SEMINAR
Promotion, development, support and evaluation of Innovation

STI policies and impact evaluation

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FINEP / ABC

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summary

- Initiatives and trends around the world
- FAPESP evaluation policy
- Cases
- Concluding remarks : challenges and questions

Initiatives around the world

International trends

Complete Cycle	• ex-ante – interim – ex-post – ex-post facto
Systemic	• Internal efforts • External ad hoc
Evidence based	• Quantitative + Qualitative • Secondary + Primary
Multidimensional	• Economic • Social • Environmental…

The Inno-Appraisal Project, MIoIR - UK

- Project InnoAppraisal
  - Overview of purposes, methods, topics, impact, usefulness
  - Includes 242 evaluation reports linked to 158 unique policy measures

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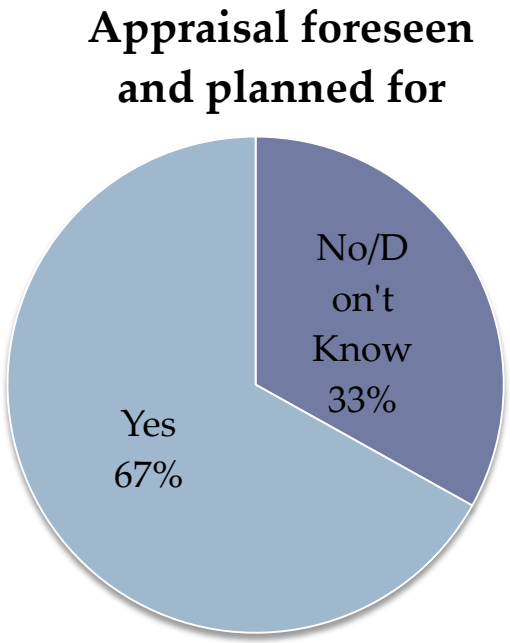
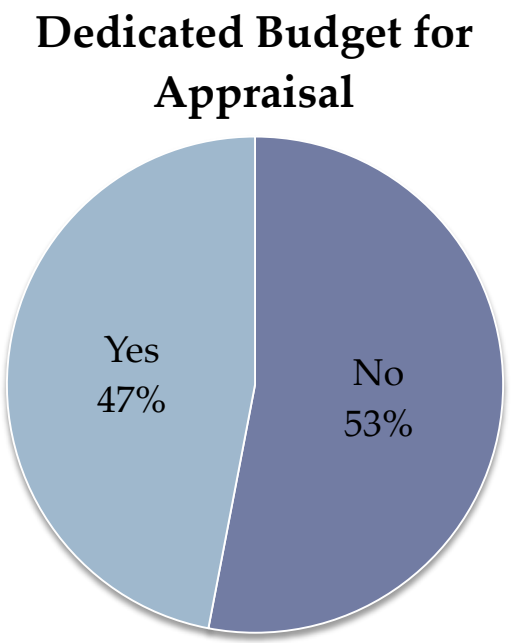
The Inno-Appraisal Project, MIoIR - UK

