Universities and Research Centers as Agents for Economic Development

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“Greece at the Crossroads- How can we help?”
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Challenging times for higher (read post high-school) education – world wide

Major socioeconomic changes are transforming the way we live, work and communicate

New Strategies are needed for success in the new so-called “information-knowledge economy”

Society is “scrutinizing” ever more closely the behavior and performance of higher education institutions

Great challenges → great opportunities

Critical role of ICT (Information and communication technologies)
The Context: Better Integration of Higher Education with Society

- Changing role of Universities in modern societies
  - Impact on Quality of life: educate “better” citizens graduate “productive” citizens – careers – economic development
- Universities must be “open” and more integrated with society
- Our students and their careers are our best ambassadors to society at large
  - Must produce students that are more agile in their career pursuit
  - Must be able to succeed in the global economy – exchange programs
  - Cross-disciplinary education – out-of-school cooperative experience a must
- Industry an important factor in this integration – programmatically and financially
Universities and Society: Examples

- Universities and K-12 education
- Research experiences for undergraduates
- Research experiences for high school students
- Educating high school teachers (math, science, technology, ...)
- Universities and life-long learning
- Universities as knowledge sources
- Universities as key contributors to solving problems of significant impact to society
- Universities and economic development – innovation – jobs
- Universities and quality of life and work
- Universities as contributors to art and culture
- Universities for international collaboration and peaceful co-existence
• High quality human capital present
• R&D nests of excellence in several places – competent and winning tough EU funding
• Lack of infrastructure – needs to be created, but not via total reliance on government
• Utilize EU funding opportunities – attract other funds
• Work with “mentors” from successful programs
• Decentralized development and implementation – areas must have strong “local” component for jobs
• Layered post high-school education
• Consolidation of Universities – link them to the various layers and to high schools
Universities and Economic Development – Some Ideas for Greece

- Infrastructure supporting Economic Development
- Infrastructure supporting innovation and entrepreneurship
- Implementing something like the European “Competence Centres” in Greece; across the country in business areas where Greece can be competitive
- Such centers can have social focus, quality of life focus, not just technology focus
  - Agriculture
  - Shipping
  - Health care – local mini-clinics, assisted living, etc.
  - e-Apps for archeology, tourism, restaurants, etc.
ICT for decentralization – take location away, provide education, healthcare, jobs

Developing “Total Innovation Systems” (e.g. MTECH at UMD, Sweden, Austria, Germany, France, …)

Teaching and cultivating entrepreneurship -- “Guided Entrepreneurship” programs

Government (EU, central, regional) matching of industry funding in projects

Venture Capital support

Business Incubators – Technology parks

Supporting SMEs

Note: Students in Greece are trying on their own – but there is no supporting infrastructure
Some Ideas for Greece

• A small “task force” is needed to investigate several ideas and develop an implementation plan for Greece, including identification of the “best” areas to invest in
• Use EU funding opportunities and EU structural funds
• Use Centers, or other cross-constituencies organizations, to attract companies to Greece world-wide
• Use them to create SMEs in targeted areas
• Capitalize on the rich international network of Greek-origin scientists, engineers, business people – exchange programs, advisors, international collaboration and ventures
• Encourage volunteers in Greece to help – e.g. retired people to “professors of Practice”, advisors, etc.
Some Ideas for Greece

- Some examples of Center topical areas for Greece:
  - Health IT
  - Sensors and improvement of agricultural processes
  - Maintenance and repair of merchant marine ships
  - Sustainable management of fisheries
  - Location aware e-Apps for tourism
  - Energy-photovoltaic systems
  - All electric cars
  - Fast trains
  - Efficient ethanol production from diverse plants via biotechnology

- Can Greece still play a major role in SE Europe and the Middle East? R&D, Education, Economic Development

- International R&D collaboration programs that include economic development impact (with US, Europe, China, …)
Project and extensive study by the Royal Swedish Academy of Engineering Sciences (IVA) -- 2009

The question posed: What should Sweden do to preserve its quality of life in the 21st century?

The answer: Educate its people so that they can get the best jobs world-wide.

Compared R&D strategies and economic development in Sweden, Switzerland, the Netherlands, Finland, Taiwan, South Korea.
Need for National Policy – Six small countries

Difficult/sensitive issues

• Funding for Universities: Prioritized or block? Mixed?

• Role of Government research institutes?

• Need for a major institute/agency to facilitate innovation and commercialization?

• Regional vs. national competence centres, programs?
Most important findings/considerations:

A general principle for all research: Research results must benefit society.

The insights that lead to this principle:

• Global competition necessitates relevance, excellence and critical mass.

• The need for new knowledge should determine the focus of research.

• Government funding of civil R&D should be stable, long term and amount to at least one per cent of GNP.

• Close collaboration between researchers, business and industry and society’s other players will result in an effective innovative system.

• International cooperation and greater EU integration will increase the impact of investment in research.