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Monitoring and Evaluation as a Way to Complete and to Implement a Policy: the Case of the Brazilian National Innovation Policy

ID 859: Monitoring and Evaluation systems (Multiple papers session)

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SUMMARY

- The Brazilian National Innovation Policy (PNI)
- Policy Evaluation Comission
- M&E Development Process
- Results
  - Theory of Change
  - Logical Framework
  - Indicators Workshop
  - Evaluation Model
  - Data Protocol
- Lessons Learned

BRAZILIAN NATIONAL INNOVATION POLICY

The National Innovation Policy was established by Decree No. 10,534, of October 28, 2020, without federal public administration, with the purpose of:

- **Stimulating research, development and innovation** in companies, ICT and non-profit private entities, to increasing the productivity and competitiveness of the economy, generating wealth and social well-being

- Promote the **coordination and alignment of public policy instruments**, programs and actions related, directly or indirectly, to fostering innovation

- Foster the **transformation of knowledge into innovative products**, processes and services

- **Develop the human capital** needed to increase levels of innovation in the economy

Tatical instruments:

- National Innovation Strategy

- Sectoral and thematic innovation plans

BRAZILIAN NATIONAL INNOVATION POLICY

5 Axis

49 Strategic Initiatives

255 Actions

Política Nacional de Inovação

NATIONAL INNOVATION STRATEGY

EDUCATIONAL SYSTEMS	TECHNOLOGICAL BASE	MARKET FOR INNOVATIVE PRODUCTS	INNOVATION CULTURE	FOSTERING INNOVATION
11 INITIATIVES	**5** INITIATIVES	**14** INITIATIVES	**13** INITIATIVES	**6** INITIATIVES
47 ACTIONS	**47** ACTIONS	**62** ACTIONS	**52** ACTIONS	**47** ACTIONS