Budget and Planning





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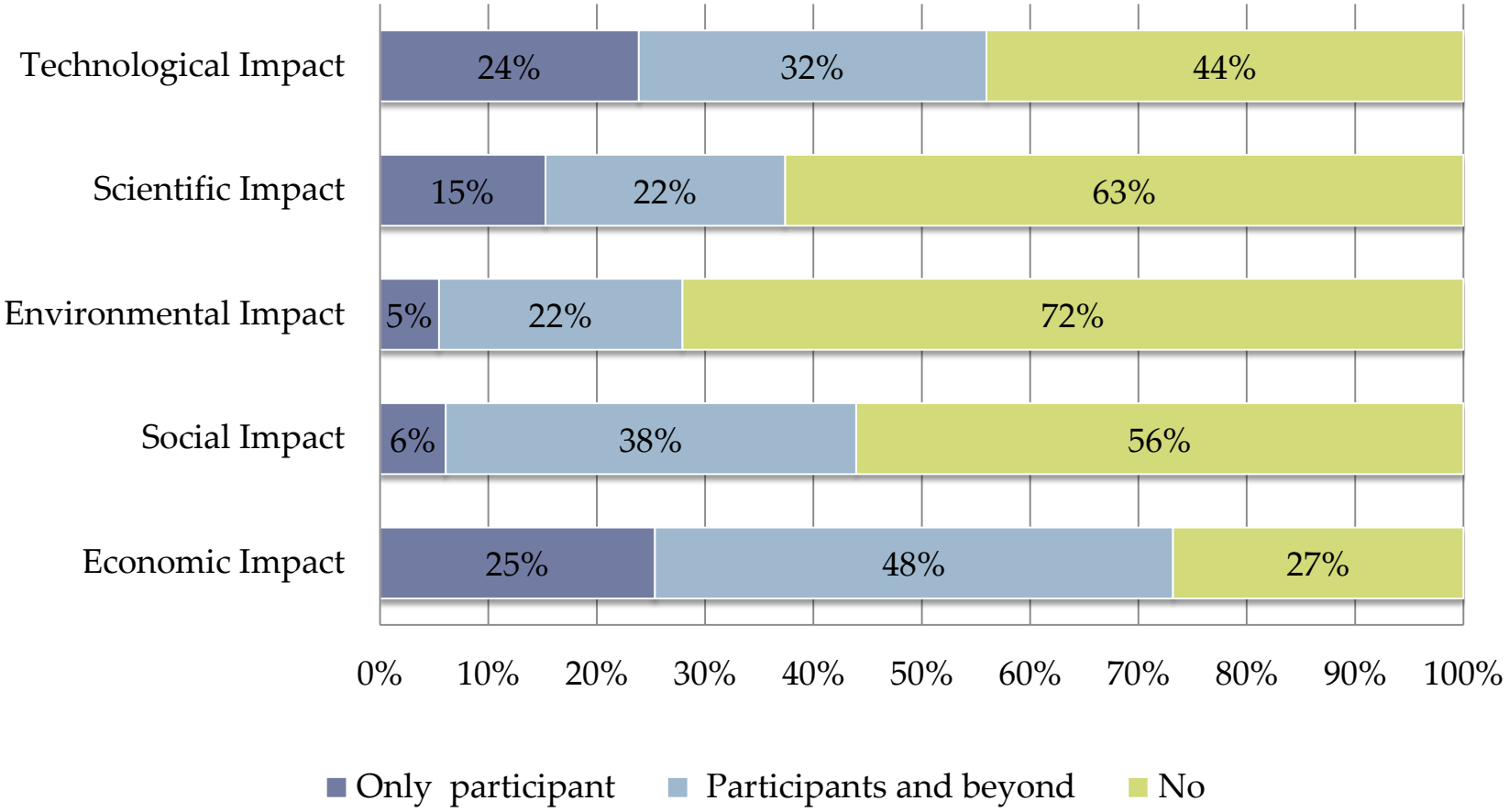
Multidimensionality AND Stakeholders



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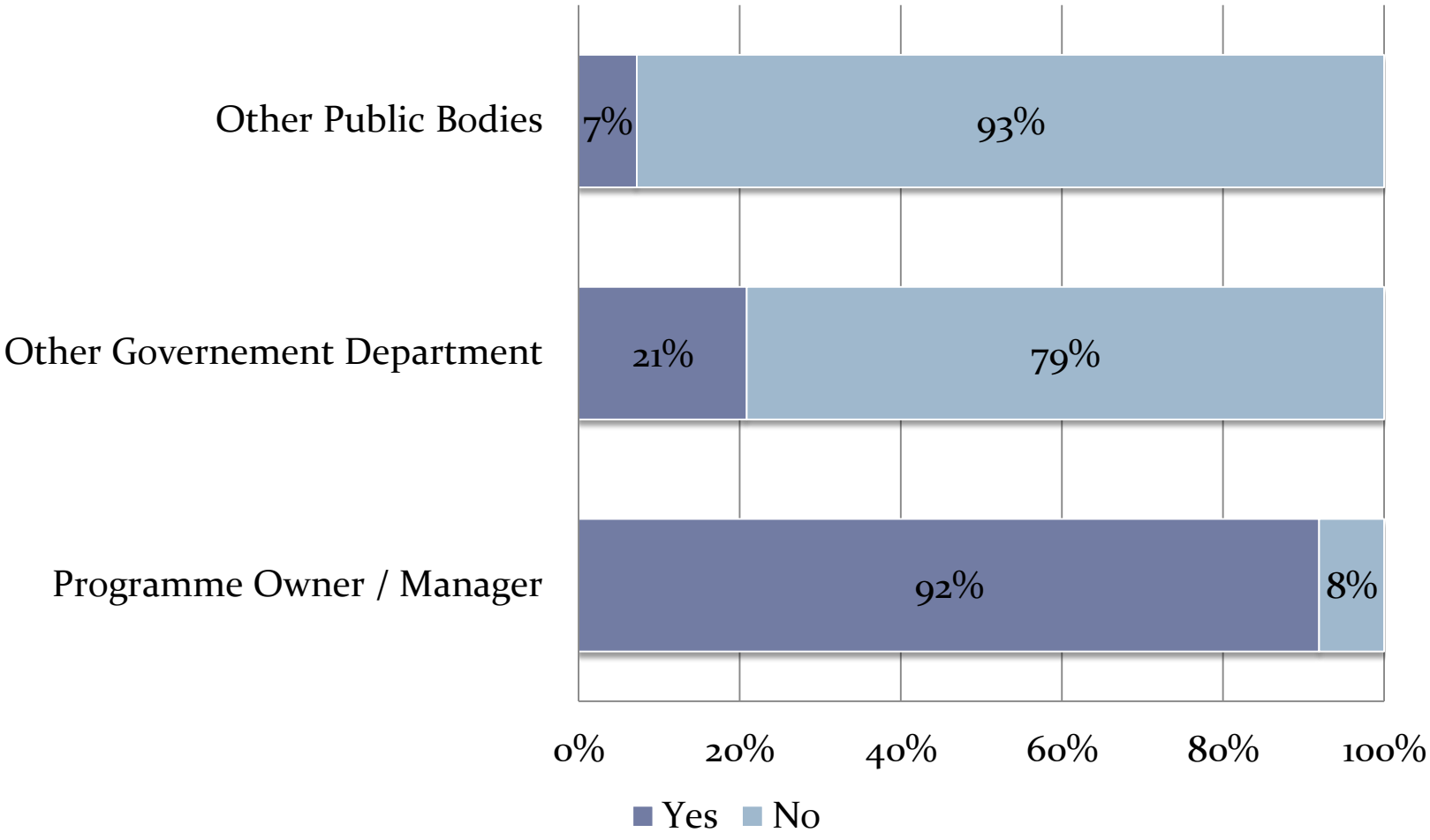
Sponsors of the evaluation



