



For a National Innovation Strategy

Hellenic Federation of Enterprises

17 December 2013

Athens

Joseph Sifakis

EPFL, Lausanne

Facing the Challenge

- ❑ If the answer to the current crisis is development, then solutions should be sought beyond tourism, agriculture, maritime revenues and exploitation of natural resources

- ❑ There is an increasing awareness that the exit from the crisis and the development of a modern and competitive economy require a substantial effort for technology and innovation
 - expressed in numerous programmatic statements of the government
 - declared to be a top priority of many public and private bodies and companies.

- ❑ What are the prerequisites for innovation development?

- ❑ How an effective strategy can be defined?
 - building on the country's assets
 - implementing the necessary structural reforms and changes

Facing the Challenge

- ❑ The development and implementation of such a strategy
 - requires an in-depth understanding of the innovation issue in all its dimensions
 - implies the definition of a roadmap with priorities and milestones, specifying the roles of all of the key players and orchestrating their action towards common objectives.

- ❑ How can the triptych Research-Technology-Innovation contribute to sustainable development of Greek economy?
 - Under which historical conditions and processes, innovation turned to be the engine of modern economies?
 - How by learning from the examples of other countries, we can mold a strategy for sustainable development based on innovation?

Changes and Trends in the R&D World

The post-war R&D model based on a clear separation between academic and corporate R&D has radically changed in the 90's

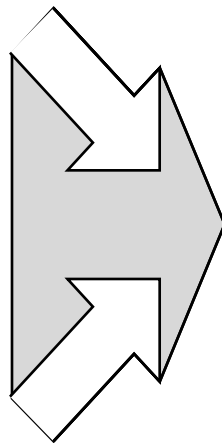
- Long-term research has become a luxury only a few monopolies can afford e.g., decline of the big corporate R&D laboratories: Bell Labs, Xerox Park, IBM Yorktown
 - modern technology firms are much less vertically integrated
 - the rise of venture capital has smoothed the progress of innovation into products
 - big companies rely on Centers of Excellence for much of their basic research and to tap into fresh ideas and young talent at universities

- The boundary between research and development is blurring
 - acceleration of the innovation cycle : how to turn ideas into commercial innovations?
 - competition is fierce and the time to market can be instantaneous

Changes and Trends in the R&D World

Academic
Research

Corporate R&D
executed by
a single player
having the exclusive
rights
on the results



Company-specific problems
addressed on an exclusive basis

R&D addressing generic
problems on a cost & risk
sharing approach

- IP is shared!
- Reusable Technology
Platforms and
Components!