BRAZILIAN NATIONAL INNOVATION POLICY EVALUATION COMISSIONING

PNI's evaluation was commissioned in 2021 by the Center for Management and Strategic Studies (CGEE) and the Ministry of Science, Technology, and Innovation (MSTI) for the development of original methodology, criteria and indicators for the evaluation and monitoring of the National Innovation Policy and its instruments.
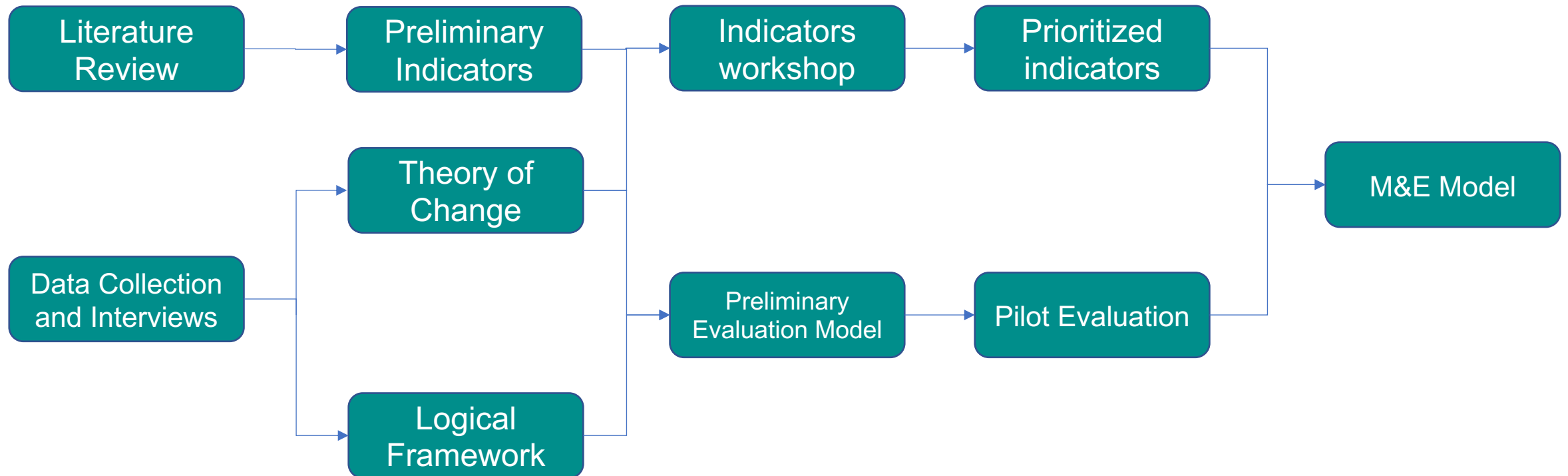
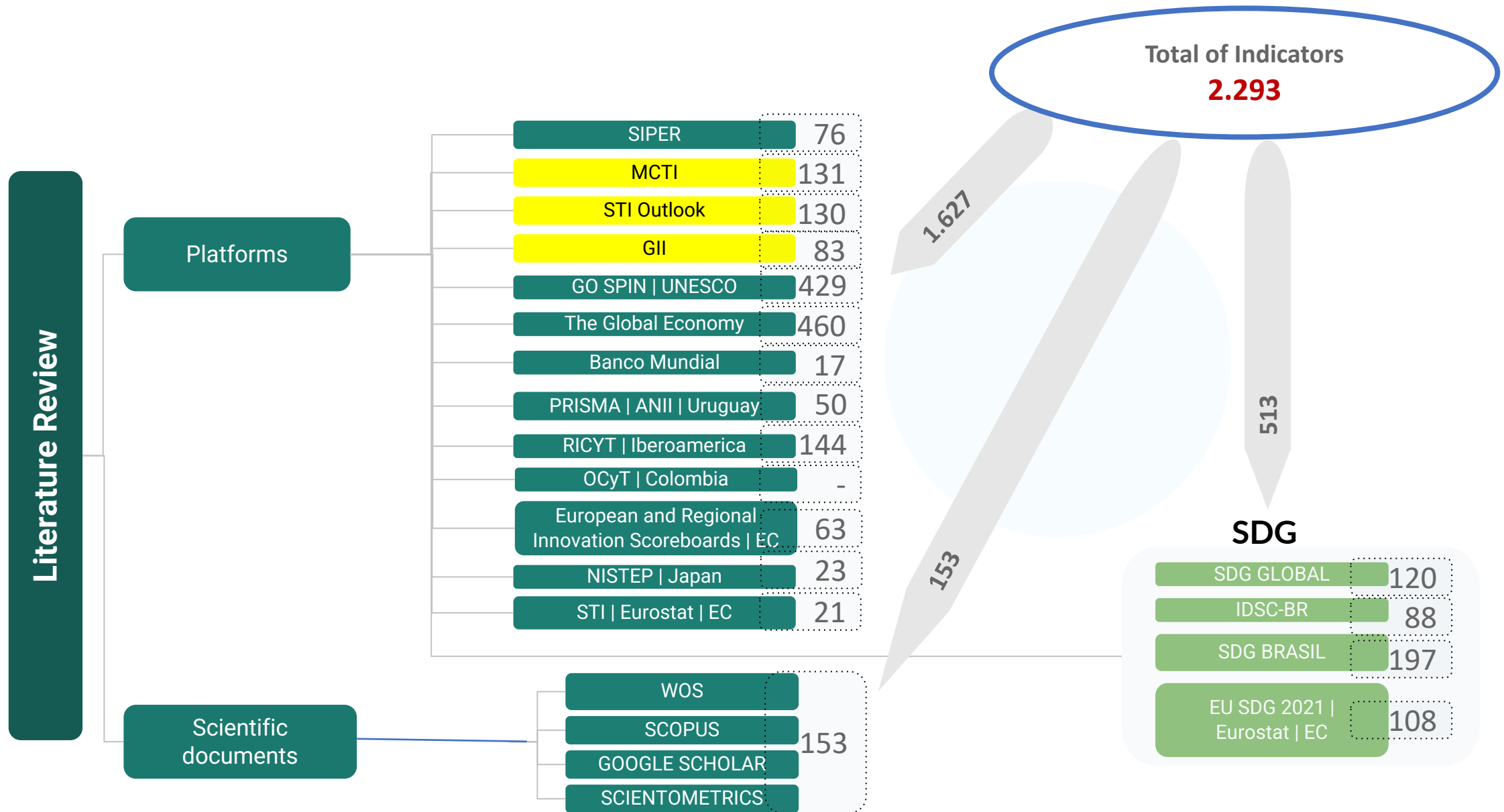**Laboratory of Studies on Research Organization and Innovation**

