

# Industry-Academia Alliances towards a Bio-Based Economy

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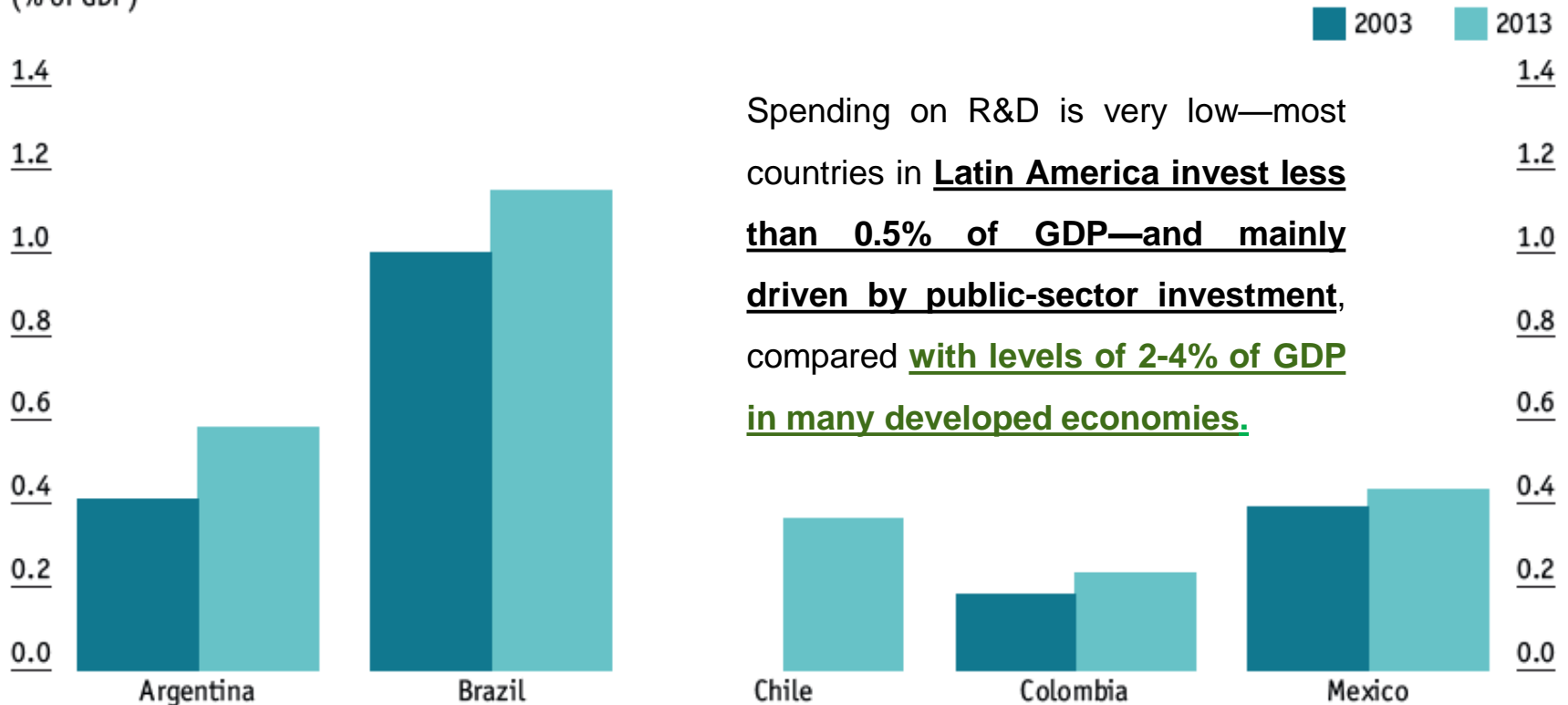
# R&D and Risk

- Science-based companies are usually forced to collaborate with scientists who operate in the academic world;
- R&D entails risk. But by working at the frontiers of science, a business like biotechnology confronts levels of risk and uncertainty well beyond what is entailed in “normal R&D” .

