Sixth World Science Forum
“Science for Global Sustainable Development”

ACADEMY AND ENTERPRISE
(ref. Argentina)

Mario A. J. Mariscotti
Argentine National Academy of Science (ANCEFN) and THASA

Hotel Windsor Atlantica Rio de Janeiro
26 November 2013

Brazilian Academy of Sciences, Hungarian Academy of Sciences, UNESCO, ICSU, EASAC and AAAS

OUTLINE

1. **Why Academy-Enterprise link matters, how we can measure it, where we are and what to do**

2. **Some encouraging examples**

3. **The experience of THASA-ARCTEST partnership**

4. **Some suggested actions**

Why Academy-Enterprise link matters?

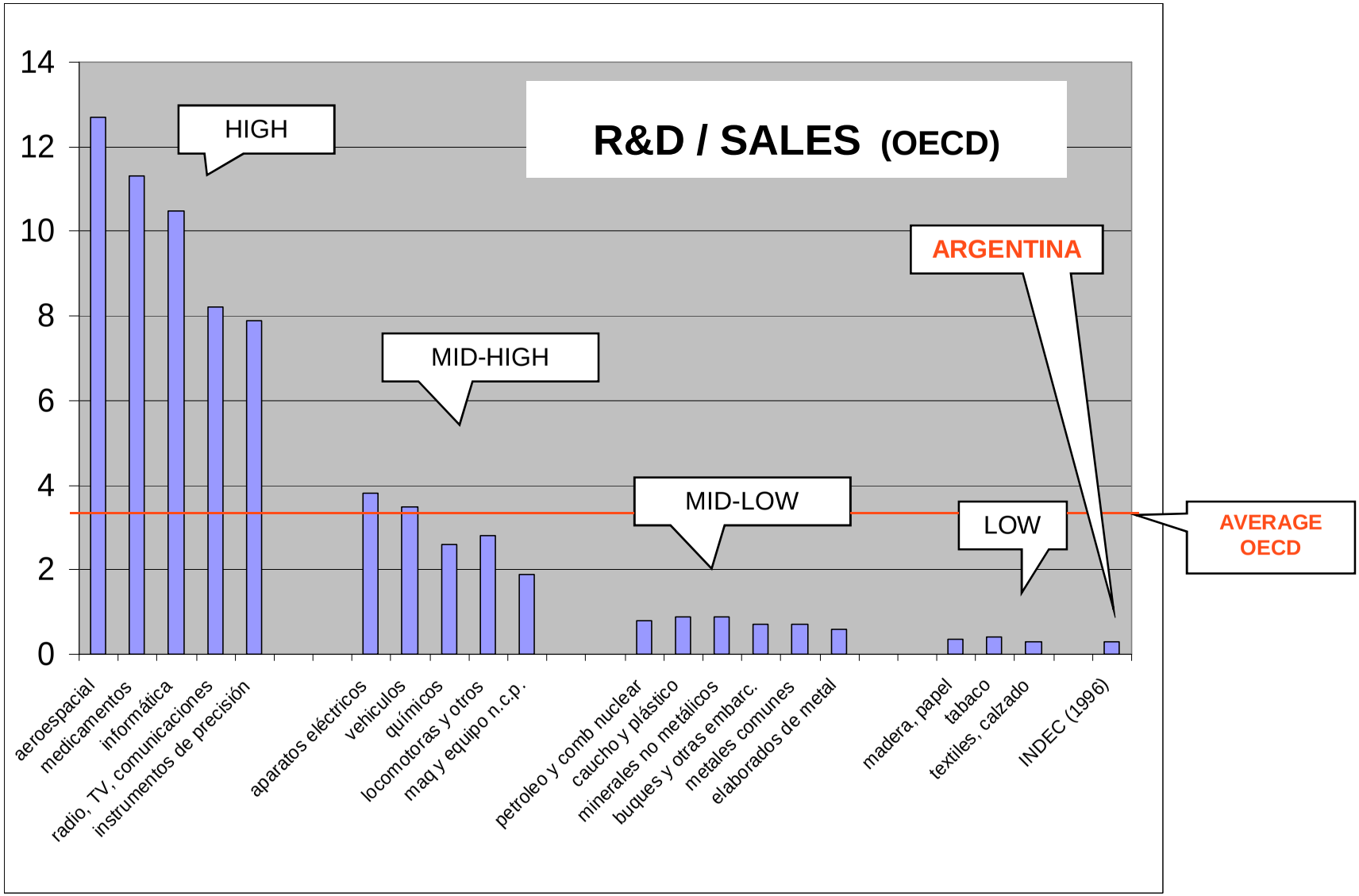
Because the goal is to gain competitiveness in the private sector through the application of knowledge

How can we measure progress towards this goal?

