



Innovation & Technology

SOLUTIONS FOR INDUSTRY

08 INSTITUTES

TECHNOLOGY AND INNOVATION



Located on a campus
121,000 m²
30,000 m² of built area



+ CIT ITR (located in Lagoa Santa)
10,000 m²
6,000 m² of built area



74 laboratories
with state-of-the-art equipment



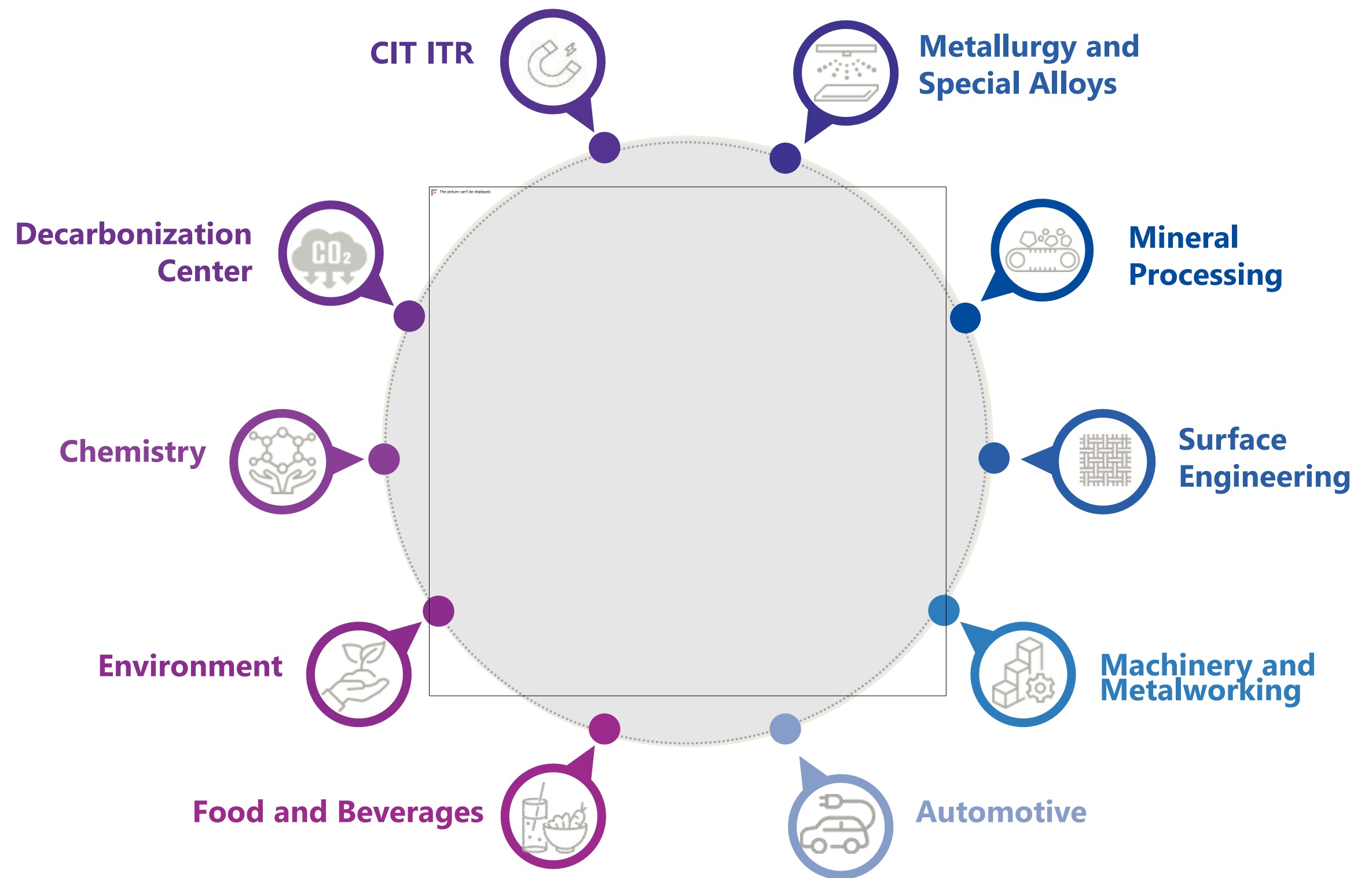
Approximately 500 collaborators.
PhDs, MScs, graduates, technicians,
administrative staff, fellows, and interns.

