

# **INSTITUTO SENAI** DE INOVAÇÃO



Iniciativa da CNI - Confederação  
Nacional da Indústria

# Creation of the National Network of SENAI Innovation Institutes

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3rd Brazilian Swedish Workshop in Aeronautics and Defence



SENAI National Department  
São Jose dos Campos, November 12<sup>th</sup>, 2015

# Presentation Topics

- 1 Introduction and Motivation**
- 2 SENAI Program Strategies for Supporting the Brazilian Industrial Competitiveness**
- 3 SENAI Technology Institutes**
- 4 SENAI Innovation Institutes**
- 5 Collaborative PD&I Projects with the ISI Network**
- 6 Inova Global**
- 7 Facts and Figures of the National Network of SENAI Innovation Institutes**

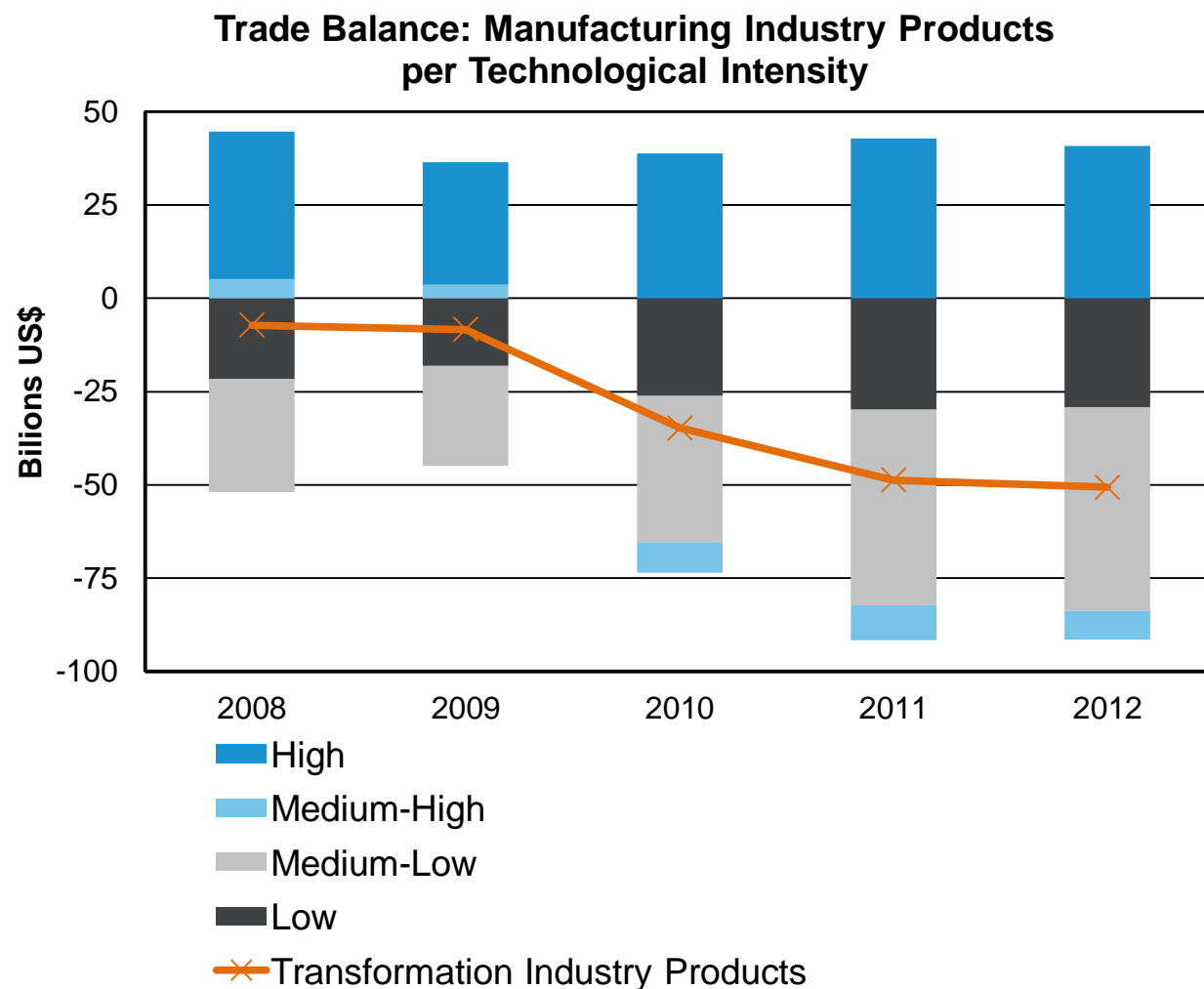
# Development of the Brazilian Trade Balance

- Record deficit of the industrial balance: ca. US\$ 50,6 bi in 2012

- Exports:  
Iron ore, soybeans, coffee, petroleum, transport equipment, automotive parts, cars, machinery

- Imports:  
Equipments and consumer goods with high and medium technological added value

