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“Delivering on the growth promise in the
peripheral European countries: How can
an “innovating out of the crisis strategy”
work in Greece”

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The background: How do we see the process of economic growth

- Starting point: Nelson's fundamental observation on the nature of growth.
- One important weakness of the mainstream economic view is the perception of growth as mostly a macroeconomic phenomenon.
- But growth is a dynamic process that takes many different forms and results from the interplay of lots of different factors. Taking a broader view of growth, Nelson emphasizes the co-evolution of technologies, institutions, and industry structure.

International Competitiveness: A MULTI-DIMENSIONAL PHENOMENON

- **The limits of the “unit labour cost”** (relative to that of its trading partners in common currency) measure in the policy context. It does not take into account quality differences.
- Competitiveness should be analysed as a **dynamic phenomenon** i.e. in a growth perspective.
- **“Non-price factors”** (technology, innovation, capabilities, social capacity, the type of demand..) are equally (if not more important) than the variations in wage-costs and prices
- **Price/cost** competitiveness vs. **structural** competitiveness
- Where in the **competitiveness ladder** do you and can you position your business firm/ industrial activity/ economy?

The promise of growth in the Greek context

- **The current situation**

- Long (already eight years) and deep (loss of 25% GDP, very high unemployment) **depression i.e.** a prolonged period of economic **recession** marked by a significant decline in income **and** employment of the Greek economy.
- The huge investment gap during the crisis period is estimated between 100-130 billion Euros.
- Competitiveness of the Greek economy deteriorated (by losing a considerable number of places) by all available rankings (IMD, WEF,..).
- The importance of the denominator is key in dealing with the Greek debt crisis (DEBT/GDP) is.

- **The gloomy future**

- Did the recovery has come and the restart of the hardest hit peripheral economy in Europe is on its way? And how sustainable can be? Three years back, during Q3 and Q4 of the year 2014, there was the same feeling, but for many reasons, the recession did not end.
- And, now a threat is ahead of us, for Greece to become a **cheap country for visitors, expensive for its inhabitants and unable to employ and take advantage of its educated and well trained younger generations.**

- **The key goal of the country's strategy**

- The improvement of the position of the Greek system of production and innovation in the evolving international division of labour
- Exclusive focus on unit labour cost is not the right strategy for improving competitiveness.
- **Structural Competitiveness** should be in the epicenter of economic policy and the growth agenda.

Combating the Greek economic crisis: What was and is still **missing** in policy terms

- **Macroeconomic policies** (monetary, fiscal and income policies) in Greece have dominated both the public debate and the public policy agenda during the **eight** years of the **long** and **deep** crisis. That was to some extent reasonable because of the acute fiscal crisis (in fact fiscal derailing during the period 2007-9), but still **something important is missing**.
- The **structural** and the **contextual** (i.e. the European/ global) dimension of the crisis is missing coupled with the setting of the Greek economy on a sustainable and resilient high potential growth trajectory.
- There is **not an automatic link** between the necessary macroeconomic stabilization (plus some general market-based structural reforms) and the a high-quality, high-potential growth trajectory.
- The time is ripe for **shifting the emphasis** of the economic discussion and the economic policy agenda towards the **prerequisites for value creation** and **positive restructuring/ rebalancing** ,instead of **solely** focusing on **cost** factors.
- Think **globally** but do not neglect the **meso** and **micro** level.

Greek economy in the period (1994-2007): High growth but lower “**knowvative**” content

- Long and impressive growth path, but...important systemic hysteresis (**lags** and **missing links**) in the linkage of the system of production and business with knowledge, technology and innovation.
- Very **limited national R&D investment** despite the fact of **improving performance and visible presence of Greek research groups at the EU level.**

The interplay of lots and different factors could enable a new innovation driven growth trajectory

1. **Investments of all different types (the amount, the impact and the quality matters).**
2. **The growth and valorisation of research, technological and development activity**
3. **The productive and entrepreneurial system: Organizational and technology upgrading.**
4. **The kind of entrepreneurial activity needed (not just for living but also high potential and high impact).**
5. **The human factor. The pool of educated and well trained employees, professionals, public servants and would be entrepreneurs.**
6. **Focus on value chains and the ecosystem of innovation and knowledge intensive entrepreneurship .**
7. **An efficient and effective public administration coupled with a system of interrelated public policies.**
8. **A stable tax system** which encourages the productive labour and the productive sector of the economy and innovation.
9. **Policy direction:** Trust, credibility , competence and inspiration to convince the citizens that the country works and is heading to a better future..