Using R&D/SALES ratios in the private sector

(how much companies spend in R&D in relation to their revenues)

Where are we?


R&D / SALES (OECD)
HIGH
MID-HIGH
MID-LOW
LOW
ARGENTINA
AVERAGE OECD
14
12
10
8
6
4
2
0
aeroespacial
medicamentos
informática
radio, TV, comunicaciones
instrumentos de precisión
aparatos eléctricos
vehiculos
químicos
locomotoras y otros
maq y equipo n.c.p.
petroleo y comb nuclear
caucho y plástico
minerales no metálicos
buques y otras embarc.
metales comunes
elaborados de metal
madera, papel
tabaco
textiles, calzado
INDEC (1996)

How can we increment R&D/SALES?

Training the right people *(Academy - enterprise "linkers")*

What is "right"?

Advanced tech engineers...
... capable of creating their own companies!

(technology and business training at the same time from the start!)

What is needed to get to 60% of OECD level?
(R&D/sales from 0,33% to 2%)

High tech companies (R&D/sales > 10%) with sales of 12 billion u$s

How many people we need? **About 4000**

How much does it cost for a plan of 10 years?

About 220 million U$S/year

(Not much considering…!!)

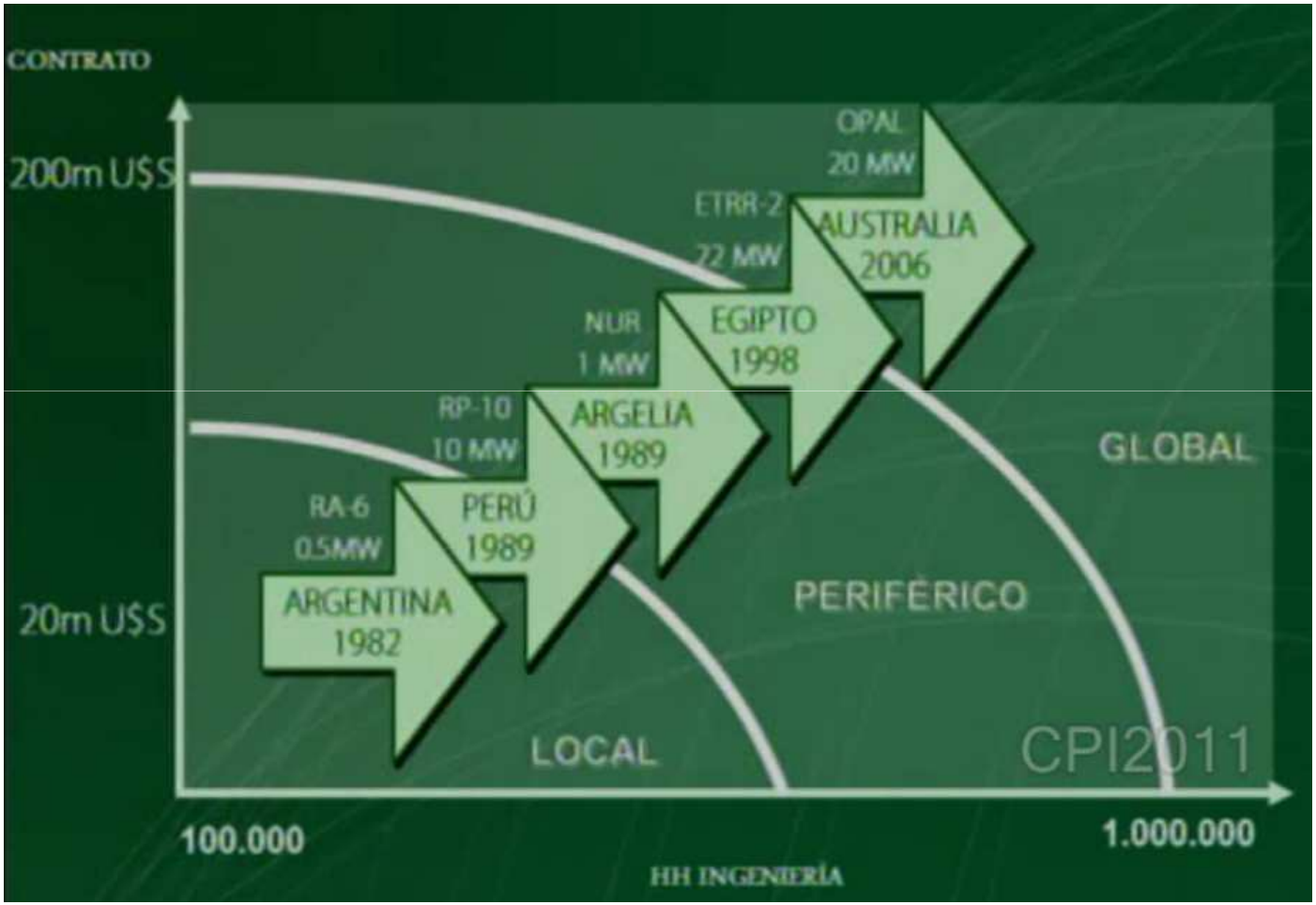
Some encouraging examples

INVAP – *Outgrowth of basic research in physics (at Balseiro Institute in Bariloche). Initially strong in the nuclear sector, later in communications and space.*

