

# “Export Potential of the Greek economy in the context of a long-term competitiveness perspective”

**Yannis Caloghirou**

Professor of Economics of Technology and Industrial Strategy at the National Technical University of Athens, Lab. of Industrial and Energy Economics

**The Content of Growth Conference, Export Potential session,**

**IOBE-KAS, Athens, January 24, 2013**

# Combating the Greek economic crisis: What's 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 last five years of the crisis. That's reasonable because of the acute fiscal crisis (in fact fiscal derailing), but ...something is missing.
- The **structural** and the **contextual** (i.e. the European/ global) dimension of the crisis is missing.
- There is **not an automatic link** between the necessary macroeconomic stabilization and 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** ,instead of **solely** focusing on cost factors.
- Think **globally** but do not neglect the **meso** and **micro** level.

# The crisis in context

**“The Euro Crisis-A Global Perspective”, by Bo Carlsson, Case Western Reserve University**

Paper presented at the SNEE, 14th annual conference on European Integration in Swedish Economic Research, Grand Hotel, Mölle, May 22-25, 2012

- What are the **long-term causes** of the financial crisis that led to the current Euro crisis?
- “The thesis in the paper is that while the **immediate causes** are **institutional** and **political failures**, the current critical situation is the result of a **confluence of long-term global forces constituting a perfect storm**:
  - digitization and the IT revolution changing the nature and organization of work;
  - globalization that has doubled the industrial labor force in the world economy, generating both enormous opportunities and adjustment challenges;
  - and the effort to integrate the European economies.
- Together these forces resulted in **enormous imbalances** in the world economy that led, among other things, to a giant financial bubble and the Euro crisis”.
- The Euro crisis is not only a financial and monetary crisis; it is really **about the future of Europe**. At its root is **how the European nations respond to a world that is rapidly changing around them**.

# The Challenge facing European firms

- European firms face **increasing competitive pressures** through globalised markets from the US, Japan and Korea on the one hand and China, India and the rest on the other.
- The only viable response is **knowledge-intensive and innovative entrepreneurial activities** (start-ups and new corporate ventures) i.e. the creation and application of new knowledge or new combinations of existing knowledge related to products, processes, forms of organisation (and business models) and marketing.
- The **low-cost option** is ruled out by firms based in China, India and other emerging economies.

# The Eurozone crisis

- Incomplete architecture of the Economic and Monetary Union
- The North-South divide in terms of structural competitiveness
- The need for rebalancing the Eurozone and global trade flows. Ideally a co-ordinated international approach to rebalancing trade flows.
- Symmetric adjustment.

# The Greek economy in the International Division of Labour: The defect of “The stuck in the middle” strategic position

The Greek system of production and business in a globalised environment of intense competition is facing two-sided competitive pressures both from:

- Cheap producers located in low-income/ low labour cost countries
- Quality superior producers located in high-income countries with advanced technological and operational capabilities.

# 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.

# Participation intensity and centrality role of Greece in FPs (1984-2009)

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

No	Country	Organizations	Co-ordinators	Top 1% most central actors
1	GERMANY	8650 (27952)	1594 (3800)	81 (9988)
2	UNITED KINGDOM	6302 (23915)	1568 (4081)	93 (10268)
3	FRANCE	6389 (22995)	1380 (3443)	70 (8410)
4	ITALY	5344 (17609)	1158 (2388)	52 (5244)
5	SPAIN	3965 (12201)	776 (1567)	40 (3824)
6	NETHERLANDS	3266 (11194)	744 (1838)	33 (4183)
7	BELGIUM	2358 (7595)	515 (1180)	15 (2501)
8	GREECE	1625 (7248)	276 (893)	22 (3429)
9	SWEDEN	1786 (6228)	251 (603)	19 (2301)
10	DENMARK	1478 (5042)	351 (760)	17 (1670)
11	PORTUGAL	1317 (3829)	179 (309)	12 (1042)
12	AUSTRIA	1415 (3795)	249 (486)	12 (914)
13	SWITZERLAND	1113 (3777)	51 (104)	13 (1440)
14	FINLAND	1025 (3716)	161 (415)	9 (1501)
15	NORWAY	870 (2828)	150 (352)	12 (850)
16	IRELAND	746 (2492)	130 (311)	7 (882)
17	POLAND	813 (2135)	108 (179)	7 (330)
18	CZECH REPUBLIC	547 (1356)	32 (40)	5 (203)
19	HUNGARY	550 (1290)	42 (56)	2 (191)
20	SLOVENIA	315 (783)	26 (33)	5 (275)
21	ROMANIA	430 (738)	21 (27)	0
22	BULGARIA	262 (561)	22 (28)	2 (43)
23	SLOVAKIA	225 (499)	19 (25)	2 (53)
24	ESTONIA	155 (375)	17 (23)	1 (34)
25	LITHUANIA	147 (317)	15 (17)	0
26	LUXEMBOURG	161 (284)	28 (45)	0
27	CYPRUS	111 (271)	6 (7)	1 (74)
28	LATVIA	120 (237)	17 (19)	1 (23)
29	MALTA	39 (112)	1 (1)	0