- Intense demand for services with high added value



Source: IEDI 2012

# What is needed to improve the industrial competitiveness?

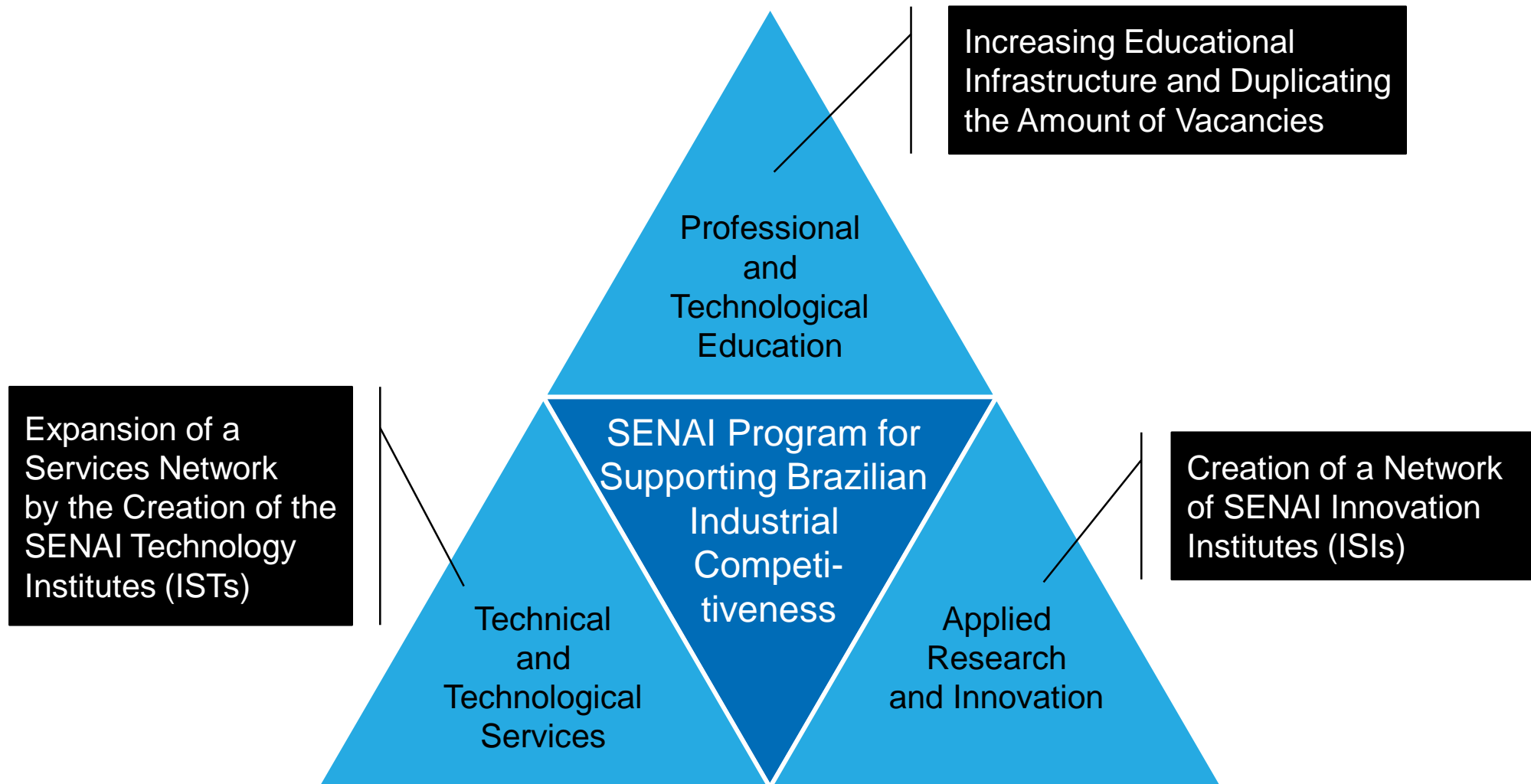
## Corporate Mobilization for Innovation – MEI



- Enhance **infrastructure**
- Spread the **intellectual property** culture
- Focus on the formation of **qualified human resources**
- Improve the **legal framework** to support **innovation**
- **Internationalization** of Brazilian companies and their R&D activities abroad
- Articulation between the existing **innovation** and **foreign trade policies**
- **Innovation and R&D** for SMEs
- Support **structuring projects** and R&D in large scale
- **Sectorial innovation** programs
- **Pre-competitive** R&D projects

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# Attendance Capillarity of SENAI in Brazil

## Capacity Figures

- **Major private network** for professional education and technological services
- Operating in **28 industrial sectors**
- More than **810 operational unities**
- Implementation of ca. **4.000.000 enrollments** in 2014





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# SENAI Technology Institutes – ISTs



- Physical structure and staff aimed at technological service delivery
  - Metrology (experiments, tests, calibration, processes)
  - Specialized technical services (e.g. Prototyping)
  - Consulting in production processes concerning the technological specialization of the institute
- Specialization in relevant industrial sectors
- Situated in regions of high industrial density
- Regional operation scope
- National operation coverage through network collaboration

