

Open Innovation

7 Nov 2023 | Shreeram Joshi, Evonik India Pvt. Ltd.

Agenda

1. Brief introduction to Evonik
2. What is Open Innovation
3. Open Innovation at Evonik
4. Q&A

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Leading Beyond Chemistry – Our purpose

Evonik on the way to become a best-in-class specialty chemicals company



Leading ...

... Beyond ...

... Chemistry

- Leading market positions in **80%** of our business
- Leading **key financial indicators**
- **Connecting skills** and perspectives
- Develop **solutions** together with partners
- **Sustainability** key driver of growth
- Clear focus on **specialty chemicals**
- Target **100% specialty** portfolio

That's specialty chemicals. And that's where we're among the best in class.

€18.5 billion

sales*

€2.49 billion

adjusted EBITDA*

€1.17

dividend per share**

13.5 %

adjusted EBITDA margin*

~80%

of sales from
leading market positions

€856 million

investment in tangible assets

>34,000

employees

108

nationalities

€2.26

adjusted earnings
per share*

* Fiscal 2022, ongoing activities

** Proposal to the Annual General Meeting in May 2023

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Leading Beyond Chemistry – Growth divisions

Ambition and promising growth drivers

Ambition

... and promising growth drivers



Specialty Additives

“Small amount – **Big effect**”

- ✓ Making the difference
- ✓ Enabling circular economy
- ✓ Digital solutions

Nutrition & Care

“Bringing Nutrition & Care to Life – **for life and living**”

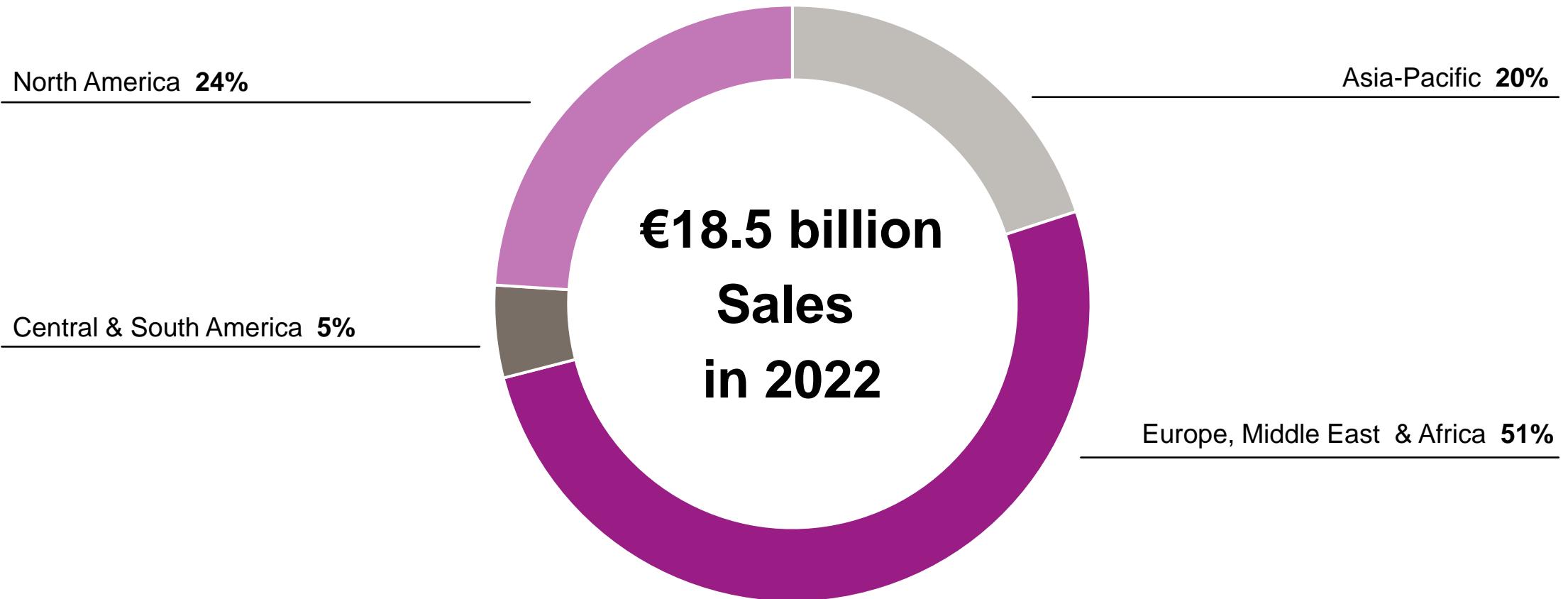
- ✓ Active cosmetics ingredients
- ✓ Drug delivery systems
- ✓ Sustainable & healthy nutrition