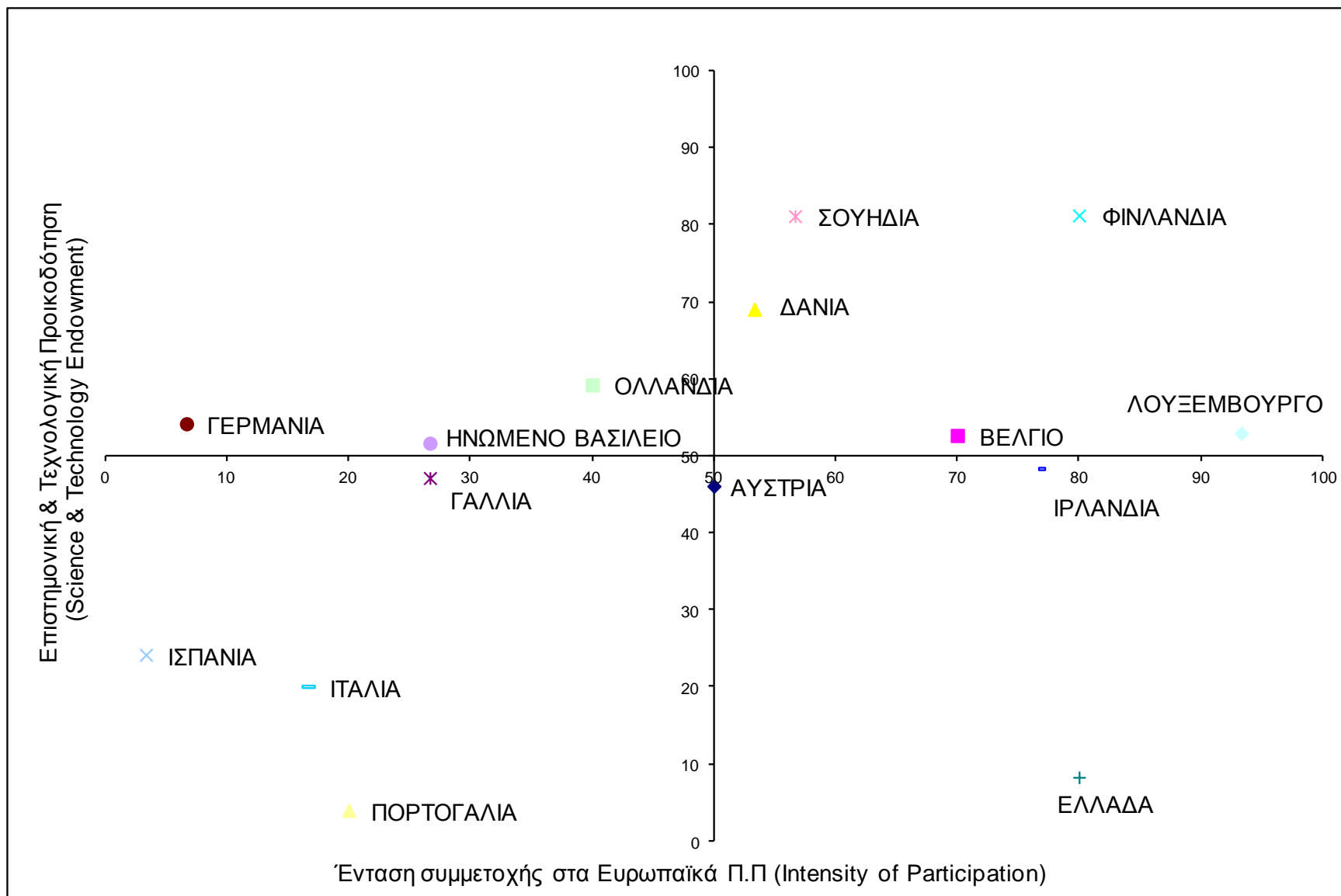
# Top 20 most important organizations in EU- funded policy-driven research joint ventures (1984-2009)

Organisation Name	Type	Country	Participations	Centrality score
FRAUNHOFER GESELLSCHAFT ZUR FÖRDERUNG DER ANGEWANDTEN FORSCHUNG EV	Research	GERMANY	1404 (2)	3 (1)
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE (CNRS)	Research	FRANCE	1620 (1)	7 (2)
NETHERLANDS ORGANISATION FOR APPLIED SCIENTIFIC RESEARCH - TNO	Research	NETHERLANDS	877 (3)	8 (3)
VTT - TECHNICAL RESEARCH CENTRE OF FINLAND	Research	FINLAND	715 (5)	12 (4)
<b>NATIONAL TECHNICAL UNIVERSITY OF ATHENS</b>	<b>Education</b>	<b>GREECE</b>	<b>727 (4)</b>	<b>15 (5)</b>
CONSIGLIO NAZIONALE DELLE RICERCHE (CNR)	Research	ITALY	695 (6)	18 (6)
KATHOLIEKE UNIVERSITEIT LEUVEN	Education	BELGIUM	587 (10)	21 (7)
COMMISSARIAT À L'ENERGIE ATOMIQUE (CEA)	Research	FRANCE	637 (7)	29 (8)
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS	Research	SPAIN	597 (9)	30 (9)
IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE	Education	UK	564 (11)	32 (10)
RHEINISCH-WESTFÄLISCHE TECHNISCHE HOCHSCHULE AACHEN	Education	GERMANY	499 (13)	34 (11)
UNIVERSIDAD POLITÉCNICA DE MADRID	Education	SPAIN	434 (19)	34 (12)
UNIVERSITÄT STUTTGART	Education	GERMANY	436 (18)	36 (13)
SIEMENS AKTIENGESELLSCHAFT	Industry	GERMANY	605 (8)	38 (14)
LUND UNIVERSITY	Education	SWEDEN	426 (20)	43 (15)
ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE	Education	SWITZERLAND	453 (17)	52 (16)
CENTRO RICERCH FIAT (C.R.F.) SCPA	Research	ITALY	503 (12)	54 (17)
<b>ARISTOTLE UNIVERSITY OF THESSALONIKI</b>	<b>Education</b>	<b>GREECE</b>	<b>294 (36)</b>	<b>59 (18)</b>
KUNGLIGA TEKNISKA HOEGSKOLAN	Education	SWEDEN	397 (23)	59 (19)
DEUTSCHES ZENTRUM FÜR LUFT- UND RAUMFAHRT EV (DLR)	Research	GERMANY	463 (16)	61 (20)