Expected Products:

- **Literature review** to map and evaluate models and technological solutions in order to monitor and evaluate ST&I policies;

- Identify and consolidate ongoing actions and programs, as well as map those which are being formulated/planned, and graphically design the PNI's **logical model** and **program theory**;

- Propose a **methodology for monitoring and evaluating the PNI** by the Innovation Intelligence Nucleus, seeking alignment with institutionalized mechanisms, such as the Global Innovation Index (GII), among others;

- Propose a **basket of indicators for monitoring and evaluating the PNI**, including its data source, collection frequency and positioning in the logical model, following the methodology for defining indicators for monitoring, evaluation and governance guides;

- **Apply the methodological proposal in a pilot way** in the monitoring and evaluation of ongoing policies.

M&E DEVELOPMENT PROCESS

LITERATURE REVIEW: PRELIMINARY INDICATORS

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Total of Indicators
2.293

Literature Review

Platforms

SIPER	76
MCTI	131
STI Outlook	130
GII	83
GO SPIN | UNESCO	429
The Global Economy	460
Banco Mundial	17
PRISMA | ANII | Uruguay	50
RICYT | Iberoamerica	144
OCyT | Colombia	-
European and Regional Innovation Scoreboards | EC	63
NISTEP | Japan	23
STI | Eurostat | EC	21

1.627

513

153

Scientific documents

WOS
SCOPUS
GOOGLE SCHOLAR
SCIENTOMETRICS

153

SDG

SDG GLOBAL	120
IDSC-BR	88
SDG BRASIL	197
EU SDG 2021 | Eurostat | EC	108

RESULTS
THEORY OF CHANGE

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MACRO OBJECTIVE

Innovative and competitive nation generating wealth and social well-being

INTERMEDIATE OBJECTIVES

| Most innovative and competitive companies, sectors and regions | Research and development generating innovation | More effective, efficient and effective policies | Innovative and entrepreneurial human capital |

TACTICAL INSTRUMENTS

POLICY AXES

| Expansion of Professional Qualification | Coordinated and innovation-aligned fostering | Systemic expansion of the technological knowledge base | Dissemination of culture of innovation | Development of innovative markets | Knowledge protection |

STRATEGIC INITIATIVES = 54

OPERATIONAL INSTRUMENTS

THEMATIC AND SECTORAL PLANS
ACTIONS 255

ASSUMPTIONS

| policy interaction between and intra levels of government | Stimulating innovation for competitiveness in markets | Attention to regional and sectoral specificities | Appropriate instruments to link research to innovation | Education towards innovation | Adequacy of regulatory frameworks and alignment with control bodies |

SITUATION

| Low interaction and coordination of policies and instruments | Decreasing rates of innovation in companies | Regional, sectoral and appropriation inequalities | Detachment between research and innovation | Low interaction of the educational system to innovation | Legal uncertainty of public and private managers |

