

# HIGHER EDUCATION AND RESEARCH: KEY DRIVERS IN AN ADVANCED INNOVATION SOCIETY



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*If you think Education is too expensive,  
Try ignorance*

- **WHY** are HE&R key drivers in an Advanced Innovation Society?
- **HOW** are HE&R key drivers in an Advanced Innovation Society?



# WHY

are HE&R Key Drivers in an  
Advanced Innovation Society?

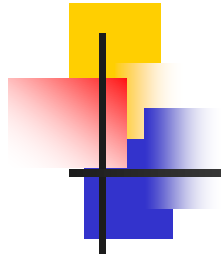


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# BECAUSE

The World at the beginning of the 21st century is fast changing, very competitive, as well as uncertain, and more than ever based on knowledge?

- The fast changing environment
- HE&R is a key investment



# **THE FAST CHANGING ENVIRONMENT**



# GLOBALIZATION

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## Characteristics of globalization:

Due to political, social and economic, as well as scientific and technological changes, there is an **increased mobility or fluidity of:**

### ■ **Persons**

- Improvement of transport infrastructure (air traffic, fast trains, motorways..)
- Needs of the labor market, of business and of leisure
- Increased emigration/immigration

### ■ **Goods**

- Free trade (WTO and GATS)
- Economic and currency areas (EU, .....

### ■ **Capital**

- Deregulation of finance markets
- Improved portfolio management



# GLOBALIZATION (2)

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*(..... increase mobility of:)*

- **Information**

- Voice (cheaper and improved phone infrastructure),
  - Messages (fax and e-mails),
  - Information (web).
- Apart from a few exceptions, all countries of the world are participating, like it or not!

**The world is becoming a global village!**



# KNOWLEDGE BASED SOCIETY

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The production and use of new knowledge is increasing exponentially:

- The quantity of new knowledge is considered to double every five years,
- The half life length of any knowledge is decreasing in any discipline
- The implementation time of new knowledge is decreasing (knowledge/technology transfer)
- The competitive edge secured by a new product is decreasing rapidly
- Consequences: **intellectual capital** – brainpower - is replacing physical and financial capital as the key to prosperity.





# INCREASING COMPETITION

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- **Competition increases everywhere**, between:
  - Firms, nations and continents (Europe, Japan, USA)
  - Traditionally protected sectors are also facing increased competition: governments, public enterprises, non profit organizations (charity, humanitarian), universities,
  - Increased competition in the labor market (competition for talents/brain drain)
  - Increased competition between social needs (education, health, aging population, security, ...)
  - The critical mass to produce new knowledge is increasing
  - The distribution of income and wealth is becoming even less equal (stronger concentration on a decreased number of people)



# INCREASING UNCERTAINTY

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- Uncertainty is increasing
  - In the **business world**:
    - boom and bust in a decade (Enron, Worldcom, ..)
    - What used to be quite safe investments have become highly risky (Swissair, ABB, Banks, Insurances...)
  - On the **labor market**:
    - There are no more secure positions, even in the government,
    - People will have to change job many times
  - In the **day to day life**, there is (perhaps) greater insecurity (11/9, Moscow hostages, the Washington killers)
- Consequences: people feel less secure and are inclined to resist globalization, technological progress and increased competition



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# HIGHER EDUCATION AND RESEARCH IS AN INVESTMENT



# HE&R IS AN INVESTMENT

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- HE&R are an **investment** (in human capital) with a high rate of return for States and individuals
  - It contributes to:
    - Economic growth (comparison Ghana-South Korea)
    - Social development and stability (democracy, tolerance, human rights, counter-weight to financial and political hegemonies....)
  - It benefits to all, even those who do not participate (external benefits of HE)
  - HE&R are particularly crucial in countries without natural resources (similitude between Ireland and Switzerland)



# HE&R IS AN INVESTMENT (2)

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- HE&R are also a **consumption** good for many individuals (personal development and leisure)
- The investment and external benefits dimensions **justify a strong public subsidization of HE&R** (which should however not preclude a reasonable direct financial participation of the individuals for efficiency as well as equity reasons)



# HE&R IN THE 21ST CENTURY

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## ■ **INCREASING DEMAND**

As the tasks to solve are becoming more and more complex across the board:

- Demand for qualified people increases on a broad scale,
- The proportion of highly qualified people employed increases in most organizations (business, Governments, non profit organizations)



# HE&R IN THE 21ST CENTURY (2)

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## ■ **INCREASING SUPPLY OF..**

- Qualified people
  - Increased participation rate (massification)
  - New publics (Women, Life long learners)
- Higher Education institutions
  - Research universities
  - Teaching Higher Education institutions
  - Technology and other vocational institutions
  - Distance learning institutions
  - Corporate universities



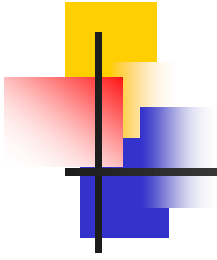
# HE&R IN THE 21ST CENTURY (3)

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**Is there a risk of unemployment** due to an imbalance between supply and demand of qualified people?

