

A thick, diagonal bar with a color gradient from light blue at the top to red at the bottom, positioned on the left side of the slide.

INNOVATION IN SAINT-GOBAIN

Anne Hardy, Chief Innovation Officer

22 SEPTEMBER 2022

AGENDA

- 01** Introduction to Saint-Gobain
- 02** Organization
- 03** Innovation Strategic Themes
- 04** Innovation Tools and Methods
- 05** Some examples of ongoing innovation projects

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SAINT-GOBAIN AT A GLANCE



OUR STRATEGIC PLAN FOR 2025: GROW & IMPACT



GLOBAL CHALLENGES AND OPPORTUNITIES FOR SAINT-GOBAIN

Decarbonization of construction and industry

Resource preservation

Rapid urbanization

OUR FUNDAMENTALS

- MAKING THE WORLD A BETTER HOME | Principles of Conduct and Action
- Health, safety and operational excellence
- Financial performance and shareholder value

OUR VISION
Be the worldwide leader in light and sustainable construction

SIX PRIORITIES FOR ACTION TO GROW & IMPACT

- Position ourselves on **high growth markets**
- Be **solutions-oriented**, driven by sustainability and performance
- Foster growth through **customer-centric innovation** and the **power of data**
- Embed Corporate Social Responsibility** in our decisions and actions
- Strengthen our 'TEC' culture** (Trust-Empowerment-Collaboration)
- Build the **best teams** in a **diverse** and **inclusive** workplace

A STRONG GLOBAL GROUP



Commitment to achieve
carbon neutrality in 2050



World or European leader
in most of our businesses

Founded over

350

years ago

Locations in

76

countries

Saint-Gobain Research

8

cross-business R&D centers

More than

166,000

employees

Approximately

800

manufacturing facilities
around the world

Around

3,500

sales outlets

€44.2bn
Sales

€4.5bn
Operating
income

THE GROUP'S MAIN ACTIVITIES

4 Regions

Northern Europe
Southern Europe, Middle East, Africa
Americas
Asia-Pacific

**A unique portfolio of solutions
for local construction trades**

- Renovation
- Light construction
 - New residential construction
 - Non-residential new construction
- ▶ Materials that reduce the environmental impact and contribute to the energy efficiency of buildings
- ▶ Complete solutions that improve the quality and comfort of living spaces
- ▶ Products and services that improve performance and make life easier for professional customers - architects, craftsmen, installers, etc.

1 Global entity

High Performance Solutions

**For advanced applications
in global markets**

- Sustainable construction
- Sustainable mobility
- Sustainable industry
- ▶ **Cutting-edge expertise** in materials science, formulation, design
- ▶ A large number of solutions **co-developed with customers** to meet their specific needs
- ▶ **Materials with exceptional properties:** resistance to high temperatures, abrasion, chemical stability, surface properties, etc.

9 MAJOR MARKET SEGMENTS

Single-family home renovation



School or hospital renovation



Multi-family home renovation



Renovation and light construction in Europe



Multi-family home new build



Office new build

Construction in emerging markets

Multi-family home new build



Single-family home new build

Construction in North America



Green mobility



Glass furnaces

Industry decarbonization

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THE WORLD IS CHANGING

INNOVATION APPROACHES MUST CHANGE TO KEEP PACE!

ADAPT TO A RAPIDLY TRANSFORMING WORLD



Demographic growth and shift of economic powers



New consumer expectations and lifestyles



Environmental consciousness and related regulations



Digital Everywhere



Urbanization and smart Cities

CUSTOMERS DEMAND GREAT VALUE



SUSTAINABILITY



Better for Planet



Better for People



PERFORMANCE



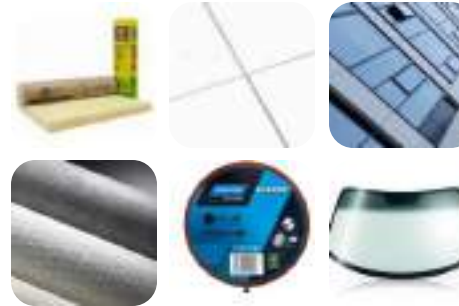
Economic value



Better Quality

DIFFERENTIATE FROM COMPETITION

FROM PRODUCTS...