Smart Materials

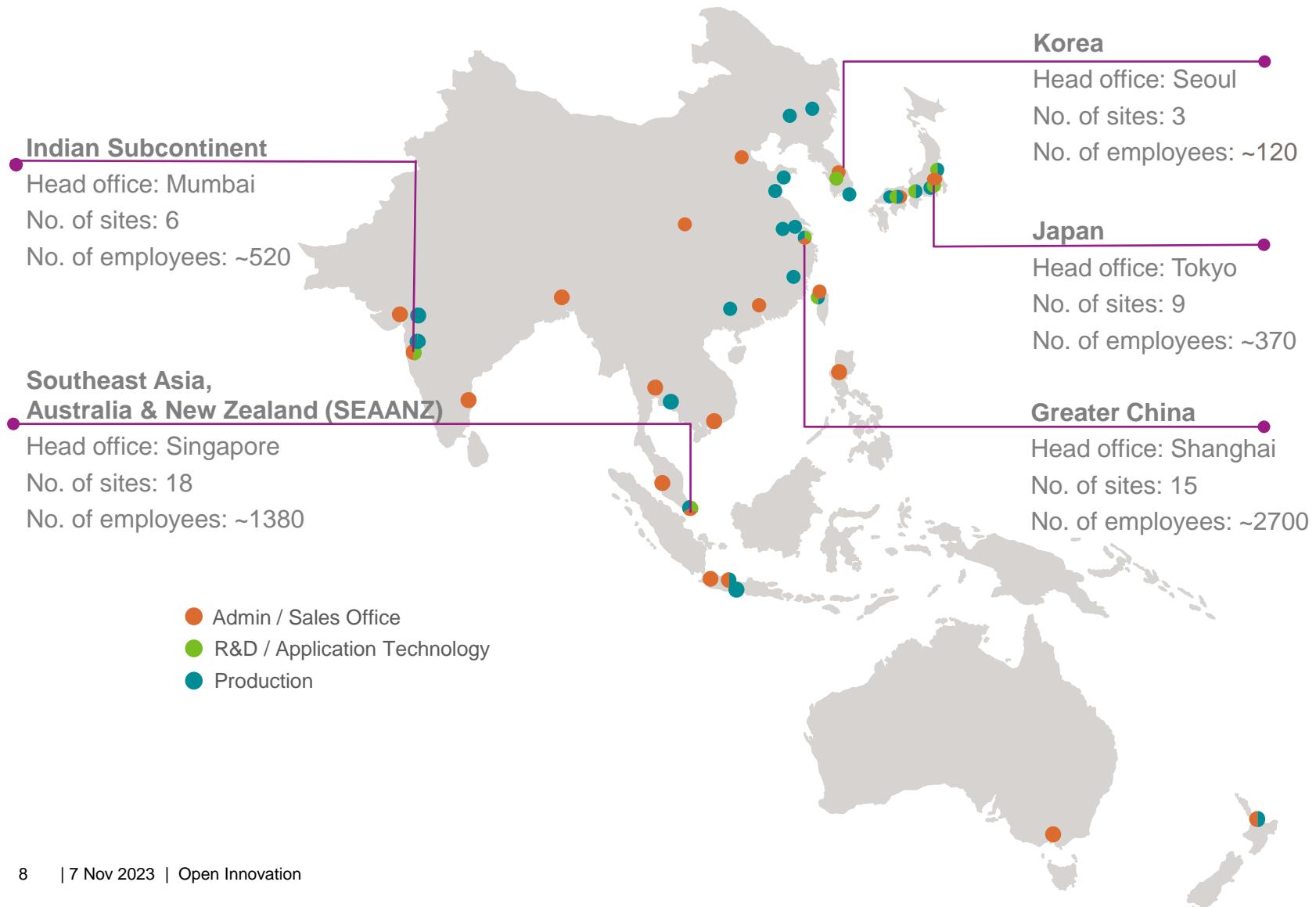
“We find solutions for the **needs of today and tomorrow**”

- ✓ Future Mobility
- ✓ Eco-Solutions

Sales by region



Evonik operates in five country clusters across Asia Pacific



Evonik Asia Pacific at a glance

Sales in 2022: 3,784 M€
(~20% of group sales)

~5,100 employees

51 sites, active in 24 countries

Asia Pacific management hub in
Singapore

Evonik is one of the global leaders in specialty chemicals

Strong presence in India with more than 500 employees



- **Evonik India Pvt. Ltd.**
Headquarters: Mumbai
- Activities: Sales & Marketing, AT labs and Global R & D centre. Regional Development



- Evonik Industries acquired Monarch Catalyst Pvt. Ltd., Dombivli (India) in 2015.
- The company, now renamed as **Evonik Catalysts India Pvt. Ltd.** is the hub for Evonik's catalysts activities in India.



- Evonik Industries acquired Silica Business of J M Huber in 2017.
- The entity is name in India is **Evonik Specialty Silica India Pvt. Ltd.**



Evonik RD&I core sites in the regions



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What is Open Innovation?



