The university and the Tecnological Inovation

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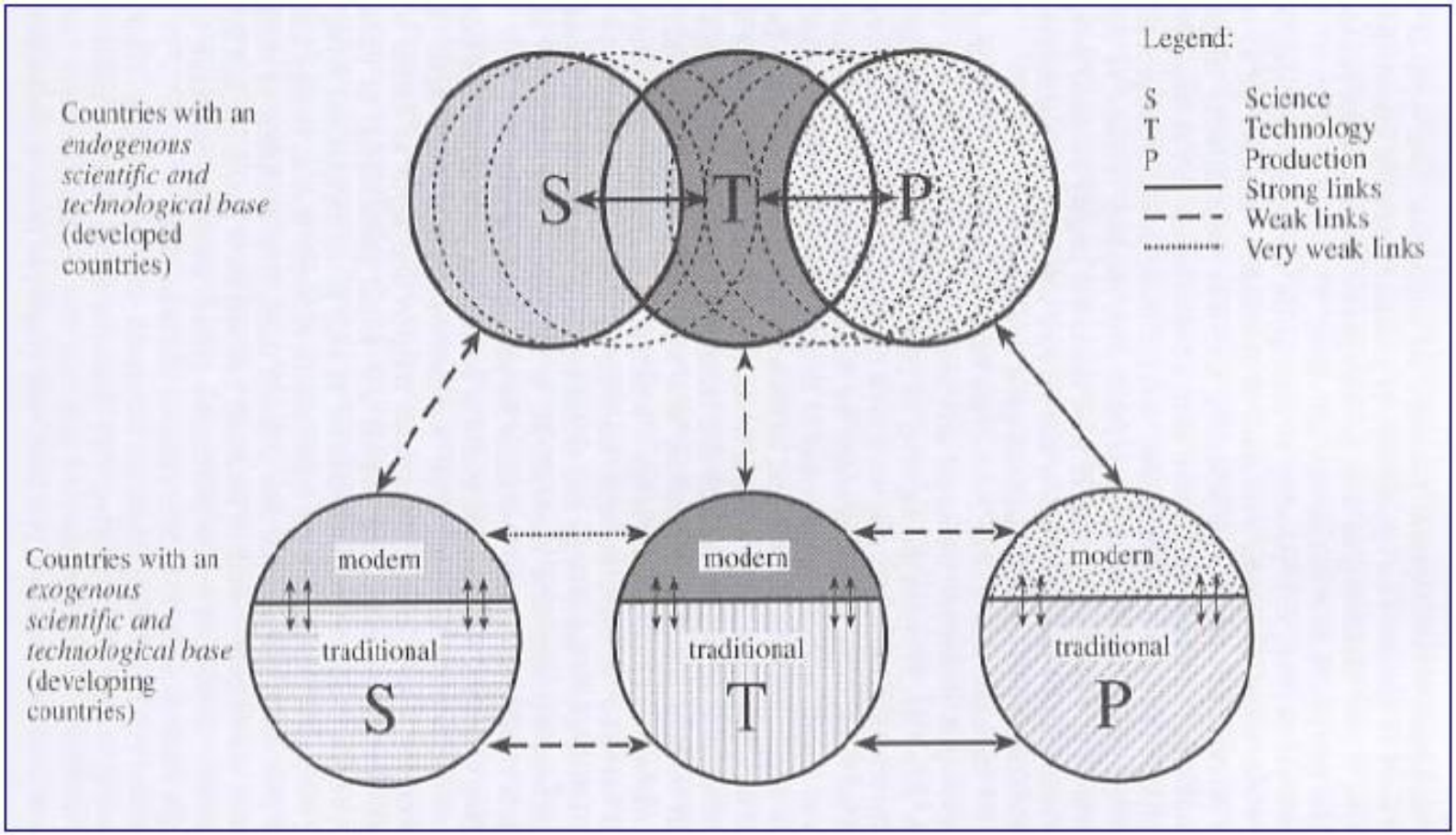
Relationship among Science, tecnology and prodution



Francisco Sagasti. *Knowledge and innovation for development. The Sisyphus challenge of the 21st century*, Cheltenham, UK; Northampton, USA:Edward Elgar, 2004. 151 pages

Tecnology inovation for health: main historic periods

- 1850-early 1900s': ***Era of the public sector***
  - Epitomized by the work of Pasteur
- 1900s'-1970s': ***Era of the private sector***
  - Emerged in Germany & chemical companies
- 1970s'-2000: ***Era of public sector reawakening***
  - United Nations: WHO Special Programmes (HRP, TDR)
  - USA: Bayh-Dole Act; NIH budget increase
- 2000- : ***Era of public-private partnerships (PPPs)***
  - Product Development Partnerships (PDPs)
  - Innovative Developing Countries (IDCs)
  - Health Innovation Networks

Mahoney, R & Morel, C. (2006) A Global Health Innovation System (GHIS). *Innovation Strategy Today* 2(1):1-12

Types of partnerships for Global health

There is now high number of PPPs in global health focusing on neglected diseases. Their visions and goals differ.