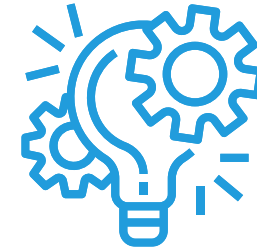
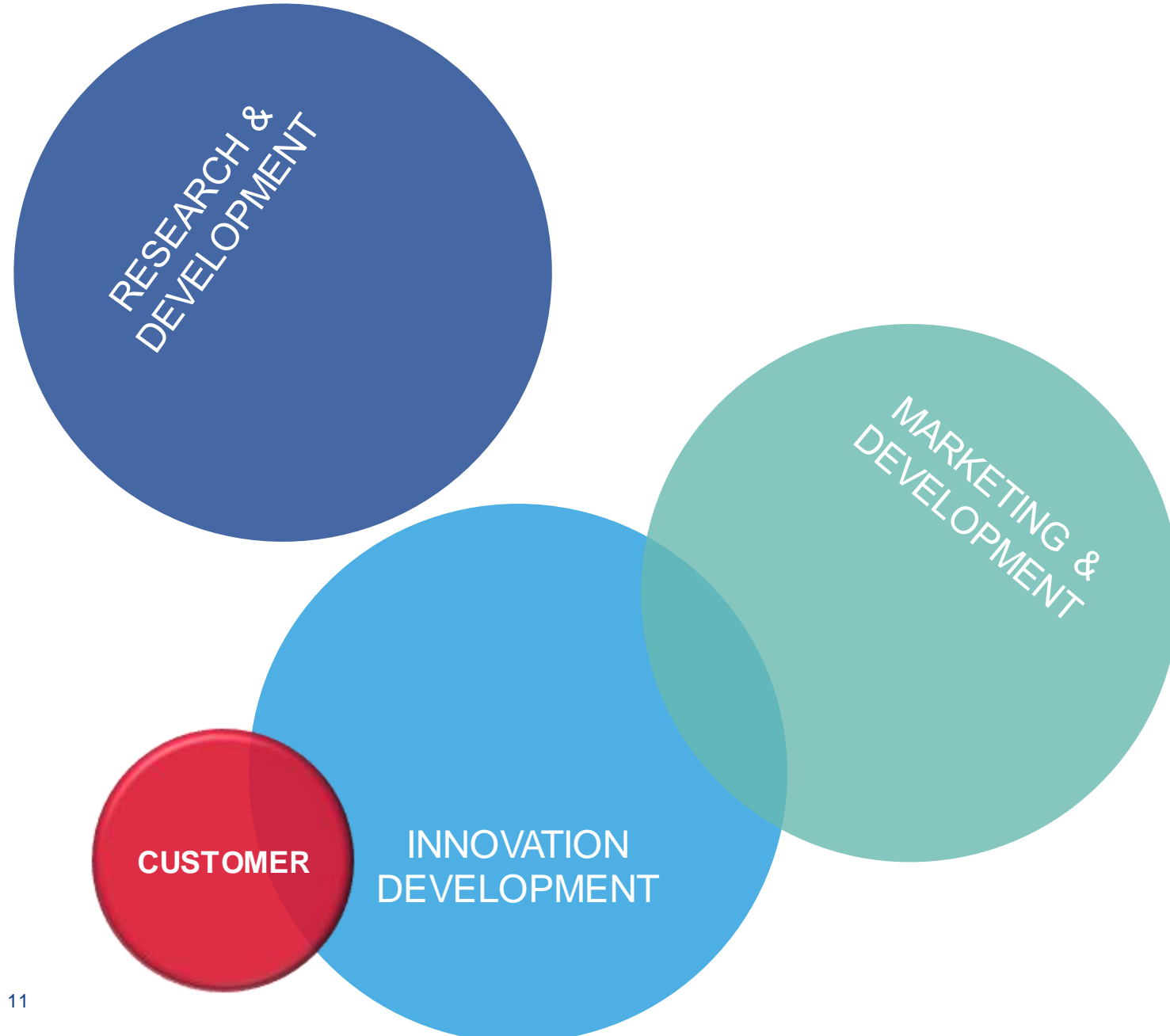
...TO SOLUTIONS



SUCCEED IN FAST-GROWING MARKETS



A NEW ORGANIZATION: INNOVATION TEAM CREATED JULY 2021



New organization emphasizing the value of R&D and marketing **partnering** for customer-centric innovation supported by innovation methods, tools and mindset

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Strong transversal R&D centers with a global footprint
Combined with local R&D teams close to business/country

3,600

Researchers worldwide

64%

EU

20%

N. America

13%

Asia

31%

Women among « cadres »

400+ Patents filed each year

KEY COMPETENCY AREAS

Fundamentals in Material Knowledge

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

SUPPORTED BY NEW SKILLS

Design and UX

Customer journey mapping, Industrial design, Sociology

Digital Competencies

Data Analytics, Sensors, Modeling and simulation, Virtual Rendering

TALENT POOL FOR THE GROUP



1 USA

2 France

3 China

4 Brazil

5 Germany

6 India

AN R&D BUILT ON COMPETENCIES

- Competencies are pillars for our innovation. They are organized in R&D Networks
- R&D network strengthen competencies to support the activities of BUs
- Roles of R&D Network are to:

Animate the scientific community

Develop roadmap for competency development; strengthen collaboration between centers

Promote collaborative programs between BUs

Contribute to the strategic goals of Saint-Gobain

R&D Networks

MATERIALS

- Foams
- Textiles
- Polymer synthesis
- Green chemistry
- Sustainable plastics

PROCESSES

- Surface modification
- Wet coatings
- Adhesion

TRANSVERSAL COMPETENCIES

- Process Engineering
- Data science
- Simulation & modelling
- Sensors
- Robotics
- Automation
- NDE

TESTING AND ANALYTICS

- Antiviral
- Antimicrobial
- Fire testing
- Mechanics & Impact
- Resistance
- Acoustics

SHARED COMPETENCIES

- Design & User experience
- Digital rendering
- Virtual/Augmented reality

MARKETING & DEVELOPMENT ORGANIZATION



Offer & Product Management



Strategy & Market Intelligence



Sustainable Business Development



Customer Experience & Digital Marketing



Brands & Communication



Sales, Pricing & Marketing Excellence

TEAM MISSION

Support to all businesses of Saint-Gobain

...for all sales and marketing topics, through practice sharing, tools, communities, training ...



