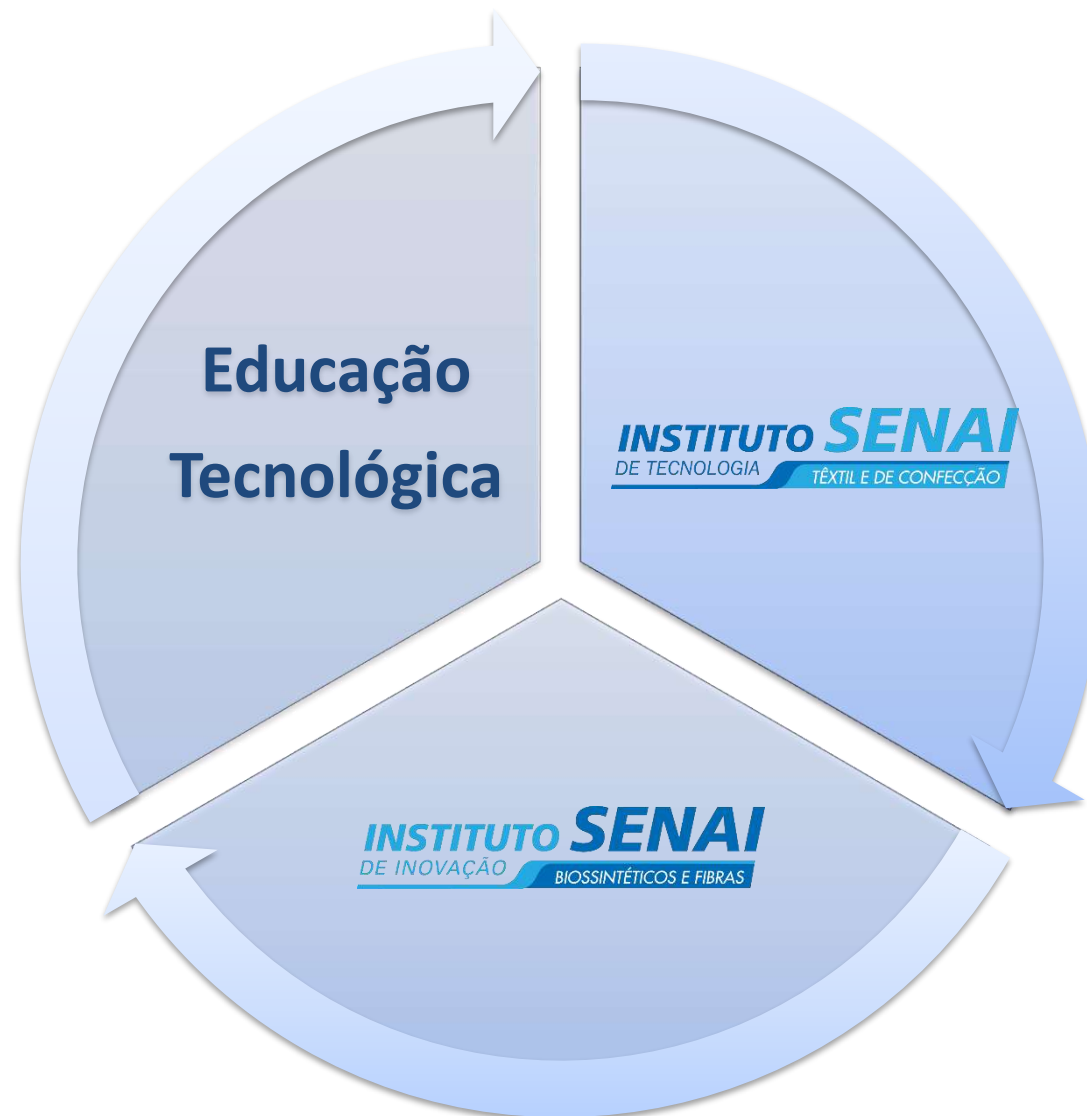


Technology Center for the Chemical and Textile Industry – SENAI CETIQT

SENAI Innovation Institute for Biosynthetic & Fibers

INSTITUTO SENAI
DE INOVAÇÃO BIOSYNTHETIC AND FIBERS



SENAI CETIQT



Iniciativa da CNI - Confederação