# Greek actors in top100 central organizations (1984-2009)

Organization Name	Type	Centrality Score	Co-ordinator	Participations
NATIONAL TECHNICAL UNIVERSITY OF ATHENS	Education	15 (5)	75 (18)	727 (4)
ARISTOTLE UNIVERSITY OF THESSALONIKI	Education	59 (18)	27 (77)	294 (36)
UNIVERSITY OF PATRAS	Education	91 (29)	24 (93)	252 (52)
NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS	Education	117 (39)	14 (182)	254 (51)
FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS (FORTH)	Research	120 (40)	44 (33)	306 (32)
NATIONAL CENTRE FOR SCIENTIFIC RESEARCH 'DEMOKRITOS'	Research	225 (74)	35 (46)	171 (82)
CENTRE FOR RESEARCH AND TECHNOLOGY HELLAS (CERTH)	Research	230 (77)	34 (54)	149 (100)

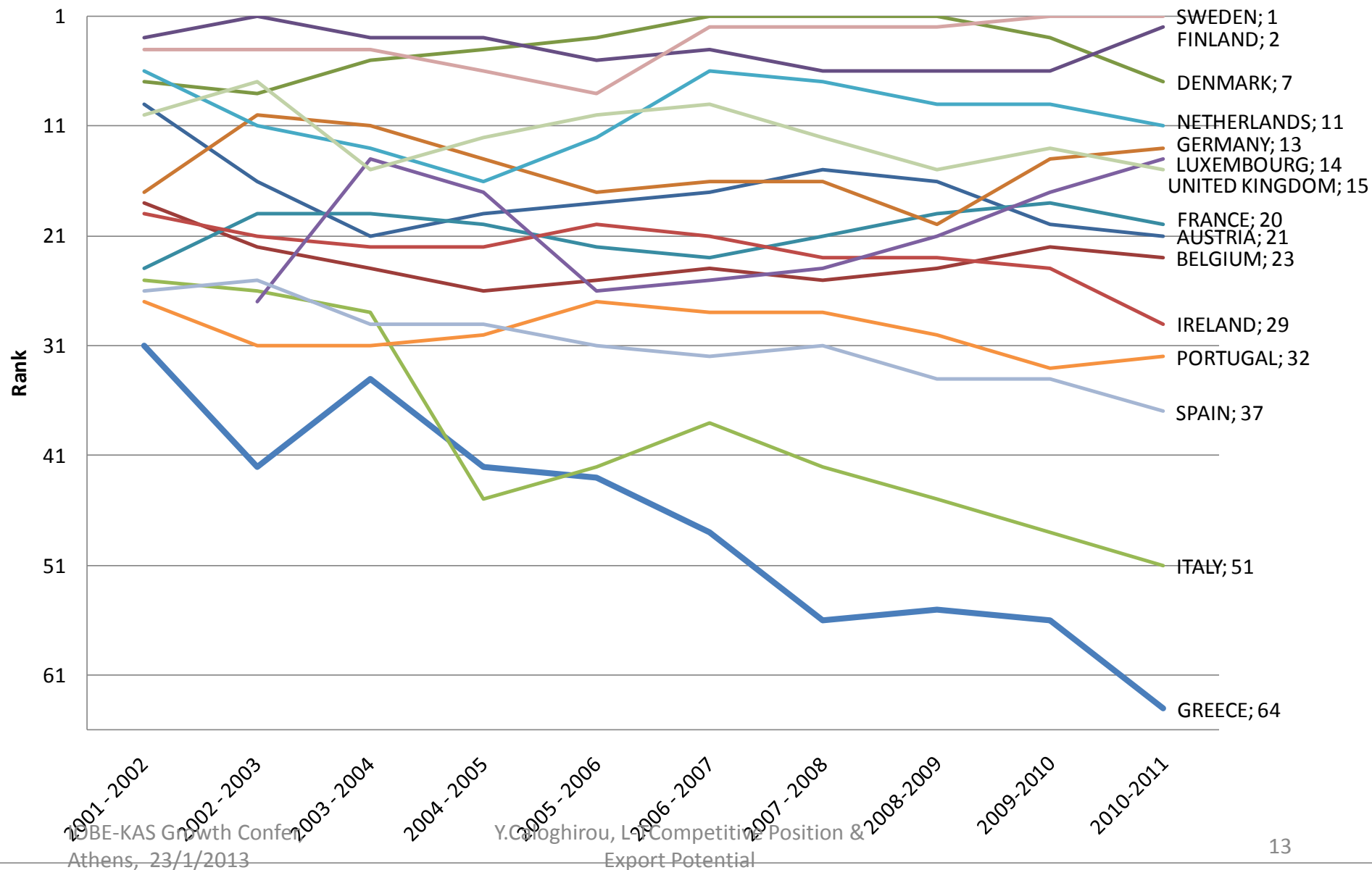
# Research Activity in ICT



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

- Not adequate operational use of ICT (except mobile and the National Academic and Research Network)- despite considerable progress in the use of ICT by younger generations.
- A lack of commercializing research results (Missing link between the research community and the business/ industrial world).
- New entrepreneurial ventures are mostly of B2C type, very little B2B (compared to other EU countries) [GEM Survey].
- Economic growth faster than the change in attitudes and mindsets.