But can we energize such a growth trajectory?

What are the requirements?

- The sources of growth.
- The resources and institutions for growth.
- The political will.
- The social engagement.

1. The Greek Research and Innovation System: Strong and weak points

- High and visible participation (both in terms of participation and project co-ordination) coupled with an important role in the research networks emerging from the EU- funded under competitive terms research programmes during a period of more than 30 years (1984- today).
- Increasing scientific production and number of citations.
- Remarkable presence in the top 1% of most cited research (a proxy for research excellence).

But.

- Very little commercialisation and less academic entrepreneurship.
- Underinvestment by both the public and the private sector in R&D.
- The threat of one way “brain drain” (instead of a two-way mobility of researchers in an internationalised research landscape).

Participation intensity and centrality role of Greece in FPs (1984-2013)

(* number of actors, number of participations in parenthesis)

Rank	Country	Participants (Participation)	Coordinators (Participation)	Central Actor (Participation)
1	GERMANY	10688 (38613)	1753 (4196)	99 (15304)
2	UNITED KINGDOM	7793 (32092)	1679 (4628)	103 (15015)
3	FRANCE	7627 (30207)	1542 (3988)	90 (11984)
4	ITALY	6549 (24496)	1281 (2886)	69 (8663)
5	SPAIN	5246 (18277)	942 (2111)	56 (6245)
6	NETHERLANDS	4172 (15862)	809 (2170)	43 (6905)
7	BELGIUM	2989 (10927)	602 (1381)	19 (3680)
8	GREECE	1891 (8871)	298 (930)	21 (4028)
9	SWEDEN	2223 (8710)	280 (770)	26 (3804)
10	DENMARK	1766 (6568)	366 (859)	15 (2373)
11	SWITZERLAND	1537 (6074)	83 (213)	19 (2596)
12	AUSTRIA	1805 (5857)	289 (671)	23 (1935)
13	FINLAND	1303 (5249)	177 (531)	18 (2435)
14	PORTUGAL	1578 (5079)	209 (386)	16 (1571)
15	NORWAY	1104 (4063)	177 (465)	12 (1230)
16	IRELAND	972 (3683)	151 (433)	9 (1475)
17	POLAND	1085 (3220)	121 (207)	10 (587)
18	CZECH REPUBLIC	740 (2044)	39 (50)	6 (406)
19	ISRAEL	562 (1961)	93 (187)	9 (855)
20	HUNGARY	695 (1942)	53 (76)	4 (327)
	Other-EU (28)	2877 (7516)	217 (323)	18 (1400)
	Other-Non EU	4248 (7989)	92 (181)	9 (436)
	Total	69450 (249300)	11253 (27642)	694 (93254)

Top 20 most important organizations in EU- funded policy-driven research joint ventures (1984-2013)

A/A	Organisation Name	Type	Country	Participations	Coordinator	Centrality score*
1	FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG EV	RES	GER	2265 (1)	420 (1)	5 (1)
2	CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	RES	FRA	2064 (2)	291 (2)	10 (2)
3	NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH - TNO	RES	NET	1232 (3)	191 (3)	11 (3)
4	CONSIGLIO NAZIONALE DELLE RICERCHE (CNR)	RES	ITA	1063 (4)	154 (5)	18 (4)
5	VTT - TECHNICAL RESEARCH CENTRE OF FINLAND	RES	FIN	1021 (6)	141 (6)	19 (5)
6	COMMISSARIAT À L'ENERGIE ATOMIQUE (CEA)	RES	FRA	1036 (5)	175 (4)	26 (6)
7	NATIONAL TECHNICAL UNIVERSITY OF ATHENS	EDU	GRE	951 (7)	108 (14)	27 (7)
8	CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	RES	ESP	865 (8)	130 (7)	35 (8)
9	KATHOLIEKE UNIVERSITEIT LEUVEN	EDU	BEL	854 (9)	124 (8)	36 (9)
10	IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	EDU	UK	803 (10)	98 (18)	42 (10)
11	TECHNICAL UNIVERSITY OF DENMARK	EDU	DEN	660 (16)	66 (31)	52 (11)
12	ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	EDU	SWI	671 (14)	30 (108)	56 (12)
13	DEUTSCHES ZENTRUM FÜR LUFT- UND RAUMFAHRT EV (DLR)	RES	GER	744 (11)	120 (10)	61 (13)
14	RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN	EDU	GER	639 (17)	59 (39)	62 (14)
15	UNIVERSITÄT STUTT GART	EDU	GER	578 (20)	52 (46)	63 (15)
16	LUND UNIVERSITY	EDU	SWE	570 (22)	55 (43)	64 (16)
17	UNIVERSIDAD POLITECNICA DE MADRID	EDU	ESP	572 (21)	55 (43)	67 (17)
18	THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE	EDU	UK	691 (13)	77 (24)	79 (18)
19	KUNGLIGA TEKNISKA HOEGSKOLAN	EDU	SWE	554 (23)	53 (45)	81 (19)
20	SIEMENS AKTIENGESELLSCHAFT	IND	GER	699 (12)	113 (11)	81 (19)