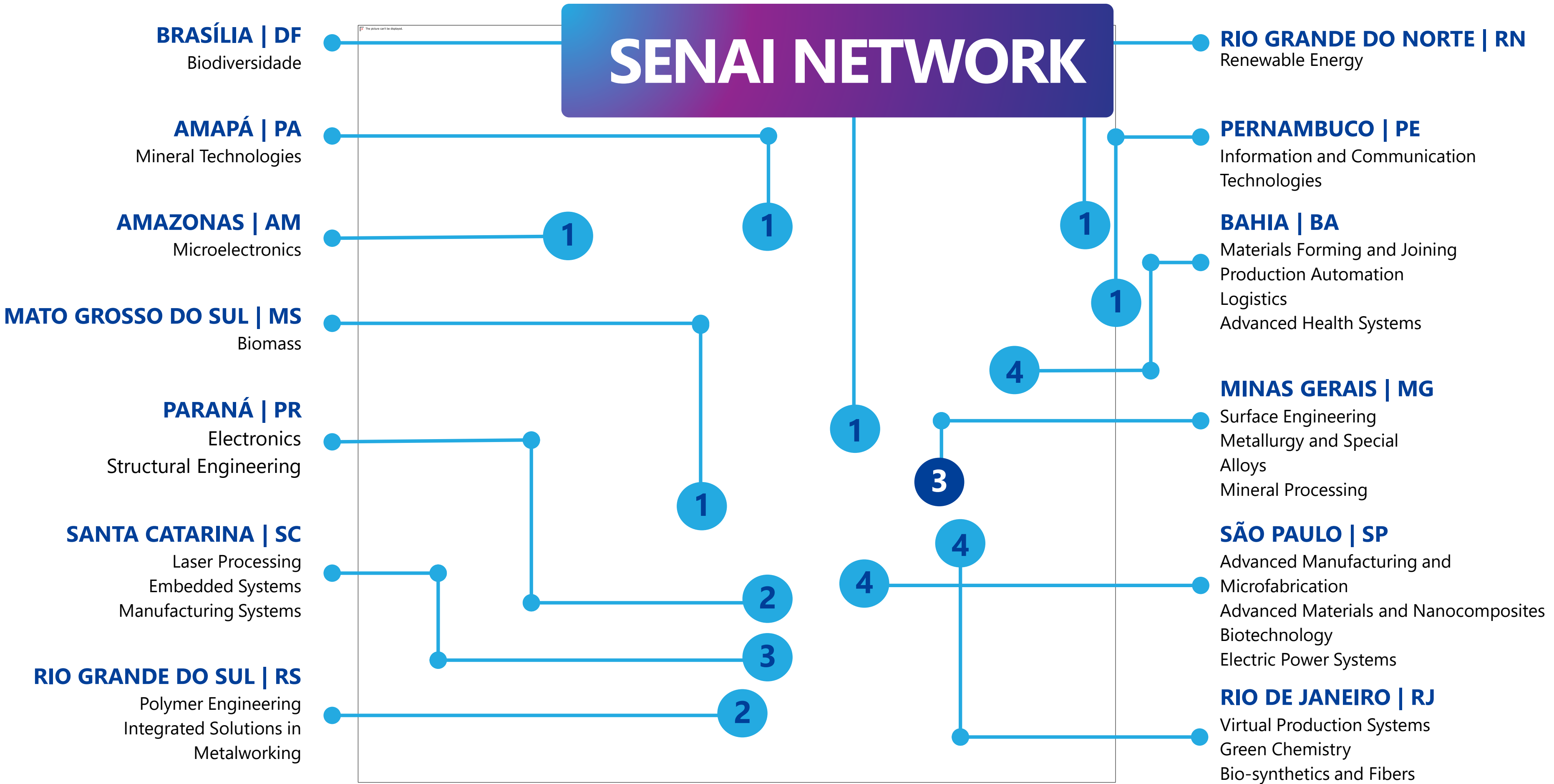


Belo Horizonte

FIELDS OF ACTIVITY

CIT connects **knowledge** from each area, creating **solutions** for the entire **industry**.





