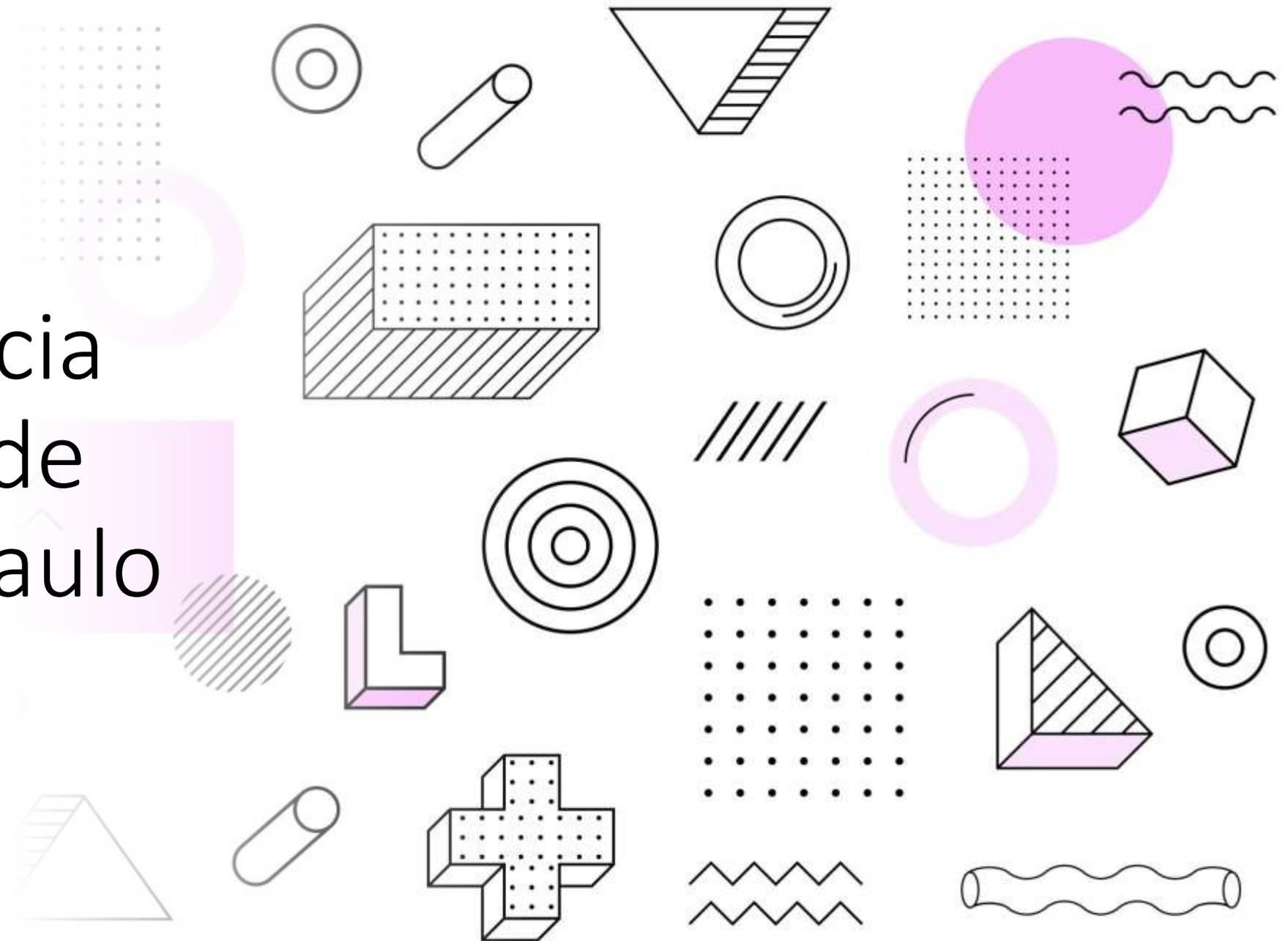
