

SAINT-GOBAIN INNOVATION

FRANCE SITE VISITS
NOVEMBER 14, 2023



Anne Hardy

Chief Innovation Officer



INNOVATION IS AT THE CORE OF SAINT-GOBAIN'S ORGANIZATION

SAINT-GOBAIN INNOVATION CORE STRENGTHS



Product Development



R&D Focus



Technology Leadership



Close Customer Links



Customer centricity



Solutions focused



A balance between core/breakthrough
& short/long-term innovations



Iterative & fast thanks to learning loops

BOOST FROM OUR INNOVATION ORGANISATION



Anne Hardy
Chief Innovation Officer

R&D

Marketing

Value sustainability to differentiate and be competitive

SAINT-GOBAIN HAS A POWERFUL R&D ORGANIZATION



STRONG TRANSVERSAL R&D CENTERS

€520m R&D expenses in 2022

€191m capex & R&D invested in CO₂ reduction projects in 2022



TALENT POOL FOR THE GROUP

3,600 Researchers worldwide

31% Women among managers

KEY COMPETENCY AREAS

FUNDAMENTALS IN MATERIAL KNOWLEDGE

Materials Science, Physics, Chemistry, Mechanics, Optics, Mathematics, Engineering

SUPPORTED BY NEW SKILLS

DESIGN AND USER EXPERIENCE

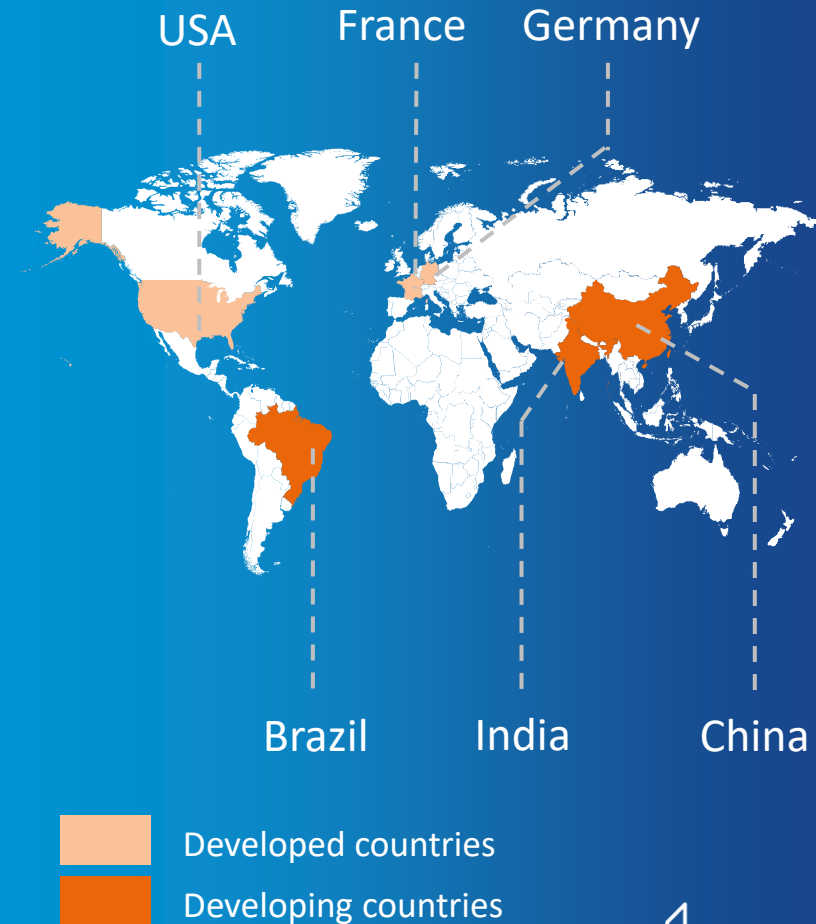
Customer Journey Mapping, Industrial Design, Sociology