28

SENAI Institutes of Innovation

15

EMBRAPII-qualified units

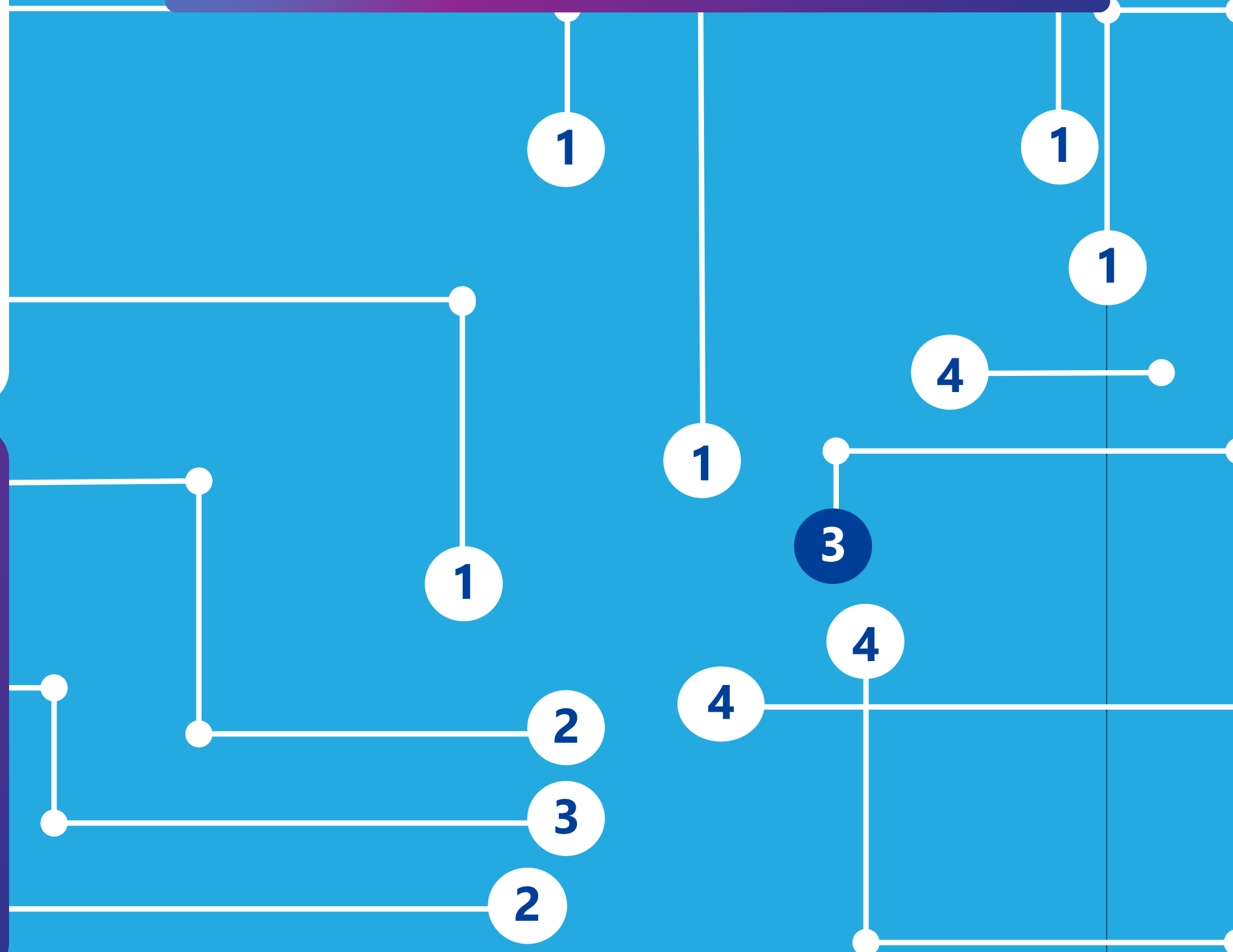
20

ANP-accredited units

10

CATI-accredited units

SENAI NETWORK



Advanced mineralogical
characterization

Evaluation of **strategic
minerals**

Diagnosis and
characterization of **complex
and low-grade ores**

Development of
processing **routes**

EXPLORATION OF STRATEGIC MINERALS

SENAI INSTITUTE OF INNOVATION IN MINERAL PROCESSING



CASES

PROCESSING OF CRITICAL MINERALS (Ti, P, AND RARE EARTH ELEMENTS)



INNOVATION IN MINING PROCESSES

Optimization of
beneficiation
processes

Dry processing and
ultrafine materials

Application of
concentration techniques

Testing and validation in
modular pilot plants

SENAI INSTITUTE OF INNOVATION IN MINERAL PROCESSING



CASES

GOLD RECOVERY AND TAILINGS REUSE



AGGLOMERATION OF IRON ORE FINES FOR STEELMAKING

PROCESSING AND/OR DISPOSAL OF TAILINGS AND WASTEWATER REUSE



**Recovery and reuse of
slags and steelmaking
residues**

**Briquette production
for blast furnace
applications**

**Recovery of metallic
fractions**

**Tailings reuse and
wastewater recycling**



SENAI INSTITUTE OF INNOVATION IN MINERAL PROCESSING

PRODUCTION OF NbFe ALLOY FROM RARE EARTH TAILINGS



PRODUCTION OF HIGH- PURITY SILICA FROM GRAPHITE TAILINGS

Recovery of mineral
and industrial residues

Recovery of strategic
nutrients

Development of fertilizers from
alternative mineral sources

Valorization of
mining by-products

PRODUCTION OF FERTILIZERS FROM COMPLEX/ALTERNATIVE MINERAL SOURCES



