

# ADEMAT: Advanced Engineering Materials Network – Managing an ALFA II Project

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DAAD - ALFA III Meeting

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# Content

ALFA – EDUMAT International Network (1996-2001)  
Coordinator: Prof. Dr. Julio VIVAS HOHL (Argentina)

- Concept of the network
- Development of activities
- Results

ALFA II – ADEMAT Network (submitted to EU on 30. April 2002)  
Coordinator: Prof. Dr. Hans Peter DEGISCHER (Austria)

- Concept of the network
- Project preparation

## OUTLOOK

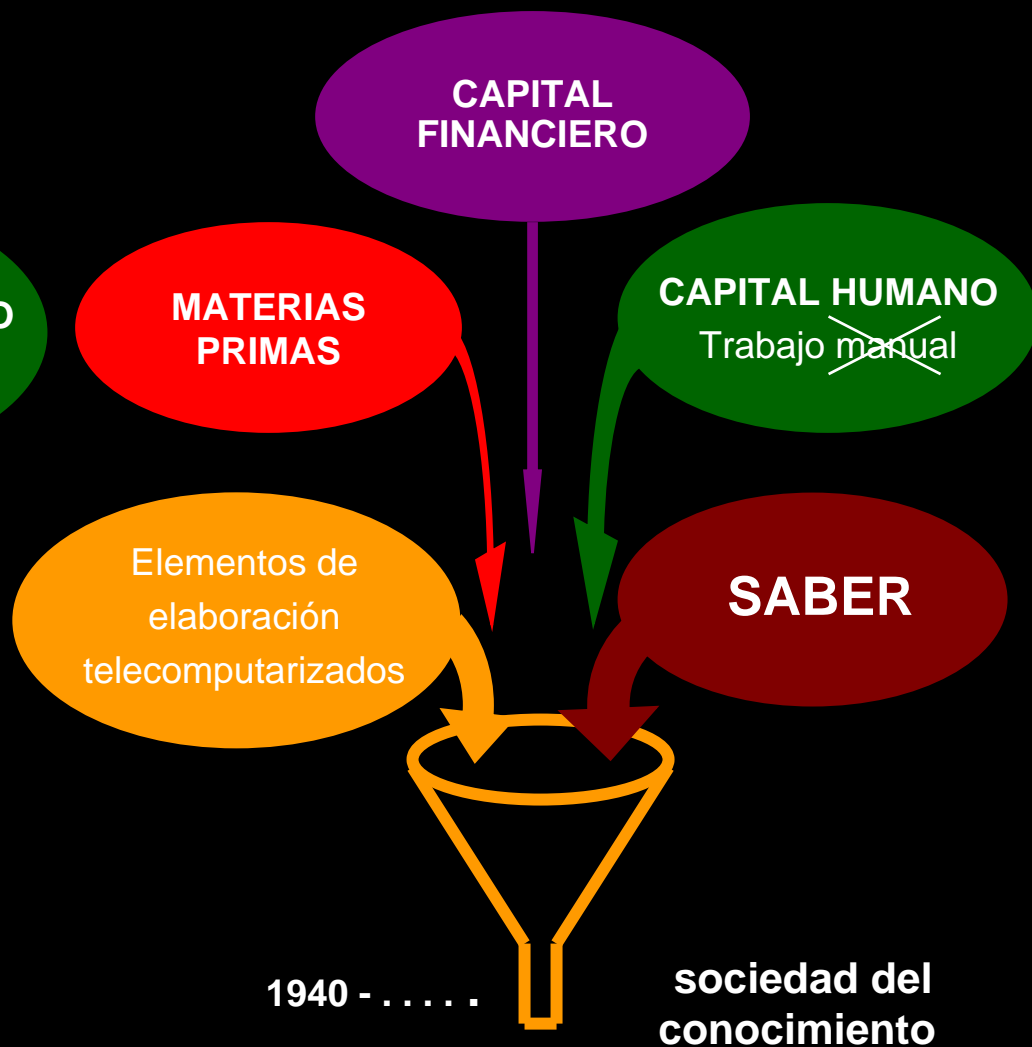
- Our experience (Do's and Don't's)