**GLOBAL R&D
Innovation Ecosystem**

1945

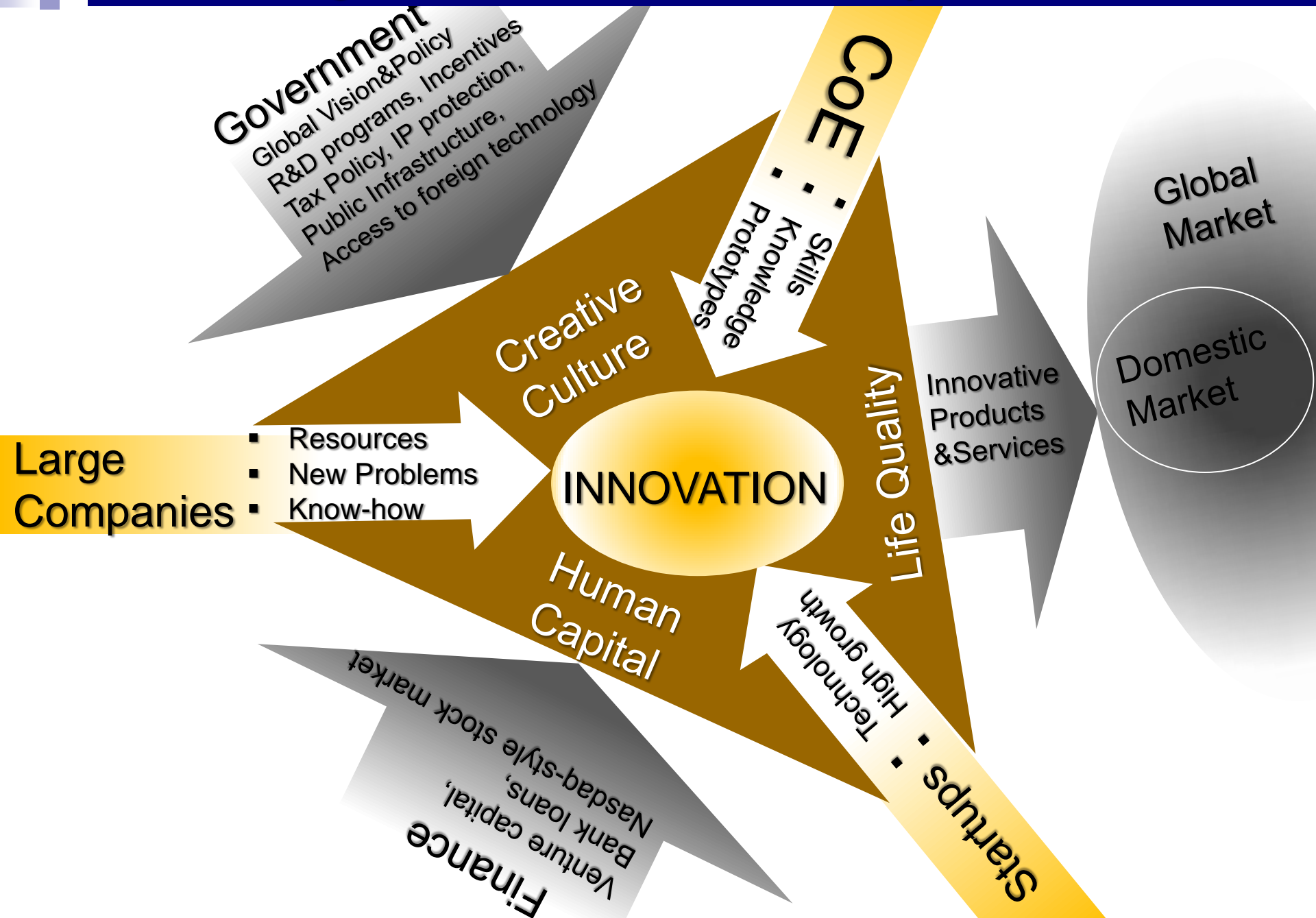
1990

2000

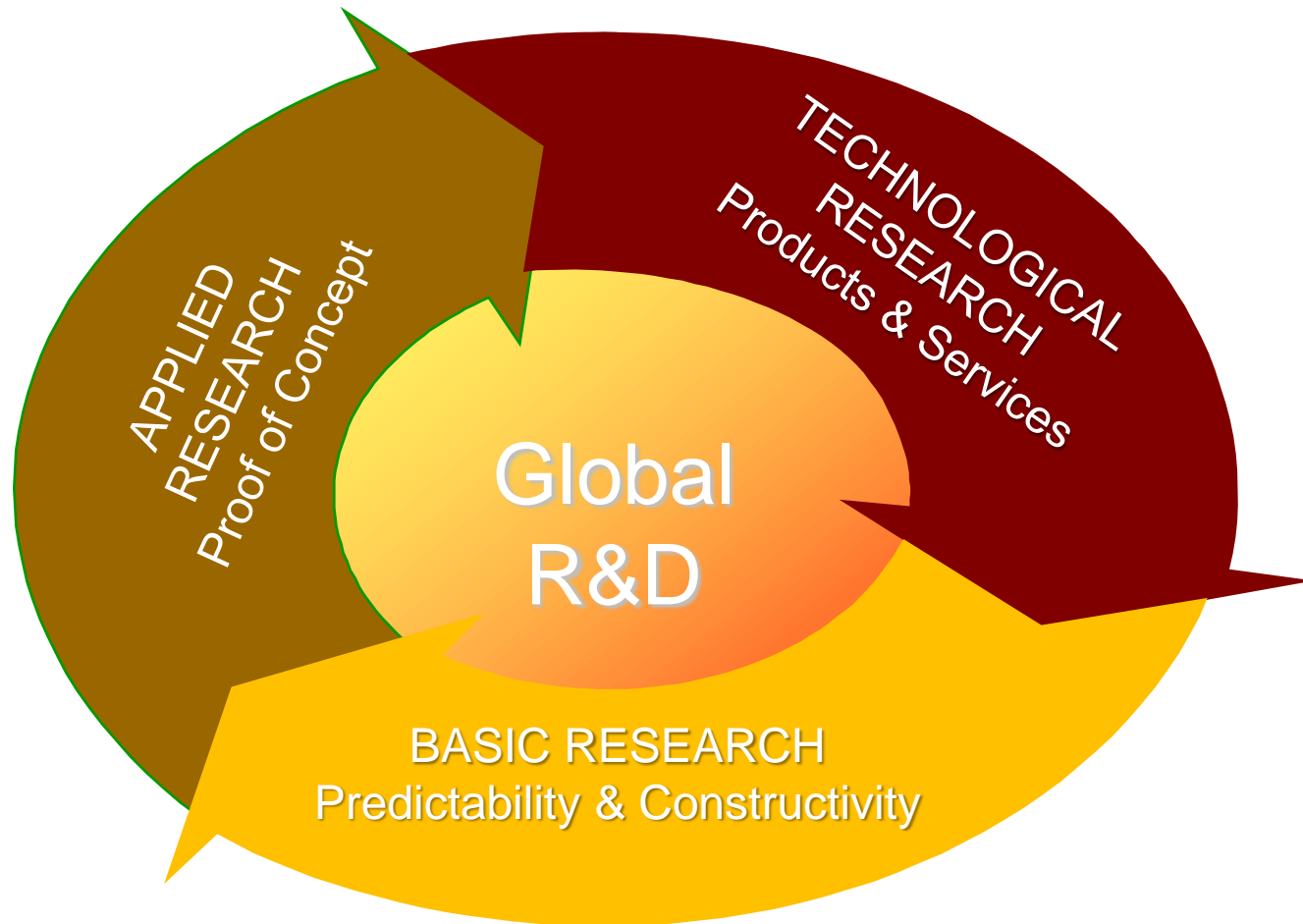
2013



The Emergence of Innovation Ecosystems



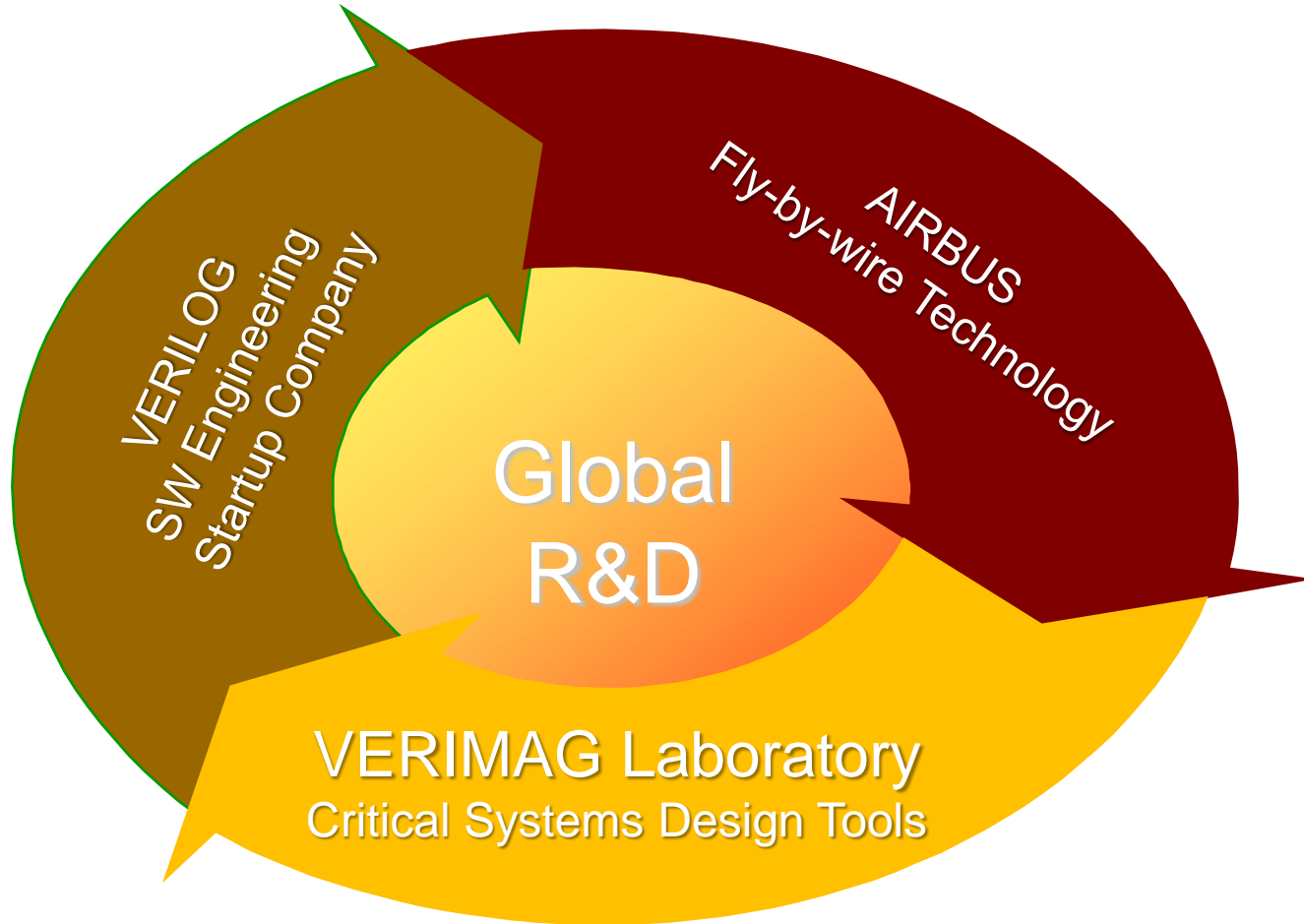
The Virtuous Innovation Cycle



Supremacy in innovation is largely due to Centers of Excellence which have successfully and advantageously implemented the Virtuous Cycle of Innovation

- increased financing, and new problems for basic research
- Innovative results for industry

The Virtuous Innovation Cycle – My Story



Lessons Learnt from Others

Innovation is a continuous and long process involving basic research, technology transfer, strong take-up from industry, investment and risk capital.

There is no unique model!