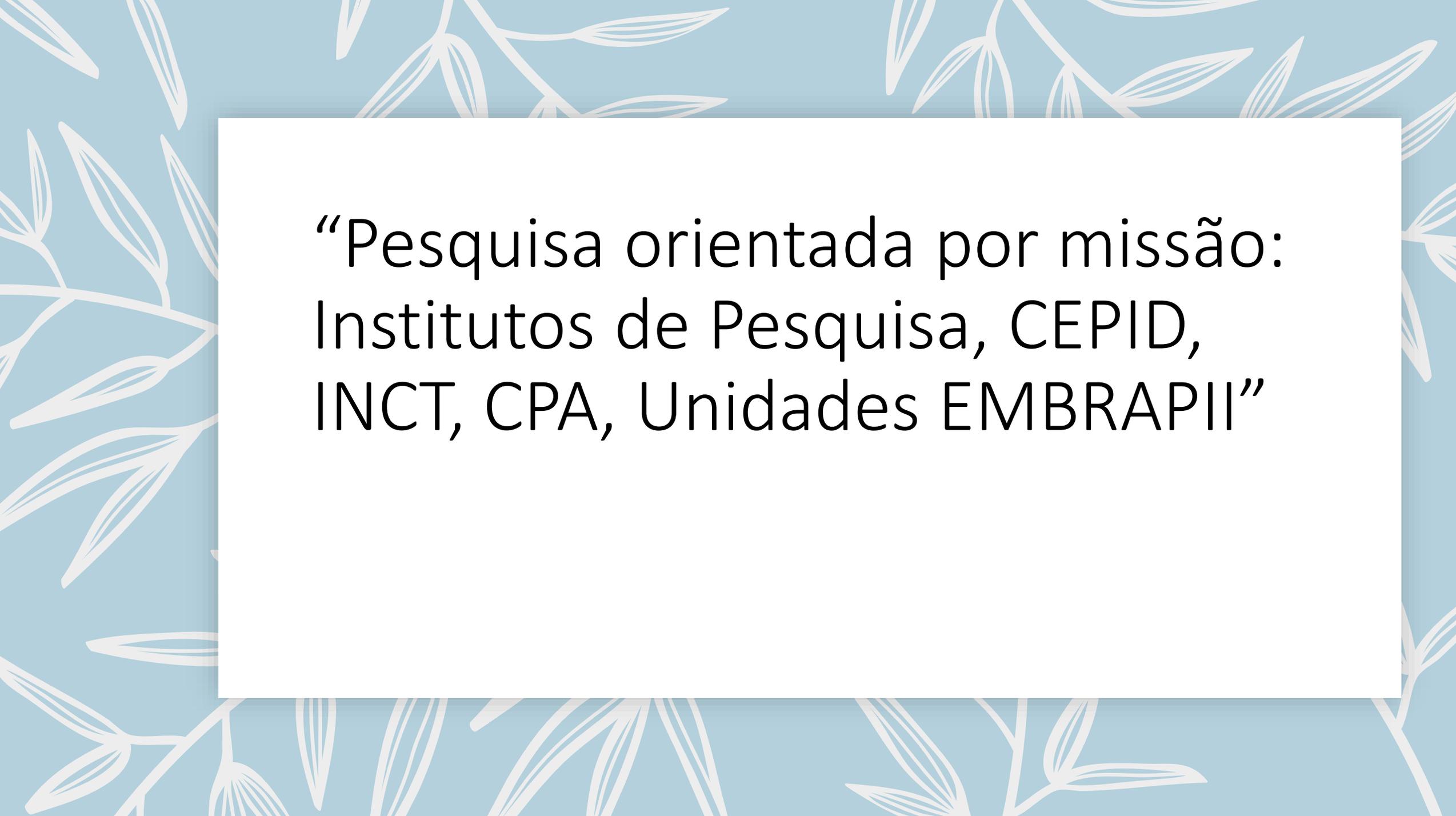