# Variantes de la sociedad industrial



# Variantes de la sociedad post - industrial



# STRATEGY

Concept: Innovation as key for sustainable development of a region

Human capital in  
"hard" sciences



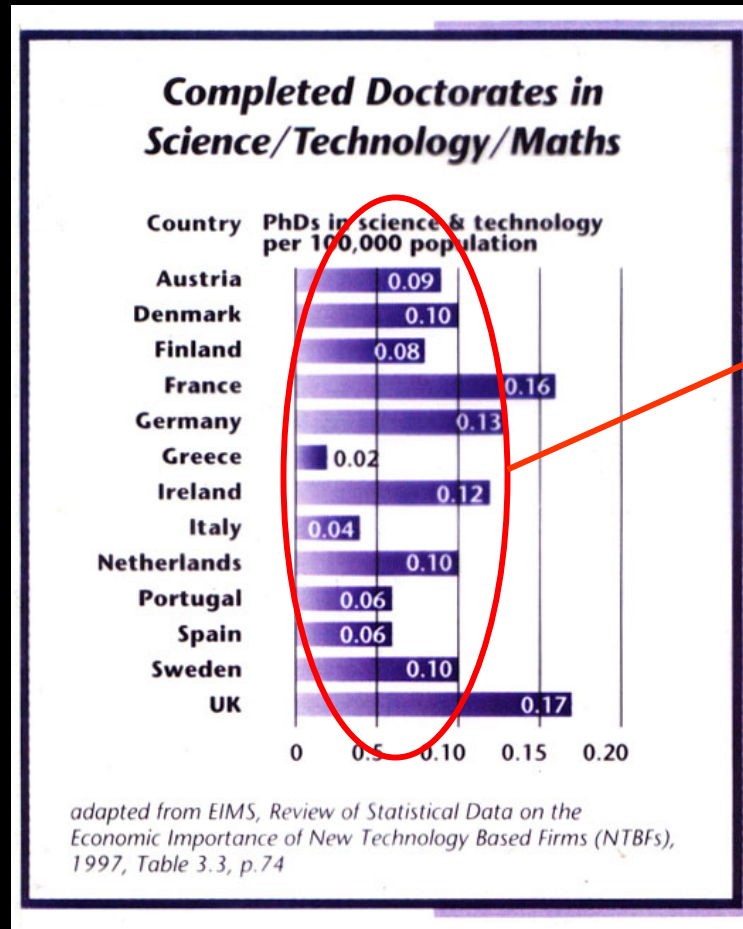
Knowledge



Innovation



Development



EU: 8 von 1000

ARG: 2 von 10.000 !



# STRATEGY



# STRATEGY

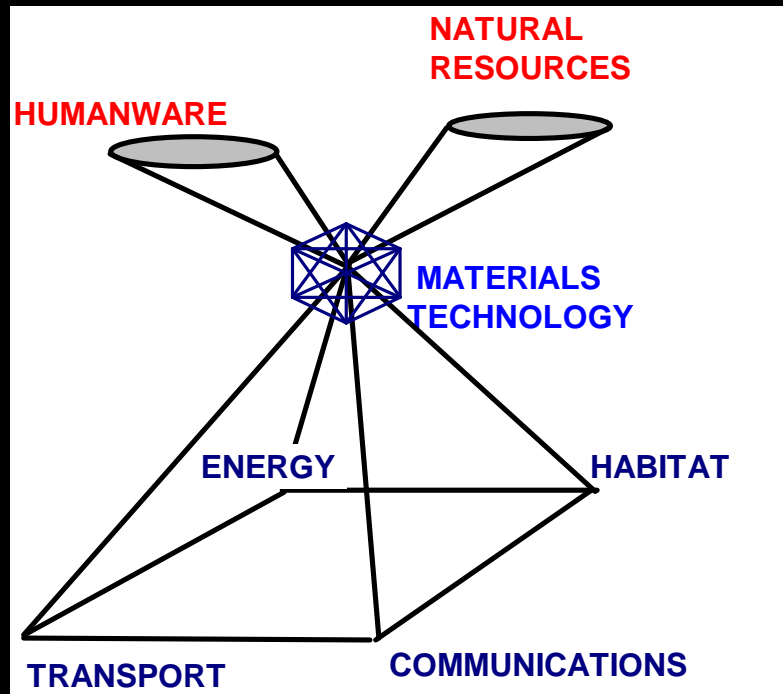
Tabla N° 1: PROPUESTAS DE ENTRENAMIENTO CONVENCIONALES Y POSTINDUSTRIALES/INNOVADORAS INNOVATIVE / POSTINDUSTRIAL, AND CONVENTIONAL TRAINING APPROACHES