The Greek organizations among the 80 most important organizations based on: A) their Participation and B) its central role in the European FPs. (1984-2013)

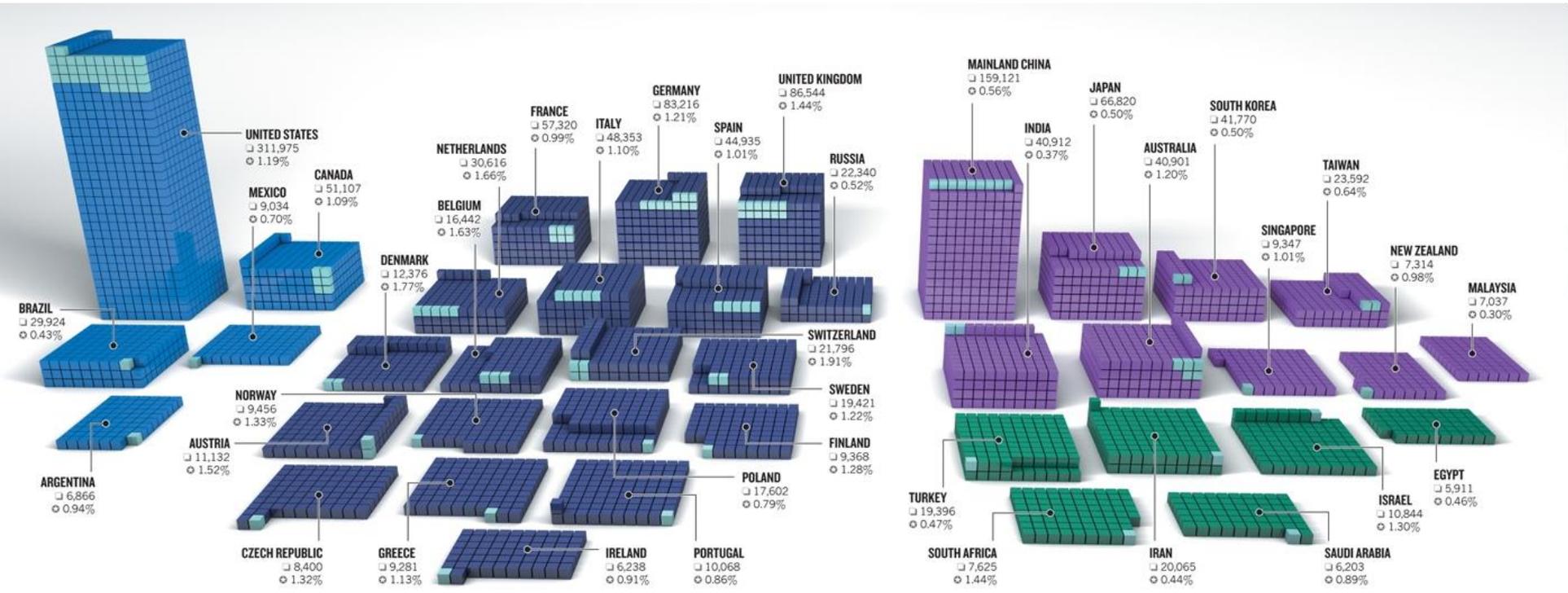
Name	Type	Centrality	Participations	Coordinator
National Technical University of Athens***	EDU	7	951 (7)	108 (14)
Aristotle University of Thessaloniki	EDU	29	379 (50)	38 (74)
National and Kapodistrian University of Athens	EDU	45	338 (58)	24 (134)
University of Patras	EDU	47	352 (55)	35 (85)
Foundation for Research and Technology	RES	51	408 (41)	61 (35)
Centre for Research & Technology Hellas	RES	65	300 (69)	72 (29)
National Centre for Scientific Research “Demokritos”	RES	75	236 (92)	45 (55)

Source: STEP to RIVs Database, Laboratory of Industrial and Energy Economics, NTUA.