Strategic alignment

Contribute to defining Saint-Gobain strategy in construction & give strategic guidance



Jointly drive global innovation projects for construction

...in cooperation with R&D and Industrial teams

KEY FIGURES

48%

Women

17

Nationalities

INNOVATION DEVELOPMENT ORGANIZATION

Central team with WW presence to support & accelerate the transformation of how we innovate throughout Saint-Gobain - to Grow & Impact



Tools & methodology
Development & Training



Direct support on any innovation challenge

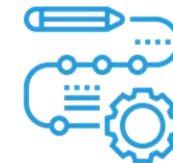


Spread and transmit through Networks

A deep transformation of how we lead and execute innovation at Saint-Gobain



MINDSET



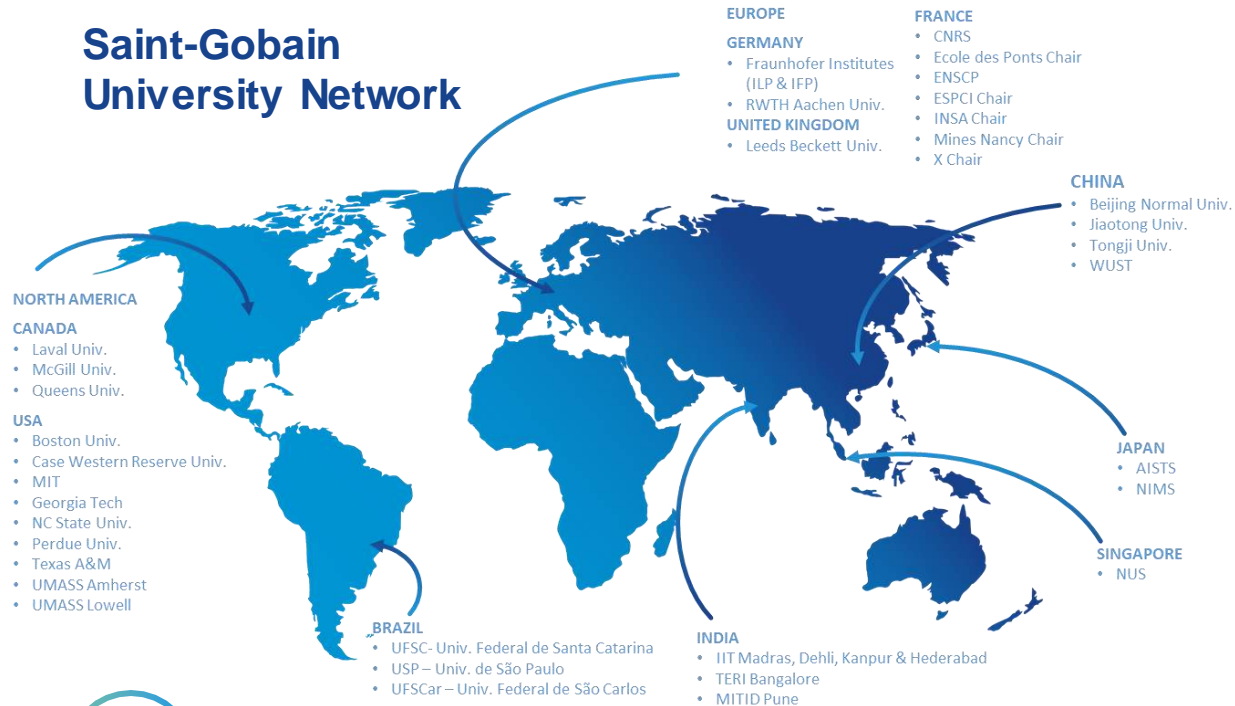
STRUCTURED
APPROACH

Innovation Framework
to drive our transformation
for sustainability
and performance goals

AN OPEN INNOVATION TO LEVERAGE EXTERNAL PARTNERSHIPS

ACADEMIC PARTNERSHIPS

Saint-Gobain University Network



Program Objectives

- Follow technological and scientific developments to be able to solve business problems
- Talent pool for Saint-Gobain
- Networking and interactions for research teams
- Access complex equipment