# Conferencia Estadual de CTI São Paulo

7 de março de 2024

Sergio Salles-Filho  
DPCT/IG/UNICAMP





“Pesquisa orientada por missão:  
Institutos de Pesquisa, CEPID,  
INCT, CPA, Unidades EMBRAPA”

# O que vamos abordar

- O que é e o que pode ser Mission-Oriented Policies/Organizations/Programs (POPs)?
- O Brasil tem Mission-Oriented POPs?
- Agenda para a CNCTI

NEWS | 08 July 2021

# The rise of 'ARPA-everything' and what it means for science

**Science agencies such as ARPA-Health hope to replicate the success of the US Defense Advanced Research Projects Agency, but researchers question whether they will thrive.**

# ARPA-e impact spreadsheet



1) motivation;



2) technical opportunity;



3) innovation demonstration;



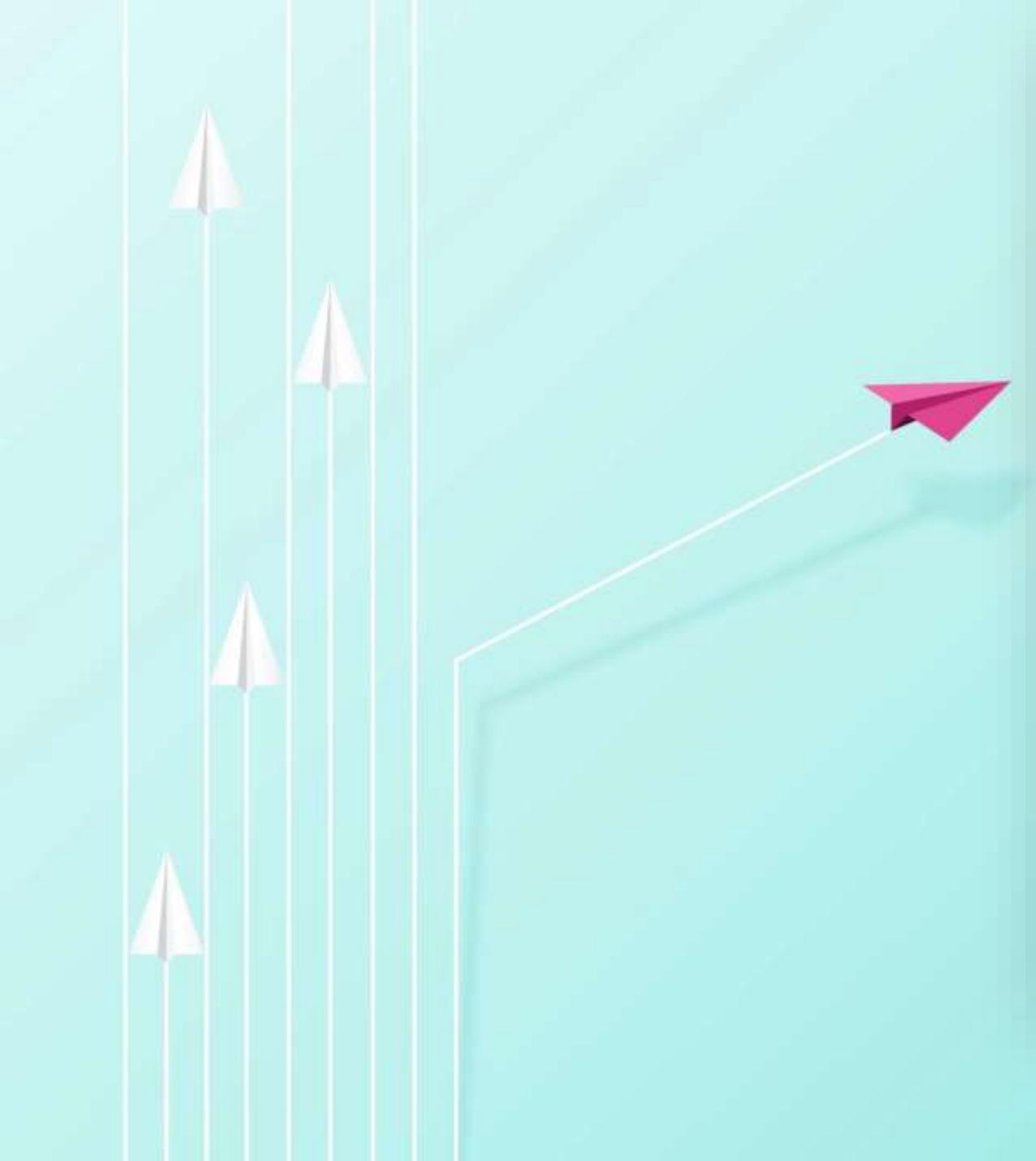
4) impact pathway;