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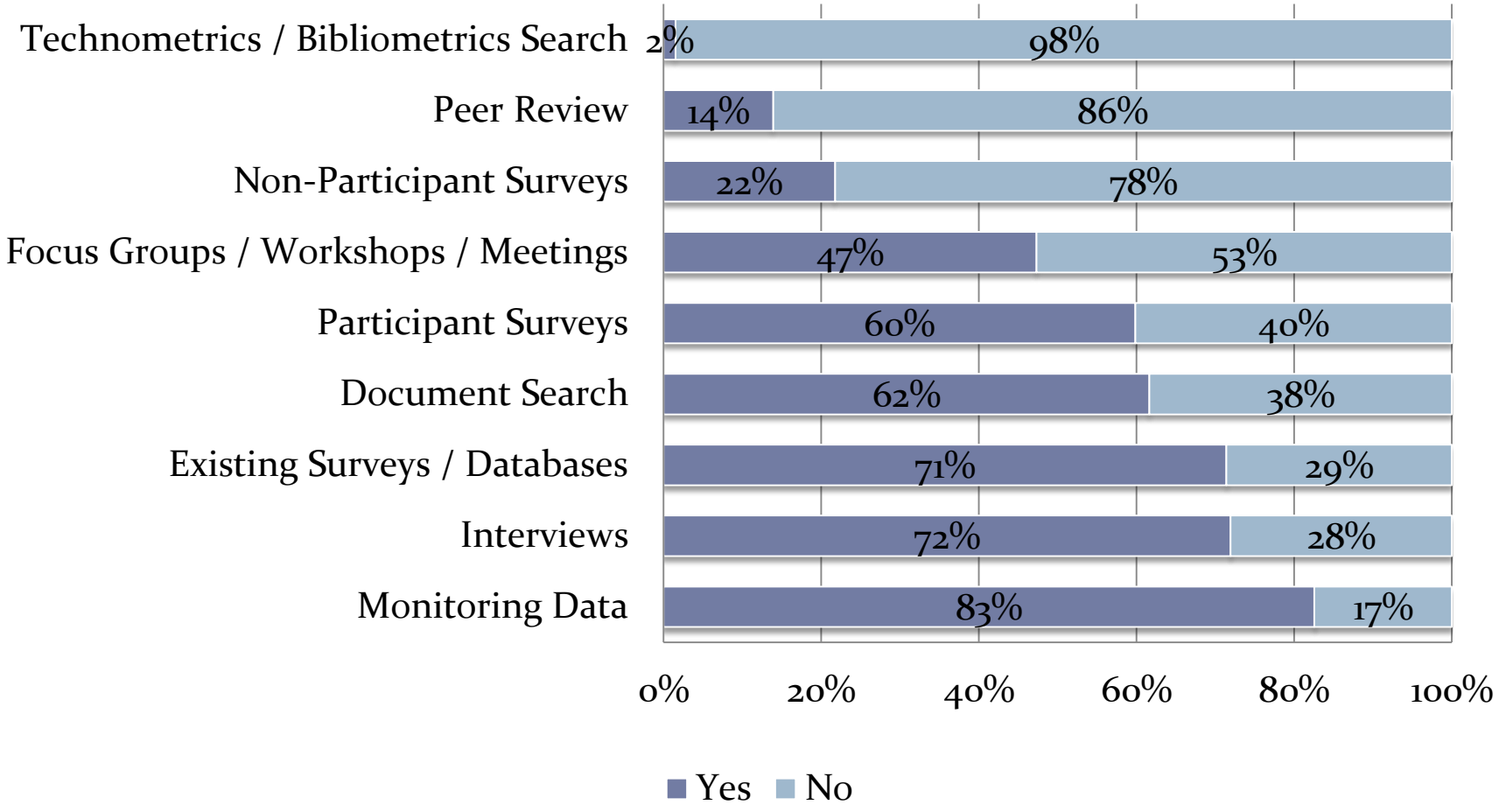
The Inno-Appraisal Project, MIoIR - UK