LOGICAL FRAMEWORK

INPUTS	ACTIVITIES	OUTPUTS (short term)	OUTCOMES (medium term)	IMPACTS (long term)
I1) **Allocation of working hours** (engagement) in all government agencies involved in the PNI I2) **Allocation and execution of financial resources** in the Actions provided for in the PNI	A1) Implementation, establishment of **governance mechanisms** and effective functioning of the Innovation Chamber A2) **Implementation of the Innovation Advisory Board** (BrasilInova) with governance mechanisms established and aligned with the Innovation Chamber A3) **Implementation of the Innovation Intelligence Nucleus** at MCTI, with description of functions, objectives, operational mode, governance, member profiles and types and volume of financial and human resources A4) **Conducting systematic prospecting to prioritize themes**, sectors and areas that address the objectives of the PNI A5) **Validation of priorities, objectives and goals** with the main innovation agents in the public and private sectors and with the Advisory Board and the Innovation Chamber A6) Proposition and implementation of the National Innovation Strategy based on Strategic Initiatives and Thematic and Sectoral Plans with well-established objectives and goals containing actions of all public bodies involved in the PNI A7) **Proposition of Actions** within the Thematic and Sectoral Plans and Strategic Initiatives A8) **Permanent monitoring of the Actions** and other instruments of the PNI together with all the bodies involved in the conduct of the policy	P1) **Coordinated innovation policies**, with established, known and operational governance P2) **Instruments to stimulate private investment in R&D** and innovation created and implemented or revised and regulated P3) **Instruments to stimulate competitiveness** in internal and external markets created and implemented or revised and regulated P4) **Instruments to stimulate innovation-oriented R&D** created and implemented or revised and regulated P5) **Educational policies aimed at innovation and entrepreneurship** created and implemented or revised and regulated P6) Regional, sectoral, social and **environmental specificities recognized and addressed in R&D and innovation policies** P7) **Regulatory frameworks of stimulus and legal certainty** for public and private sectors created and implemented or revised and regulated	R1) Coordinated innovation promotion instruments using resources efficiently, with gains in scale and scope **(synergy of actions)** R2) **New development instruments adopted by agents** involved in innovation, public and private R3) **Business investment in systemic and growing innovation** in sectors, regions and areas of knowledge R4) **Increasing engagement of companies and ICTs in joint projects and activities aimed at innovation** and technology transfer in sectors, regions and areas of knowledge R5) **Systematic expansion of innovation rates in companies** R6) **Expansion of the participation of companies in international markets** R7) **Growing and systemic supply of human capital** to work in technological innovation and entrepreneurship	IM1) **Most innovative, sustainable and competitive companies**, sectors and regions IM2) **Research generating innovation** IM3) **More effective, efficient and effective policies** IM4) **Innovative and entrepreneurial human capital** IM5) **Institutional and legal frameworks favourable to investment** and actions to stimulate innovation IM6) **Increase in wealth and income** due to increased rates of innovation IM7) **Recognition of Brazil as an innovative nation**

INDICATORS WORKSHOP

20 - 21 October 2021

Participation of 40 experts in innovation policy and impact evaluation from several Ministries

Based on Actions, Initiatives, Theory of Change, Logical Framework and Preliminary Indicators

Definition of **evaluation themes** and **priority indicators** within each Axis

FOSTERING INNOVATION
- Promotion of **cooperative projects** among ecosystem actors
- National and international **fundraising**
- Encouraging **private investment** in R&I
- Investments in **priority areas**
- Foster design and implementation of innovation projects
- Promotion of regional application of resources
- Fostering innovation-promoting environments

15 prioritized indicators

CULTURE OF INNOVATION
- Disseminate **entrepreneurship and open innovation** culture
- Encouraging the creation of **knowledge-intensive startups**, prioritizing cooperative initiatives, networks and existing platforms.
- Risk tolerance in the innovative process
- **Retention and attraction of talents for innovation**
- **Legal and regulatory security** for innovation in public and private sectors
- Brazilian participation in technical standardization spaces
- Promoting the country on the international stage as an innovative nation
- Dissemination of scientific and technological production of Science and Technology Institutes to **promote industry collaborations**
- Strengthening scientific societies
- **Gender diversity and racial ethnicity**

16 prioritized indicators

TECHNOLOGICAL BASE
- Encouraging **private investment in R&I**
- Maintenance, expansion and shared use of **research infrastructure**
- **Quality of scientific and technological production**
- Promotion of cooperative **projects between the public and private sectors**
- Social, economic, environmental and governance sustainability
- Innovation of products, services and processes
- Increase productivity and ICT-enterprise cooperation.
- Encouraging technological development and innovation in priority areas