- Partnerships focused on reducing the financial risk in drug development.
  - MMV; Aliança TB
- Focused partnerships in public health and capacity building in endemic countries
  - Special programs United Nations (HRP; TDR)
  - WHO Vaccine Program
- Partnership focusing on these two goals
  - Drugs for Neglected Diseases Inniciative (DNDi)

The generation of academic spin-offs

- Creating projects from the academic environment is not trivial

- major difficulty of development teams:
  - cross the barriers between the idealization phase and the product launch (this process is based on trial and error)

The generation of academic spin-offs

- Active integration - Technology, Product and Market

- IMPORTANTE - bringing technologies from laboratories to the market successfully needs early integration between businesspersons and researchers;
-
- Technology, Product, Production and Market.

Inovação Tecnológica:

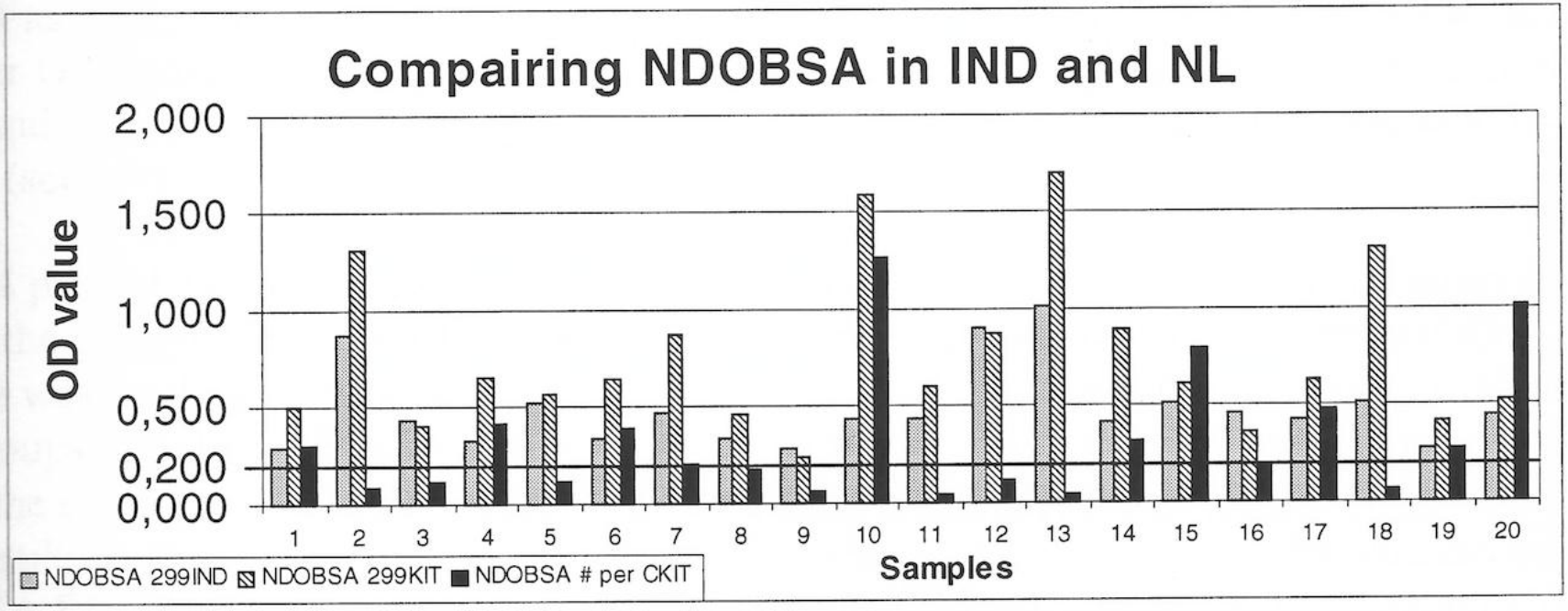
Da Pesquisa Científica à Indústria

Expertise

- Development of a rapid test for leprosy
- Production of test
- Implementation in Brazil, Nepal and Nigeria
- Industry interest
- Academic spin-off