Data Sources and Collection Methods



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SIPER: Science & Innovation Policy Evaluations Repository

SIPER: Components

- Repository of existing evaluation reports (pdf) (focused on EU MS and OECD countries)
- Coordinated with
  - OECD-World Bank innovation policy platform (IPP, www.innovationpolicyplatform.org)
  - EU Research & Innovation Observatory (RIO)

SIPER: participants

- Developed by Manchester Institute of Innovation Research, The University of Manchester

- International partners:
  - Latin America (GEOPI/UNICAMP)
  - France (IFRIS)
  - More international linkages in discussion…

The experience of FAPESP

Fapesp Evaluation Policy

OBJECTIVES

- 1- Planning – on-going and new programs/instruments
- 2- Institutional learning
- 3- Accountability – different categories of stakeholders
- *4- Advocacy*

Fapesp Evaluation Policy main Axes

Systematic / permanent evaluation

Secondary and Primary data + Qualitative and Quantitative

Counterfactuals

Quality control

Complementary external evaluation

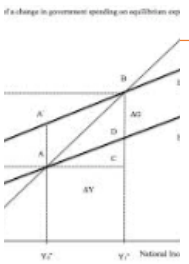
FAPESP web site on evaluation

- http://www.fapesp.br/en/evaluation/

Some cases of impact evaluation

Some cases

Who really takes advantage of fiscal incentives to innovate in ICT sector?



What is the profile of most innovative SMEs?

Does peer review system select more productive recipients for scholarships?

Does STI programs perform better than isolated projects in the same field?

How to improve impacts of innovation programs over small holders?

Does matching public and private funds engage companies and ROs?

Case 1
Who really takes advantage of fiscal incentives to innovate in ICT sector?

Impact study on the ICT law in Brazil (1998-2009)

Compared to the sector

Value Chain – variation per segment
(added value – 1998 a 2008)

Segments of value chain		Small and micro firms	Medium size firms	Large firms
Supply chain	*Var. %*	2.2	10.1	6.5
Conception	*Var. %*	3.3	12.6	10.0
Hardware	*Var. %*	5.3	11.1	10.9
Software	*Var. %*	5.5	8.6	16.3
Design	*Var. %*	4.4	17.9	13.8
Marketing	*Var. %*	1.6	11.3	8.5

Answer:

1- Large MN companies that does not want/need to invest in R&D but become competitive over fiscal incentives

2- Medium size national companies that takes more advantage of value creation and appropriation through R&D and fiscal incentives