DIGITAL COMPETENCIES

Data Analytics, Sensors, Modeling and Simulation, Virtual Rendering



GLOBAL R&D FOOTPRINT WITH 6 COUNTRIES



INNOVATION IS DRIVING OUR SUCCESS

ADAPT TO A RAPIDLY TRANSFORMING WORLD



Demographic growth impacts affordable housing demand



New consumer expectations and lifestyles



Environmental consciousness and related regulations



Digitalization Everywhere



Urbanization and Smart Cities

CUSTOMERS DEMAND GREAT VALUE



SUSTAINABILITY



Better for Planet



Better for People



PERFORMANCE



Economic value



Better Quality

DIFFERENTIATE FROM COMPETITION

FROM PRODUCTS...



...TO SOLUTIONS



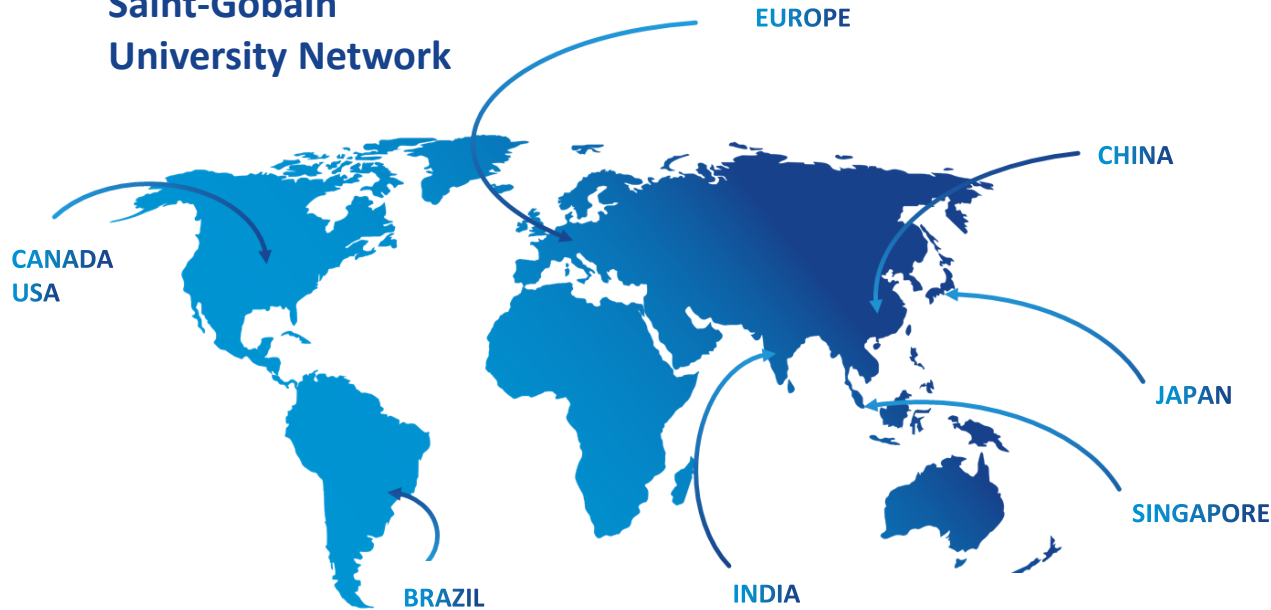
SUCCEED IN STRONG GROWTH MARKETS



AN OPEN INNOVATION TO LEVERAGE EXTERNAL PARTNERSHIPS

PARTNERSHIPS WITH TOP LABS GLOBALLY

Saint-Gobain University Network



Program Objectives

- Follow technological and scientific developments
- Talent pool for Saint-Gobain
- Networking and interactions for research teams

START-UP COLLABORATIONS



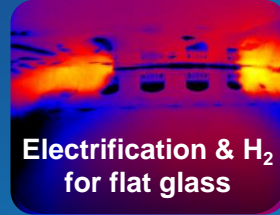
Maintain strong external focus to identify top start-ups locally in areas of active investment