- ❑ Large developed countries e.g.
 - U.S. (ICT Products and Services, Avionics&Space),
 - Germany (Automotive, Manufacturing Automation, Energy)
 - Japan (Automotive and Electronics),
 - South Korea (Consumer electronics and transportation)

- ❑ Large developing countries e.g.
 - China (Electronics, Biotechnology),
 - India (Software Industry, Biotechnology),
 - Brazil (Avionics&Space, Biotechnology)

- ❑ Small Countries e.g.
 - Israel (“The most important high-tech country worldwide after the U.S”)
 - Switzerland (“The world's most innovative country”),
 - Taiwan (“Taiwan chip industry powers the tech world”),
 - Scandinavian countries (“Effective linkages between education, infrastructure, human capital and market/business sophistication”)

Lessons Learnt from Others – Human Factors

- ❑ Economic crisis is accompanied by a deep ideological crisis: low public service motivation, elites and leadership are discredited, belief in the common good and moral values has been violently shaken

- ❑ Human factors are essential!
 - Nonetheless, they are completely overlooked in current policies and practices

 - Government policies should break with the dominant economic and geographic determinism – purely economic measures do not suffice!

 - Lack of vision, spiritual and moral values cannot be compensated by natural resources, economic purge and geopolitics

 - Reestablish the moral and spiritual values that guided our historic evolution

 - Fight corruption and establish meritocracy – elites matter!