Nacional da Indústria

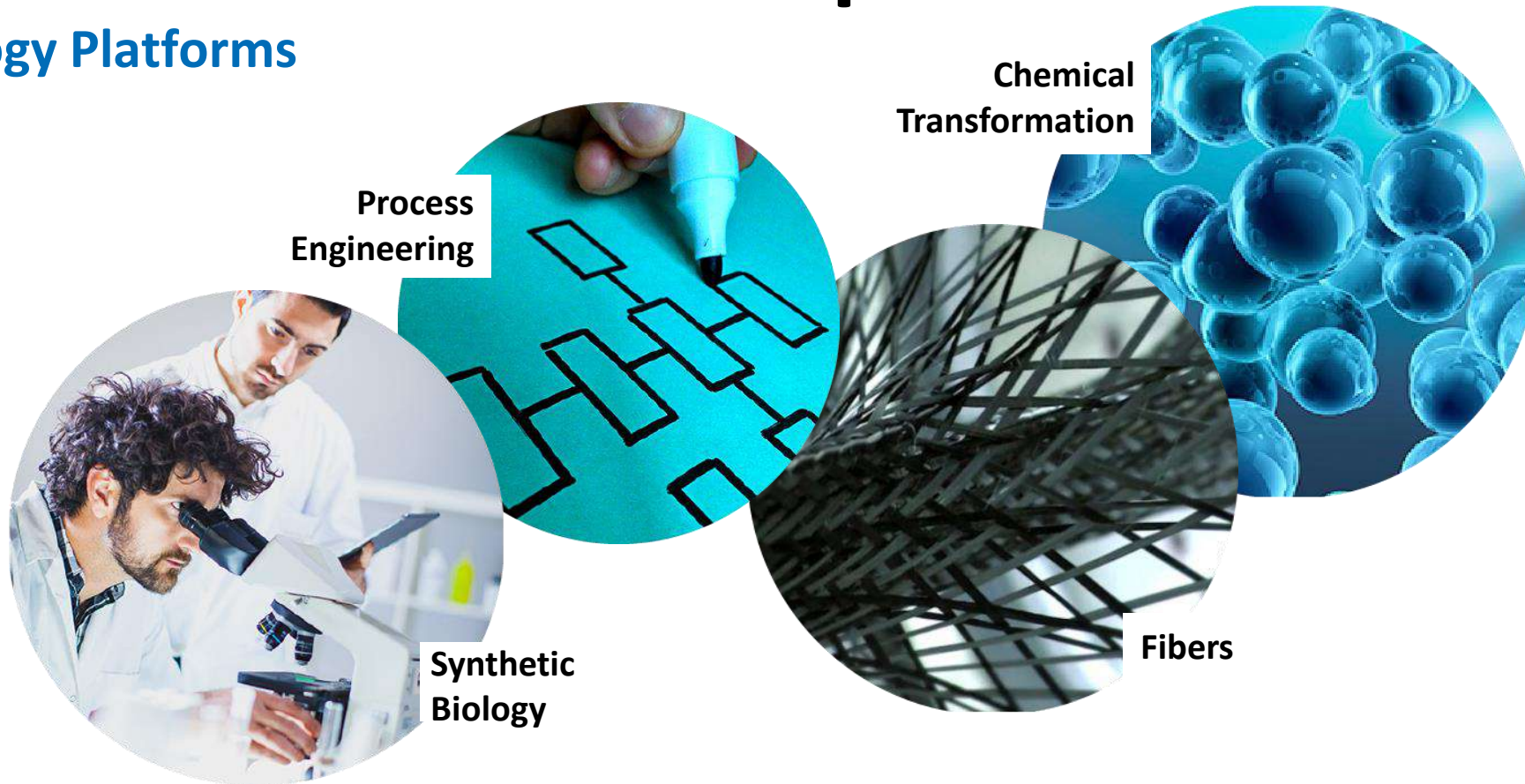
Mission

To develop **sustainable solutions** through chemistry and industrial biotechnology **using renewable and non-renewable resources** for the establishment of **new products and processes**