# UNESCO - R&D in Latin America

## Gross domestic expenditure on R&D (GERD)

(% of GDP)



Spending on R&D is very low—most countries in **Latin America invest less than 0.5% of GDP—and mainly driven by public-sector investment,** compared **with levels of 2-4% of GDP in many developed economies.**

Source: Unesco.

# Back to basics – Innovation actors

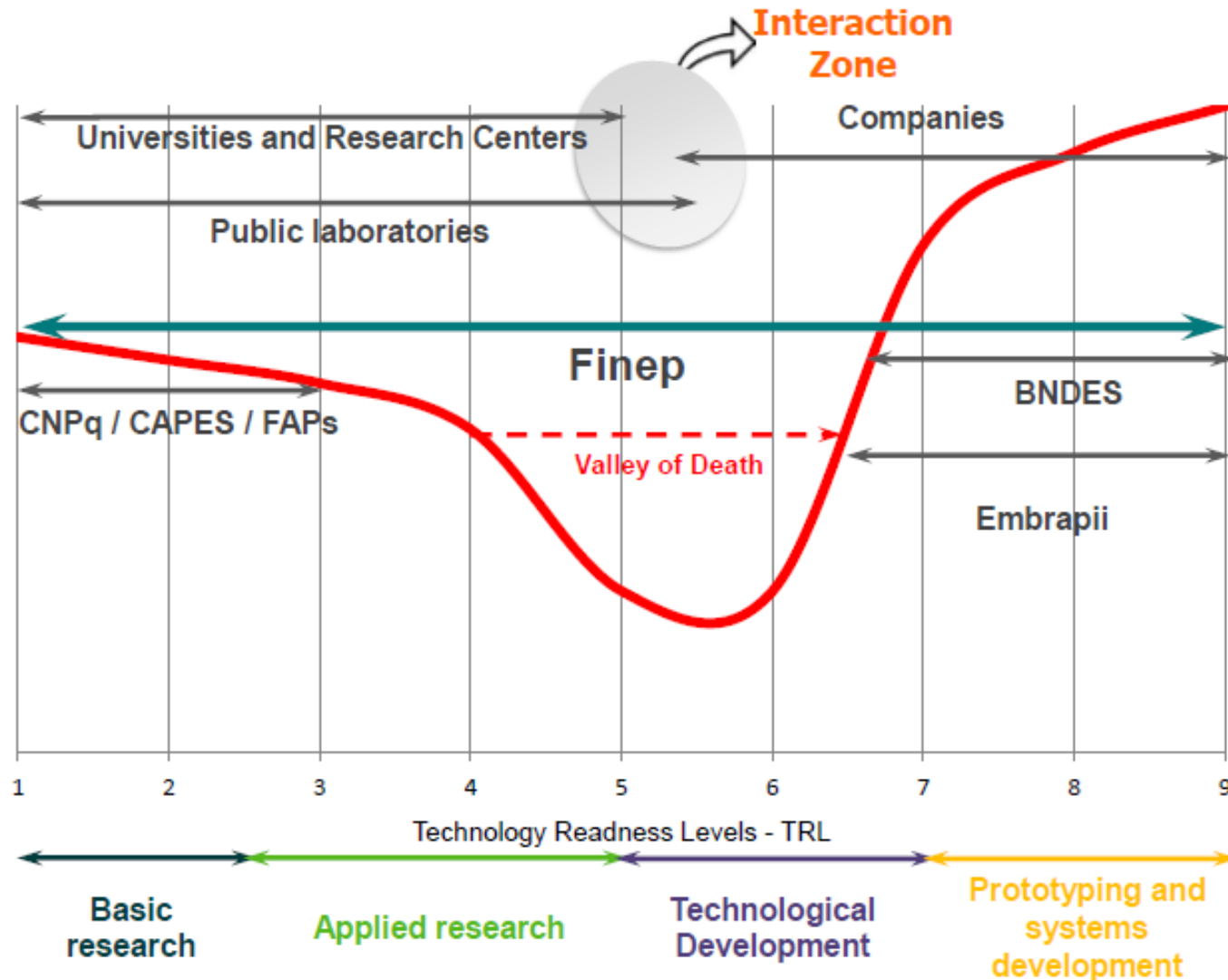
- Firms
- Innovative Entrepreneurs
- Universities and Public Research Institutes
- Public Sector