10 prioritized indicators

MARKETS
- **Fostering competitiveness** with the insertion of innovative products and services in the national and international markets
- **Good management and innovation governance** practices in organizations
- Creating an **innovation-friendly business environment**
- Promoting **digital transformation** through innovative Brazilian companies
- Fostering the use of innovation policy instruments on the demand side
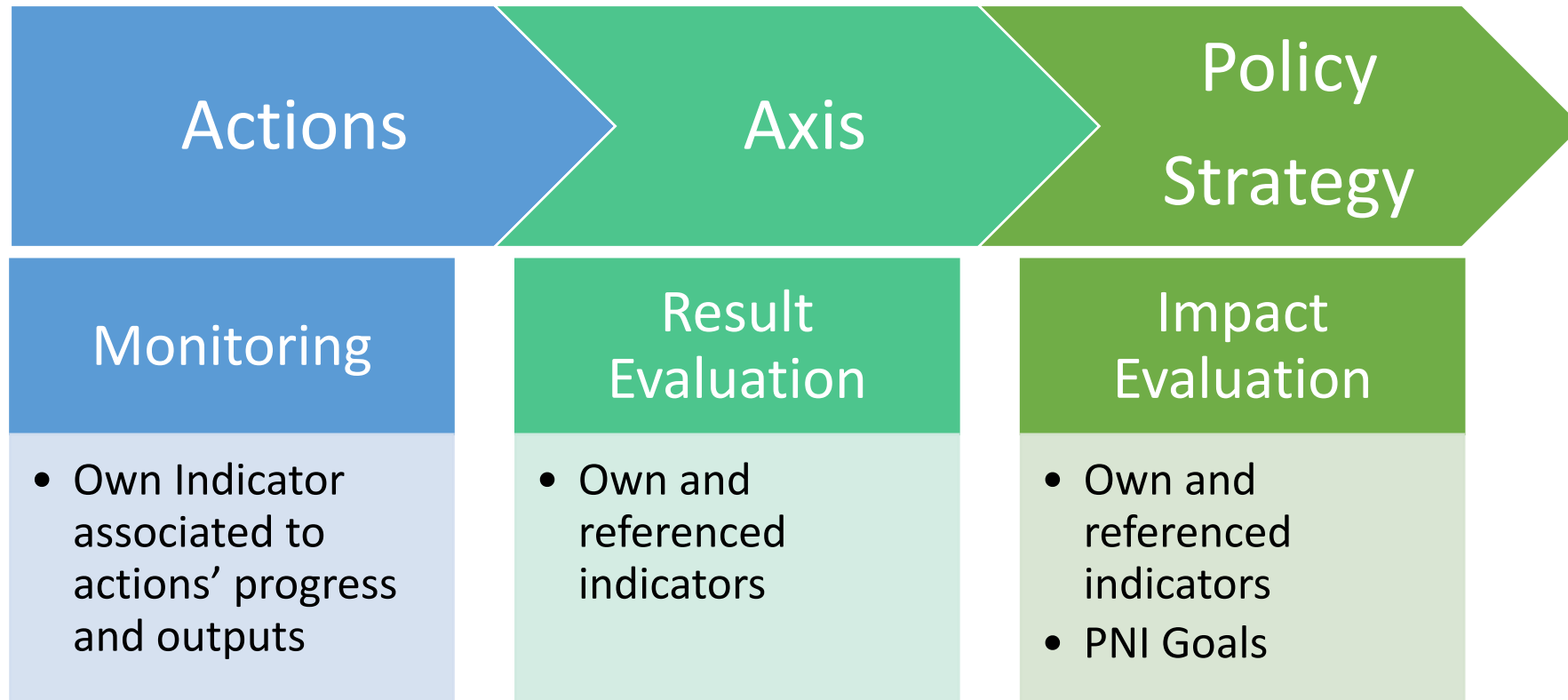
13 prioritized indicators