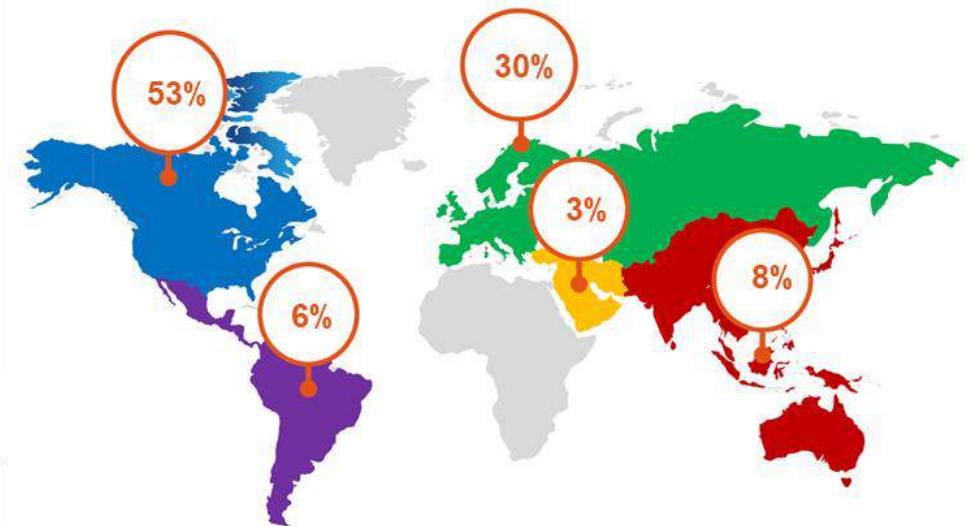
START-UP COLLABORATIONS



Maintain strong external focus to identify top startups locally in areas of active investment

32 START-UPS as part of our investment portfolio

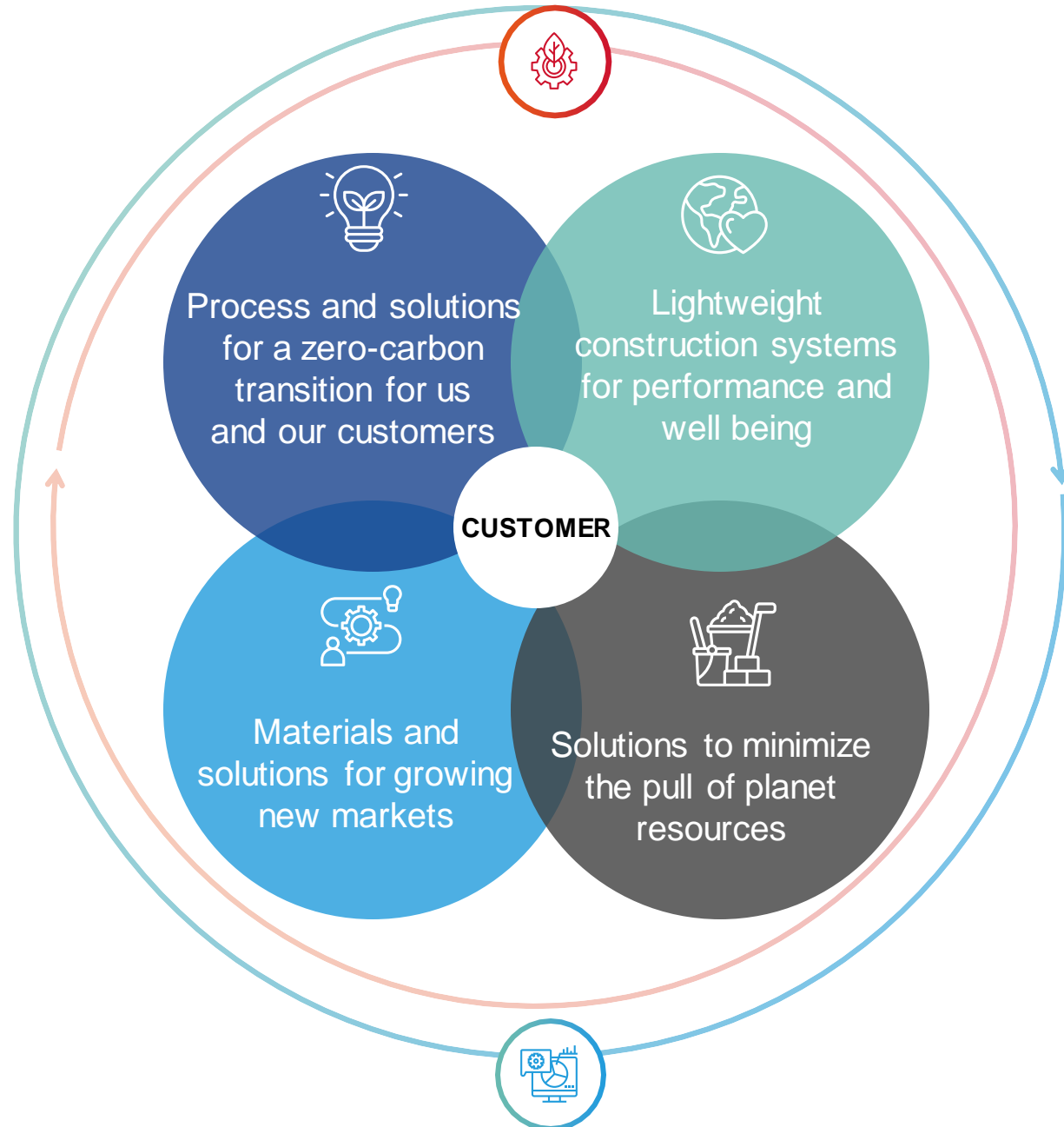
12 JDAs/Commercial agreements signed in 2022