# Location and Technical Field of SENAI Technology Institutes

**TOTAL**  
**61**

DF: Civil Construction

MA: Civil Construction

CE: Electrometalmechanics  
CE: Renewable Energies

RN: Oil and Gas

PB: Textile and Clothing  
PB: Leather and Footware  
PB: Industrial Automation

PE: Metalmechanics  
PE: Environment  
PE: Automotive

BA: Civil Construction  
BA: Chemistry/Petrochem.  
BA: Electroelectronics  
BA: Electrometalmechanics

MG: Food and Beverage  
MG: Automotive  
MG: Metalmechanics  
MG: Chemistry  
MG: Environment

ES: Metalmechanics

RJ: Environmental  
RJ: Food and Beverage  
RJ: Soldering  
RJ: Automation and Systems  
RJ: Design and Media  
DN: CETIQT – Textile and Clothing

SP: Textile and Clothing  
SP: Civil Construction  
SP: Leather and Footware  
SP: Food and Beverage  
SP: Energy  
SP: Metalmechanics  
SP: Environment  
SP: Electronics

RS: Wood and Furniture  
RS: Leather and Environment  
RS: Mechatronics  
RS: Food and Beverage  
RS: Oil, Gas and Energy  
RS: Footware and Logistics

MS: Food and Beverage  
PR: Environment & Chemistry  
PR: Information Technology  
PR: Wood and Furniture  
PR: Paper and Pulp  
PR: Civil Construction  
PR: Metalmechanics  
PR: Food and Beverage

SC: Logistics  
SC: Food and Beverage  
SC: Materials  
SC: Automation & IT  
SC: Environment  
SC: Electroelectronics  
SC: Textile, Clothing, Design

MT: Food and Beverage

AC: Wood and Furniture

GO: Automation  
GO: Envir. Chemistry  
GO: Food and Beverage

## LEGEND:

**[19] Planning**

**[34] Implementation**

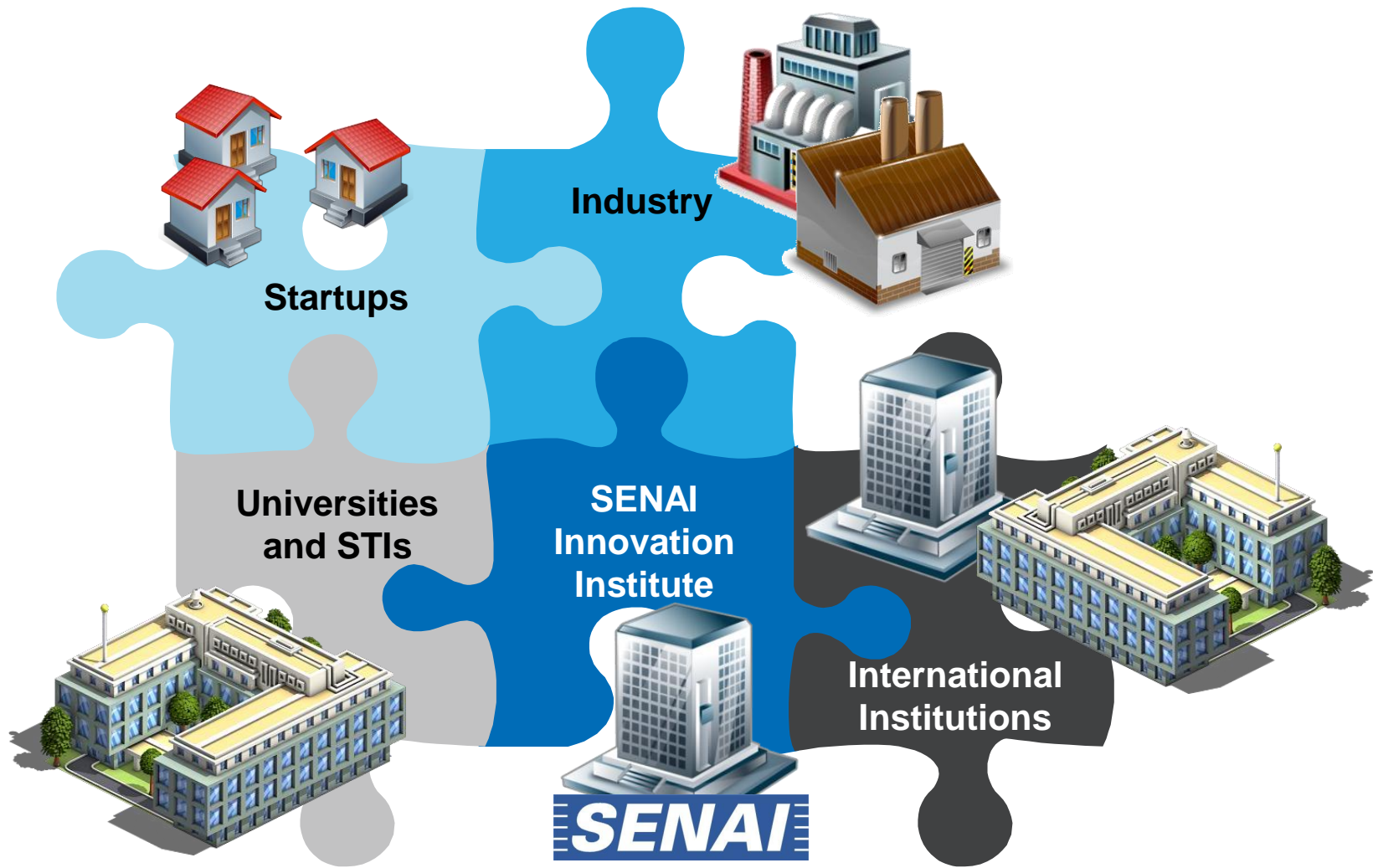
**[ 8] Inaugurated**

**[46] Operational**

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# Constitution of Partnerships for the Network of SENAI Innovation Institutes