# The Networked Readiness Index



# Greek Economy International Competitiveness Ranking (IMD and WEF)



# 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 take into account quality differences.
- Competitiveness should be analysed as a dynamic phenomenon i.e. in a growth perspective.
- “Non-price factors” (technology, innovation, ..) 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?

# Export TRADE

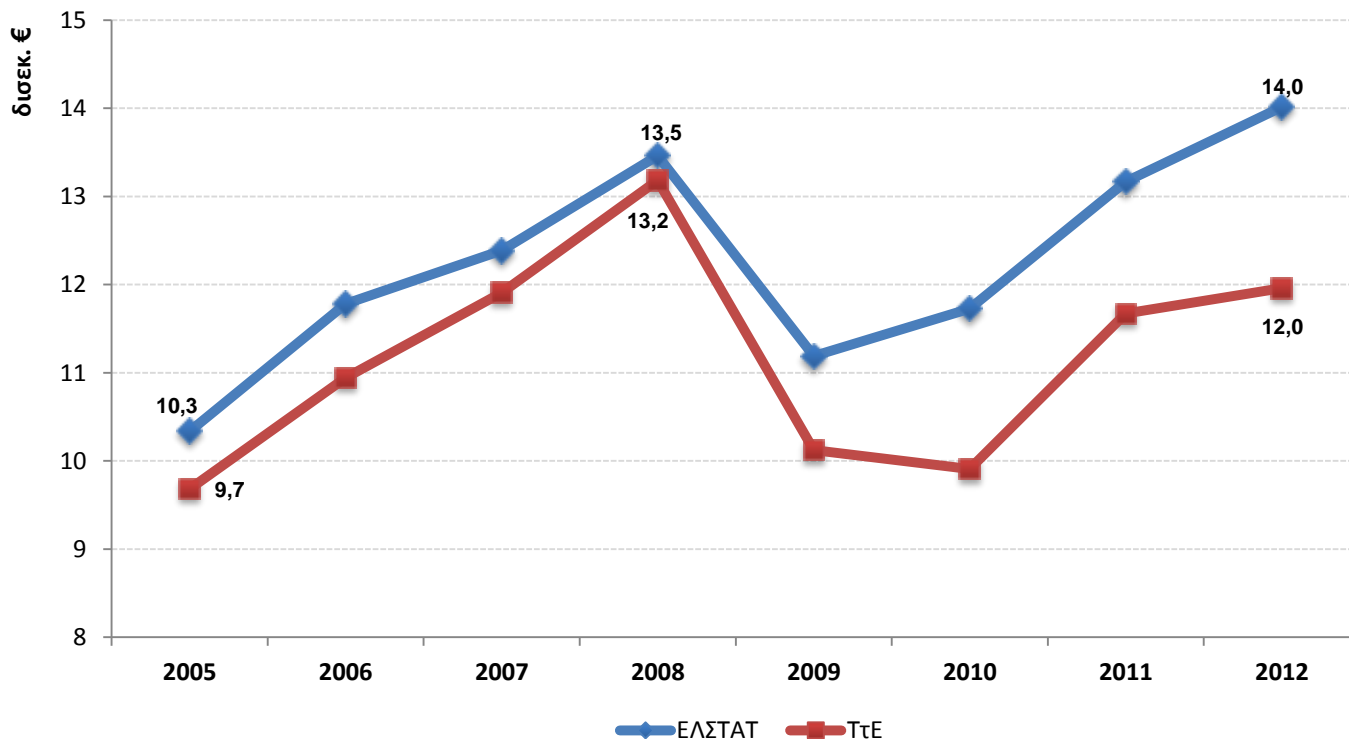
## Measuring

- Η αποτύπωση της αξίας των εξαγωγών της Ελλάδας εμφανίζει διαφοροποιήσεις με βάση τη μεθοδολογία που ακολουθείται για την εκτίμησή τους
- Τρεις διαφορετικοί τρόποι εκτίμησης των μεγεθών του εξωτερικού τομέα
  - ❑ Τράπεζα της Ελλάδος (ΤτΕ)
    - Βασική πηγή άντλησης στοιχείων είναι τα Χρηματοπιστωτικά Ιδρύματα της χώρας τα οποία παρέχουν στην ΤτΕ για τις συναλλαγές που διεκπεραιώνουν
  - ❑ Ελληνική Στατιστική Αρχή (ΕΛΣΤΑΤ)
    - Πηγή των στοιχείων αποτελούν τα Τελωνεία της χώρας (για τις χώρες εκτός ΕΕ), ενώ το ενδοκοινοτικό εμπόριο βασίζεται σε δείγμα επιχειρήσεων που αποστέλλουν στοιχεία με ειδικό έντυπο
  - ❑ Τριμηνιαίοι Εθνικοί Λογαριασμοί
    - Με τον υπολογισμό του ΑΕΠ με βάση τη μέθοδο της δαπάνης οι εισαγωγές και οι εξαγωγές αποτιμώνται με τη μέθοδο “free on board”
- Με βάση τις παραπάνω μεθοδολογίες εξετάζεται:
  - ❑ Το ύψος των εξαγωγών της χώρας και του εμπορικού ισοζυγίου
  - ❑ Το ποσοστό κάλυψης των εισαγωγών από τις εξαγωγές
  - ❑ Ο ρυθμός μεταβολής των μεγεθών για τη χρονική περίοδο 2005-2012 (καλύπτει το χρονικό διάστημα Ιανουάριος-Οκτώβριος)



The value of exports (excl. fuels) is moving upward during the last three years (current prices, bn. Euros)

Αξία ελληνικών εξαγωγών\* σε τρέχουσες τιμές την περίοδο 2005-2012 (Ιαν-Οκτ.)