5) long- term impacts; and



6) intellectual property and publications



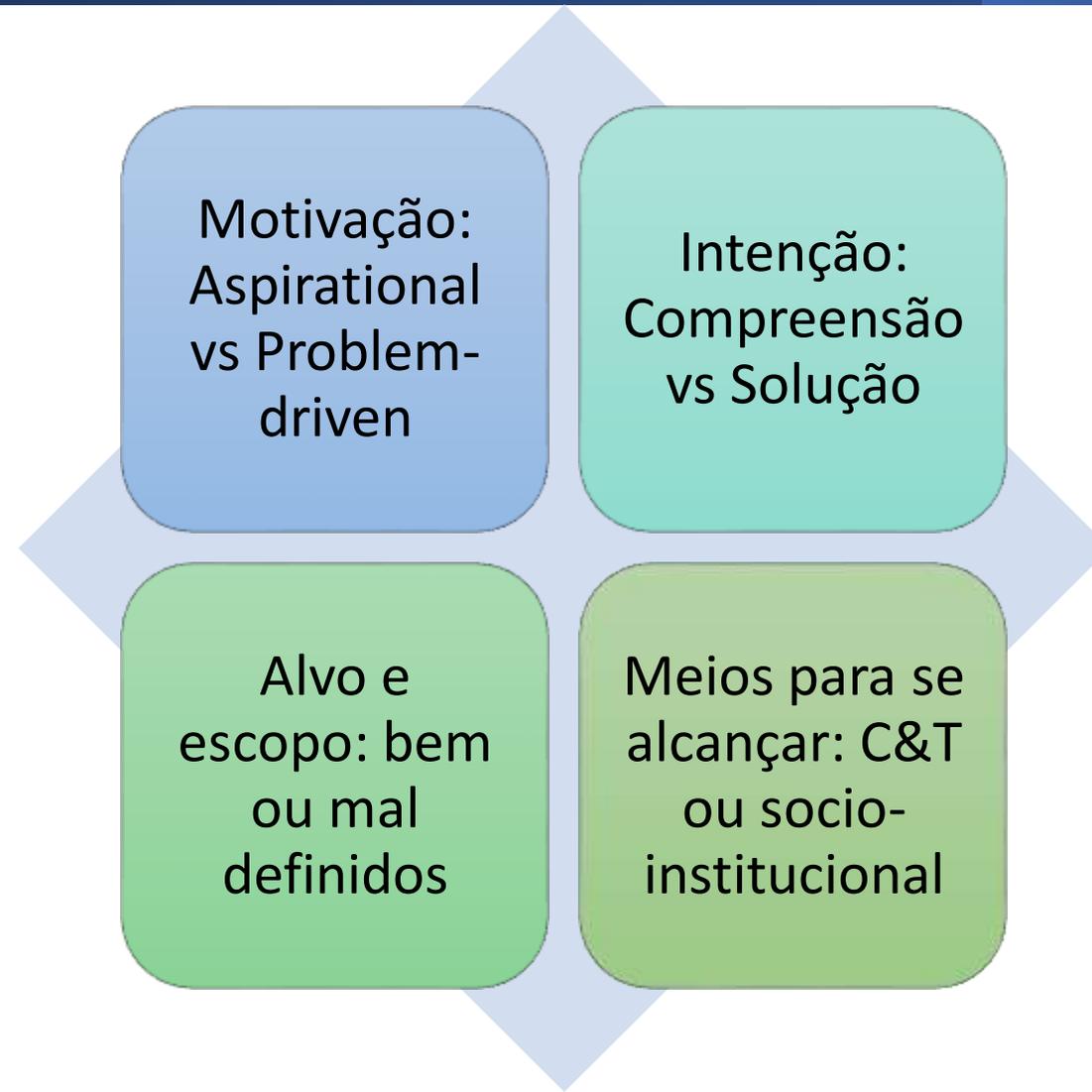
# Tipologias Missão-Orientadas

Polt et al. (2019)

Wittmann et al. (2021)

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# Eixos de caracterização (Polt et al., 2019)



# Tipos de mission oriented (Polt et al., 2019)



## Science missions

(e.g. US Cancer Moonshot – fundamental/basic research with high uncertainty)



## Technological missions

(e.g. Concorde, Apollo mission – specific goal with a strong focus on technological/scientific solutions)



## Transformative missions

(e.g. German Energiewende – aiming at systemic change)



## Umbrella missions

(e.g. German High Tech Strategy – comprehensive long-term policy frame)

# Tipologia de Mission-Oriented (Wittmann et al., 2021)

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- motivação essencial
- importância relativa de C+T+I
- requerimentos de governança

# Mission oriented Tipos ideais (Wittmann et al., 2021)

Solução já identificada, alto requerimento de governança que vai além da pesquisa

Não há solução definida, mas muito alto requerimento de governança, muito além da pesquisa

**Table 1.** Characteristics of different types of missions (own elaboration).

	Accelerator mission		Transformer mission	
	Type 1 (A1)	Type 2 (A2)	Type 1 (T1)	Type 2 (T2)
Mission definition: underlying motivation	Problem-oriented	Solution-oriented	Solution-oriented	Problem-oriented
Mission design: relative importance of STI	High	High	Medium	Medium
Mission implementation: governance requirements	Low	Medium	High	Very high