***The contributions of the Research Institute of Communications and Computer Systems NTUA (NTUA) are included in the participations of the NTUA

Excellence in Research

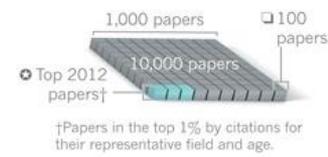
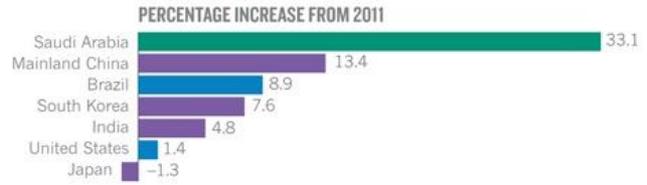
The share of the published research production of each country in the top scientific journal in the top 1% of most cited papers (2012)



SCIENTIFIC PAPER TRAIL

Number of research papers published in 2012 by leading science nations, and the proportion of each country's research this year that is in the top 1% of most-cited papers*.

*Figures estimated from data for January–October; 39 countries with total above 6,000 papers shown.



2. The system of production and entrepreneurship

- **The size** : Too many micro firms (particularly with 1-4 employees) and high self-employment compared to other EU countries. Even within the group of larger firms, most are SMEs and only a small number of actually large firms.
- **The survivors during the crisis (among the top 2000+ larger firms)**: Those of the established (incumbent) firms that are doing some research, invest in technology upgrading, develop innovations, invest in human capital performed better during the crisis.
- Among the **young firms**, those that performed better were oriented to link (or “plug in”) with international networks of innovation (i.e. new firms active in mobile applications and content).
- The majority of the **newly founded firms** during the crisis were active in very conventional activities with low knowledge content, aiming exclusively to the local market and to the last stage of consumption (very little B2B).

A growth strategy: What?

- Introduction of a clear “activating knowledge” systemic dimension in the economic “policy mix’.
- The strategy should address six key-issues:
 - Enhance the STID system
 - Create a vibrant ecosystem for Knowledge-intensive entrepreneurship to flourish (the pool of potential would be entrepreneurs especially among engineering and business graduates).

A growth strategy: What?

- Enhance the manufacturing base of the Greek economy, by promoting a modern industrial policy linking a systemic innovation view and a technology upgrading focus with a global value chain perspective.
- Invest in developing and upgrading the human factor.
- Organize a smart and effective functional state beyond mere cuts in public expenditures.
- Untap the under-utilised ICT induced growth potential which can bring about productivity gains both in the public administration and the business sector. Investment in ICT and new technologies should go hand in hand with training the people and the organizations using them.

Move Beyond the conventional sectoral approach to the perception of the value chain and the innovation “ecosystem”

- The transfer of the ecosystem at the analysis of value chain and related socio-economic processes
- Technical-socioeconomic ecosystems.
- The role of actors and stakeholders. Broad range.
- Interactions between organizations and symbiotic relations for the creation of knowledge.
- Platforms, learning, knowledge and innovation networks.

Examples of ecosystems

- The ecosystem of Information and Communication Technologies.
- The agro-bio-nutritional-food value chain coupled with tourism.
- The environmental ecosystem.
- The construction and building renovation ecosystem (projects, materials, insulators, bioclimatic, smart buildings, energy saving, renovations of buildings..).
- Energy (production and demand management..).
- Health (services and pharmaceutical industry).
- Creative and Cultural Industries.

A growth strategy: How?

- Implementation matters very much in the Greek and other similar contexts. Drafting the policy framework and putting the incentives right is not sufficient.
- A system of interrelated and well coordinated public policies with concrete measures and clear rules of the game is also necessary.

The organization and the strategic management of the implementation matters a lot

- **System of policies.** Consolidation and integration of measures, interventions and actions. Timing and the cost of time are crucial.
- **Public debate agenda configuration.** Development is a process of mobilization of resources, humans, groups etc.
- **Strong coordination** but decentralized implementation
- The **quality and effectiveness** (=capacity to deliver) of the actors involved.
- A process of **engaging actors** in each of these value chains as well as allowing space for new actors to emerge should be activated

Funding and broad consensus are prerequisites

- A reasonable **national public investment programme** to support the strategy for growth, employment and structural competitiveness supplementary to necessary European initiative.
- A system of **facilitating** and **enabling** investments of all kinds to be designed and implemented effectively.
- A system of **early-early seed capital** for the promotion of tech startups and knowledge intensive entrepreneurial ventures in cooperation with coaching and mentoring mechanisms.
- A new **social** and **political** deal for promoting this strategy is an absolute must.