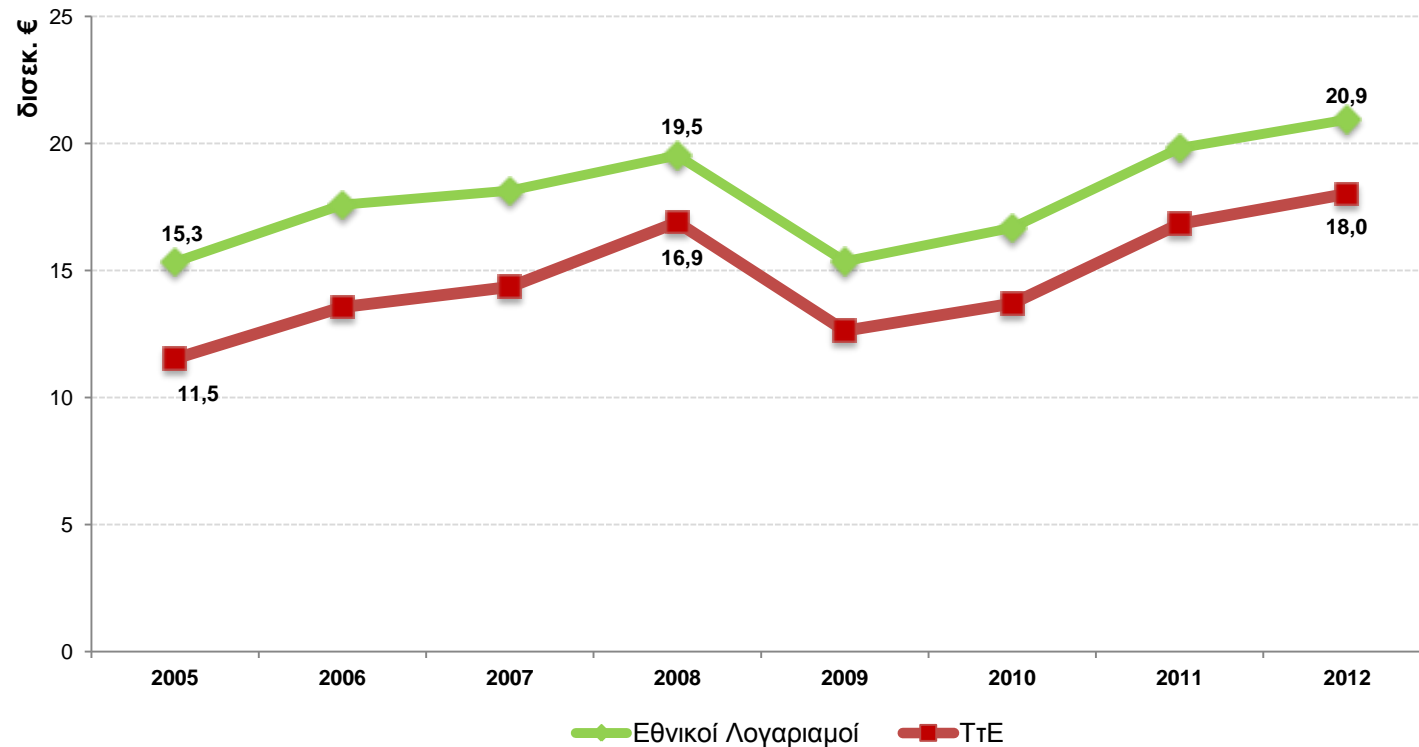


\* Εξαιρουμένων των πετρελαιοειδών

➤ Με βάση την εκτίμηση της ΕΛΣΤΑΤ η αξία των εξαγωγών (εξαιρουμένων των πετρελαιοειδών) αυξήθηκε με μέσο ετήσιο ρυθμό 7,8% την περίοδο 2009-2012 έναντι 5,7% με βάση την εκτίμηση της ΤτΕ

# Similar trend for the value of exports as percent of the total value of goods

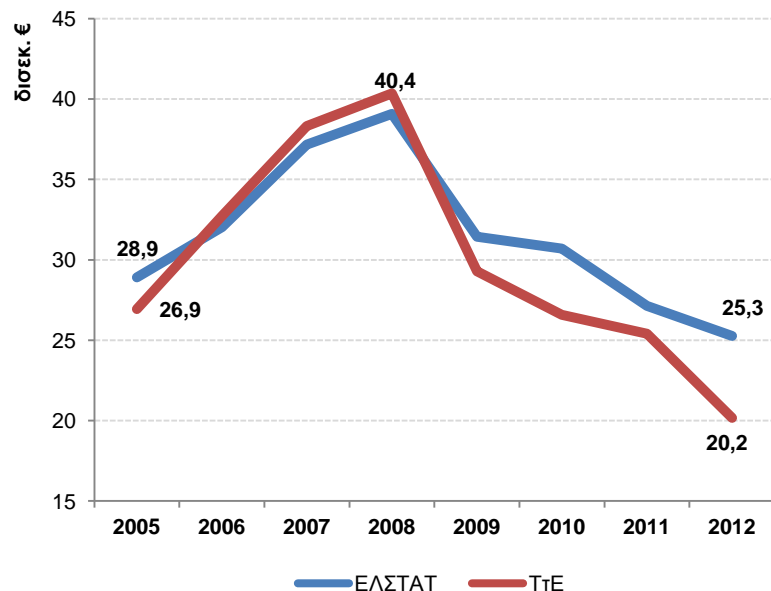
Αξία ελληνικών εξαγωγών στο σύνολο αγαθών σε τρέχουσες τιμές την περίοδο 2005-2012 (Ιαν-Οκτ.)