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SUSTAINABILITY

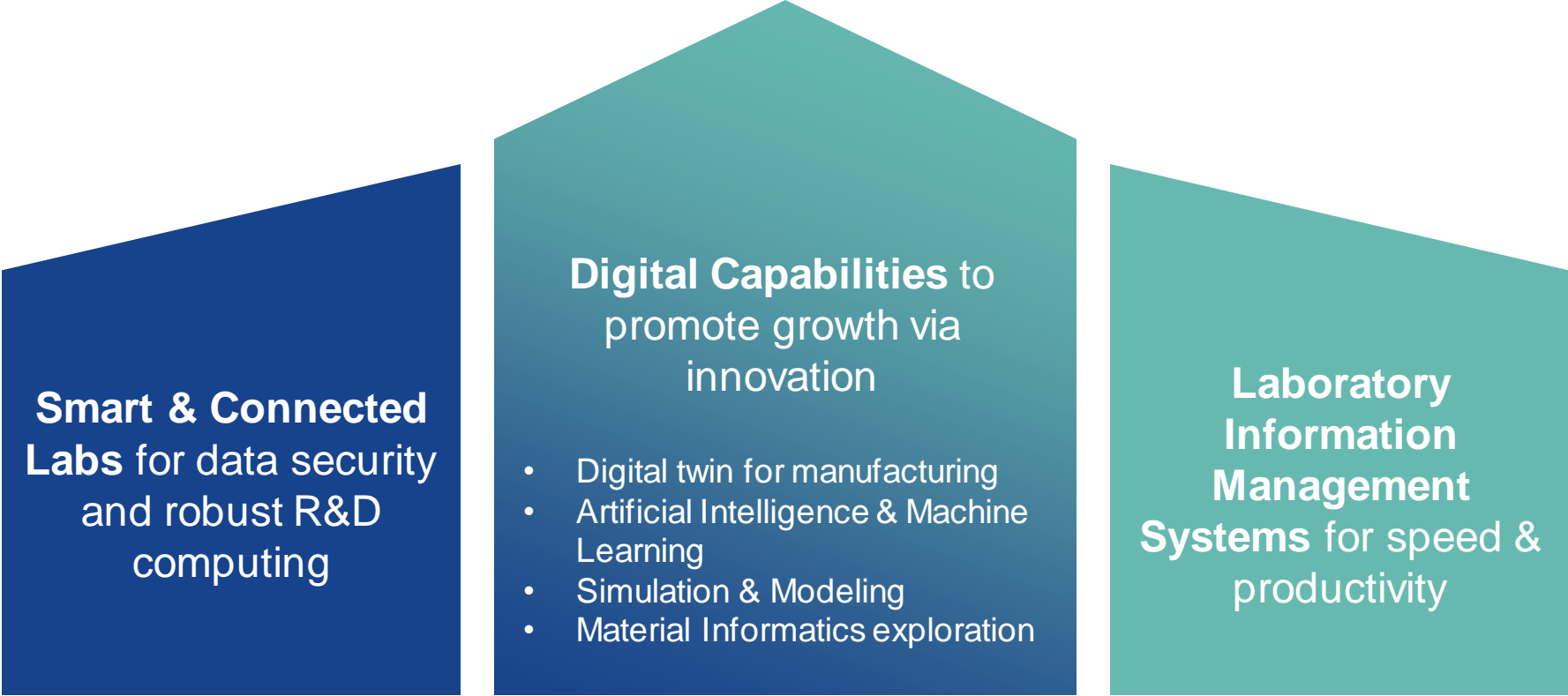


INNOVATION PRIORITIES FOR SAINT-GOBAIN

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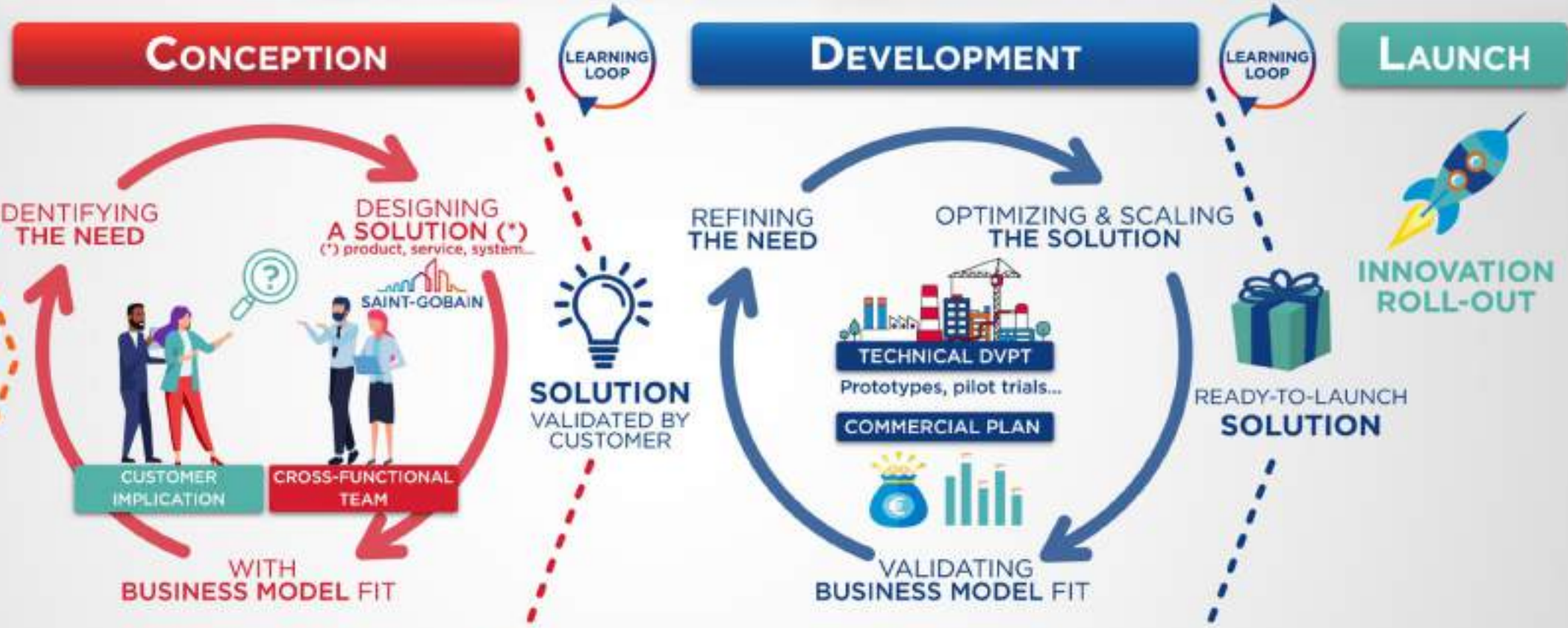
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DIGITAL TRANSFORMATION AS AN ENABLER FOR FASTER TIME-TO-MARKET