# World Bank on universities

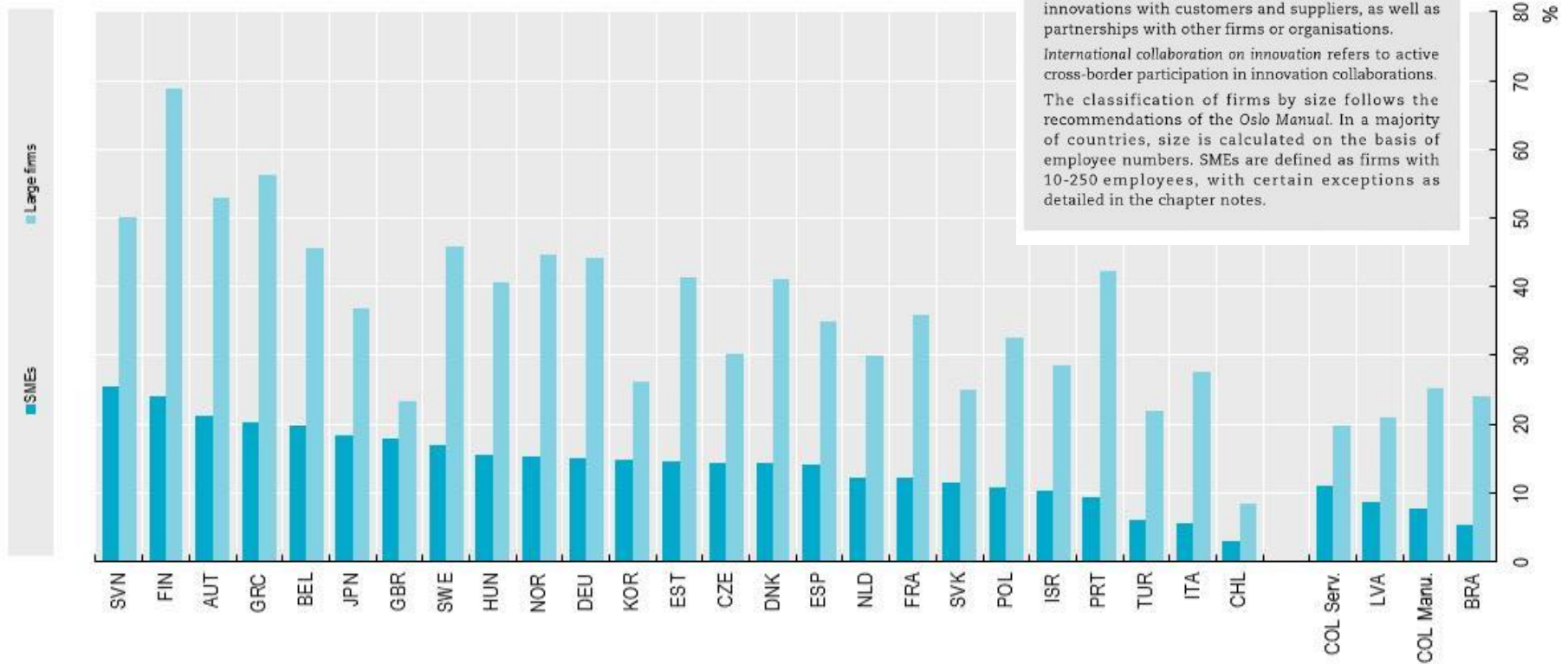


Universities act as an important driver of economic development and catching-up through their role in education and technology absorption, adaptation, and diffusion .