EDUCATIONAL SYSTEMS
- **Training focused on new technologies**, entrepreneurship and innovation.
- **Encouraging interest in STEMM**, especially among underrepresented groups and gender equity at all educational levels
- Encouraging scientific and technological exchange during training
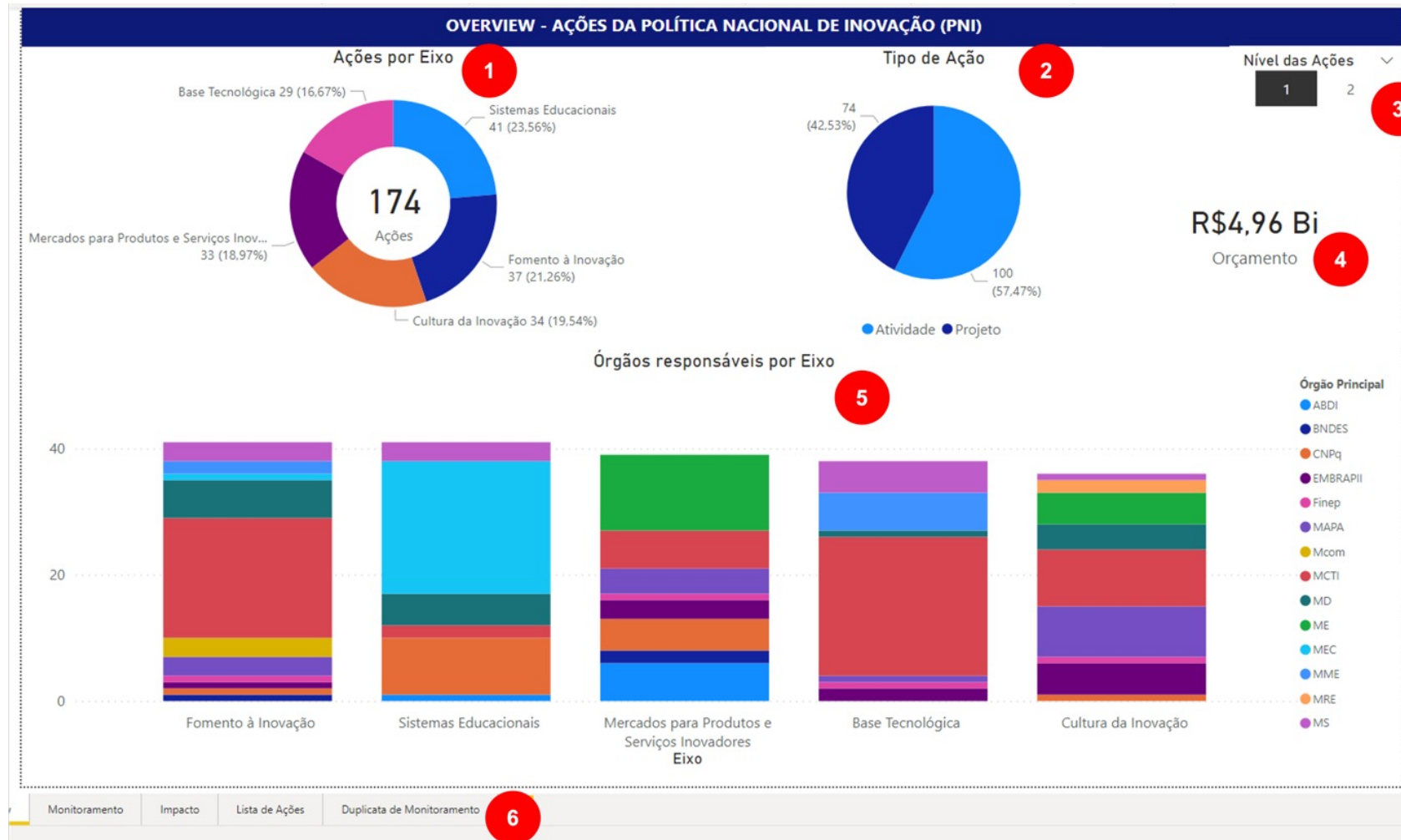
11 prioritized indicators

TYPES OF INDICATORS

INDICATOR FUNCTION	DEFINITION	SOURCES	DATA COLLECTION
Product (output)	It is the goods or services resulting from a process, that is, the deliveries (outputs) that public policy makes to attack the causes of the problem and generate results	Specific indicators of the actions to be collected by those responsible for the action	Should be collected every 3 months
Results (outcomes)	These are changes that are incident about the causes of the problem, which stem from one or more products.	Indicators arising from the use or dissemination of products to be collected by those responsible for the actions	Should be collected every two years
Impacts	Longer-term change in the problem that politics seeks to face, aligned with policy objectives.	Prioritized indicators of GII, OECD (STI outlook) and MCTI to be collected and systematized by the Innovation Intelligence Center	Should be collected every two years

EVALUATION MODEL

Actions	Axis	Policy Strategy
Monitoring	**Result Evaluation**	**Impact Evaluation**
• Own Indicator associated to actions' progress and outputs	• Own and referenced indicators	• Own and referenced indicators • PNI Goals

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PILOT EVALUATION: DATA COLLECTION

FIELD CATEGORY	DESCRIPTION
Characterization Data	It is the information that characterizes the action, including its code, title, initiative, type of action and execution and data of those responsible.
Monitoring Data (Outputs)	It is the information necessary for monitoring the execution and expected products of the action. Products (or Outputs) are direct and quantifiable fruits of policy activities, delivered immediately by carrying out their activities
Results Data (Outcomes)	This is the information necessary for the evaluation of the result of the action. Outcomes are changes observed in the short term about individuals, groups or institutions as a result of the intervention performed. Results should be observable and measurable (in indicator form)
Impact Data	This is the information necessary to assess the impacts of the action. The data consist of a maximum of 3 impact indicators. Impacts are the consequences of long-term results.