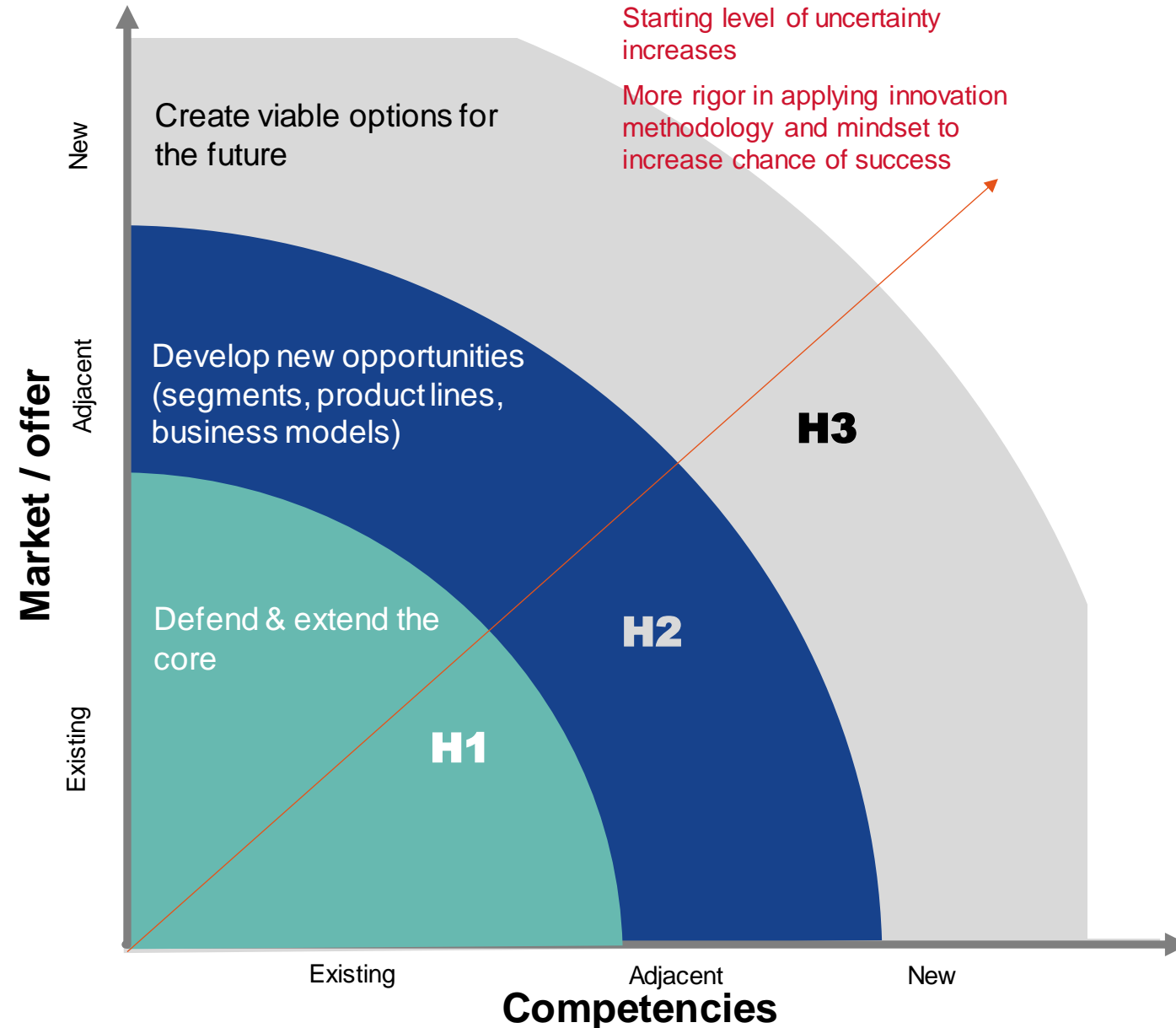


Digital platforms for deeper understanding of **Customer & Market Insights**

A DISCIPLINED INNOVATION PROCESS FOR SAINT-GOBAIN



TRANSLATING STRATEGY TO ACTION



Implement "horizons" approach to drive alignment between business strategy and innovation portfolio