“In a world of widely distributed knowledge, companies cannot afford to rely entirely on their own research, ...”

Henry Chesbrough

What is Open Innovation?

“In a world of widely distributed knowledge, increasing global networking, rapid change and scarce budgets, **Evonik** cannot afford to rely entirely on its own research.”

Definition

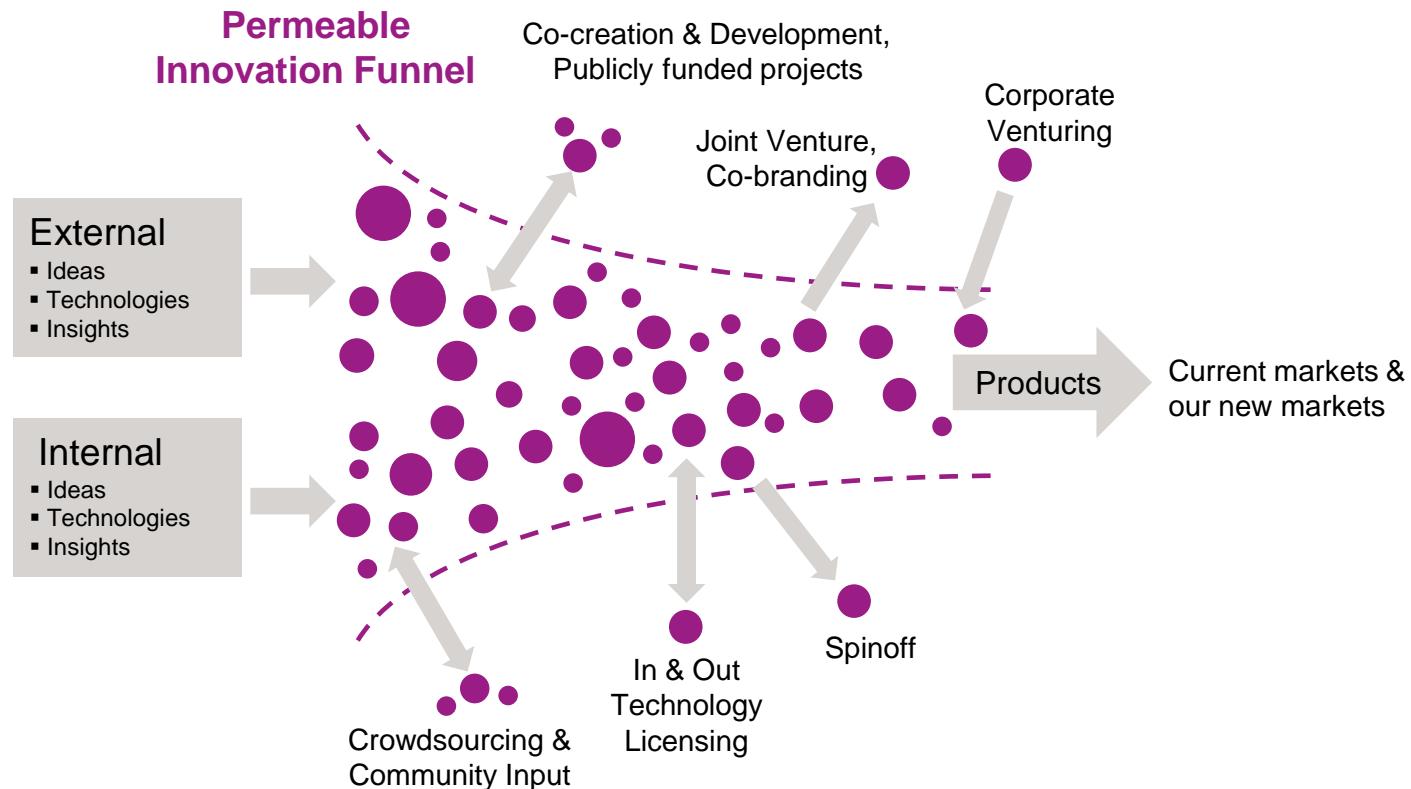
Open Innovation stands for the opening of innovation processes

Open Innovation means
opening innovation processes
of organizations and thus
making strategic use of the
outside world to increase their
innovation potential.