Portfolio and areas of expertise

Technology Platforms



Market segments

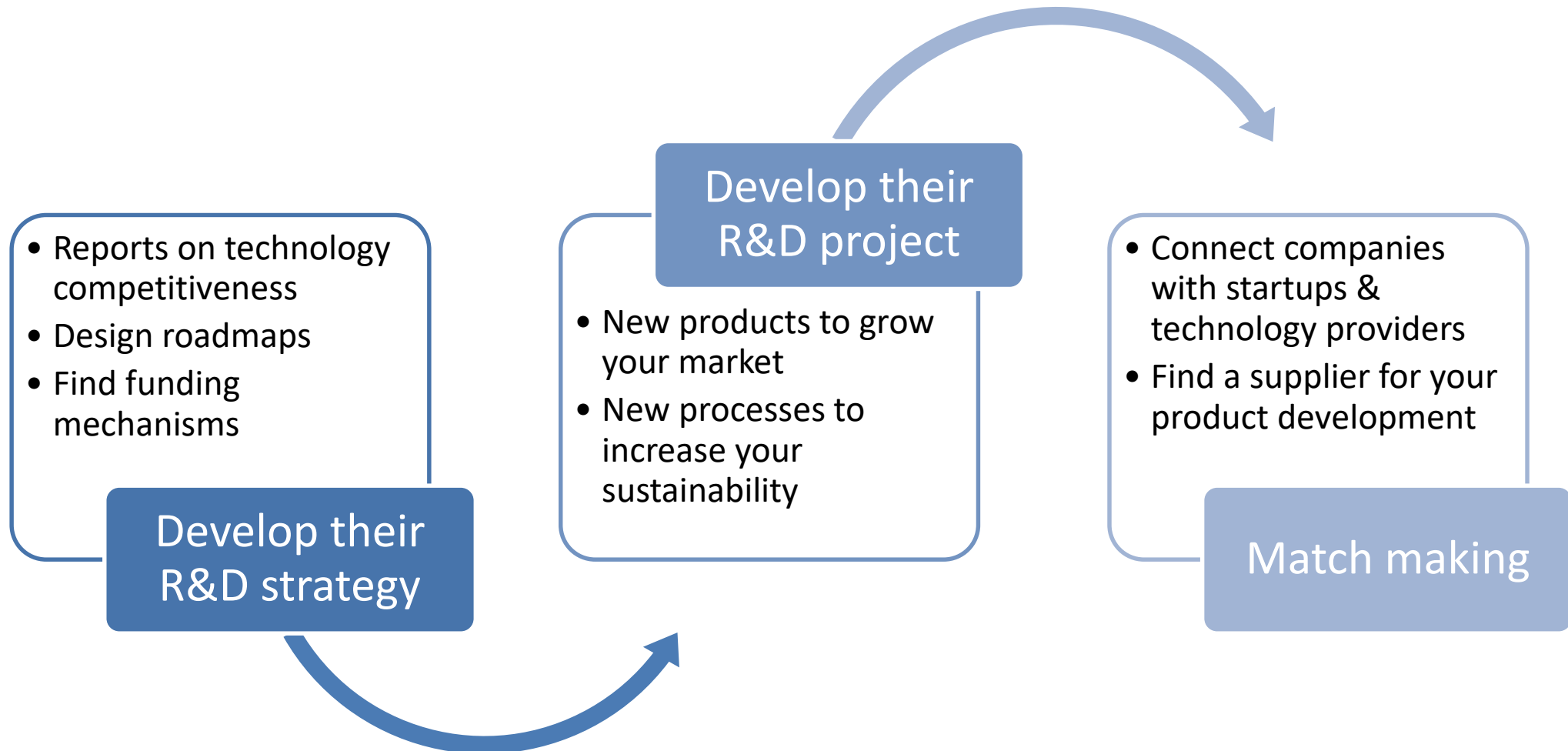
Chemical, Textile, Oil & Gas, Consumer Care, Lubricants, Pulp & Paper, Agrochemicals, Transportation, Construction, Food, and Health.