- **In the short run**, risk of temporary unemployment as the profiles of persons demanded and supplied could well not coincide
- **In the long run**
  - Positive correlation between the number of study years and employment (the labor market, as the economy, develops dynamically: there is no such thing as a fixed number of positions to “share” between active people!)
  - The increased average level of qualification stimulates growth and, therefore, employment
- **A risk**: try to orientate HE strictly according to expected demand and push vocational training too much at the cost of a more basic education





# HOW

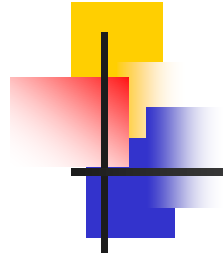
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Advanced Innovation Society?



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# X challenges at

- Governmental level
- Institutional level (mainly, universities)



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# CHALLENGES FOR HE&R AT GOVERNMENTAL LEVEL



# PROMOTING COMPETITIVENESS

## Main aims:

- Achieving a high quality of teaching and training at the BA and MA levels
- Promoting the “learning” aspect of “teaching and learning” , among others in facilitating Life Long Learning
- Training a growing number of researchers (PhDs, post-PhD researchers,)
- Developing quality basic research (project focused as well as curiosity driven):
  - This is the best training vector
  - There is no innovative applied research without good and sufficient basic research
- Promoting knowledge transfer (shortening the cycle basic research to product or service development)
- Invest in teaching and research where it has the highest probable rate of return! This implies a voluntary HE&R policy. However, is it wise in an uncertain world?



# PROMOTING COMPETITIVENESS (2)

## **Main means:**

- Promote a good framework for R&D
  - Secure an open and stable legal framework
  - Support risk taking with financial helps and low taxes (better than tax incentives)
- Advanced studies (PhD) and research must be made attractive:
  - Promotion of science in society
  - Good research environment and attractive salaries
- Encourage the implementation of a strict quality assurance system within the autonomous institutions....
- Increase the research potential:
  - Promoting women in science
  - Promoting Ireland as a high quality research place (for staff and students)
- Last but not least, there is a strong correlation between the importance or funding and the quality and quantity of output; therefore, there is no room for illusion



# OVERCOMING INCREASED UNCERTAINTY

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## ■ **Two related questions:**

- How can HE&R contribute best to overcome the increased uncertainty?
- How far should governmental HE&R policy be voluntarist?

## ■ **One answer:**

- **If** the future could be perfectly foreseen, a very determined HE&R policy would give good results,
- **However, the future cannot be perfectly foreseen,** sometimes even two years ahead,
  - Business world: ex.: telecom and internet bubbles, 30 years ago, threat of quartz and laser to Swiss watches and optics
  - Labor market: ex.: two years ago, many countries took drastic measures to attract computer specialists; today, many are unemployed.



## OVERCOMING INCREASED UNCERTAINTY (2)

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- Which HE&R policies for countries like
  - Sweden and Switzerland: highly developed, but small
  - Finland and Ireland: also small (population) and determined to catch up with the leading group?
- Both groups must set priorities,
  - However, the priorities **should be clearer in the second group** because of their greater lack of resources (financial and human). This implies the search for a critical mass (which is increasing) through:
    - A reasonable division of labor between institutions
    - The creation of networks or even the merger of institutions (see England)
  - Consequence: **the countries in this second group are exposed to a higher risk** (according to the new theories of finance)



# CIVIC RESPONSIBILITY

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- According to their missions, Universities must be:
  - **Responsive** to the needs of society and to the changing environment,
  - **Responsible** towards society: They should protect the long term interests of society in raising criticisms, issuing alarm signals and making recommendations
  - These two sides of universities' missions converge in the long run, but can well be contradictory in the short run. Moreover, a period of rapid change creates a growing tension between the two





## CIVIC RESPONSIBILITY (2)

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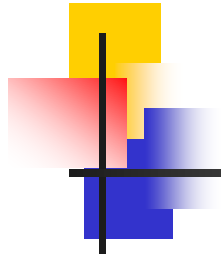
- The civic responsibility of Universities has serious implications for HE&R policies:
  - Universities must be autonomous, that is they must in particular be free to choose:
    - Their professors and researchers
    - Their students (at least from the MA level)
    - Their program of studies and research topics within the financial constraint set by the government and of third party founding
    - Their alliances with other universities or business organization



## CIVIC RESPONSIBILITY (3)

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- The academic staff should be granted academic freedom, subject to the priorities set by their institution and the code of behavior of their discipline
- Social sciences and humanities should be promoted as they are best equipped to analyze societal problems, which have become serious threats to our well being (i.e. issues like environment, aging population, democracy, European integration, peace, trust (in business))...
- Moreover, the civic responsibility of Universities imply that they contribute to the social inclusion of the “left over”



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# TO CONCLUDE: IMPLICATIONS FOR UNIVERSITIES



# IMPLICATION FOR UNIVERSITIES

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- **Universities are a key support to the national HE&R policy**
  - They train most of the students and 100% of the researchers
  - They do a great deal of the fundamental research and nearly all the curiosity driven research
  - They are best placed to form research alliances with firms
  - Their autonomy allow them to be responsible towards society



# IMPLICATION FOR UNIVERSITIES (2)

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## **In order to fulfill their role, Universities must...**

- Pay greater attention to quality (of teaching, research and management)
- Be transparent and accountable towards their sponsors (government and third party)
- Pay more attention to their governance. This implies:
  - Leadership
  - The correct balance between top-down and bottom-up decision processes
  - A willingness to change, among others in fixing priorities
- Put quality research high in the agenda, beginning at the MA level
- Consider teaching as an equally important mission, stressing basic knowledge and the capacity of students to learn throughout life



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# THANK YOU