Propuesta convencional o de la era industrial	Propuesta innovadora o académica-empresarial de la era post-industrial.
El entrenamiento enfocado en contenidos.	Enfoque del entrenamiento en el proceso de obtención.
Dirigido y dominado por el entrenador.	Aprendizaje dirigido desde el participante.
Entrenadores expertos, poco conocimiento.	Entrenador en rol de coordinador / facilitador.
Énfasis en “saber qué”.	Énfasis en “saber cómo” y “saber quien”.
Los participantes reciben el conocimiento en forma pasiva.	Los participantes generan el conocimiento
Sesiones densamente programadas.	Sesiones flexibles de acuerdo a las necesidades.
Aprendizajes de objetivos ya establecidos.	Aprendizajes de objetivos negociados.
Errores omitidos y vistos como un bajón.	Aprendizaje desde los errores.
Énfasis en la teoría.	Énfasis en la práctica.
Sujeto / enfoque funcional.	Problema / enfoque multidisciplinario.



# STRATEGY

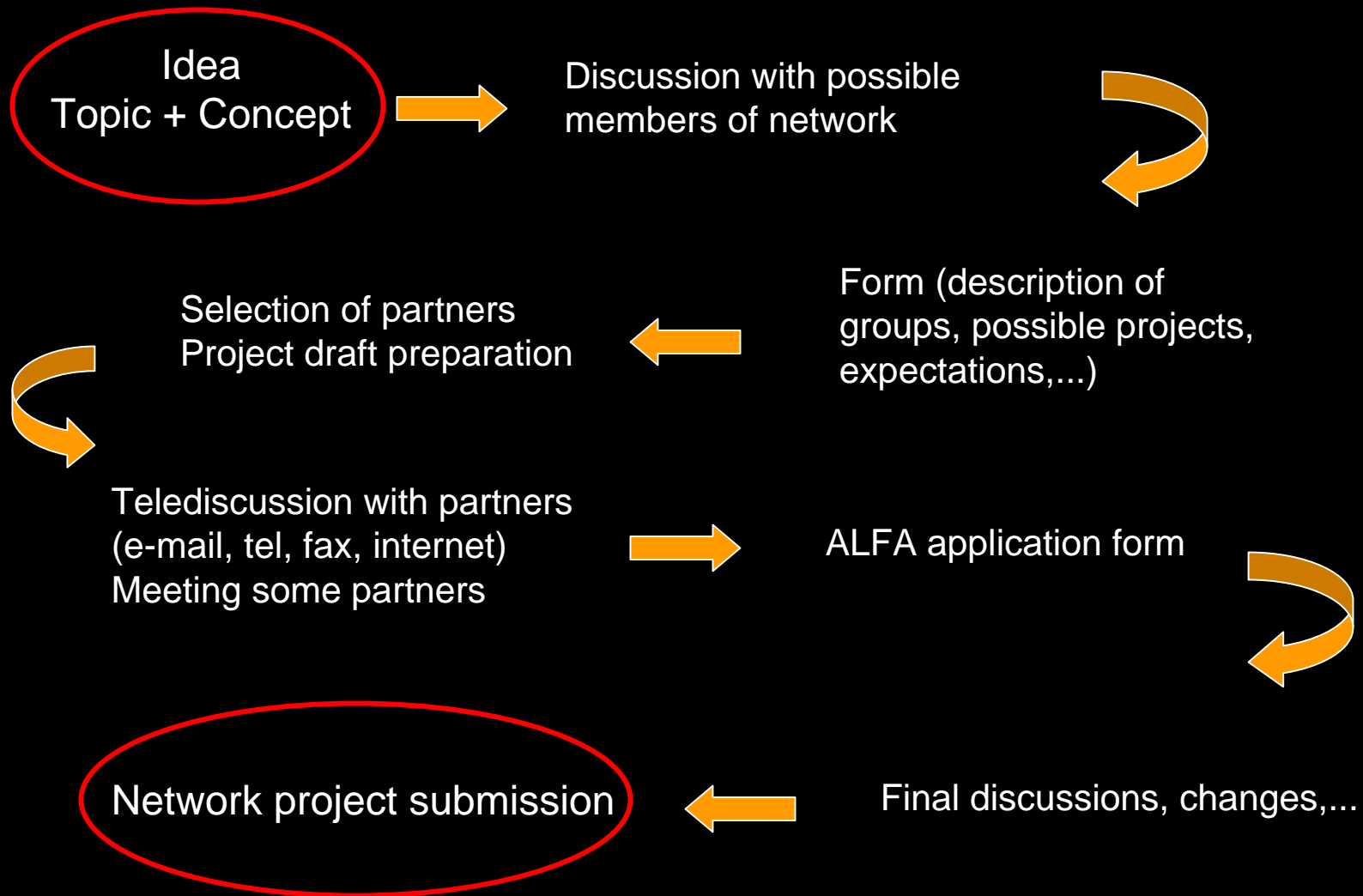
Topic: Why Materials Science?



