<td>19,11</td>
<td>14,80</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1,391,16</td>
<td>1,337,60</td>
<td>1,465,67</td>
<td>1,488,74</td>
<td>1,703,82</td>
<td>1,733,09</td>
</tr>
</tbody>
</table>

Total R&D expenditure for 2016 (p) reached 0.99% of GDP
RDI High in the Political Agenda
But........

Other policies may re-inforce or undermine the Knowledge Transfer and Innovation Policy

Challenge: design a coherent policy mix, establish inter-links and synergies with the other components of the governmental policies
Useful Links

- General Secretariat for Research & Technology: [http://www/gsrt.gr](http://www/gsrt.gr)


- National Documentation Center: [http://ekt.gr](http://ekt.gr)

- Knowledge Bridges Programme: [http://www.knowledgebridges.gr](http://www.knowledgebridges.gr)
Thank you for your attention!

Dr. Agnes Spilioti
Head of R&DI Policy Planning Directorate
aspi@gsrt.gr

Lisbon, November 8, 2017