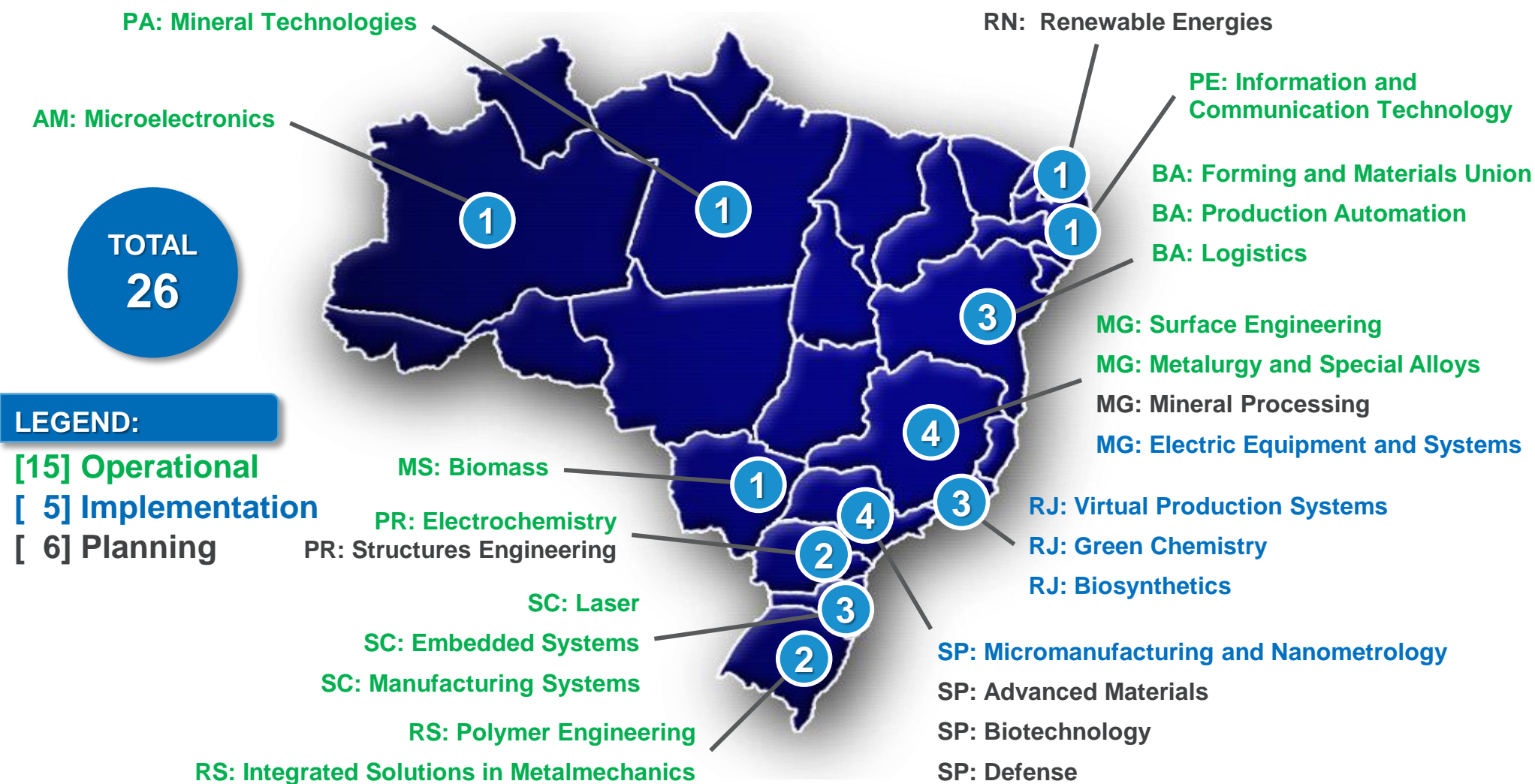


# SENAI Innovation Institutes – ISIs

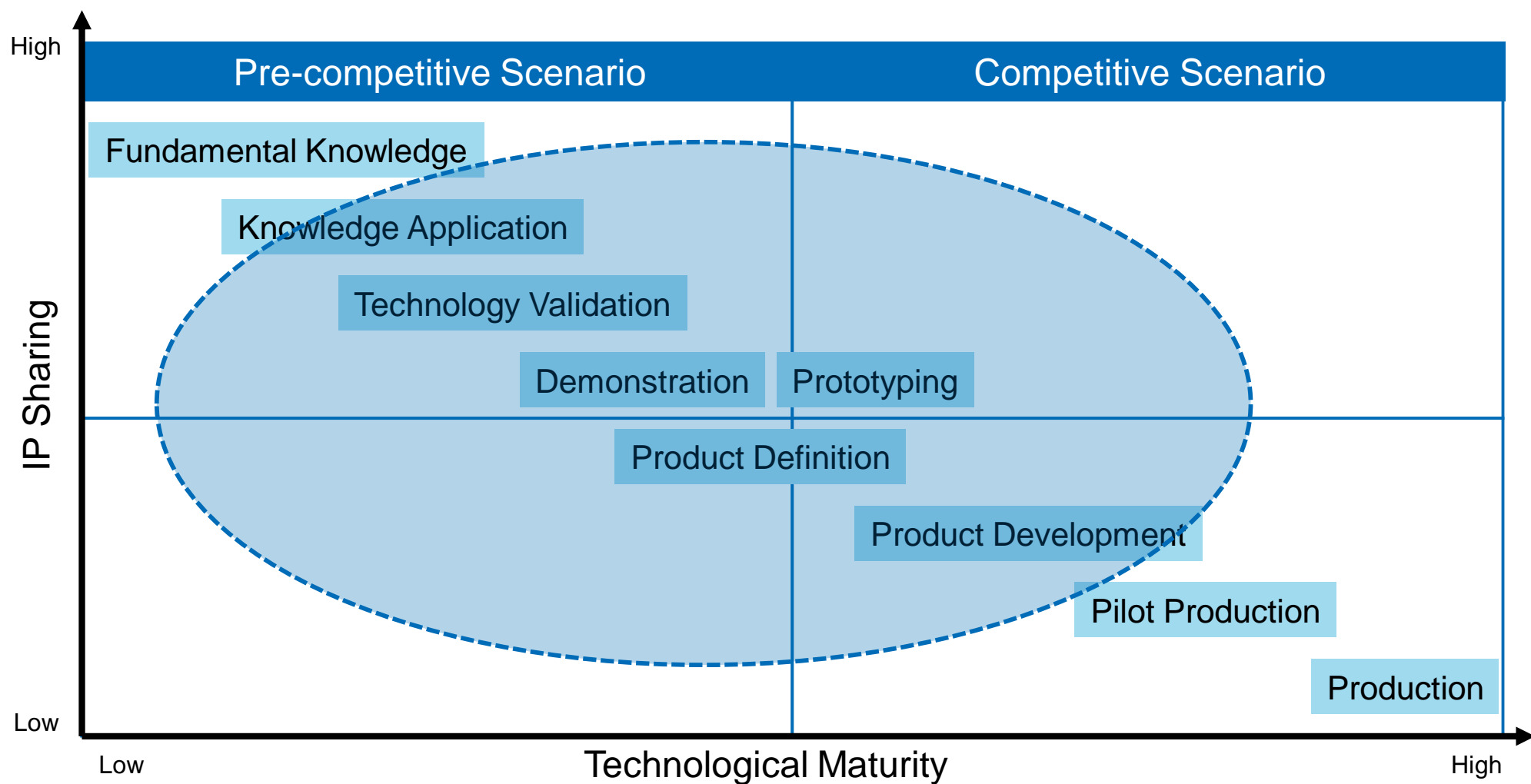


- Physical structure and staff aimed at professional R&D&I services
  - Applied research and technological innovation projects
  - Laboratorial support for developing prototypes and pilot-plants
  - Technological services with high complexity and high added value
  - Technology transfer
- Specialization in transversal knowledge areas
- Open environments for supporting technological innovation aiming at the pre-competitive stage
- National operation scope