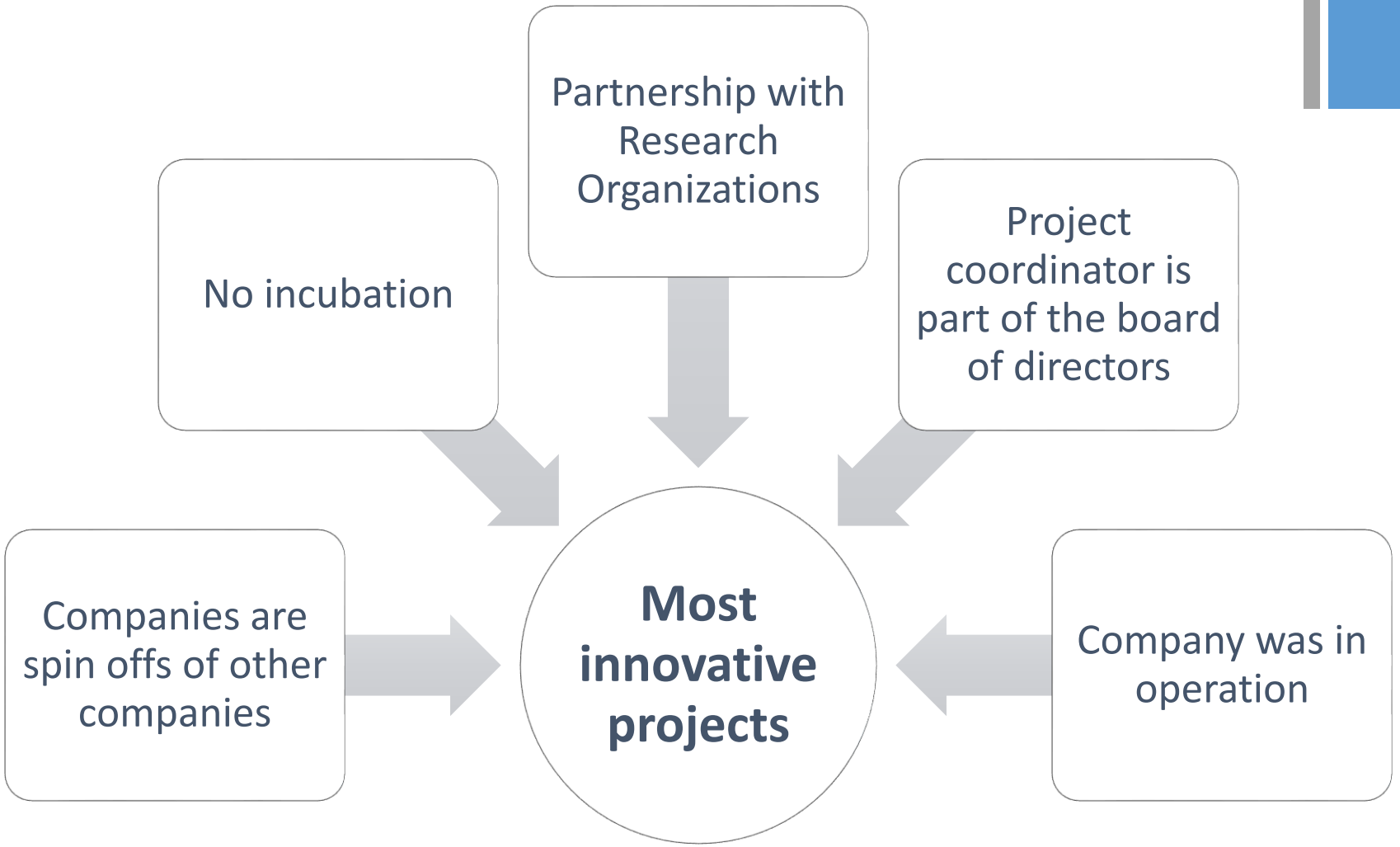
Case 2
What is the profile of most innovative SMEs?

Small Business Innovation Program at FAPESP - PIPE
R$ 52,9 millions

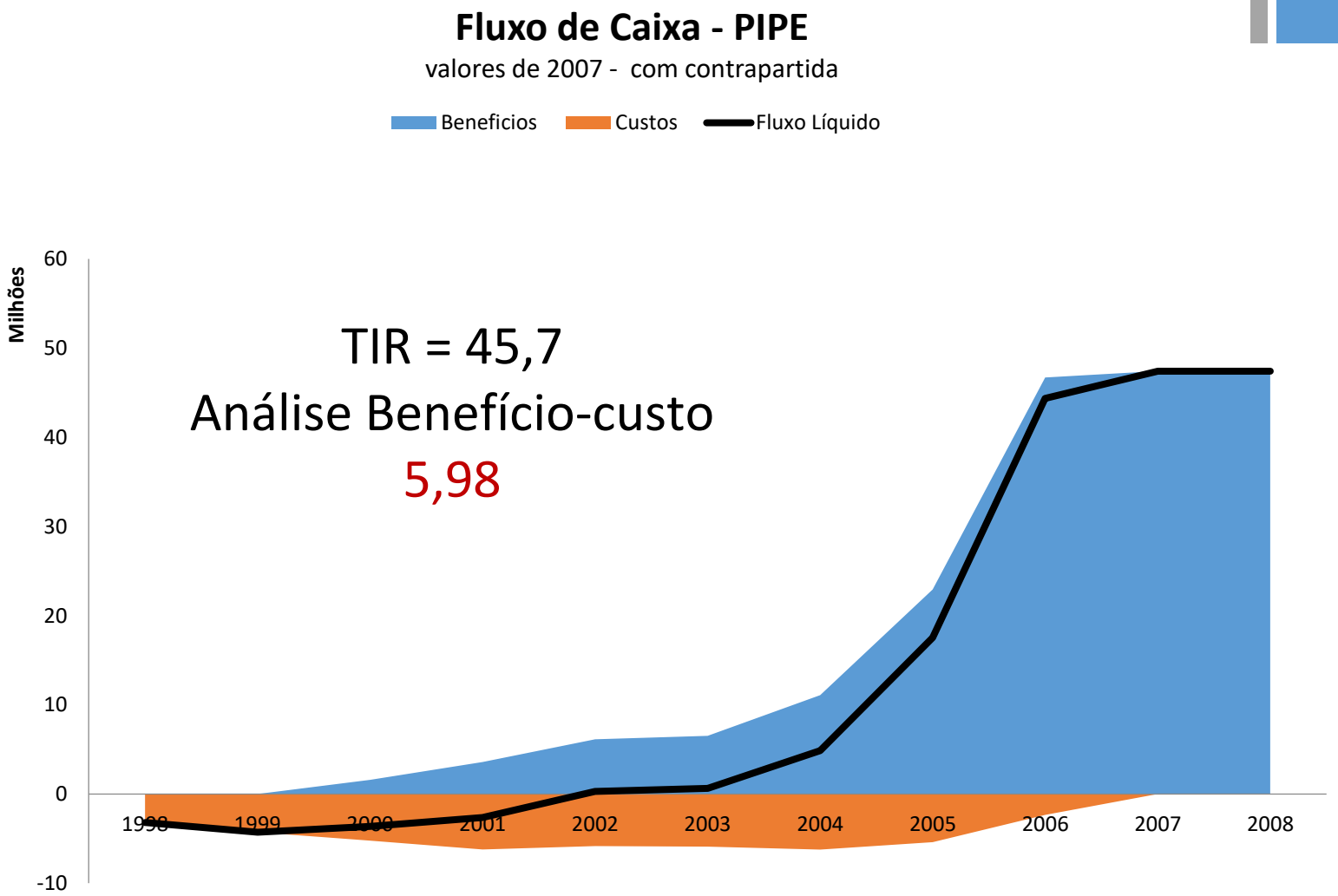
(214 projects)