Problem driven, pesquisa é o essencial, ausência de responsabilidades cruzadas e de envolvimento de diferentes stakeholders

Solution driven, pesquisa é o essencial, mas já necessita de entrelaçamentos com stakeholder e maior governança

**Table 5.** Mission-types and possible issues for implementation.

Type	Possible means for goal-achievement	Possible obstacles
A1	<ul style="list-style-type: none"><li>● Increasing research output and scientific knowledge production in defined area</li></ul>	<ul style="list-style-type: none"><li>● Mobilizing and directing research activities</li><li>● Setting up and implementing problem-oriented instruments</li><li>● Managing research portfolio with high levels of uncertainty</li></ul>

Problem driven, pesquisa é o essencial, ausência de responsabilidades cruzadas e de envolvimento de diferentes stakeholders

Exemplos:  
REDES DE PESQUISA  
(NANO, GENOMA,  
XYLELA, BIOTA,  
BIOEN...)  
INCTs

**Table 5.** Mission-types and possible issues for implementation.

Type	Possible means for goal-achievement	Possible obstacles
A2	<ul style="list-style-type: none"><li>● Bringing research to application</li><li>● Creation of new infrastructure</li><li>● Adjustment of regulatory framework</li></ul>	<ul style="list-style-type: none"><li>● Ensuring knowledge/technology transfer between science/research and enterprises/users by facilitating processes and detection of possible obstacles</li><li>● Coordination of policy mix containing funding and regulation</li><li>● Reducing uncertainty/risk for involved actors</li></ul>

Solution driven, pesquisa é o essencial, mas já necessita de entrelaçamentos com stakeholder e maior governança

Exemplos:  
EMBRAPPII  
CPE/CPA  
SUBVENÇÃO  
CEPID  
EMBRAPA / APTA  
PIPE  
CENTELHA  
FIOCRUZ  
BUTANTAN  
CNPEM

(Wittmann et al., 2021)

**Table 5.** Mission-types and possible issues for implementation.

Type	Possible means for goal-achievement	Possible obstacles
------	-------------------------------------	--------------------

T1

- Substitution/ Reconfiguration of existing systems through facilitation of new solutions

- Coordination of complex policy mix in a multi-stakeholder environment
- Long-term orientation and strategic planning at the systemic level
- Overcoming lock-in and path-dependencies by facilitating alternative solutions

Solução já identificada, alto requerimento de governança que vai além da pesquisa

Exemplos:  
The usual suspects  
COMPLEXO  
AERONÁUTICO  
ÓLEO E GÁS  
AGRONEGÓCIO  
ETANOL (?)

(Wittmann et al., 2021)