# Location and Technical Field of SENAI Innovation Institutes



# Positioning of SENAI Institutes towards its Partners

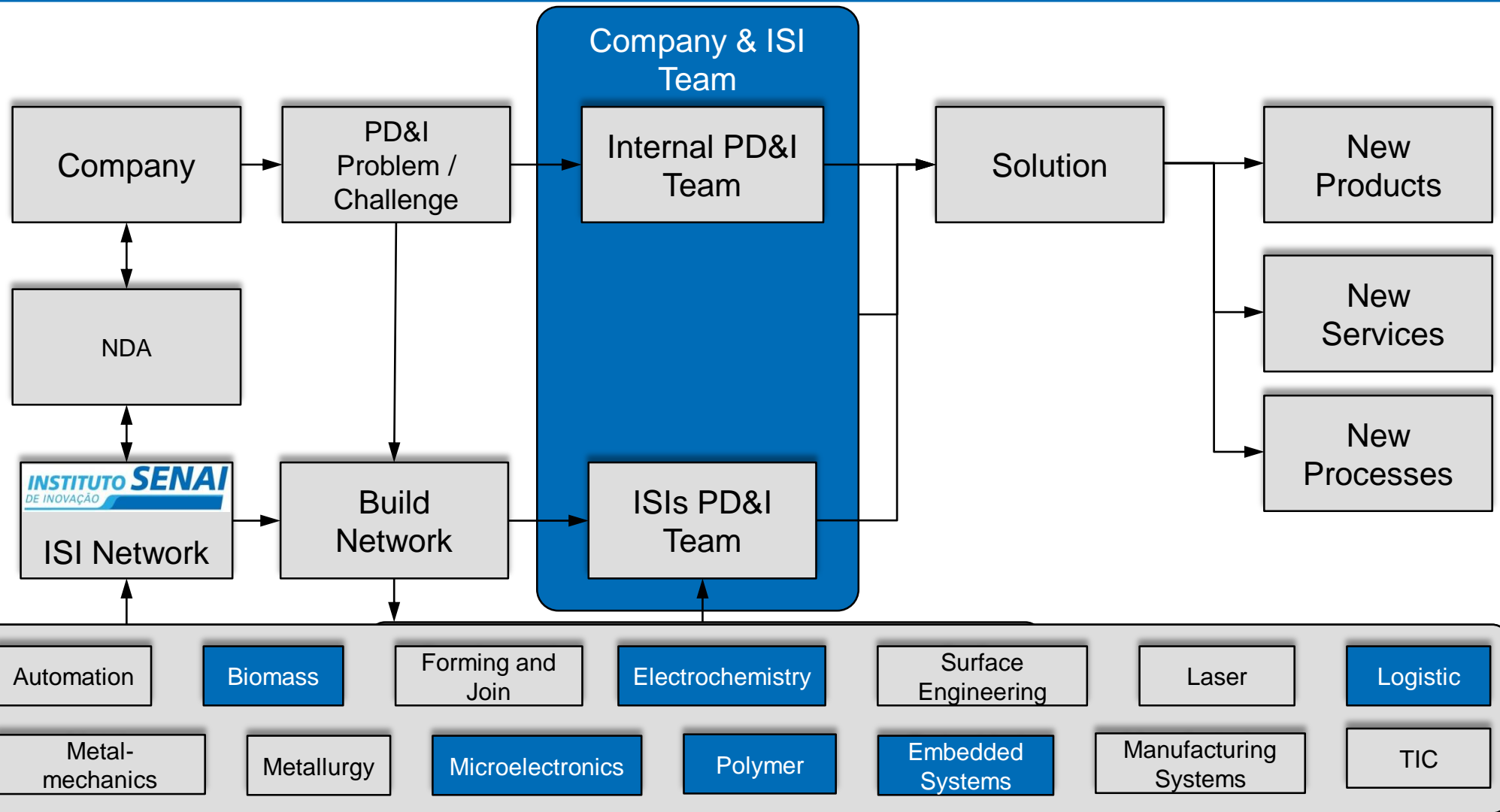




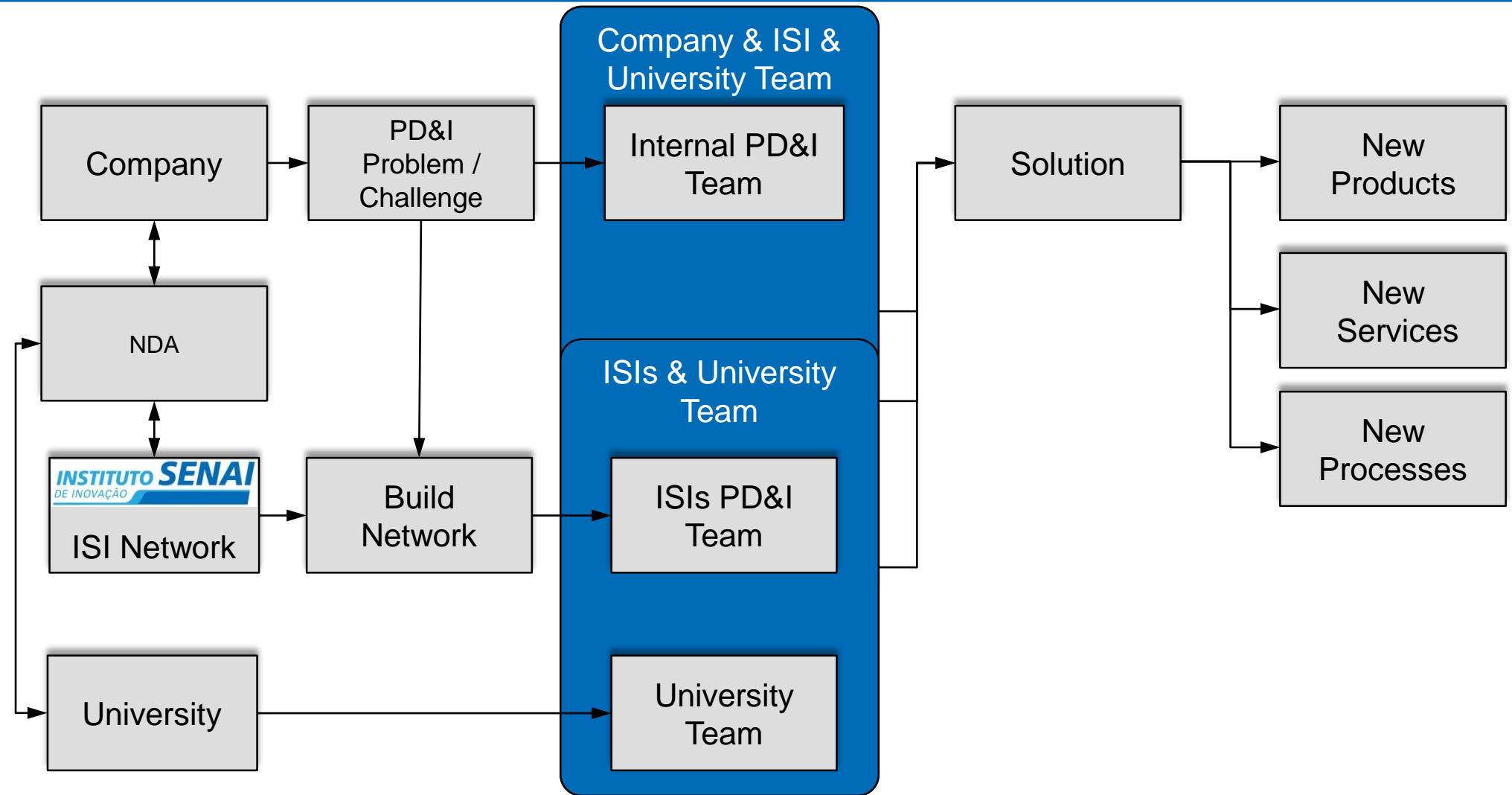
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# Collaborative PD&I Project with SENAI Innovation Institute (ISI)