WE PRIORITIZE 4 MAIN AREAS FOR SUSTAINABLE GROWTH



Processes and solutions for a zero-carbon transition



Electrification & H₂ for flat glass



Net-zero¹ carbon plasterboard production



Low CO₂ cement & concrete



Solutions to minimize the use of planetary resources



Increased cullet recycling



Wasterials



PVC recycling



Lightweight construction systems for performance and well-being



Durable boards for façade & wet areas



Facade systems



Offsite solutions



Materials and solutions to develop new markets



EV² battery solutions



Hydrogen platform



Integrated solar solutions

THE JOURNEY FOR OUR SUCCESS

KEY TAKEAWAYS



SUSTAINABLE INNOVATION
is a driver of growth and impact
for Saint-Gobain



Our innovation model
must be geared toward
CUSTOMER CENTRICITY



Innovation fuels our
transition from products
to **SOLUTIONS**



GREAT PEOPLE AND EXCELLENT CAPABILITIES

Our talent and know-how
form the foundation of
good innovation



CREATE MORE VALUE FOR OUR CUSTOMERS

Through increased
customer-centricity and
the power of data



LEVERAGE OUR LOCAL AND GLOBAL PRESENCE

Collaboration across countries,
and with central teams
transversally



INVEST IN LONG-TERM HORIZON