1st – define research question

- Define the antigen to be used
- Determine the quality of the antigen
- Produce high quality antigen



2nd – Define format of the test

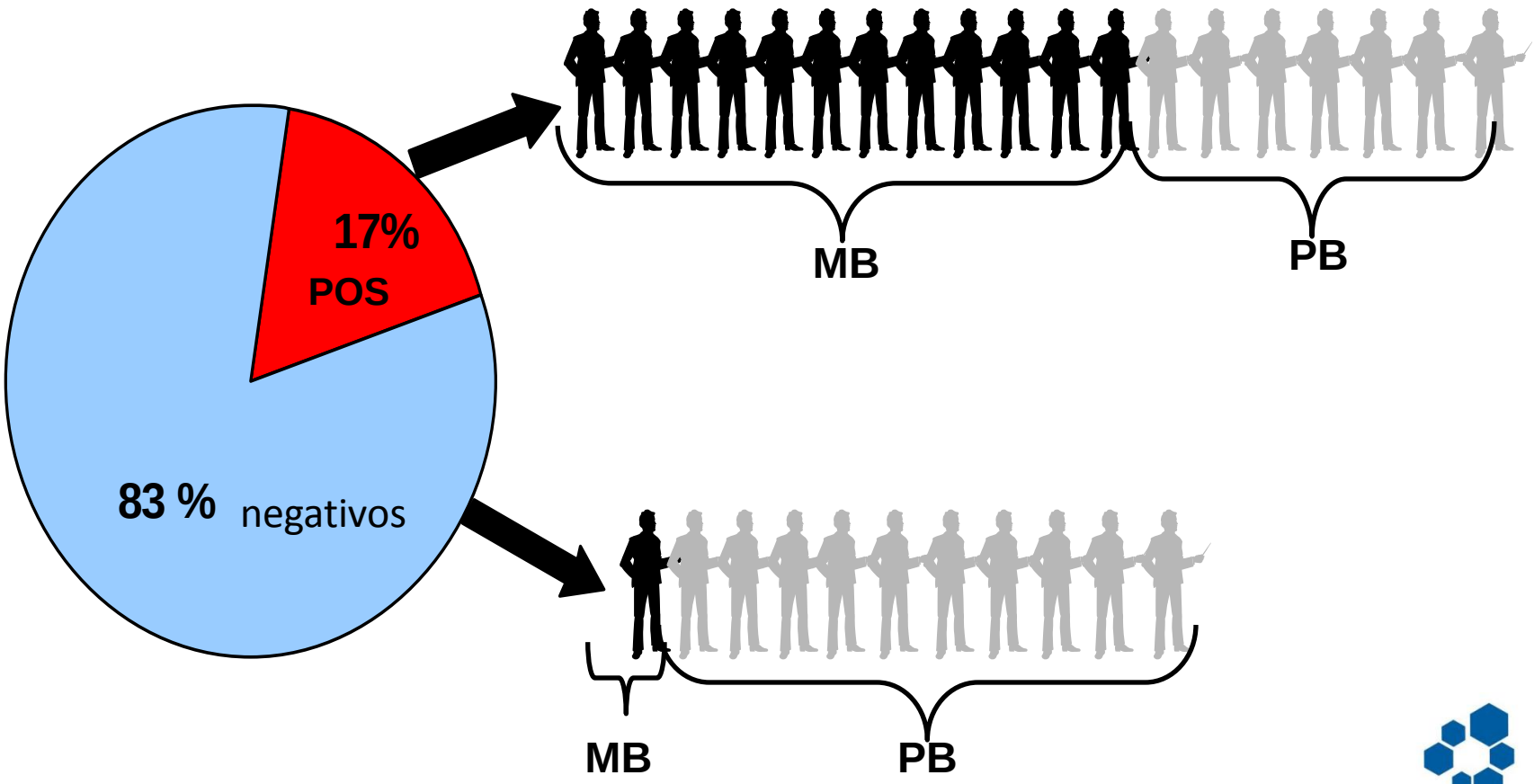
- Determine the applicability of the test

How could we use the result of PoC test for leprosy?