 - Support creative individual initiative

A National Strategy

- ❑ Defines a framework implemented through structural measures and reforms intended to enhance assets, reshape the landscape of available forces, and ease their synergy for the emergence of innovation ecosystems
- ❑ Defines a set of priorities and associated action lines targeting a set of sectors of the economy where either our geopolitical position confers competitive advantages or development of innovating technology is vital for national sovereignty and economic modernization
- ❑ Assigns discernible roles to the main players and stakeholders as well as incentives and measures for their harmonious collaboration.

A National Strategy – The Framework

Modernizing, integrating, consolidating the Greek Research system

Gathering Critical Mass

- A large amount of multidisciplinary expertise is needed to bring a project to fruition!
- Integration on a regional basis of the fragmented research centers into single site and under unified governance – establish Centers of Excellence in Athens, Thessaloniki, Patras, Heraklion

Building Excellence

- Recognize the importance of applications in the evaluation criteria
- Make research careers more attractive – attract the best from Europe and worldwide e.g. higher salaries, recognition, flexibility in resource management, meritocracy in career management
- Open Greek research institutions to International Centers of Excellence and to collaborations with the Greek diaspora's scientists

A National Strategy – Framework

- ❑ Currently, uncoordinated funding, multiplicity of decision centers and a subsequent emergence of clientelism
 - Secretariat for Research and Technology is still under the Ministry of Education!
 - Three different ministries deal with innovation-related issues!

- ❑ In the same way as other developed countries, set up adequate structures for coherent and transparent management
 - A single Ministry for Research, Technology and Innovation with expanded power to deal with entrepreneurship in collaboration with other Ministries
 - An independent Agency in charge of implementing the National Strategy in tight collaboration with the main stakeholders, ensuring the elaboration of the long term vision, program monitoring, management and evaluation

- ❑ Simplify administrative procedures, tear down bureaucracy, reestablish entrepreneurial confidence
 - Cheap and qualified workforce, and life quality do not suffice – investors need guarantees for legal certainty and proper functioning of the market

A National Strategy – Priorities (examples)

□ Defense

Over the past two years, Greek defense spending amounted to 2.1 % of G.D.P.

- Allocate a part of the defense budget for the development of specific technology e.g. customization of defense systems

□ Health

- Modernize the National Health System by developing information infrastructure and services e.g. electronic medical records, research on comparative effectiveness
- This could be the object of a specific program involving Greek ICT companies and research institutes

□ Food, Cosmetics and Pharmaceuticals

- Leverage on competitive advantages conferred from richness and diversity of the Greek flora, the Greek culinary tradition, the variety and quality of products
- Develop technology for enhanced quality and safety, reduction of production costs, standardization and certification of agricultural production systems