# Spectrum Universities and Enterprises – Brazilian institutions



# Firms collaborating on innovation with higher education or research institutions 2010-2012



As a percentage of product and/or process-innovating firms in each size category

# Science & Business snapshot

Science	Business
Different cultural norms, values and practices	
..holds methodology sacred.	.. focuses on results.
..values openness and sharing.	..generally demands secrecy and property.
..demands validity (does it stand up to scrutiny?)	..business demand utility (is it useful?)
.."keeps score" by intellectual impact – prestige, academic standing, peer reviews, and published papers .	..does so by financial performance.

Like dissolves Like ! Academia-Academia !

The conflicts can be most apparent in Industry-Academia.



# Brazilian Bioethanol & Innovation

## Chapter 5

### GLOBAL BIOETHANOL EVOLUTION, RISKS, AND UNCERTAINTIES



Edited by  
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Luís Augusto Barbosa Cortez  
José Maria Ferreira Jardim da Silveira  
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### Innovation in the Brazilian Bioethanol Sector: Questioning Leadership

S. Salles-Filho, A. Bin, P.F.D. Castro, A.F.P. Ferro and S. Corder

Introduction

Main Trends

Studying Innovation in Bioethanol

Innovation Survey

Innovation Challenges

What Is Going On in the Brazilian Case

Profile of the Companies Surveyed

Technological Innovation in Corporate Strategy

Innovation Management

Innovation Challenges According to Companies

Final Remarks

References



• 35 mills

• 27 companies

• 58 industrial groups

*“...Over a period of 15 years there were 25 patents filed in Brazil and just 3 in the PCT and 26 cultivars registered in Brazil....”*

*“...Although the relationship with research institutes and universities is frequent, this is not translated in economic outputs and outcomes.... ”*



## The evolution of universities´ relations with the business sector in Brazil: What national publications between 1980 and 2012 reveal

(Stal, E. & Fujino, A.)

**#1** “...Fortunately, at present there are more and more researchers bent over concrete problems, devoted to applied science.. ”

**#2** “Yet there are still university groups that are lost in ethereal themes, some of them with attitudes biased by their own beliefs and still clung to old ideological flags ..... to keep companies away from the academic world, and the Brazilian innovation, therefore, far from the top.... ”

### Thought Provoker :

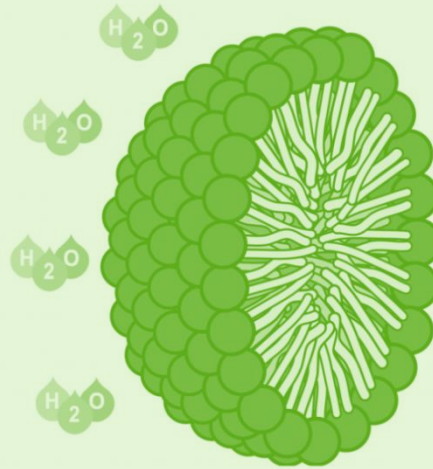
Assumption: There are Bio-research groups in #1 and #2 status & joint R&D is part of project/business strategy.

**Industry decision makers eventually see #2 as the only scenario.**

# “Quasi” integration

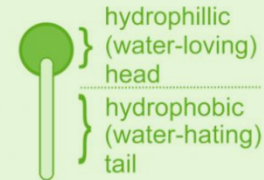
## Business Context

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## Micelle

Analogy



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Opportunity for improvement

# How to boost Industry-Academia collaboration?

- **“Publish or Perish” dynamics**, contributes to the poor partnership scenario Industry – Academia. **Caution:** Avoid the “jump to a conclusion” assuming **this** is the only factor.
- **Brazilian Law 13243/2016**, Framework of Science, Technology and Innovation.
- **FAPESP programs (Brazil, São Paulo State)**
- **INDUSTRY** “needs” to view R&D from a strategic perspective rather than as a collection of development projects.
- What else.....???

# Thank You!



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