How we do business

- Self-sustainable
- Projects are hired directly by companies or in partnership with funding agencies
- Intellectual Property belongs to the companies
- Project Management applied to R&D
- Milestones & Stage-gates
- Co-creation between company and Institute
- 100 researchers
- Labs: ~4,000 m²



We can help companies to:





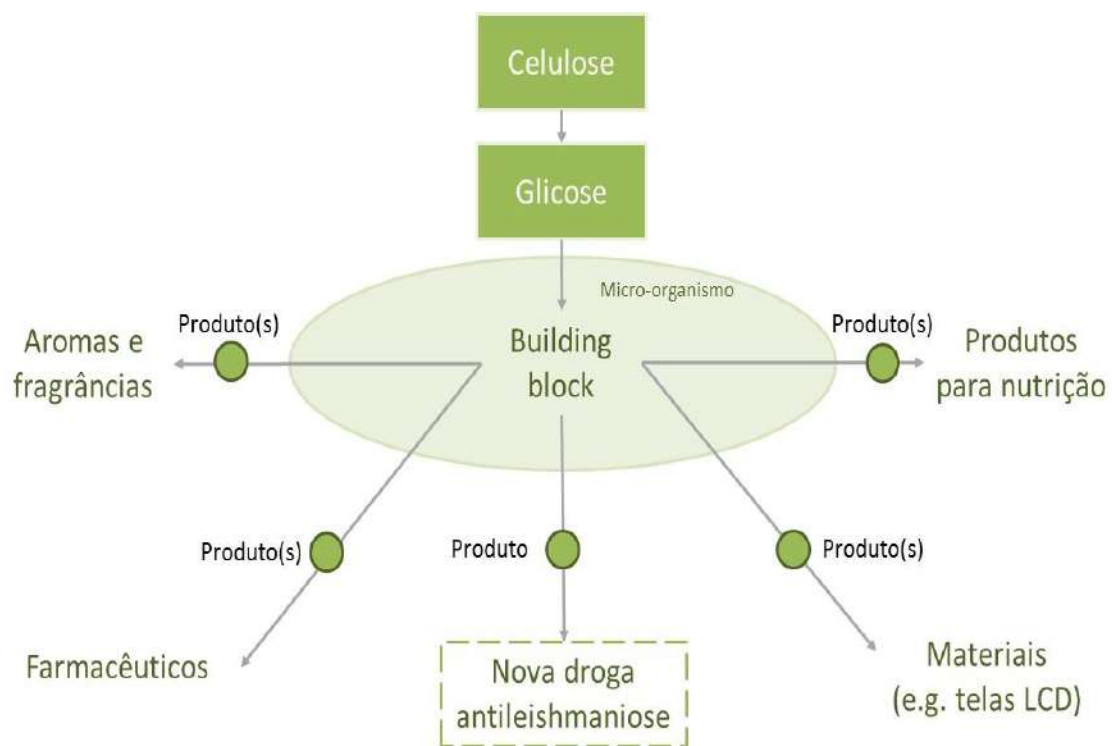
TECHNOLOGICAL PLATFORMS

INSTITUTO SENAI
DE INOVAÇÃO BIOSYNTHETIC AND FIBERS



BIOTECHNOLOGY

Research Areas



MEOR - *Microbial Enhanced Oil Recovery*

Enzymes