Compared to SBIR in the USA

PIPE – most innovative profile



PIPE – Principais Conclusões



TIR = 45,7

Análise Benefício-custo

5,98

Answer:
Potentially all may be innovative,

but

Spin offs + affiliation of researcher to the company + relationship with Ros

and

Concentrate in 10% of projects

Case 3
Does peer review system select more productive recipients for scholarships?

FAPESP Scholarships

Undergraduate; MSc and PhD

Treatment group: FAPESP ex-scholarship holders

Control group: other ex-scholarship holders (granted without peer review process)

Publications and the peer-review effect :

quasi-experimental evaluation
awarded vs rejected in Fapesp but had grant from other funding agencies

Effect of FAPESP scholarship on scientific production related to ScI, MSc and PhD with PS

		Ratio Effects	p-value	CI 95%	
ScI	Publ. Average	0,99	0,880	0,85	1,15
	JIF Publ. Average	**1,22**	<0.001	1,09	1,36
MSc	Publ. Average	1,04	0,310	0,97	1,11
	JIF Publ. Average	**1,13**	<0.001	1,07	1,20
PhD	Publ. Average	**1,37**	<0.001	1,24	1,51
	JIF Publ. Average	**1,07**	0,022	1,01	1,14

Answer:
Yes, at least in FAPESP case compared to non-FAPESP ex-holders

It’s also correlated to other impacts as for income level and job positions

Case 4 – Does STI programs perform better than isolated projects in the same field?

BIOTA CASE

Treatment: Biota projects

Control group: similar biodiversity projects out of Biota

Publications

Table 3 Impact of BIOTA on scientific production indicators, estimated by multivariate and weighted propensity scores

	Model 1—multivariate			Model 2—weighted PS*		
	BIOTA effect	p value	CI 95 %	BIOTA effect	p value	CI 95 %
Articles published as result of project	1.2	0.19	[0.9–1.8]	1.9	\ 0.0001	[1.2–3.1]
Total articles in Lattes CV	1.1	0.31	[0.9–1.4]	1.3	0.19	[0.9–2.0]
Co-authors of project articles	1.2	0.37	[0.8–1.8]	2.1	\ 0.0001	[1.3–3.3]
Co-authors in Lattes CV	1.2	0.28	[0.9–1.5]	1.4	0.28	[0.8–2.3]
Supervisions (project)	1.2	0.27	[0.8–1.7]	1.2	0.37	[0.7–2.2]
Supervisions (Lattes CV)	1.2	0.40	[0.9–1.6]	1	0.98	[0.6–1.8]

* Adjusted by variable “funding category: Thematic Projects” and lagging variable

Answer:
- yes, particularly in scientific production, but also in other variables related to cooperation for R&D as well

Case 5 -How to improve impacts of innovation programs over small holders?