➤ Με βάση την εκτίμηση της Εθνικών Λογαριασμών η αξία των εξαγωγών, στο σύνολο των αγαθών, αυξήθηκε με μέσο ετήσιο ρυθμό 10,9% την περίοδο 2009-2012 έναντι 12,6% με βάση την εκτίμηση της ΤτΕ

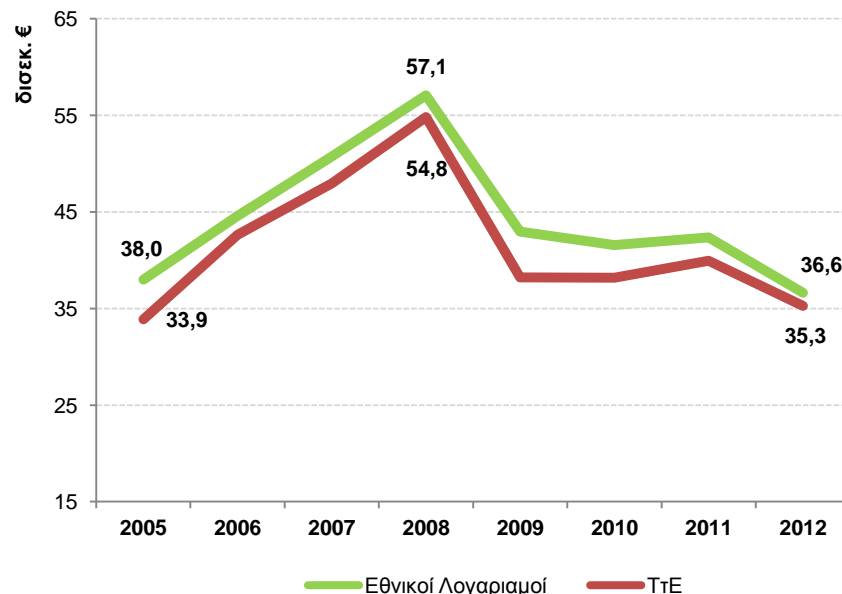
# Imports are moving downwards since 2008

Αξία ελληνικών εισαγωγών\* σε τρέχουσες τιμές την περίοδο 2005-2012 (Ιαν-Οκτ)



\* Εξαιρουμένων των πετρελαιοειδών

Αξία ελληνικών εισαγωγών\*\* σε τρέχουσες τιμές την περίοδο 2005-2012 (Ιαν-Οκτ)



\*\* Σύνολο αγαθών

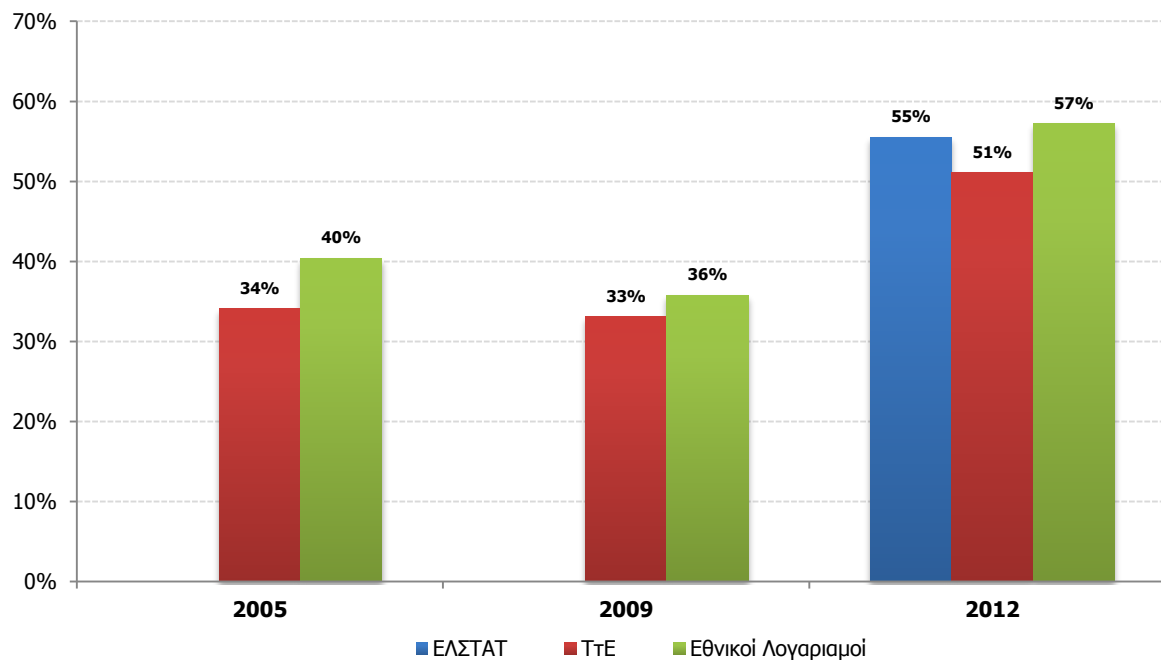
➤ Η υποχώρηση των εισαγωγών είναι εντονότερη στην περίπτωση που δεν συμπεριλαμβάνονται τα πετρελαιοειδή

○ -7% σύμφωνα με την ΕΛΣΤΑΤ και -12% σύμφωνα με την ΤtE την περίοδο 2009-2012

➤ Η τάση αυτή είναι ηπιότερη στις εισαγωγές αγαθών που περιλαμβάνονται και τα καύσιμα

Downward trend in imports combined with upward trend in exports lead to a considerable improvement of the export/import ratio

Ποσοστό κάλυψης εισαγωγών στην Ελληνική Οικονομία, 2005-2012 (Ιαν-Οκτ.)