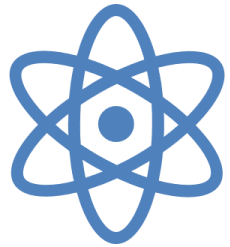
Renewable chemicals

New fragrances

Biosurfactants

C₁ as raw material

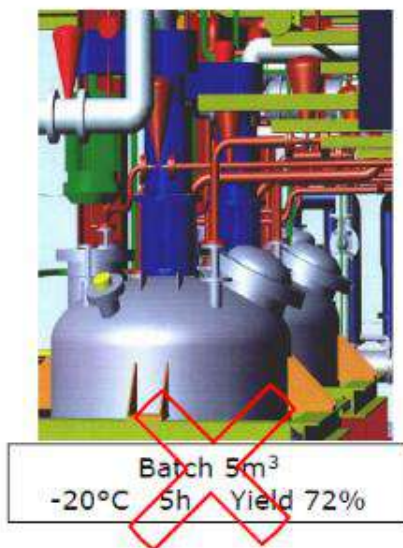
Agrochemicals



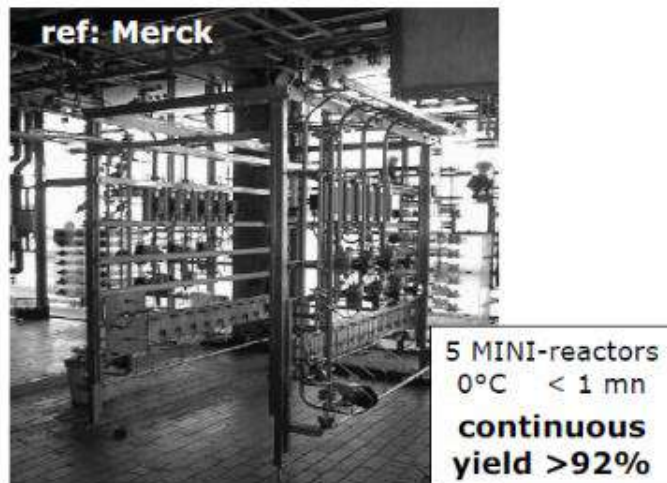
CHEMICAL TRANSFORMATION & PROCESS ENGINEERING

Research Areas

In Fine Chemicals and Advanced Materials:
'smaller is beautiful' because
continuous mode performs better



Batch 5m³
-20°C 5h Yield 72%



5 MINI-reactors
0°C < 1 mn
continuous
yield >92%

Many cryo batch processes are now replaced by
meso-techs for continuous (quasi) room T processes