The INCAGRO program in Peru

970 interviews

Answer: reorienting the program

Reorienting the Program	Cluster 1 Instruments towards a more strucutured innovation system	Beyond the threshold
	Cluster 2 Promoting capabilities to give access to knowledge	On the threshold
	Cluster 3 Institutional stability and capabilities to give access to knowledge	Structural conditions to reach the threshold

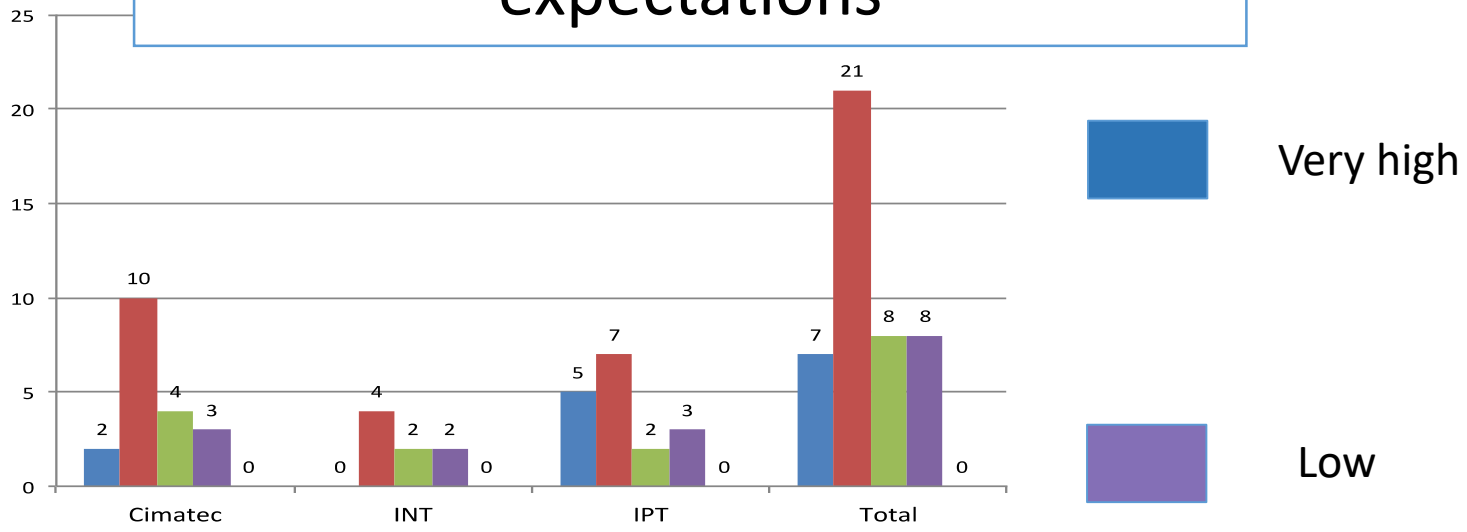
Case 6 - Does matching public and private funds engage companies and ROs in innovative projects?

EMBRAPI Case in Brazil

Pilot phase: 63 projects; 44 companies

How companies evaluate the success of projects

+ 80% within or above expectations



Behavioral changes: ROs

New prospecting processes

Formal competences in R&D Management

Established project management processes

Internal policy of valuation and negotiation

Organizational rearrangements

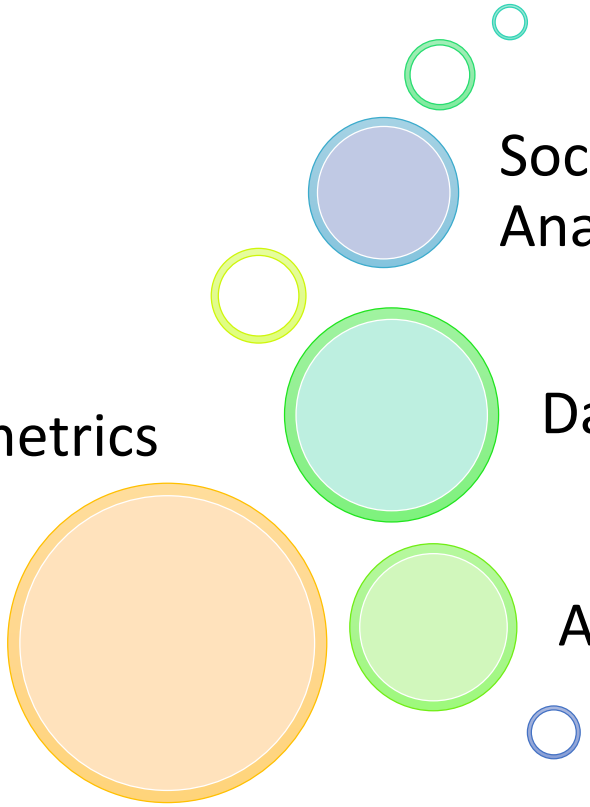
Answer
- yes, when followed by organizational and managerial requirements for governance