The Solution

Opening the innovation process to make strategic use of the outside world

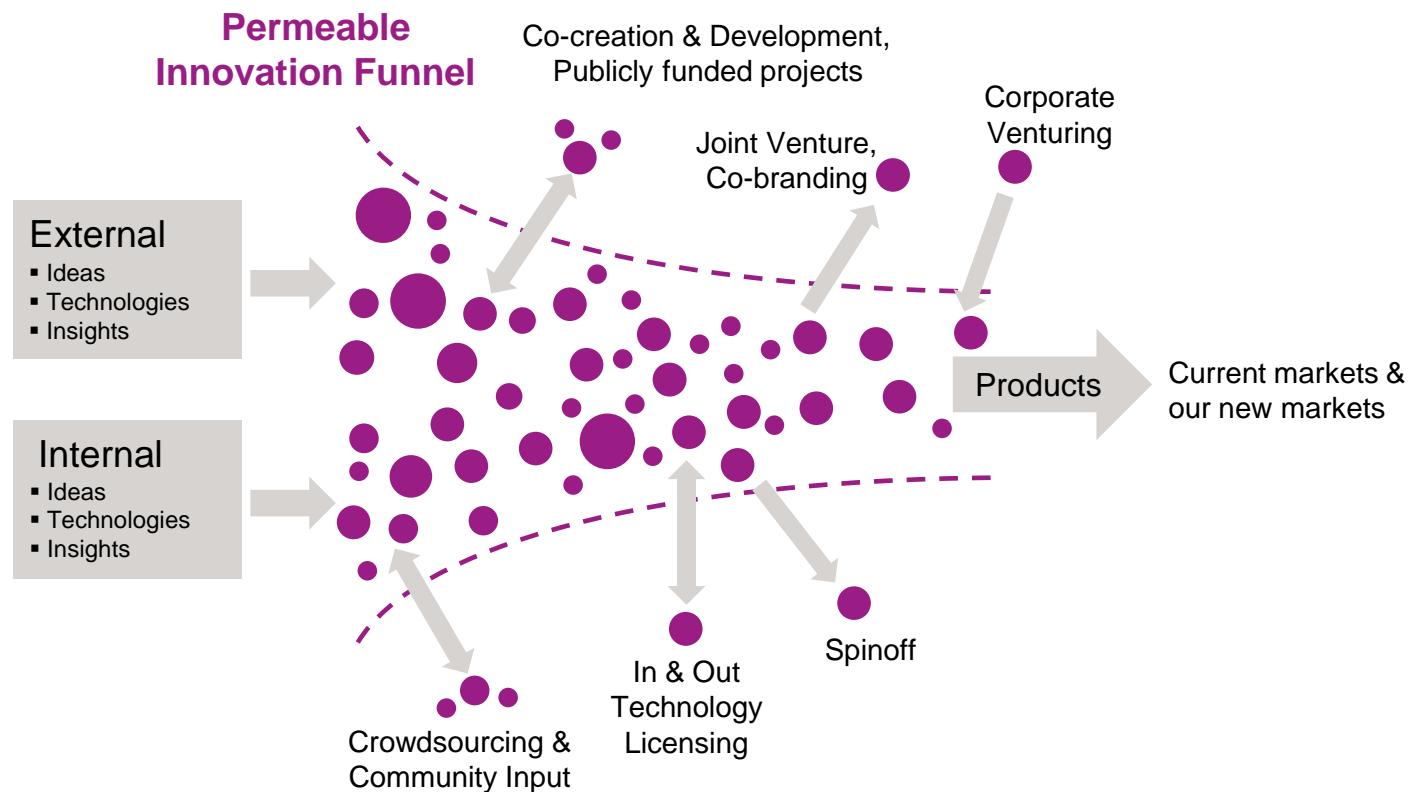


Chances

- Reduced R&D **costs**
- Increase development **speed**
- Increased R&D **efficiency**
- **Incorporation of customers early** in the development process
- Access to **new technologies, knowhow, external talent**
- Potential for **marketing & employer branding**
- Explore **completely new products, services, business models & markets**
- Leveraging of **innovation ecosystems**