by Vivas Hohl et.al.



# HOW TO BUILD UP THE NETWORK



# ALFA I: EDUMAT Network

How was the Network created?

1991-1993

- First discussions about international cooperation between LA and EU and the advantages of networking
- Workshop ONUDI

1994-1995

- Vivas Hohl moved to ARG, Prof. at Univ. Nacional del Comahue
- Discussions about „topics and concepts“ for a Network
- Selection of topic: Material Science
- Concept: development of a region upon projects on technology
- Selection of partners
- ALFA Application

1996-1997

- Begin of activities EDUMAT Network



# ALFA I: EDUMAT Network

EDUMAT: EDUcation in MATerial Science Network

Coordinator: Prof. Dr. Julio **VIVAS HOHL**  
Universidad del Comahue, Argentine



- ÖAD, DAAD, AVH, ....
- 12 years experience in „Deutschsprachige“ and EU countries (contacts with numerous Univ., Centers of Technology, Prof., Organisations)
- Knowledge of „mentality“ of Latin America and Europe
- Depth analysis of learning methods of students from LA and EU
- Much motivation



# ALFA I: EDUMAT Network

## Structure

**Universidad Nacional del Comahue**  
Universidad Nacional de Rio Cuarto



Universidad Concepcion



Technische Universität Wien



Universität Stuttgart (MPI)  
Universität des Saarlandes



Ecole Nationale d'Ingenieurs de Metz



Duration: 1996-2001

Budget: ca. 150.000 €



# ALFA I: EDUMAT Network

Sub-program B: Cooperation for scientific and technological training

## Mobility

- 9 Diploma thesis LA-EU
- 5 Diploma thesis EU-LA
- 7 PhD LA-EU
- 2 Post-Doc LA-EU
- Professors exchange
- New links

## Knowledge

- 28 international publications
- 20 international conferences

## Innovation

- 6 approved patents, 5 in preparation, 3 softwares



# ALFA I: EDUMAT Network

Master on Materials Science (1995): post-graduated program approved by the Argentine Ministry of Education

## Argentine network

- Universidad del Comahue
- Universidad Rio Cuarto
- Universidad Tecnologica Nacional
- Centro Atomico Bariloche and Constituyentes

## Main objective

- Re-engineering with strong formation on technology of materials science

## Main results

- 12 Masters in Materials Sciences
- Numerous technology-transfer projects for the industry



# ALFA II: ADEMAT Network

ADEMAT: ADvanced Engineering Materials Training Network\*

Coordinator: Prof. Dr. Hans Peter **DEGISCHER** (Austria)