- Improve therapeutic decisions
  - Classifying patients as PB and MB

- Identify contacts at high risk of developing the disease
  - Decreasing the number of contacts to follow-up

Soropositividade e desenvolvimento da doença em contatos



3rd – Sponsorship

- Find financing
  - Netherlands Leprosy Relief - NLR

4th – Find a partner

- Contact a Industry and propose partnership
- Discuss clear rules with your partners
  - Learn about Patent
  - Discuss authorship
  - Discuss participation in possible profit made by the industry
  - Be open and think as a businessman

5th – Development of the test

- Interaction between researchers and industry
  - Organon Teknica Cooporation, Irland unity
    - Use of the industry plataform
  - Experiments at Royal Tropical Institute, Amsterdam
    - Testing samples and defining new concentrations
    - Storage Conditions experiments
    - Quality Control
- Process – 1 year work

JOURNAL OF CLINICAL MICROBIOLOGY, May 2003, p. 1991–1995
0095-1137/03/$08.00+0 DOI: 10.1128/JCM.41.5.1991–1995.2003

Sensibilidade e especificidade ML Flow de acordo com a soropositividade do grupo

	Total	Positives	%
Multibacillary	114	111	97.4
Paucibacillary	85	34	40.0
Contacts	42	12	28.6
Controls	478	47	9.8

Qualidady Control 1st batchs

- 4 batches out of 8 did not fulfil criteria
  - Batches 4, 5 and 7 presented higher sensitivity and lower specificity
    - 100% borderline negative samples were POS
  - Batch 8 apresentou sensibilidade mais baixa
    - 100% borderline negative samples were NEG

Batches variation

UFG

s	Ref Batc	1A	2A	3A	4A	trial 1a	6A	7A	8A	9A	ML2-009A	ML2-010A	ML2-011A	ML3-012
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0.5	0.5	0	0.5	0.5	0	0.5	0.5	0	0	0.5
	0	0	0	0	0.5	0	0	0.5	0	0.5	0.5	0	0	0.5
	0.5	0	0.5	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0.5	0
	0.5	0	0.5	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0	0	0.5
	0	0	0	0.5	0.5	0	0	0.5	0	0.5	0	0	0	0
	0	0	0	0	0.5	0	0	0.5	0	0.5	0.5	0	0	0
	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0.5	0.5
	0	0	0	0	0.5	0.5	0	0.5	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0.5	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0.5	0	0.5	0.5	0.5	0.5	0.5	0	0.5	0.5	0.5	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	4	3	3	3	3	3	3	2	3	3	2	2	3
	4	4	4	4	4	4	4	4	3	4	4	3	3	4
	2	2	1	1	2	1	1	1	1	2	2	1	1	1
	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	0.5	0.5	0.5	0.5	0.5	0.5	1	0.5	0.5	0.5	0.5	0.5	0.5	0.5

6th – Evaluate test implementation

1. Develop ML Flow test
2. Train health workers in Brazil, Nepal and Nigeria
3. Use ML Flow test for 18 months in routine leprosy control
4. Operational study on implementation based on data gathered by health workers
5. Anthropological study on feasibility and acceptability by interviewing health workers, patients and contacts
6. Analyze data

6th – Differences

- Contextual differences: epidemiology, level of health workers, political factors, interest from academia
- Seronegative MB > PB only in Brazil
- Level of comprehension by patients and contacts
- Level of motivation for HWs
- Need for incentives, transportation for contact tracing

6th – Consensus – PoC for leprosy

necessary condition

("sine qua non")

Easily accepted by health workers, patients

and contacts

6th – Conclusions

- Test is acceptable to HWs, patients and contacts
- Implementation is feasible, but with different strategies for different countries/settings
- Political and financial commitment needed
- Need for training, simple manual and simple data recording
- Need for intervention for seropositive contacts

6th – Strategies for implementation

- Simplify manual, forms
- Advocacy
- Secure political and financial commitment
- Differential strategies for implementation depending on local situations
- Training of trainers
- Counselling
- Appropriate response for seropositive contacts

Industry interest

- Market is necessary
- Neglected diseases – governments
- Leprosy is not priority
- Organon Teknica closed down in Ireland
- UFG

Future plans

- Financed by Brazilian National Health Foundation – FNS
  - Equipment
  - Resources for test production
  - More than 15 manuscripts
  - Several MoS and PhD
- laboratory for development of PoC following to ANVISA PRODUCTION rules

IPTSP plataform

Produção ouro