Process Intensification

Lignin and sugars
transformation

Oxidation

New oxygenated
solvents

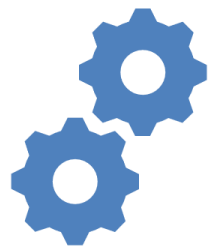
Glycerin
transformation

Esterification

Hydrogenation

Process
intensification

Simulation &
Optimization of
Chemical and
Biochemical
Processes



TEXTILE FIBERS

Research Areas

Fibers

New natural,
synthetic or
artificial fibers

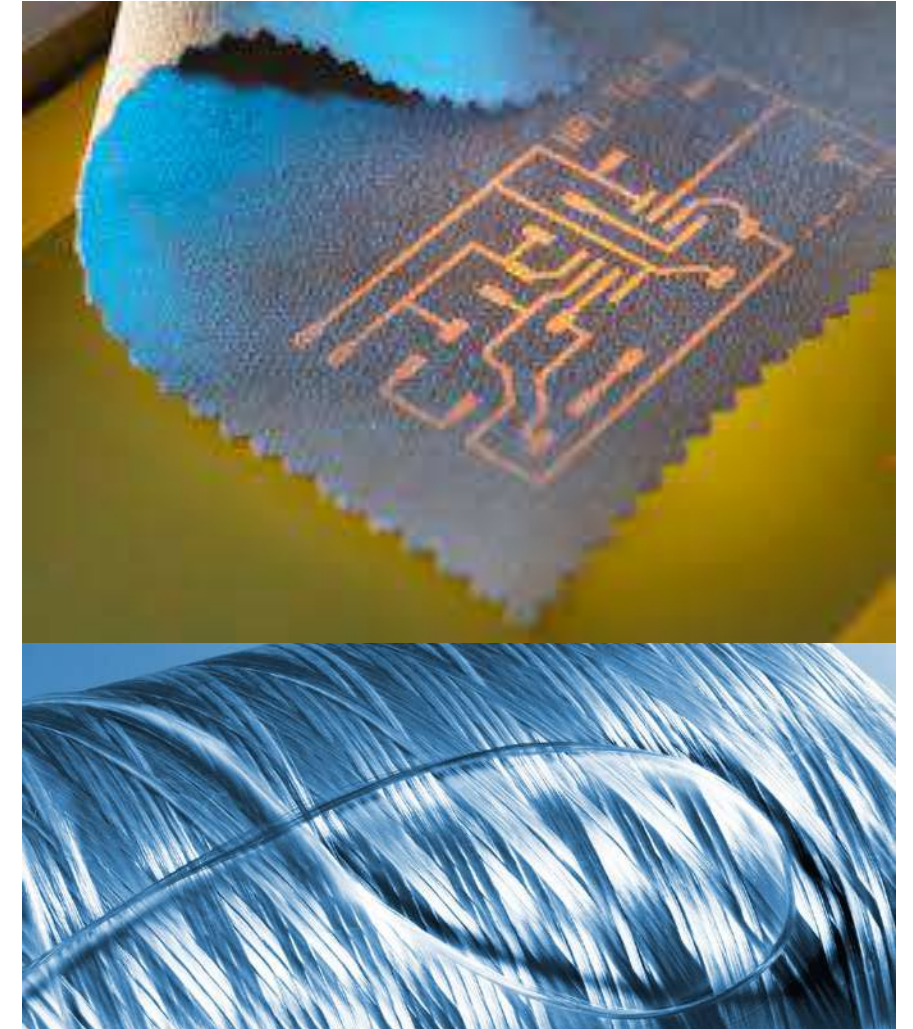
Nano
functionalized
textiles and fibers

Composite &
nanocomposite
textiles

High Performance
Fibers & technical
textiles

Smart textiles

Surface
Modification



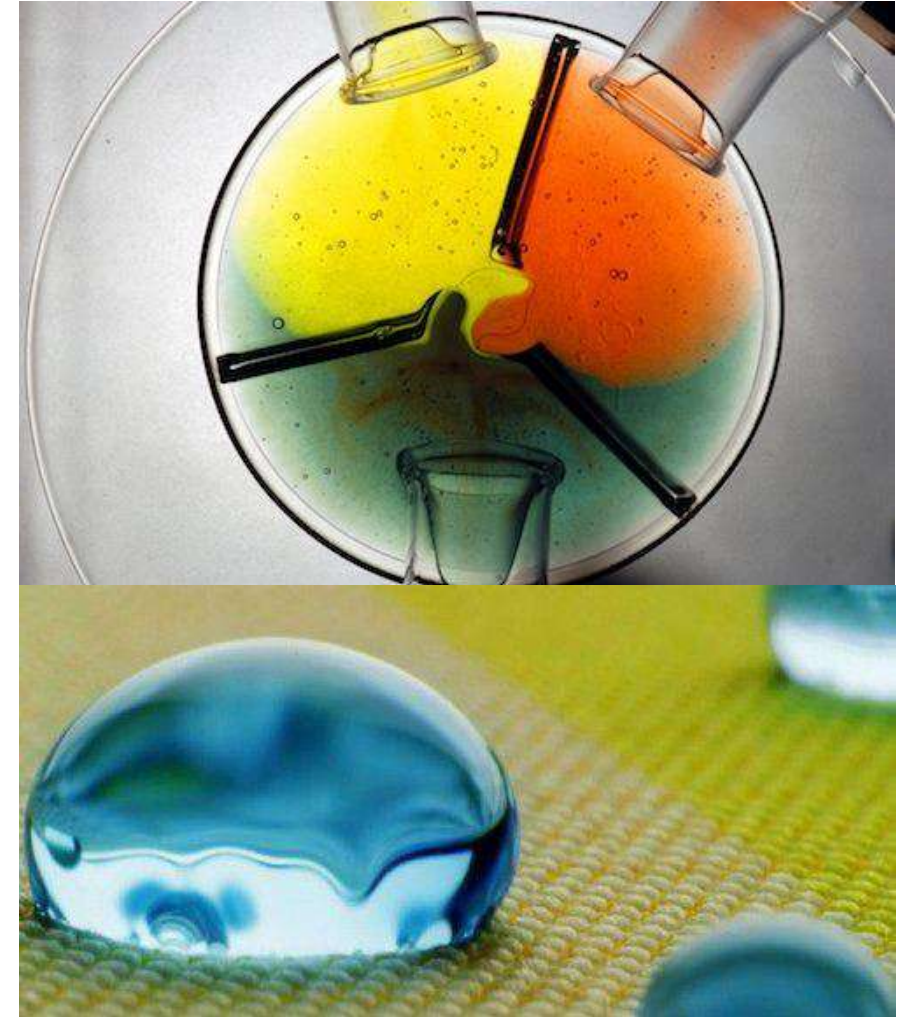
Research Areas

Finishing Processes

Process
Optimization:
chemical &
enzymatic

More sustainable
processes

Development &
textile application
of natural dyes





COMPETITIVE INTELLIGENCE & INTELLECTUAL PROPERTY



Competitive Intelligence



Social, cultural and demographic



Technological



Economic



Environmental



Political

- **Reports with market analysis** of products and technological processes.
- **Technology roadmaps.**
- **Identification and evaluation of industrial opportunities.**
- **Facilitate connection among** universities, start-ups (national & international) and potential interested companies.
- **Identification of potential partnerships** with universities and research centers **for the development of applications and to scale-up** processes to be offered to the industry.
- Monitoring of **funding opportunities.**