- Extended international curricula (numerous contacts)
- Stay as professor in Venezuela (1971 – 74)
- Vast experience in coordination of international projects (MMC-Assess Network)
- Good results on cooperation with students from LA
- Importance of concept of „Networking“

\* (submitted to EU on 30. April 2002)



# ALFA II: ADEMAT Network

Topic: Advanced Engineering Materials

- Novel engineering products
- Extend „service life“ of parts
- Optimise processing operations (energy-efficient)

Concept: Innovation with consideration of „Quality of life“

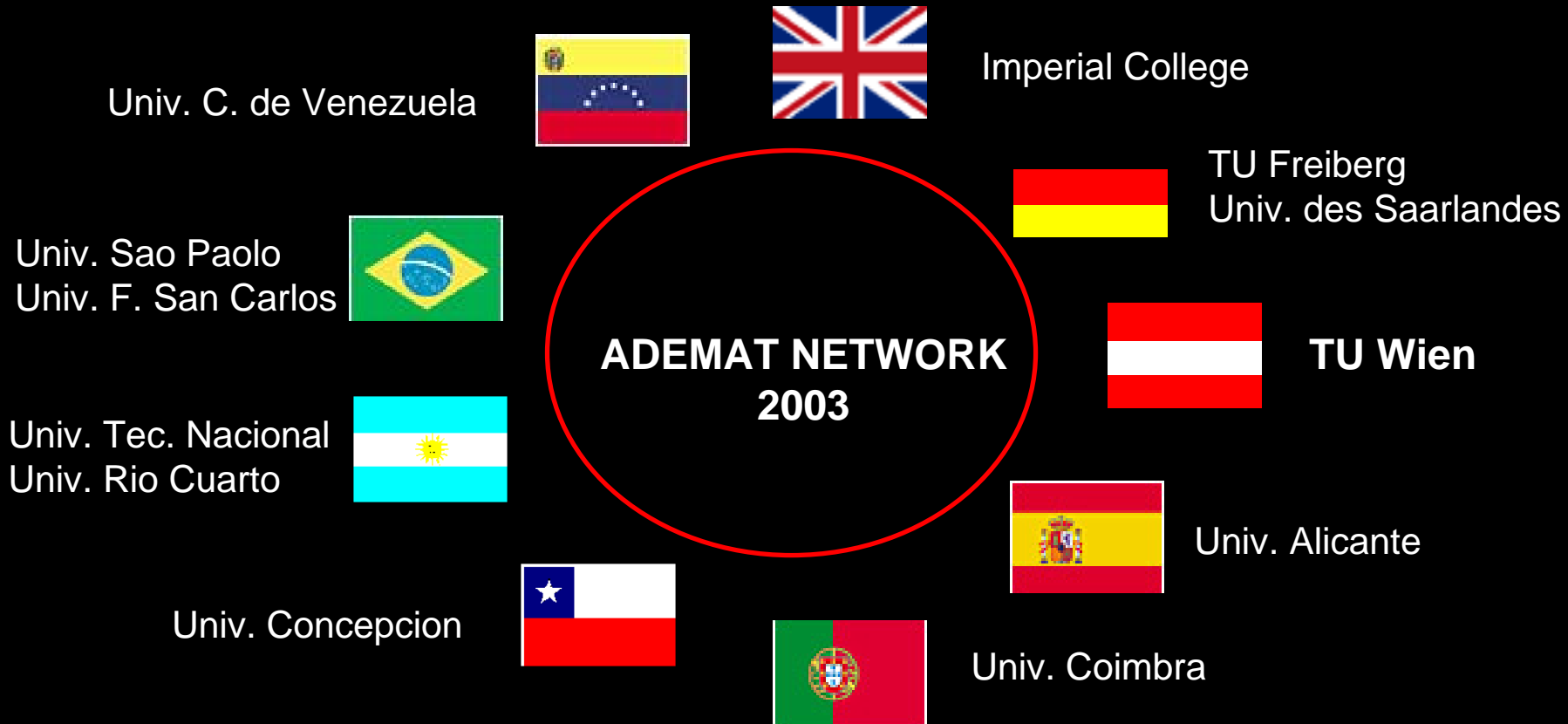
- Projects on high-tech engineering = Innovation
- Reduce pollution, extended service life = Environmental protection
- Recycling techniques