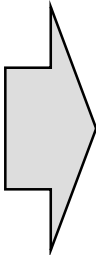


# Collaborative PD&I Project with SENAI Innovation Institute (ISI)



# Synergy Analysis SENAI & CISB Projects

	14 SENAI Innovation Institutes													
29 Projects in the CISB	N/A	N/A	High	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Middle	N/A
	N/A	N/A	High	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	High	N/A
	N/A	N/A	High	N/A	High	High	N/A	N/A	N/A	N/A	N/A	N/A	High	N/A
	N/A	N/A	N/A	High	Low	High	N/A	N/A	N/A	N/A	N/A	High	N/A	Middle
	N/A	N/A	High	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	High	N/A
	N/A	N/A	High	N/A	High	Middle	N/A	High	N/A	N/A	N/A	N/A	High	High
	N/A	N/A	Middle	Middle	Low	N/A	Middle	N/A	Low	N/A	High	N/A	Low	N/A
	N/A	N/A	N/A	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	High	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Middle	High	High	N/A	N/A	High	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Low	N/A	High	N/A	N/A	Middle	N/A	N/A	N/A	N/A	Middle	N/A
	N/A	N/A	High	Low	High	High	N/A	N/A	N/A	N/A	High	Middle	Middle	N/A
	N/A	N/A	Middle	N/A	High	High	N/A	N/A	Middle	N/A	N/A	N/A	High	N/A
	N/A	N/A	Low	High	Low	N/A	N/A	N/A	Low	N/A	N/A	High	High	High
	N/A	N/A	N/A	High	N/A	N/A	Low	N/A	Middle	High	N/A	N/A	N/A	N/A
	N/A	N/A	High	N/A	Middle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	High
	N/A	N/A	High	High	Middle	High	High	N/A	High	High	N/A	Low	High	Middle
	N/A	N/A	High	Low	Middle	High	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Low	Middle	Low	N/A	Middle	N/A	N/A	N/A	N/A	High	N/A	Low
	N/A	N/A	Low	High	N/A	Middle	N/A	N/A	N/A	N/A	N/A	Middle	N/A	N/A
	N/A	N/A	Middle	N/A	Low	Middle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	N/A	High	N/A	High	N/A	N/A	N/A	Middle	N/A	N/A	N/A	N/A
	N/A	N/A	Middle	High	N/A	High	N/A	Low	N/A	N/A	N/A	N/A	High	N/A
	N/A	N/A	Middle	N/A	Low	N/A	Middle	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Middle	N/A	Middle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	N/A	Middle	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A



Synergy Results

✓ 25 High Synergy

✓ 4 Middle Synergy

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✓ 29 Project Analyzed

Synergy

- High
- Middle
- Low

# Main Funding Models of the SENAI Innovation Institutes

## ■ Private Capital

- Industry, Companies
- Venture/risk capital
- Tax exemptions/incentives
  - Goods' Law
- Sectorial Regulations
  - Inform.Law, ANP, ANEEL, InovarAuto

## ■ Private Calls

- SENAI SESI Innovation call
- SEBRAETEC

## ■ IP and Investments (long term)

- Royalties from patent licenses
- Equity share

## ■ Financing Lines & Public Calls

- Refundable/Non-refundable
  - FINEP / FAPs
  - BNDES / Regional Devel. Banks
  - MCTI/CNPq
  - MEC/CAPES
  - MDIC, MS, MD