- **Metrics for H1 programs**

- New Product Sales; Sales @ Maturity
- Time-to-Market
- # Patents filed

- **Metrics for H3 programs**

- Technology and market landscape scoping
- New market/BU opportunities and assessments
- Acquisition targets identified
- External interactions (funding)
- # Patents filed

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Examples of Current Innovation Projects

- 01** Open Innovation
- 02** New ways of working
- 03** Modern construction
- 04** Sustainable solutions
- 05** New markets/ big bets for the future

01 - OPEN INNOVATION

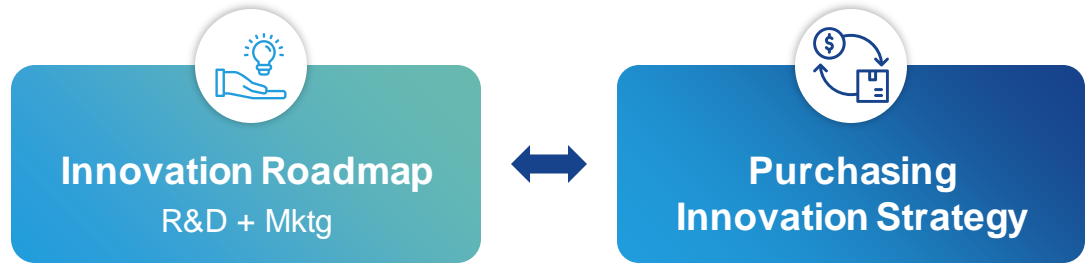
Partnering with Start-Ups

- 1** Faster drywall installation through clipping

- 2** Digital onsite for disruptive installation experience


HyperBIM + HoloLens
- 3** Digital at conception for more automation


Suppliers as innovation partners



Ambition

Partner to leverage key, select suppliers for innovation co-development

02 - NEW WAYS OF WORKING

LEARNING FROM CUSTOMER FEEDBACK TO FUEL INNOVATION



INSPIRE

Demo car showcasing Sekurit latest advances on the road in France, Germany & US



LISTEN

Design of customer experience & feedback collection



- **Scenario Manager**
Guides the animator through the experience, summarizes the participants' movements and actions.
- **Tablet**
Allows the animator to edit the visual and acoustic sequences for each scenario.
- **Briefing book**
Describes each scenario in depth and explains its inspiration from cognitive neuroscience.

03 - MODERN CONSTRUCTION



Made-To-Order « Kitting » solutions using digital production systems



From onsite manual cutting of boards...



To pre-cut solution-kits ready for assembly...



Program Focus Areas

- Digitally optimized production systems (from BIM model to preparation of made-to-order assemblies for onsite installation)
- Simplification & de-risking of existing process blue-prints (proposal preparation, production, logistics)