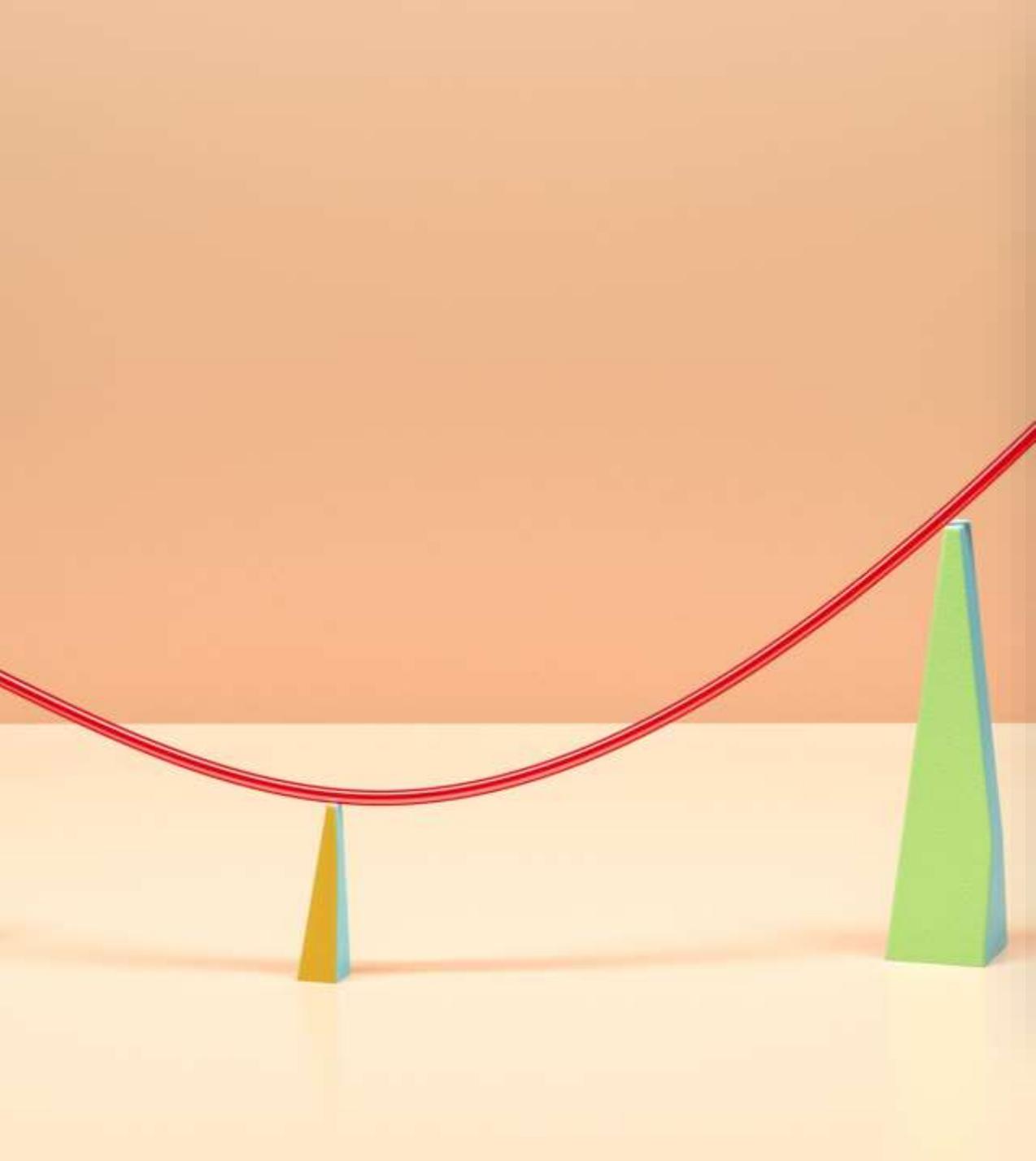
**Table 5.** Mission-types and possible issues for implementation.

Type	Possible means for goal-achievement	Possible obstacles
T2	<ul style="list-style-type: none"><li>• Substitution/ Reconfiguration of existing systems</li><li>• Phasing out of existing solution/approaches</li><li>• Change in behaviour and attitudes</li></ul>	<ul style="list-style-type: none"><li>• Coordination of complex policy mix and coordination of actors across different levels</li><li>• Mobilizing and involving civil society</li><li>• Long-term orientation and strategic planning at the systemic level</li><li>• Compensation of potential losers of transformation/managing veto-players</li></ul>

T2

Não há solução definida, mas muito alto requerimento de governança, muito além da pesquisa

Exemplos: ???



Mission-Oriented

Obstáculos,  
armadilhas a evitar  
e agenda à frente

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# Obstáculos e Armadilhas

## Obstáculos

Falta de dados e estudos

Interesses stakeholders

Governança porosa

Ausência de M&A

## Armadilhas

Voluntarismo e empilhamento

Pulverização de recursos

Conselhos sem poder

Gestão check list



Pontos para a conferência nacional

1- Força tarefa para  
revisão conjunta de  
programas e  
modalidades das  
agências

- Há centenas de programas e modalidades:
  - Conhecer redundâncias e complementaridades
  - Ganhar escala
  - Sinergias

## 2- Enforcement para políticas baseadas em informação

- Desenho, implementação, avaliação
  - Investir em bases de dados acessíveis
  - Competências para uso das bases
  - Mitigar crowding out
  - Promover crowding in
  - Avaliar e ajustar

### 3- Escala e Governança

- Policy Mix com metas e governança
- Compromisso para competir externamente
- O problema não se resume a dinheiro

# O que estudos têm mostrado (ZIESEMER, 2020)

- We have surveyed the literature on the effects of R&D subsidies and public R&D on business R&D for the period 2000 to the present.
- Two meta-studies find little additionality effects from government R&D expenditures
- Whereas the third one finds clearly positive results

Besides market failure, there may also be government failure



**IMPROVE  
THE POLICIES  
CONTINUOUSLY**

# **INTERNATIONAL CONFERENCE ON SCIENCE OF SCIENCE AND INNOVATION**

**July 1 - 3, 2024**

**National Academy of Sciences**

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