## ■ Qualifying for Programs

- EMBRAPPII
- SIBRATEC
- Knowledge Platforms

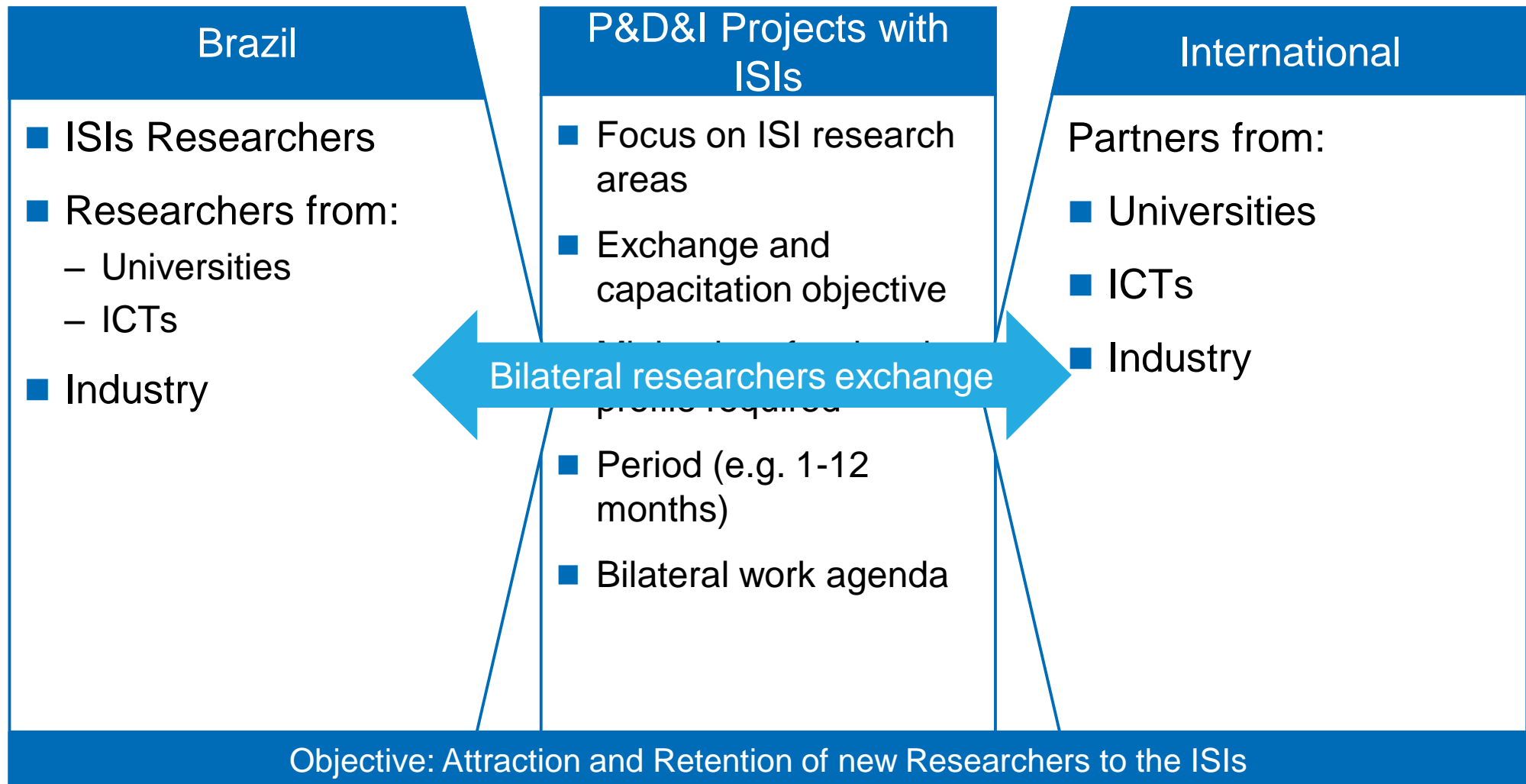
## ■ Scholarship Programs

- CAPES (BRAGECRIM),  
CNPq (RHAE), IEL (Inova Talentos)

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# Exchange program for Researchers to support Bilateral Project (Inova Global)



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# General Facts and Figures of the SENAI Innovation Institutes



- **15 ISIs in operational state** (AM, BAx3, MGx2, MS, PA, PE, PR, RSx2, SCx3)

- **122 contracted projects**, approx. R\$142.500.000,00


- 55,7% Big companies
- 9,9% Medium-sized companies
- 18,0% Small companies
- 16,4% Startups



- **331 Professionals** working at 22 ISIs
  - 61 with PHD degree
  - 65 with Master of Science degree
  - 69 PHD and Master students

# SENAI Program for Supporting Brazilian Industrial Competitiveness

## General Initial Investments



■ Modernization/expansion of schools	R\$ 776,5 mi
■ SENAI Technology Institutes (IST)	R\$ 468,7 mi
■ SENAI Innovation Institutes (ISI)	R\$ 654,8 mi
■ <u>BNDES Funding</u>	<u>R\$ 1,5 bi</u>
■ <b>TOTAL Investments</b>	<b>R\$ 1,9 bi</b>



# Thank you for your attention!

<http://www.senai.br/inovacaoetecnologia/>

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