Lightweight facade systems tailored for regional climates

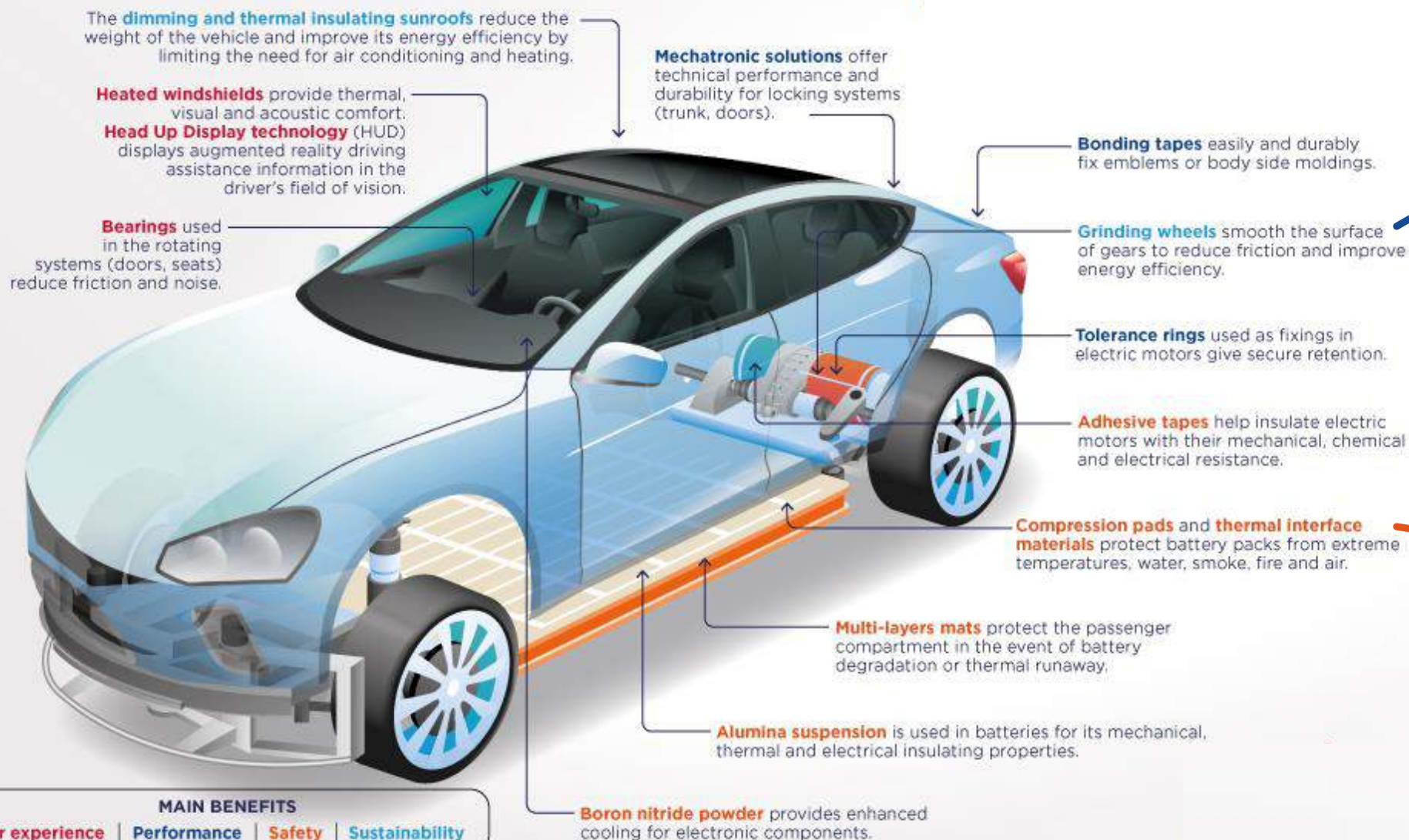


Program Focus Areas

- Extend use of developed façade platforms into new regions
- Support to (a) regional BUs for standardization and (b) WW for accelerated adoption and transversal collaboration
- Large-scale testing facilities: Technical validation & performance assessment (thermal, mechanical, moisture-management)

NEW MARKETS - ELECTRIC VEHICLES

Solutions for Electric Vehicles



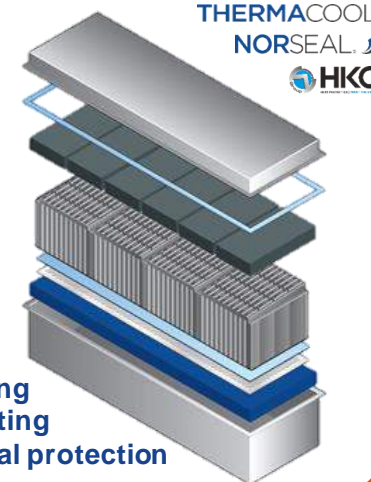
MAIN BENEFITS

User experience | Performance | Safety | Sustainability

Dual wheel for gear grinding and polishing

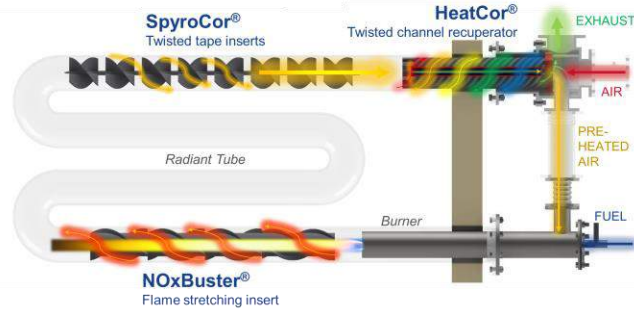


Multi-business solutions for battery system



05 - SUSTAINABLE SOLUTIONS

More efficient processes & less emissions for our customers



Amasic-3D®



Value proposition

- Reduces CO₂ & NO_x emissions of tube combustion furnaces (steel industry)
- Possible retrofit
- Additive manufacturing



Current Status

- Industrial trial demonstrated 20% less energy, 17% less NO_x
- Full furnace installations planned for end of 2022



A wide range of CO₂ reduction initiatives for Glass activities



Program Objective – HERZOGENRATH PROGRAM

First industrial CO₂-neutral glass production: Achievement of CO₂ neutrality for by 2030 (Scope 1 and 2), initiated in 2021-22



CONCLUSION

We are building our innovation platform to deliver bold and timely innovation on these pillars

GREAT PEOPLE AND EXCELLENT CAPABILITIES

R&D talent and know-how is the foundation of good innovation

INNOVATION FRAMEWORK

A transformation of our mindset, along with the right tools

ORGANIZATIONAL ALIGNMENT

To deliver impactful innovation efficiently

EXCELLENT EXECUTION

Deployment of tools & methodologies in the Innovation framework