The Solution

Opening the innovation process to make strategic use of the outside world



Risks & Challenges

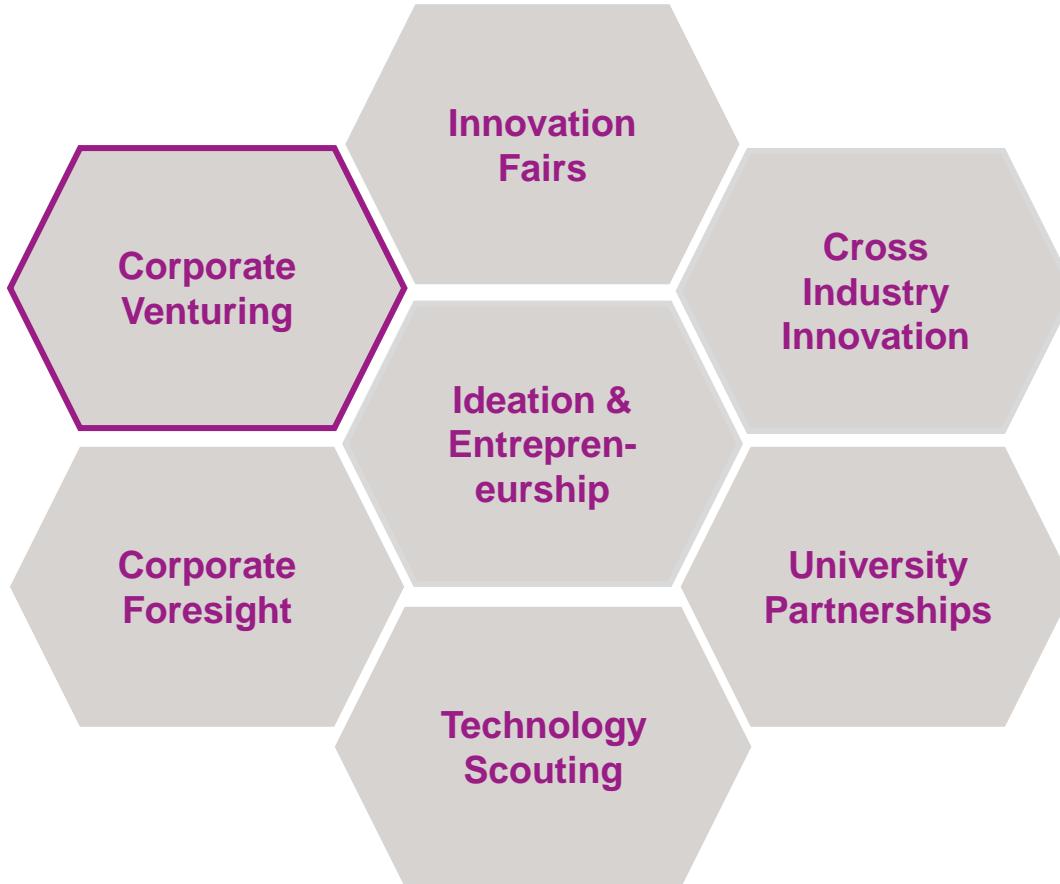
- **Revealing information** not intended for sharing
- **Lose competitive advantage** because of revealing intellectual property
- **Increased complexity** of controlling innovation and regulating how contributors affect a project
- Devising a means to **properly identify and incorporate external innovation**
- Realigning **innovation strategies** to extend beyond the firm in order **to maximize the return from external innovation**

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Open Innovation at Evonik:

Based on numerous approaches (select examples)



Evonik Venture Capital

We invest in innovative startups that have the potential to become future industry leaders.

November 2023



Evonik Venture Capital at a glance – A strong corporate VC investor

Well-established strategic investor and renowned partner in worldwide start-up ecosystems



€400
million
designated funds

~800
relevant companies
annual deal flow

>50 investments
in startups and funds since 2012

14
investment
professionals
on three continents

~25
cooperations between
startups & Evonik
each year

Venture Capital activities driven by strategic goals and financial returns

Powerful partner fostering growth opportunities with entrepreneurs to expand boundaries

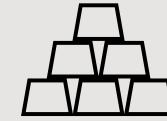
How we invest



From seed over to growth and later stage
(TRL 5 to 6)



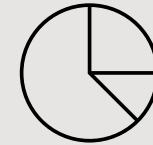
Initial investment up to €3 million per company



Total commitment up to €15 million per company



Focus on Europe (incl. Israel), North America & Asia



Minority shareholding, typically, up to 20%



Active partner that often serves on boards

TRL: Technology Readiness Level

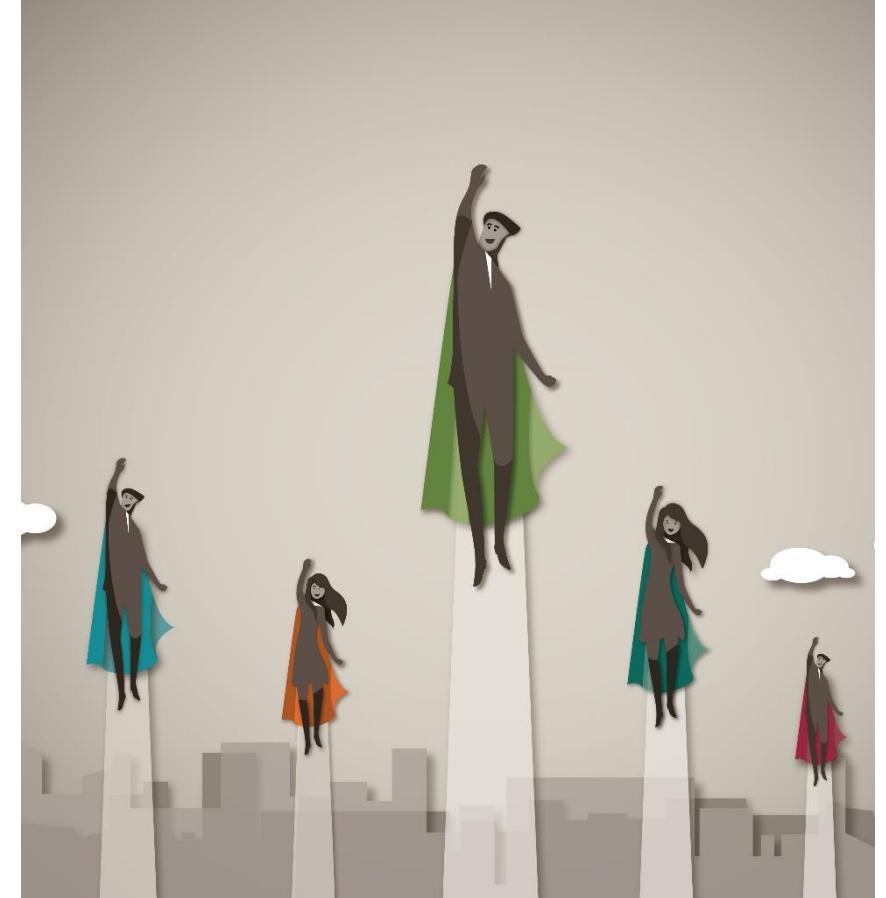
Evonik Venture Capital putting its strategic investor advantage into action