Main objectives:

- Formation of high specialised human resources on high-tech engineering
- Enhancement of strategic links between universities, Prof, students,..
- Special consideration of the environmental protection



# ALFA II: ADEMAT Network



# EXPERIENCE

## Strategies for successful project development

### Partners:

- Known professors/institutions recommended
- Partners with international cooperation experience in LA and EU

### Mobility:

- Good preparation of students before exchange begins (identify profil)
- Selection criteria: academic performance, cultural skills, languages, age,...

### Co-ordinator (financial execution,...)

- EU university preferably

### Objectives

- Define concrete objectives (Tatsachen!)
- Important to „measure“ the quantity and quality of results



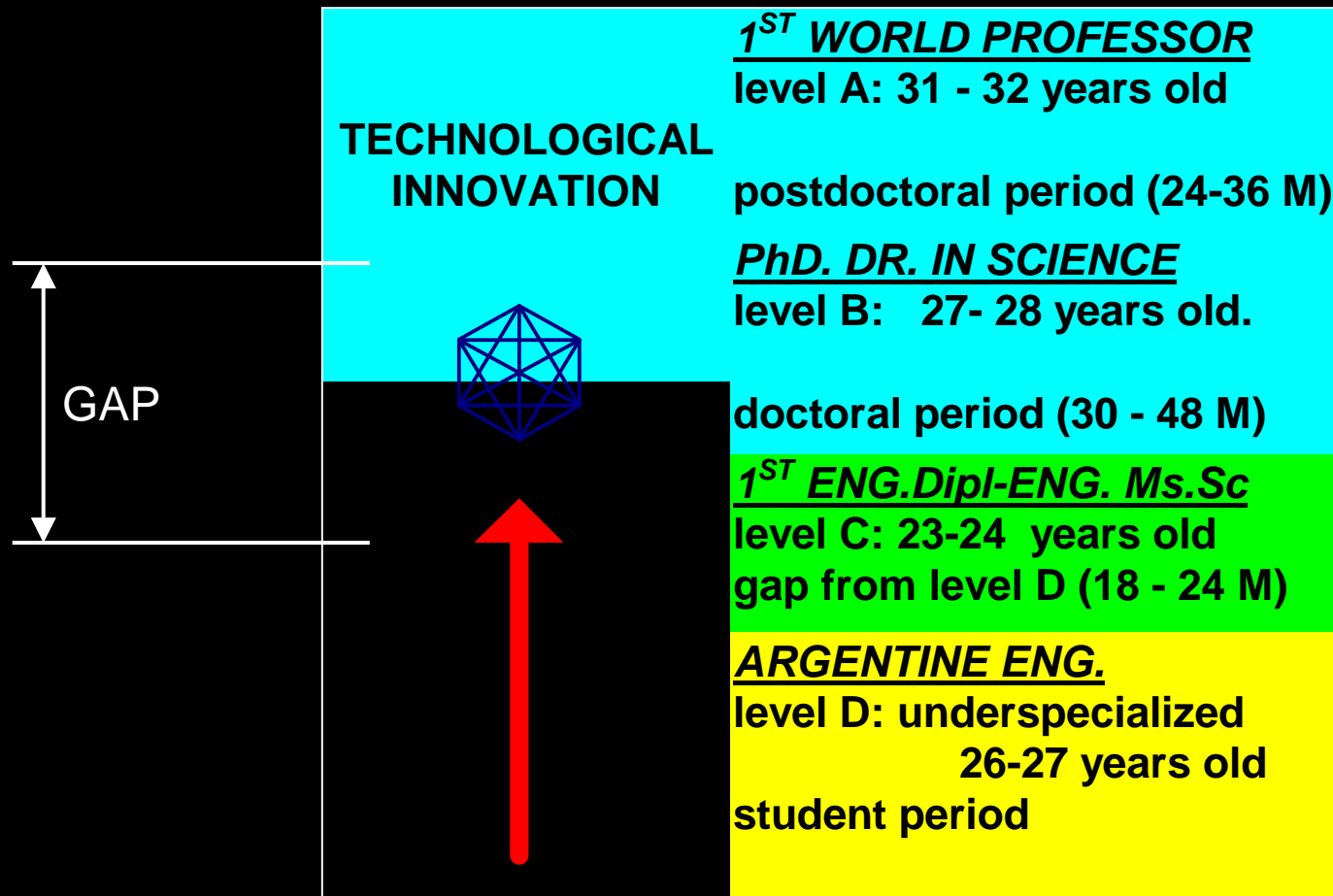
# EXPERIENCE

## Final remarks

- Scientific + information + knowledge exchange is much important every day (must be correctly managed)
- Networking and globalisation are power tools:
  - LA countries (avoid isolation, reduce gaps in R&D fields,..)
  - EU countries (new contacts, perspectives, human resources, ..)
- Multitask – Networks
- “Multipliers effect”



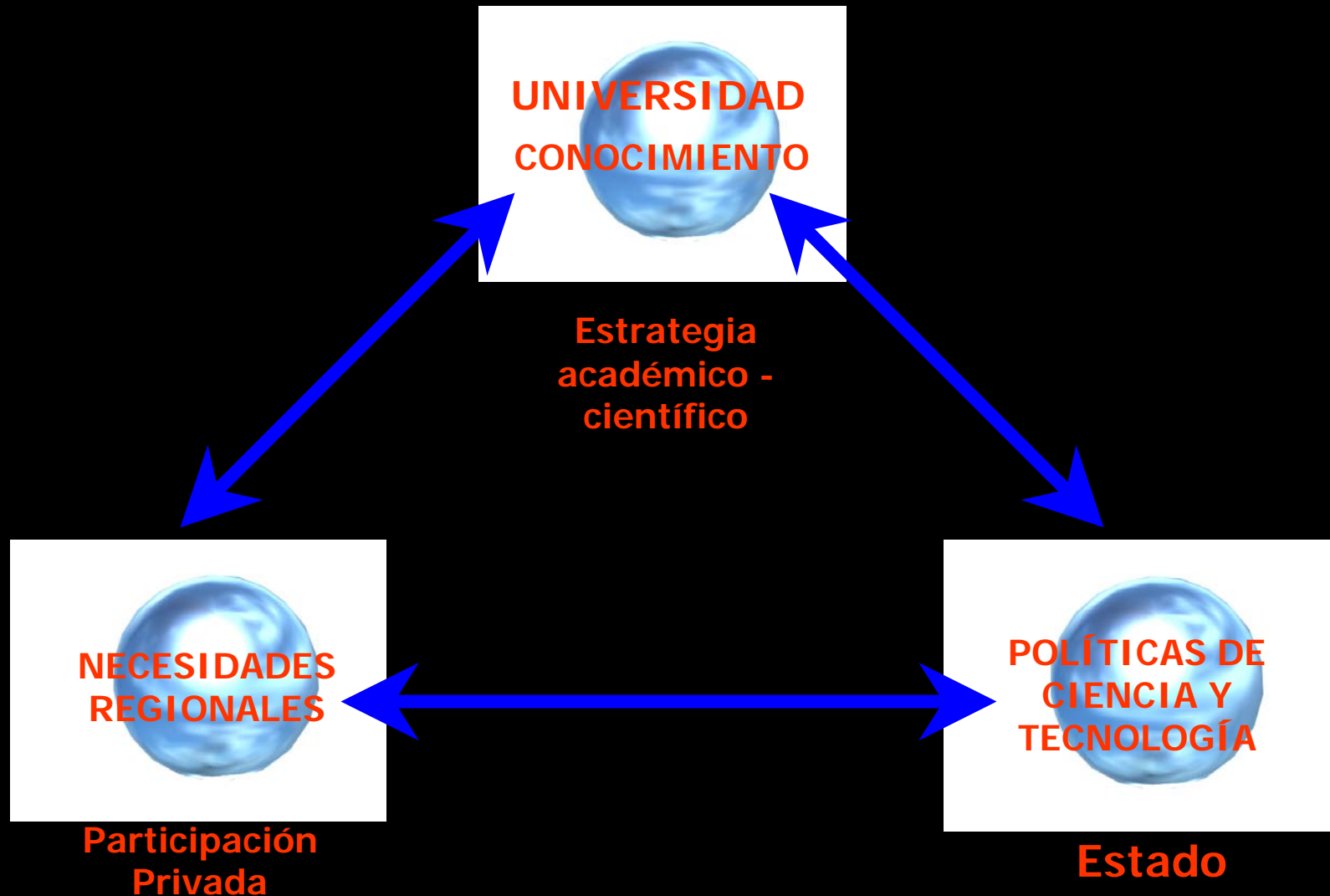
# Quo vadis: Position of argentine engineer in the world