And balance it with
short-term ambitions to
build a bright future



SAINT-GOBAIN RESEARCH PARIS



Hélène Lannibois-Dréan

Managing Director, SGR Paris

SAINT-GOBAIN RESEARCH PARIS

OUR MISSION

BUILDING TOGETHER EFFICIENT PROCESSES AND
INNOVATIVE SOLUTIONS



490

employees



89%

of research engineers
have a PhD



30

currently studying
for PhD



28

nationalities
represented



41%

women



110

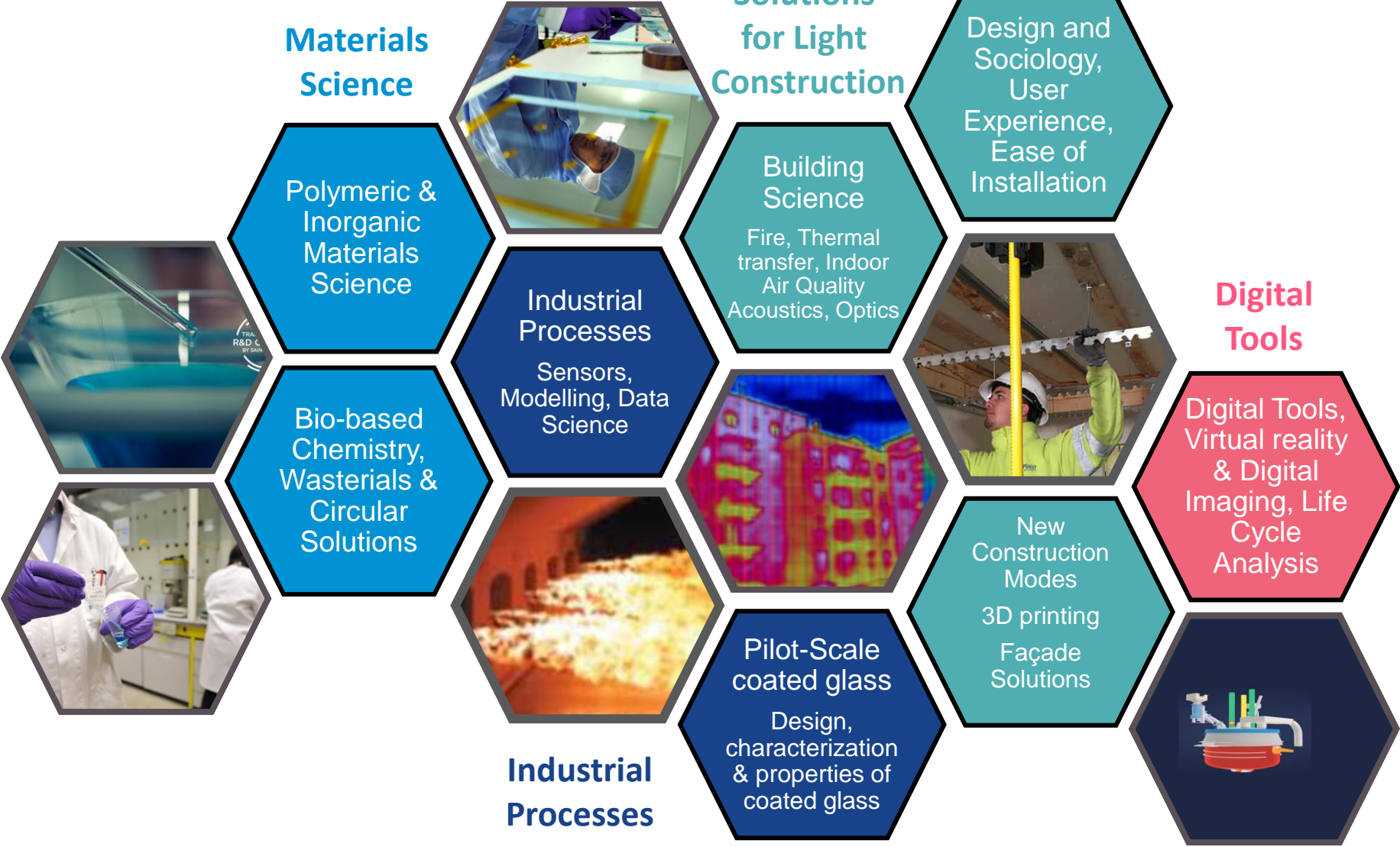
patents filed in 2022



#Expertise

#Collaboration

#Talents





Decarbonate glass raw materials



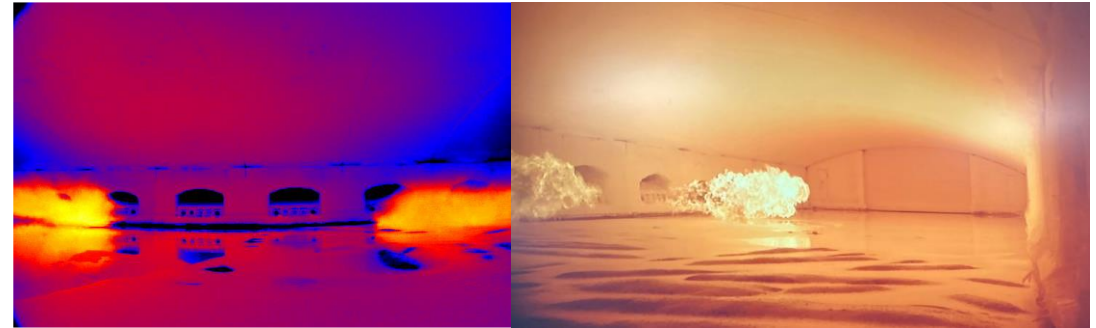
Limestone substitution with wollastonite in India

- ✓ Up to 80% replacement
- ✓ 9kt CO₂ savings per year



Lab tour

Hydrogen hybrid combustion



Hydrogen combustion flames, Herzogenrath

World's 1st glass production with 30% hydrogen

- ✓ Trial in Herzogenrath, Germany in March 2023
- ✓ Up to 70% potential CO₂ reduction at maturity stage (1.5Mt scope 1)



Lab tour



Optimize industrial production processes



Process industrialization for mineral wool recycling

- ✓ New patented melting technology to recycle glass wool from deconstruction
- ✓ Builds on our existing capacity to recycle stone wool in 2 countries