Facilitating collaboration with Evonik's operational units, driving portfolio companies' growth

- **Strategic investor** actively collaborating with portfolio companies
- Leveraging the strengths of Evonik, **driving growth** at portfolio companies **through strategic, technical and commercial expertise and proficiency**

Cooperation with Evonik provides:

- Technological expertise and infrastructure
- Know-how of manufacturing processes and production scale-up
- Market experience and global access through excellent, well-established business networks
- Expertise in patent strategies and on issues of intellectual property rights
- Reputation and financial strength



Evonik Venture Capital oriented to creating strategic value add

Investment focus driven by overarching Group strategy along innovation growth fields

Innovation Growth Fields

Advanced Food Ingredients



Cosmetic Solutions



Healthcare Solutions



Additive Manufacturing



Membranes



Sustainable Nutrition



Search fields (examples)

- Food ingredients focusing on gut health, cardiovascular, cognitive and pre-diabetes
- Actives and adjuvants for personal care
- Drug delivery systems

- New material concepts for additive manufacturing
- Hollow fiber and flat sheet membrane solutions for industrial separation processes

- Precision livestock farming
- Novel feed additives with demonstrable performance
- Molecular diagnostics
- Digital animal farming
- Sustainable Healthy Nutrition

Digitalization

Enhancing Digital Transformation



- Digital services & business models
- Digital Supply Chain
- Digital equipment for employees
- Data integration along the whole Asset-Lifecycle

Evonik Sustainability Tech Fund

Key pillar of Evonik's Sustainability Strategy

Additional
designated funds of
€150 m

Start in
May 2022

Investments made with the primary objective to achieve CO₂ mitigation by reducing and removing emissions and foster carbon sequestrations



Drive Circularity



Feedstock Switch
and Substitution



Future Mobility



Hydrogen Economy



Renewable Carbon



Clean Energy
Production

Global portfolio of technology leaders

35 direct investments provide preferential access to start-up's resources and technology



North America



Exits:



Europe & Israel



Exits:



Asia Pacific



Close cooperation between Evonik Divisions and Start-up companies

SELECTED EXAMPLES

Direct investments provide preferential access to start-up's resources and technology



Nutrition and Care



Controlled release drug delivery for post-surgery pain management

USA



Germany

Nature Identical Biomaterials



Smart Materials



Thermoplastic composite pipe for renewable energy

Netherlands



Create your imagination

Market leader of resin-based 3D industrial printers in Asia

China



Specialty Additives



Superior battery grade graphene materials

China



INTERFACE POLYMERS

Simplifies processing and recycling of plastics

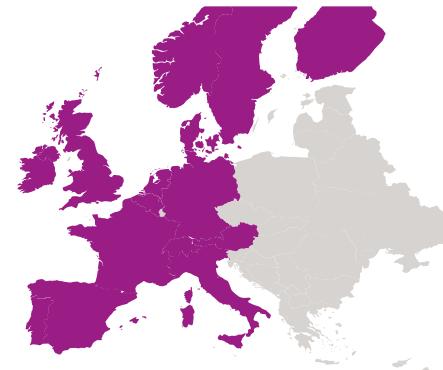
UK

EVC fund investments are the cornerstone for global innovation coverage

19 fund investments enable overview & access to emerging technologies in all relevant regions