PARTNERSHIPS & INFRASTRUCTURE

INSTITUTO SENAI
DE INOVAÇÃO BIOSYNTHETIC AND FIBERS

Partnerships

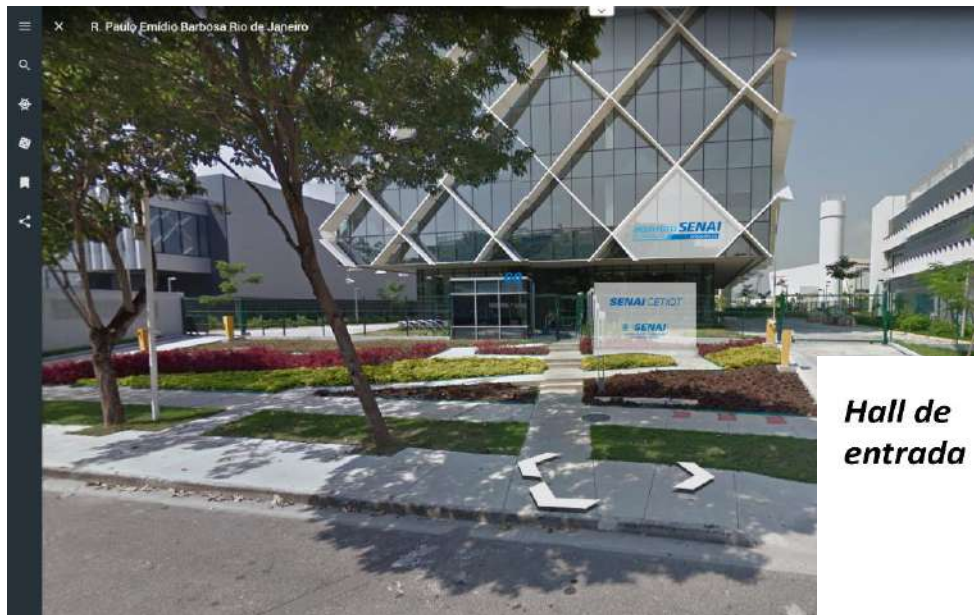
Universities and R&D Centers



Government & Industry Associations



Facilities



Hall de entrada

Total área: 3,500 m²

*5º Pav.
Auditório*

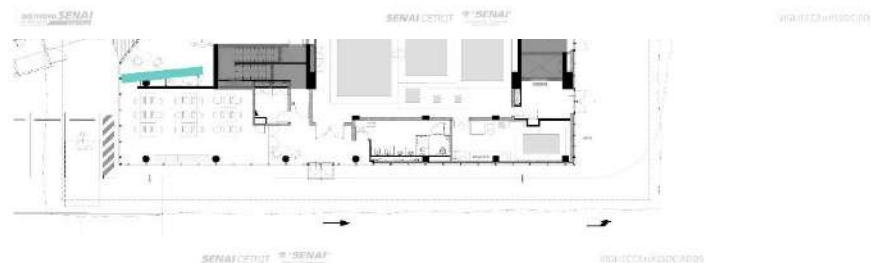
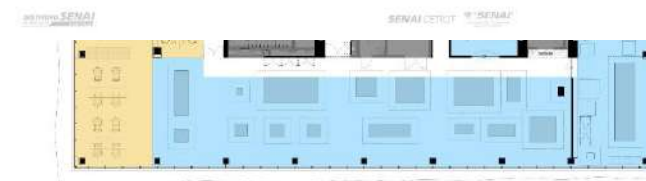
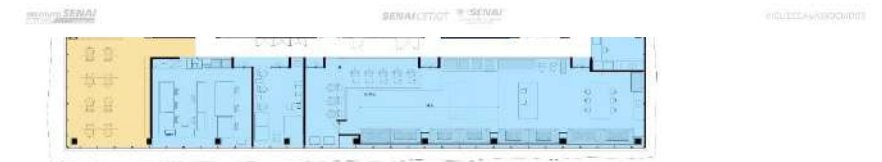


*4º Pav.
Setorização*

*3º Pav.
Setorização*



*2º Pav.
Setorização*



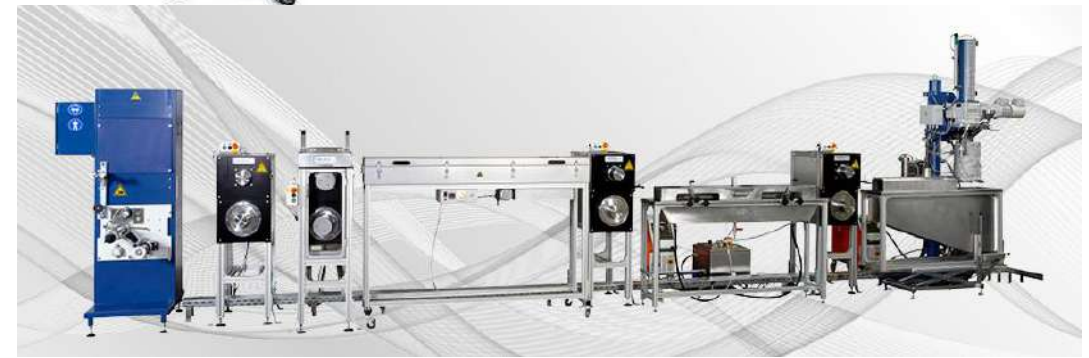
Unique infrastructure in Brasil

- *Biolector*
- *DNA Synthesis*
- *HTSs*
- *Microreactors*
- *Bicomponent extruder*
- *Wet spinning*
- ...among others



Plataforma automatizada para (HTS)

- ✓ Desenho e montagem de DNA
- ✓ Cultivo e seleção de linhagens
- ✓ Engenharia de proteínas



Thank you

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