Universities as key nodes in the creative imperative:
A national perspective

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- What are universities in nowadays?

- Engines of knowledge based economy

- Universities represent the advancements and innovation a country has

- Creativity and national prosperity paradigm (Wince-Smith 2006)
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- Advanced research universities are vital for country development

- How to become an advanced university?

- Advanced university is linked with quality research
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. How to overcome the “summit of excellence” in our universities?

. Shortcomings that universities face

1. Building know-how in research
2. Financing
3. Open mentalities of researchers
4. Open mentalities of government agents and politicians
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- “Offshoring” high value-added products
- Identifying set of actions
- Adding creativity: R+D+I+C

1. Collaboration
2. Interdisciplinary: arts, humanities, social sciences and sciences
3. Open up boundaries between disciplines, organizations across regions and nations
The Diamond of R+D+I+C in the UAB

- Social Sciences and Humanities
- Animal Health / Food Safety and Technology
- Science and Technology
- Biotechnology and Biomedicine
- Environmental Science and Technologies
International competitiveness of UAB’s research

• Changes to Bolonia Declaration Framework (1999)
  • Selection of prestigious European universities as partners: ECIU, VIU, EUA etc.
  • Encouragement of student mobility through international programmes
  • Promoting collaboration with prestigious foreign universities, by setting up research networks
International competitiveness of UAB’s research

Research and Knowledge Transfer Activities

(2004)

1554 Publications in ISI journals
42 M Euros in competitive research
16.6 M Euros in 563 research contracts
202 Doctoral theses

(2005)

1996 Publications in ISI journals
33 M Euros in competitive research
13 M Euros in 563 research contracts
269 Doctoral theses
Structural path and principal agents of R+D+I at the UAB

- Teaching (UG & PG) Research
- Research Institutes and Centers
- Interface with industry: Knowledge Transference, Spin-off creation, and Impacts in Society
Research Centres, Institutes and Consortia

These elements constitute the UAB Research Park, which seeks both to generate and to transfer new knowledge and technology.

They are closely integrated with the rest of the university (Faculties, Departments, Services)

This relationship, constitutes one of the unique and most interesting elements of the UAB, bringing together a critical mass of researchers in these five transversal axis:

- Social Sciences and Humanities,
- Animal Health / Food Safety and Technology,
- Science and Technology,
- Environmental Science and Technologies,
- Biotechnology and Biomedicine
This research capacity of the University, the institutes and centers of the Research Park is further enriched by the research activities of the UAB hospitals and Medical Research Institutes.

All these come together in what we call: the Esfera UAB
To Summarize: UAB’s Pathways and Goals

A university with a clear research vocation and international outlook

+ Clear links and pathways across teaching and research

+ A concentration of people, research facilities and infrastructures

+ A strong and growing orientation towards industry, end-users and society
How the universities are coping with changing economic landscape?
+
How the mindsets and changing attitudes are embodied in demands for new education in universities?
+
How universities are responding to new jobs implying new forms of educational skills?
+
How the universities respond to global-local struggle of competitiveness and society?
In the process...

- 37,975 Undergraduates students (78% Approx.)
- 11,335 Postgraduate students (22% Approx.)
- 2,149 Foreign students
- 54 Departments
- 30 Research institutes
- 7 Science and technology support services for research
- 90 Doctoral programs
- 106 Masters
- 136 Postgraduate programs
- 146 Specialization courses
- 153 Consolidated research groups
- 351 University research groups
. **UAB in Catalonia and Spain (2004-2005)**

- Total university students in Catalonia: 217,965
  - 16.81% are enrolled in the UAB
  - Total university students in Spain: 1,447,209
  - 2.53% are enrolled in the UAB

- Total graduate students in Catalonia: …
- …% are enrolled in the UAB
- Total graduate students in Spain: …
- …% are enrolled in the UAB
Researchers in the UAB

- 1,859 men (64%)
- 1,049 women (36%)
- 2,908 in total

Women are only the 30% of the full professor category and in this context our Rector and the council of the university have taken the political decision to create the **Observatory for Equality** in order to implement measures aimed to eliminate sexism in our university.
The End

Thank you for coming and listening.
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. Graduate courses
. UAB Position in Catalanian University network
. UAB Position in Spanish University network
. UAB Human Capital and Potential
. A vision of the knowledge society from the UAB
. University’s role and its changing structure: Diversity divide
. UAB links and Basic Research
. International competitiveness of UAB’s research
. The Diamond of R+D+I in the UAB
- UAB: Facts and Figures (p. 4)
- UAB in Catalonia and Spain (p. 5)
  - The internationalization of the UAB (p. 6)
  - Researchers in the UAB (p. 7)
- The Diamond of R+D+I in the UAB (p. 8)
  - Structural path and principal agents of R+D+I at the UAB (p. 9)
    - Research Centres, Institutes and Consortia (p. 10)
    - Research Centres, Institutes and Consortia: The “Esfera UAB” (p. 11)
- The “Esfera UAB” (p. 12)
- International competitiveness of UAB’s research (p. 13)
- International competitiveness of UAB’s research (p. 14)
  To Summarize (p. 15)
Two main effects of knowledge and innovation in location (Castro, Jensen-Butler 1991):

a. Knowledge and innovation which is embodied in the technology itself (hardware and software) tend to be explicit and codable, and thus, easily to move around between regions.