North America



Europe & Israel

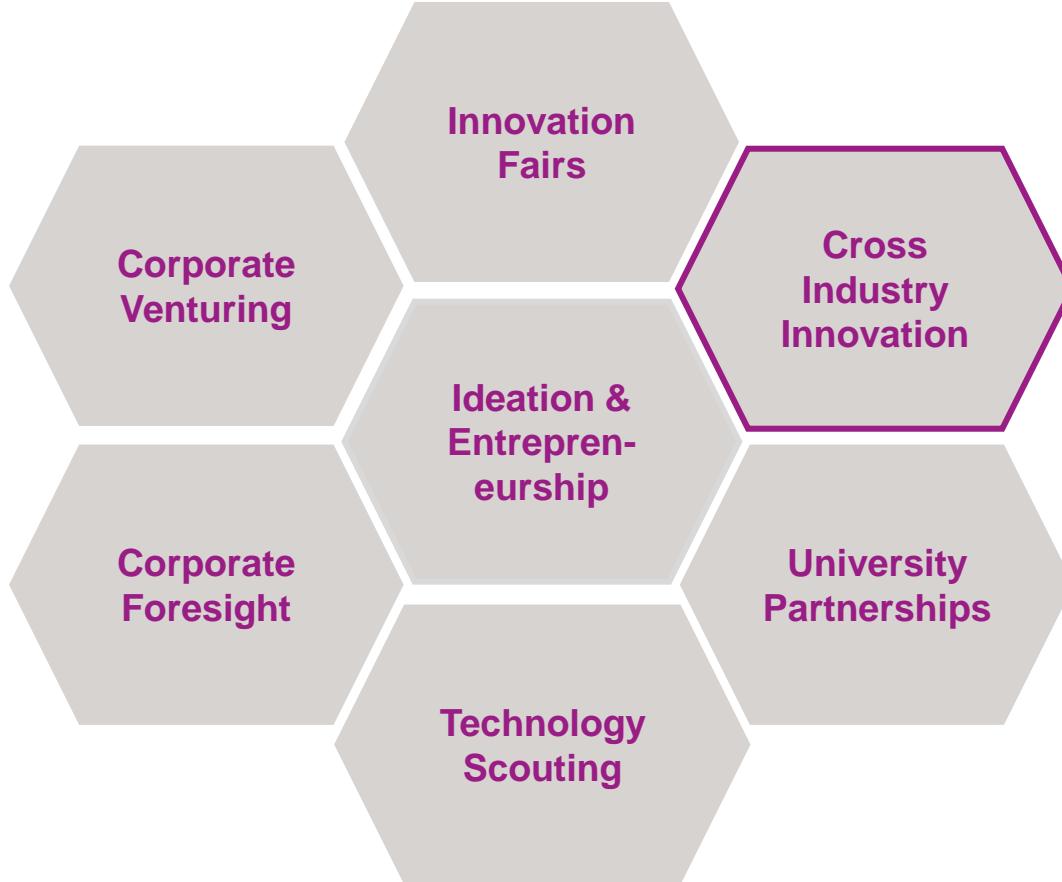


Asia Pacific



Open Innovation at Evonik:

Based on numerous approaches (select examples)



"Cross-Industry" co-innovation connects the unique strengths & capabilities of organizations in different industries to create innovative solutions

The major part of all innovations are based on recombination of existing knowledge (Schumpeter, 1939)

- Same industry & value chain: Many fields for recombining knowledge are explored
- Different industries & value chains: Many non-explored fields exist

Cross-Industry co-innovation:

- Combination of knowledge & demands from different industries
- Potentials for transformational innovation by first-time interactions of technologies
- Insights on business models in other industries



Examples on cross-industry innovation partnerships



Developing and producing Google Glass

Reference: https://www.luxottica.com/sites/luxottica.com/files/takeover/attachments/2014_luxottica_and_google_announce_strategic_partnership_march_24_2014.pdf



Co-creating "Nike+iPod" to track and analyze a runner's performance

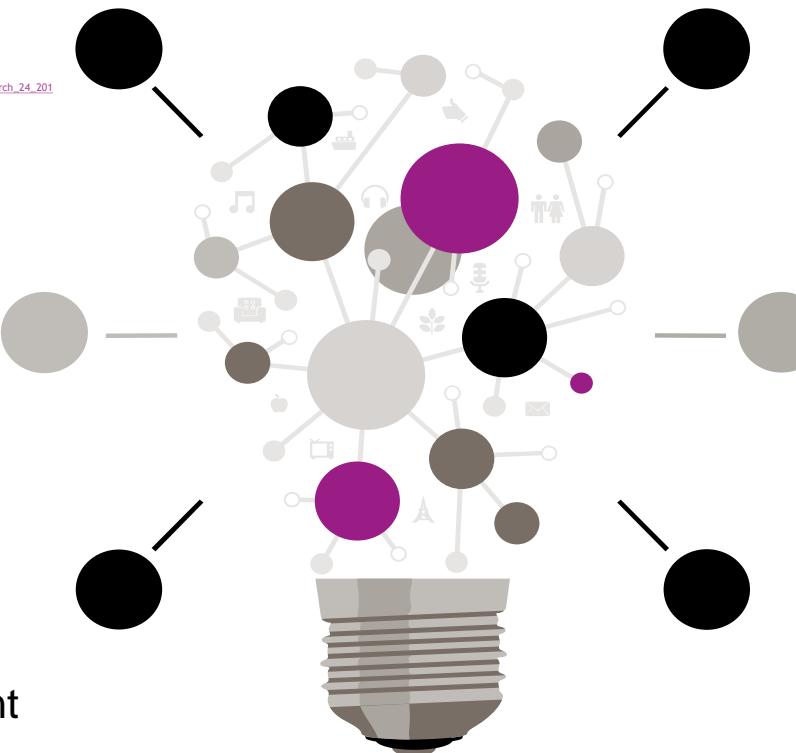
Reference: <https://www.marketingprofs.com/6/kraft1.asp>