A National Strategy – Roles

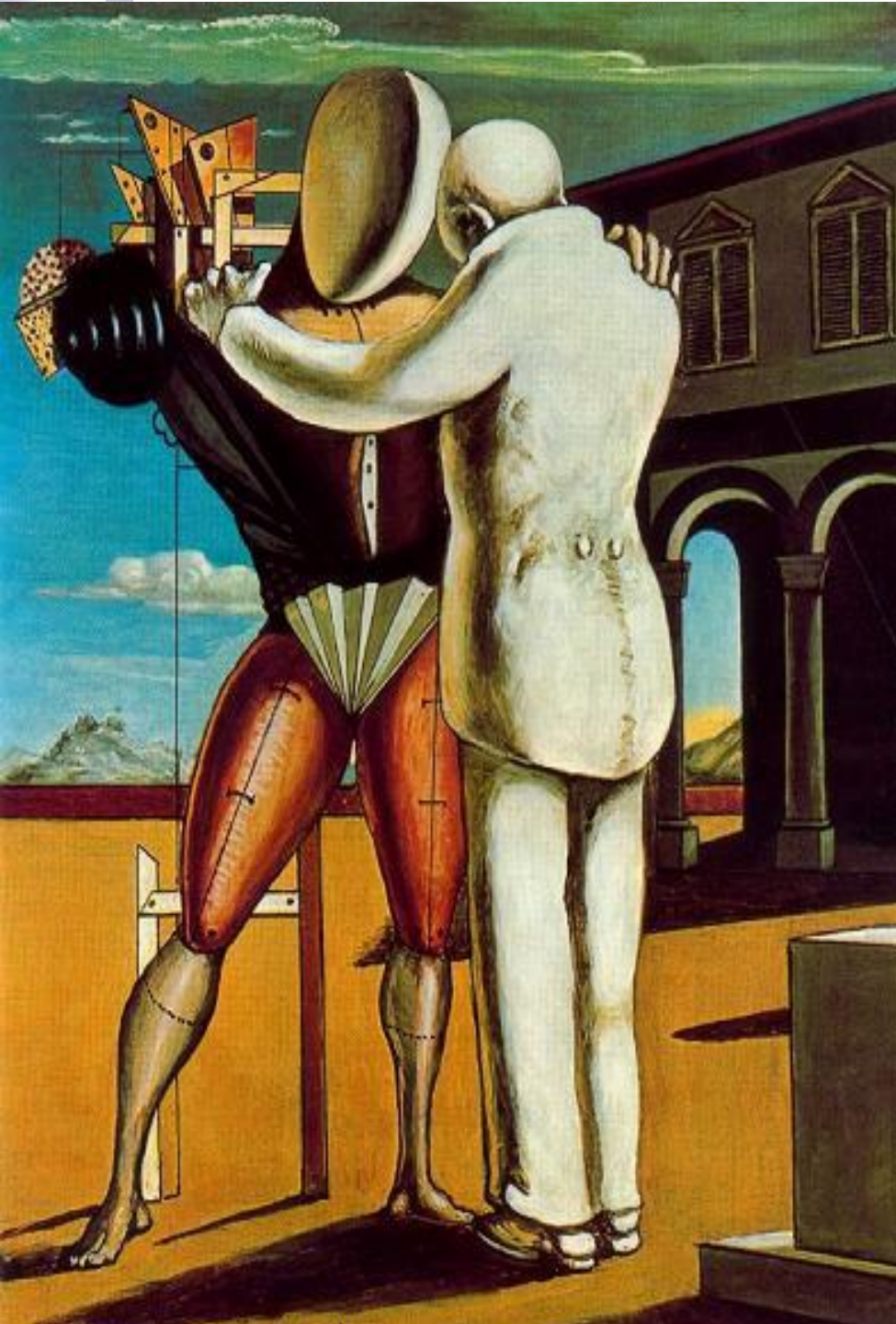
- ❑ A national strategy cannot be achieved only through regulations, decrees and laws

- ❑ Should be a synthesis of proposals of the stakeholders who will be the main players for its implementation e.g. Enterprises, Research Institutions, Financial Institutions.
Unfortunately, today
 - Institutions do not assume their role of force of proposals to decision makers
 - Most enterprises are government-subsidized and introverted - their interest in innovation is to a large extent, motivated by the search for additional subsidies

- ❑ It is essential to reverse the trend - Industry and enterprises should be primarily concerned with Innovation!
Representative bodies e.g. ΣΕΒ, ΣΕΠΕ, should be a force of proposal by putting on the table concrete action plans identifying
 - sectorial needs for innovation
 - clusters of partners committed to lead concerted R&D programs

Toward a National Innovation Strategy

- ❑ Developing an innovation-based economy requires continuous and lasting efforts involving multiple structural changes as well as cleansing of public life – It should not be simply reduced to an economic problem
- ❑ We should avoid superficial approaches and a certain mimetism. Today, most initiatives focus on start up creation – We should not overestimate the impact of such initiatives!
- ❑ We should be acutely aware of the role played by innovation ecosystems whose start ups are only epiphenomena
- ❑ Increasing awareness is certainly encouraging but so far, little progress has been accomplished in the right direction. We should move forward with determination - Καιροί ου μενετοί!
- ❑ Our vision for innovation is an integral part of the vision for a reborn Greece.



“The future cannot be predicted, but futures can be invented”

The toughest uphill battles are still in front of us!