Conclusions and challenges

The cultural challenge

- Evaluation as in-built component of programs and policies
- Evaluation budget and resources
- Stakeholders
  - Funding Agencies / Government Agencies / Policy Makers
  - Researchers and scientific community
  - ROs
  - Companies
  - Accounting offices
  - Society…

The Big Data challenge



Social Network Analysis

Data Science

Bibliometrics

Altmetrics

MENDELEY

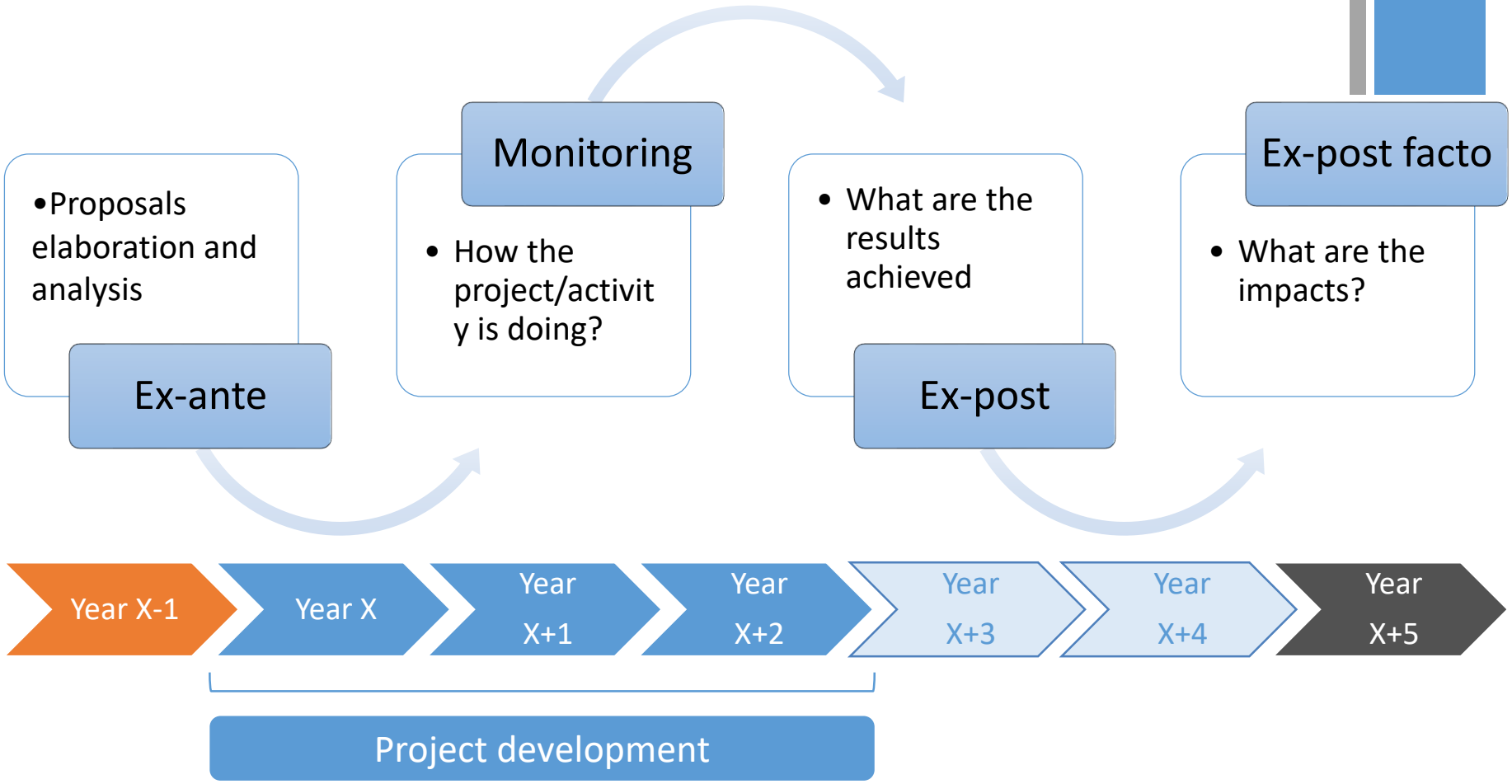
Altmetric

PLUM ANALYTICS

ImpactStory.

PLOS | ARTICLE-LEVEL METRICS

The Complete Cycle Challenge



Questions to address

Is the large set of policy instruments bringing results in terms of innovation and impacts over economic and social indicators in Brazil (without crowding out)?

Answer: We simply do not know

Is there systematic evaluation being implemented in Brazilian agencies?

Answer: Only for few exceptions

How to make evaluation part of the policy rationale?

Answer: Let’s discuss it seriously?

obrigado

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