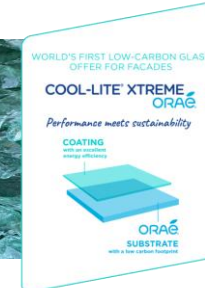


Lab tour

Boost recycling



ORAG



70%
recycled glass



Placo Infini 13



50% recycled
materials



ISOVER
SAINT-GOBAIN

Up to 80%
recycled
materials



Lab tour



Building science for renovation



QUB¹ thermal efficiency measure

- ✓ QUB new methodology for measuring thermal performance of newly built residential dwellings
- ✓ 24h analysis – fastest on the market



Lab tour

New construction modes & techniques



Dismantable partition walls

- ✓ 60,000m² of partition walls were designed by Placo and installed in the Olympic Village to be reutilized afterward



DRASTIC² European Project

- ✓ Develop a fully deconstructable low-carbon ETICS³
- ✓ Reuse of ceilings and partitions



Glasroc X



- ✓ Coated veil for improved resistance to humidity and UV rays, enabling GlasrocX boards to be used in façades



Lab tour

Ecophon ceilings



- ✓ Improved surface aesthetics, board dimensional stability and acoustical performance for ceilings



Lab tour

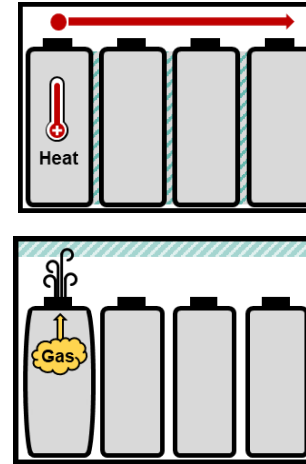


Advanced materials for next-generation batteries

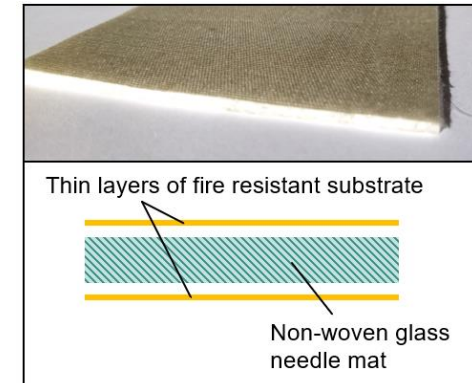


Halides electrolytes for solid-state batteries

- ✓ Development of solid electrolyte halides to enable safer, higher-performing next generation lithium batteries



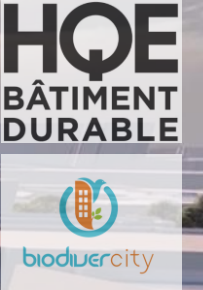
HKO insulation below the cover



Saint-Gobain Thermal runaway protection

- ✓ Mitigate thermal runaway propagation between cells, modules or external to pack
- ✓ Allow pressure relief while reducing spread of flame and toxic gases

OUR EXPANSION PROJECT



6,000 square meters of labs, open spaces, meeting rooms...

Operational by Q4 2024

SAFETY FIRST

Health, Safety, and
Environment Procedures
at Saint-Gobain Research



- If an alarm sounds, please follow your host to the outside meeting point



- Please hold the ramp
- You will not have safety shoes, so please do not approach equipment

LAB TOUR - YOUR GUIDES



Hélène LANNIBOIS-DRÉAN

Managing Director

GROUP 1



Emmanuel MIMOUN

Department Director
Sensors, Optics, Data Science &
Acoustics

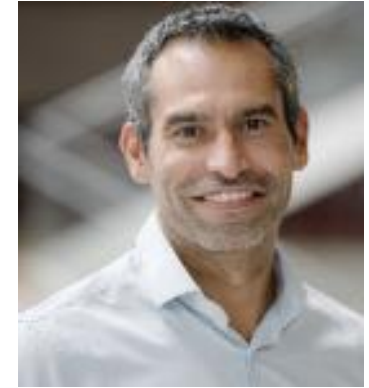
GROUP 2



Emmanuelle GOUILLART

Scientific Director

GROUP 3



Claude DA SILVA

Department Director Chemistry and
Physics of construction products

GROUP 4