➤ Το ποσοστό κάλυψης των εισαγωγών ξεπερνά το 50% σύμφωνα και με τις τρεις προσεγγίσεις, σημειώνοντας σημαντική άνοδο την τελευταία επταετία

# TOP 20 EXPORT MARKETS for Greek products (77% of the Greek exports), 2011\*

Rank 2011	COUNTRY	Value in million Euros	Rank 2010
1	ITALY	2.123,80	2
2	GERMANY	1.763,50	1
3	TURKEY	1.752,30	6
4	CYPRUS	1.367,70	3
5	ΕΦΟΔΙΑ ΠΛΟΙΩΝ ΜΕ ΤΡΙΤΕΣ ΧΩΡΕΣ	1.348,60	13
6	BULGARIA	1.239,20	4
7	US	1.191,80	7
8	UK	890,60	5
9	FRANCE	651,00	8
10	ROMANIA	596,50	9
11	SINGAPORE	587,20	33
12	FYROM	527,60	14
13	SPAIN	459,70	11
14	THE NETHERLANDS	458,20	12
15	ALBANIA	425,80	10
16	RUSSIA	394,30	15
17	United Arab Emirates	379,80	20
18	GIBRALTAR	358,60	39
19	ALGERIA	355,10	18
20	EGYPT	346,10	19

*Source: Pan-Hellenic Exporters Association ,  
based on provisional data of the Greek Statistics Authority*

# What makes firms internationally competitive?

[Altomonte et al, The Trigger of Competitiveness, Bruegel, 2012]

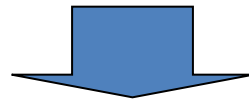
- Firm-level evidence (15000 surveyed firms] in seven countries (Germany, France, Italy, Spain, UK, Hungary and Austria)
- Stress the importance of **non-price determinants** of competitiveness
- Firms with the right balance of a set of growth- friendly characteristics related to innovation (human capital and R&D intensity, finance (adequate capital in the form of equity), HR and mgt practice, ownership structure.
- Policy implications
  - Firm-driven nature of the competitiveness process, but there is no “average “ firm → aggregate measures of competitiveness are subject to a number of biases

# What makes firms internationally competitive? (...cont..)

- Successful international companies invest in human capital and R&D, rely on equity finance, motivate their human resources through performance-based incentives, do draw a line between the family owner and the firm's mgt, and do not see foreign capital as intrusion but rather thrive on the synergies it creates and the international opportunities it opens up via the participation in global value chains.
- Small is not beautiful per se.
- Specific incentives (both market and government-based) should be created in the areas of innovation, finance, human resources, mgt and ownership
- There is no need for specific incentives in the area of internationalisation (except in providing better information on foreign opportunities), as more productive firms become quite naturally international, while the opposite is not necessarily true.

# Field Research in 2000 largest Greek firms

- IOBE, LIEE/NTUA and SEV
  - The largest firms at the national and regional level (in terms of employment)
  - Respondent: General Director or CEO
  - Period: from 30/3/2011 to 5/7/2001
  - The survey will be repeated in 2013
  - Stepwise approach: first 1000, next 1000 and so on (~ 4200calls)
- Total responses: 2025



Employment: 317.000 persons  
Average number of employees: 140 people  
Total turnover 2009: € 68 billion



# Sufficient sample from all regions

Regions	Responses	%
Attica	715	35,3%
Central Macedonia	270	13,3%
Thessaly	155	7,7%
Crete	144	7,1%
Eastern Macedonia and Thrace	127	6,3%
Western Greece	122	6,0%
Central Greece	110	5,4%
Peloponnese	98	4,8%
South Aegean	92	4,5%
Epirus	61	3,0%
Western Macedonia	54	2,7%
Ionian Islands	45	2,2%
North Aegean	32	1,6%
Total	2025	100,0%

# Industries and Wholesale / Retail Trade: 75% of responses

Sectors	Απαντήσεις	%
<b>Wholesale / Retail Trade</b>	740	36,5%
<b>Manufacturing</b>	688	34,0%
<b>Hotels and restaurants</b>	143	7,1%
<b>Construction</b>	109	5,4%
<b>Business Services (financial, real estate, telecoms, transport)</b>	98	4,8%
<b>Primary sector</b>	72	3,6%
<b>Consulting services</b>	70	3,5%
<b>Other services (entertainment, recreation, education, health services)</b>	54	2,7%
<b>IT Companies</b>	51	2,5%
<b>Total</b>	<b>2025</b>	<b>100,0%</b>

# Size: 46% employ over 50 employees

	Companies	%
<b>1-10 employees</b>	248	12,2%
<b>11-49 employees</b>	849	41,9%
<b>50-249 employees</b>	713	35,2%
<b>Over 250 employees</b>	215	10,6%
<b>Total</b>	<b>2025</b>	<b>100,0%</b>

So in fact more than half of the largest firms at the national and regional level in Greece employ less than 50 persons

# The role of innovation

- **Innovation and especially process innovation supports exports**
- Basic requirements / conditions are:
  - Increased technological capabilities of firms
  - High response in changes in demand, flexible production, modernization
  - Action research plan
  - Networks with research centers, participation in research programs
- Knowledge of demand
  - Cooperation with suppliers, customers, competitors, etc.