SENAI INSTITUTE OF INNOVATION IN MINERAL PROCESSING

CASES

PRODUCTION OF FERTILIZERS FROM ALTERNATIVE SOURCES



Reuse in civil construction
(accelerated carbonation in
concrete

**Liquefied and
expanded** CO₂
forming dry ice

Uses of CO₂ in
**food and
beverages**

CO₂ CAPTURE (CARBON DIOXIDE)



DECARBONIZATION CENTER

SENAI INSTITUTE OF AUTOMOTIVE TECHNOLOGY

PERMANENT MAGNET DEVELOPMENT

Localizing the
permanent magnet
production chain

Rare-earth alloys

RARE-EARTH MAGNET INNOVATION AND TECHNOLOGY CENTER



Sintered NdFeB
magnets

Theoretical
production
capacity: 100 t/year

PERMANENT MAGNET PILOT PRODUCTION

RARE-EARTH MAGNET INNOVATION AND TECHNOLOGY CENTER



A man in a blue shirt, safety glasses, and large black headphones is operating a blue robotic arm in a factory setting. The background features red curtains and industrial equipment.

+200

completed projects

+R\$300 milhões

project portfolio

INNOVATION INCENTIVE PROGRAMS



EMBRAP II

Empresa Brasileira de Pesquisa
e Inovação Industrial

rota2030
mover

Finep
INOVAÇÃO E PESQUISA

 **BNDES**



SENAI Serviço Nacional
de Aprendizagem
Industrial

E= ANEEL
AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA

 **anp**
Agência Nacional
do Petróleo,
Gás Natural e Biocombustíveis

OUR CLIENTS

MINING



AngloAmerican



ANGLOGOLD ASHANTI



nexa



RESOURO
STRATEGIC METALS



SAMARCO



CENTRO DE INOVAÇÃO
E TECNOLOGIA
SENAI

THANK YOU!

 @citsenai

fiemg.com.br/cit/



SENAI Serviço Nacional
de Aprendizagem
Industrial