CINI – *Industrial Research Center of Tenaris (Techint). Key in achieving world leadership in seamless steel tubes manufacturing*

BIOTECHNOLOGY – *Both in agriculture and medical sectors, outgrowth of academic research in biology. Strong collaboration with Brazil (CABBIO)*

INVAP – nuclear reactors



INVAP – space (with CONAE) & communications



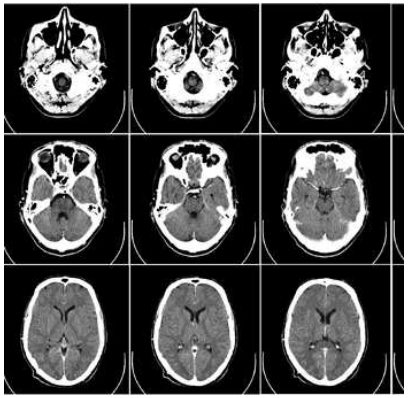


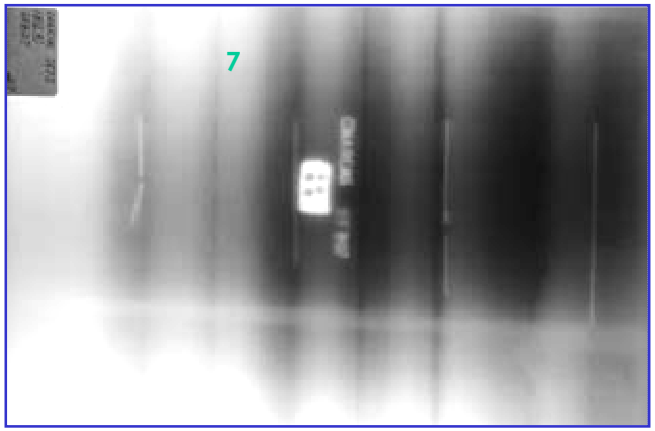


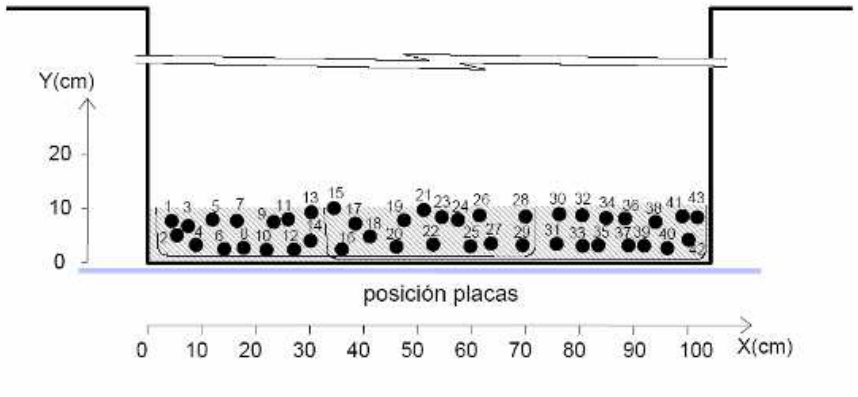
A personal experience THASA-ARCTEST

Reinforced concrete tomography









Applied to thousands structural elements













(Argentina, Brazil, Chile, Uruguay, Portugal and the UK)

Lessons from THASA experience,

- **Government helps with grants but keeps importing technology**
- **“Venture capitalists” are not real “adventurers”**
- **Government bureaucracy a severe hindrance**
- **State science institutions not forthcoming**

Suggestions for improving Academy-Enterprise linkage

(in addition to traditional promotional mechanisms)

- Business oriented advanced technologists
- Government contracts of infant high-tech enterprises *(instead of grants)*
- Shift in cultural academy-enterprise perceptions
- Improved macro bureaucracy and general government administration efficiency

THANKS