# Innovative performance

## Product Innovation

- ❖ 50% of the firms made a product innovation (2009-2010)
- ✓ Type of innovation: new to the firm (69% of the firms) or new for the Greek market (50%)
- ✓ 13% of total sales comes from those innovative products

## Process Innovation

- ❖ One company out of three have adopted process innovation
- ✓ mainly on production processes (70%) and ICT (50%)

## Organizational; / Marketing Innovation

- ❖ 38% of companies
- ✓ mainly on selling methods (70%)

# The role of exports

- Exports boost financial results (sales and profits)
  - All exporting companies that estimate an increase in exports in 2011 declare an increase in sales as well
- Exports are facilitated by
  - The size of firms (60% of exporting companies are large firms)
  - Their organizational structure
    - Use of management systems (information systems, project management mechanisms etc.)
      - 79% of exporting companies use information management systems
    - Quality management systems and environmental approvals
      - 68% of exporting companies use quality management systems

# Εξαγωγικές επιδόσεις

(με βάση έρευνα πεδίου ΣΕΒ στις 2025 μεγαλύτερες επιχειρήσεις, 2011)

## ➤ Μεγάλα ακόμα περιθώρια ανάπτυξης εξαγωγών

- Το 45% των επιχειρήσεων εξάγουν (το 70% των μεταποιητικών) περίπου το 30% του τζίρου τους

## ➤ Αισιόδοξες οι προβλέψεις για τις εξαγωγές (2011)

- Το 54% των εξαγωγικών επιχειρήσεων **προσδοκούσαν** αύξηση εξαγωγών με το 87% αυτών να δηλώνουν όμως ότι δε θα ξεπεράσει το 10%

# Firms' size a determinant for...

- The innovation performance of each type
- Exports
- Investments
- The level of exposure to the economic crisis and the ways of response to it
- The implementation of management practices and the possession of quality certificates
- The EXCELLENCE (?)



# Conclusions...

- The current crisis is decisive for the strategic repositioning of the larger firms in the country
- Increasing pressure from shrinking domestic demand, credit crunch, lack of liquidity across the whole value chain of the firms
- Poor economic performance that threatens firms' viability
- Growing uncertainties
- **Result:** Investing under growing uncertainty, constant efforts for operational cost reductions

# Conclusions...

- Enterprises intensify their efforts to support their revenues through exports

But: achieving extroversion is not an easy task

- Knowledge of markets, quality, flexibility, technological skills and highly educated, well-trained and skillful human capital are needed
- Investments in technology, modern equipment and “demanding innovation” are required
- Co-operative effort is a must.
- Synergies with other businesses of complementary or similar sectors for scale economies
  - Focus on market niches at the global level

# Main question today

- Under a fiscal consolidation process, what are the requirements for a restarting of the growth of the economy?
  - Beyond the macroeconomic management, is it necessary to develop a connection between technology/innovation, institutions' quality and productive structures
  - Seek for qualitative development focusing on knowledge, technology, innovation, encouraging knowledge-intensive entrepreneurship and the support of an intelligent, effective and Public Sector.
  - A new social deal, a coordination of public policies and strategic management of the implementation

## Growth policy: Towards a new Social Deal based on knowledge and technology

- Systematic use of the new knowledge produced.
- Incorporation and operational use of ICT technologies everywhere,
- Coupling the production process with environmental protection and efficient use of resources (energy, raw materials, materials, etc.).
- Encouragement of the entrepreneurship based on quality, research and use of knowledge and innovation.
- Strengthening of production and technology ecosystems.
- Promotion of the extroversion of the Greek economy through a strategy of focusing on market niches at a global scale, especially for manufacturing SMEs.
- The public sector as a smart user: procurements based on innovations, “green” and smart solutions, etc.

# Growth policy: Towards a new **Social Deal** based on knowledge and technology

- Development of network digital infrastructures of the next generation.
- Systematic effort to attract foreign investments at the production and infrastructure level that will allow the efficient use of innovation and knowledge
- Promotion of innovation as a way of thinking and acting (knowledge transfer networks and experience encoding, innovation competition, etc.)
- Treatment of side effects and gaps (social, technological, educational, peripheral etc.) that arise as results of productive restructuring and technological modernization

## Beyond the sectoral approach at the perception of the “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.
- The role of actors and the exigent demand.
- Platforms, learning, knowledge and innovation networks.

# Examples of ecosystems

- The ecosystem of Information and Communication Technologies
- The agro-bio-nutritional
- The environmental
- The constructions (projects, materials, insulators, bioclimatic, smart buildings..)
- Energy (production and demand management..)
- Health

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

- Policy system. Consolidation and integration of measures, interventions and actions.  
Timing.
- Public debate agenda configuration.  
Development is a process of mobilization of resources, humans, groups etc.
- Strong coordination but decentralized implementation



# Start-ups in mobile applications (software and content) in Greece: A promising story

- 65 new firms.
- Total Turnover more than 400 million Euros (most of it from exports)
- Employ 4000 (1000 of them with a scientific background)
- Customer base: Big Mobile Telephony firms.

## **Exploiting a new phenomenon: Entrepreneurship in global innovation ecosystems (Zara & Nambisan, 2012)**

- “Established companies in countless industries have recognized the need to access globally dispersed knowledge networks to develop and acquire innovations necessary to better serve their customers. To maximize and coordinate their access to this diverse knowledge, some incumbents have developed innovation platforms whereby new ventures and smaller companies contribute their discoveries and innovations. These platforms allow incumbents to shape and control their ecosystems. These ecosystems have been fertile grounds for the creation of new ventures of different types”.