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PILOT EVALUATION: DATA VISUALIZATION

PILOT EVALUATION: DATA VISUALIZATION

Ações Monitoradas

Farol	# Ação	Título Ação	Início	Término	Previsto	Concluído
⬤	2398	Realizar parceria com a EMBRAPII para o apoio a projetos da área de Defesa, por meio da Assinatura de Acordo de Cooperação Técnica	01/01/2021	31/07/2022	55,21%	41,94%
✓	5099	Realizar o apoio ao desenvolvimento tecnológico de interesse da Defesa Nacional, por meio de parcerias com agências de fomento, empresas estatais, empresas privadas e fundações de amparo a pesquisa, na busca de alocação recursos	31/07/2021	31/12/2022	20,66%	30,19%
⬤	0750	Promover estudos em tópicos para captação de recursos para fomento a PD&I, buscando identificar boas práticas e casos de sucesso em outros mercados que sejam aplicáveis no regime jurídico e mercado brasileiro,	01/03/2021	31/07/2022	50,10%	47,79%

Média de Farol Monitoramento Ação

95,39%

0,00%   100,00%

Produto 1

Termo de referência para realização de estudos

84,92% Previsto
81,00% Concluído

Produto 2

Relatórios preliminares entregues dos estudos definidos nos termos de referência

0,00% Previsto
0,00% Concluído

Produto final

Número de estudos realizados

0,00% Previsto
0,00% Concluído

Timeline das Ações

mar 2021 abr 2021 mai 2021 jun 2021 jul 2021 ago 2021 set 2021 out 2021 nov 2021 dez 2021 jan 2022 fev 2022 mar 2022 abr 2022 mai 2022 jun 2022 jul 2022

0750

Indicador de Resultado	Linha de Base do Indicador de Resultado	Meta do Indicador de Resultado
Estudos com roadmap para implementação de mecanismos de captação de recursos extra-orçamentários para Pdi	0	Aumento da captação de recursos extra-orçamentários

PILOT EVALUATION: DATA VISUALIZATION

DATA PROTOCOL

Monitoring and Evaluation Worksheets

Microsoft Excel

Actions - Goals

Goals – Impact Indicators

Actions Characterization Worksheet

Strategic Goals

Impact Indicators
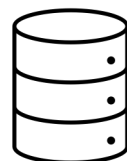
Monitoring Worksheets

MCTI   MD   MAPA   ...   ...

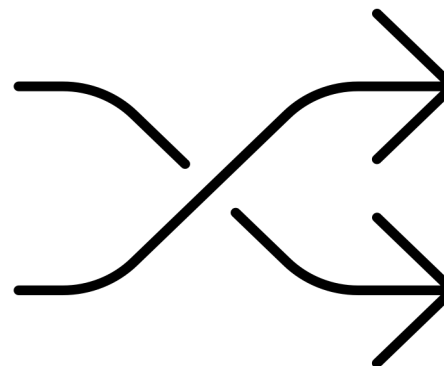**Shared directory and database**

Intranet

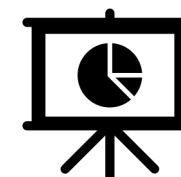External data sources (GII, STI Outlook, MCTI, PINTEC, among others)

Data transformation and calculation of indicators

Microsoft Power BI

Data visualization

Microsoft Power BI

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The evaluation process acted as a facilitator for the policy's implementation:

- regular meetings and articulation with different stakeholders minimized fragmentation and uncoordinated actions within the scope of the policy's formulation

- data collection and analysis of on-going and planned actions

- defining priority themes and indicators

- pilot run

- data-flow protocol

THANK YOU

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