Geographic decentralization Low value added

b. Knowledge and innovation which is embodied in people as individuals and their organizations and networks tend to be tacit and non-codable. It can be moved around only if people and organizations move; so it is less easily to move than technology one. Great deal of value added

Geographic concentration
Explicit knowledge is formalized and codable

Tacit knowledge is highly contextual and not easily codified

Tacit or experimental knowledge tend to require specific organizational environments, face-to-face contacts to ensure successful development and transmission (Polanyi 1966; Amin and Wilkinson 1999)

core areas of large cities and metropolitan areas

Core areas are successful in knowledge clusters and networks based in:

a. personal relations,
b. economic, social and cultural components (Gillespie, Richardson, Cornford 2001; Millard 2002b)
Learning (OECD 2001): Ability to innovate-to create knowledge needs for interaction between individuals and organizations. Then, regions with high physical densities of skills and specialized firms.

Social capital (OECD 2001; Casellas, Pallarès 2006): The quality of social capital is defined by the degree in which associations, institutions, relationships, and social norms in a society determine the quality and quantity of social interactions within a society. Social capital moulds the type of learning, the use of knowledge and the ability to innovate, also to in social inclusion.
. Dissemination of knowledge → training, creation of routines, manuals, licenses. Geographical decentralization

. Creation of knowledge → universities, cluster of firms, collaboration networks. Geographical concentration

. Definition of knowledge (Frascati 2002):

“Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications”.
The term R&D covers three activities: basic research, applied research and experimental development

a. Basic research is experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundation of phenomena and observable facts, without any particular application or use in view

b. Applied research is also original investigation undertaken in order to acquire new knowledge. It is, however, directed primarily towards a specific practical aim or objective

c. Experimental development is systematic work, drawing on existing knowledge gained from research and/or practical experience, which is directed to producing new materials, products or devices, to installing new processes, systems and services, or to improving substantially those already produced or installed
. The boundaries of R&D

Criteria for distinguishing R&D from related activities: the basic criterion for distinguishing R&D from related activities is the presence in R&D of an appreciable element of novelty and the resolution of scientific and/or technological uncertainty, i.e. when the solution to a problem is not readily apparent to someone familiar with the basic stock of common knowledge and techniques for the area concerned.

. Novelty versus routine

For instance: The investigation of new methods of measuring temperature is R&D, as are the study and development of new systems and techniques for interpreting the data.

The preparation, execution and maintenance of production standardization or the promotion of sale of products should be excluded from R&D.
New economic geography and the death of distance

“the use of Internet within the economy has resulted in distance transformation of economic space. Regional development of peripheral regions due to the ‘break free’ of the constraints imposed by the ‘friction of distance’”

Geographic diffusion

“large companies in new economy search for low cost locations within their production and distribution structures and strategies Production divide resulting in decentralization”

“improving means of communication there are forces to relocate industries (Marshall 1923)”
“to avoid transportation, mankind invented the city” (Schaeffer, Sclar 1975)

Upper-tier knowledge based activities are spatially concentrated in the ‘global cities’. Electronic communications appear to be complementing, rather than replacing, face-to-face communication.

`the compulsion of proximity’

Modernity implies that interaction is preferred face-to-face (Boden, Molotch 1994)

In lower-tier activities knowledge is routinized and embodied in technology, and contributes to geographical dispersal.
. Manufacturing economy: developed market economies transfer manufacturing to low-cost production locations

New International Division of Labor

. New economy: ICT has led to relocation of services to low cost labor locations

. “‘second global shift’ or a ‘new international division of ‘service’ labor or the potential to transfer service work from developed countries to low cost locations (China and India) (Bryson 2006)”

. Shift of manufacturing and service work to offshore locations
. Complex situations in the NIDL: firms blend onshore, offshore and nearshore delivery systems to maximize benefits.

. Retaining activities onshore may become a market advantage associated with quality rather than cost of service provision.

. Large producer services: process of outsourcing and offshoring functions.

. Continued development, adoption and integration of technologies will lead to an increase in offshoring as more information becomes automated and digitized (Rusten 2006).
. **Offshore activities:**
  language and cultural differences may add additional cost to offshoring processes. Consultancy companies lead their clients to choose offshore

. **Offshore projects:**
  How are they integrated into the organizations of core business activities?

. **Revised terminology:**
  - outsourcing, offshoring, global sourcing
  - onsite, onshore. Home nation
  - nearshore. Near nation
  - offshore. Far nation
. Onshore activities are of higher value added?

. Offshore activities are market oriented?

. Knowledge hubs and knowledge districts

. Creative clusters