by Vivas Hohl et.al. (1998)



# Quo vadis: University – Government – Private sector



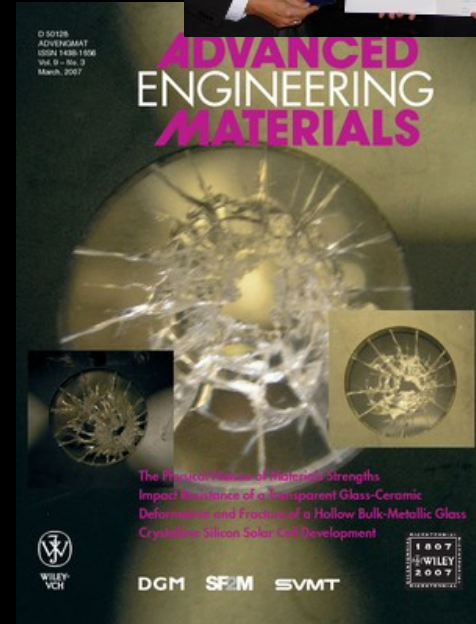
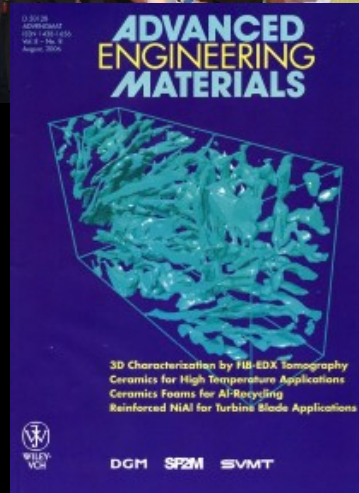
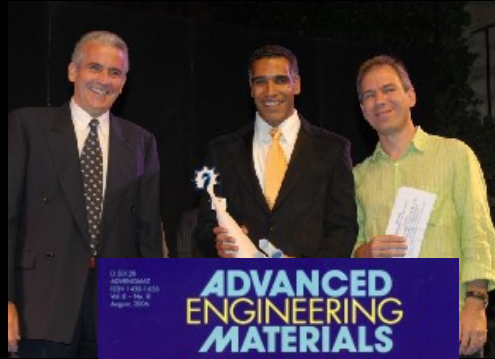
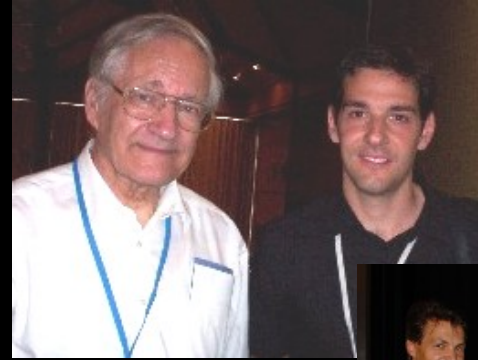
# ALFA II: ADEMAT Network



**2003-2007**



# ALFA II: ADEMAT Network



**MAX-PLANCK-INSTITUT  
FÜR EISENFORSCHUNG**

**THANK YOU VERY MUCH FOR YOUR  
ATTENTION !**

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