Developing TradeLens, a blockchain platform for supply chain management



Reference: <https://www.maersk.com/-/media/sc9/maersk/local-information/files/west-central-asia/india/tradelens-solution-brief.pdf>



Enabling circularity in polyurethane foam production

Reference: <https://corporate.evonik.com/en/evonik-cooperates-with-remondis-on-sustainable-polyurethane-recycling-217952.html>



Providing contactless payments via smart watches & fitness trackers

Reference: <https://www.mastercard.com.au/en-au/personal/ways-to-pay/digital-wallets/fitbit-pay.html>



Joint research on applying sound analytics in diagnosis of lung conditions

Reference: <https://www.fiercehealthcare.com/tech/highmark-health-bosch-collaboration-ai-identifying-lung-conditions-children>



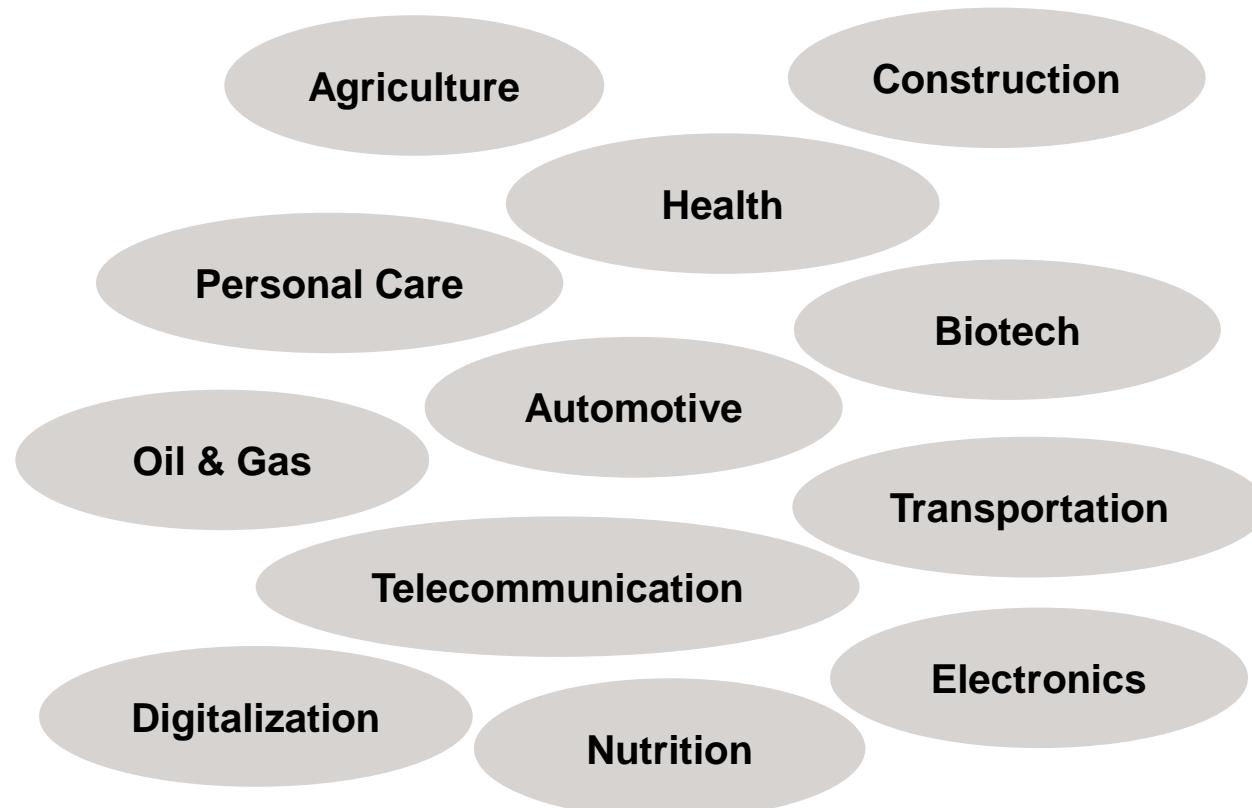
The Evonik approach: Industry Cross Innovation (IXI)

Values

- Identification of unsolved problems at players along the value chain, across industries and amongst different sectors
- Co-innovation projects with *unusual suspects*, creating potential new businesses for Evonik
- Opportunities for further collaborations with global players, focused on sustainability demands



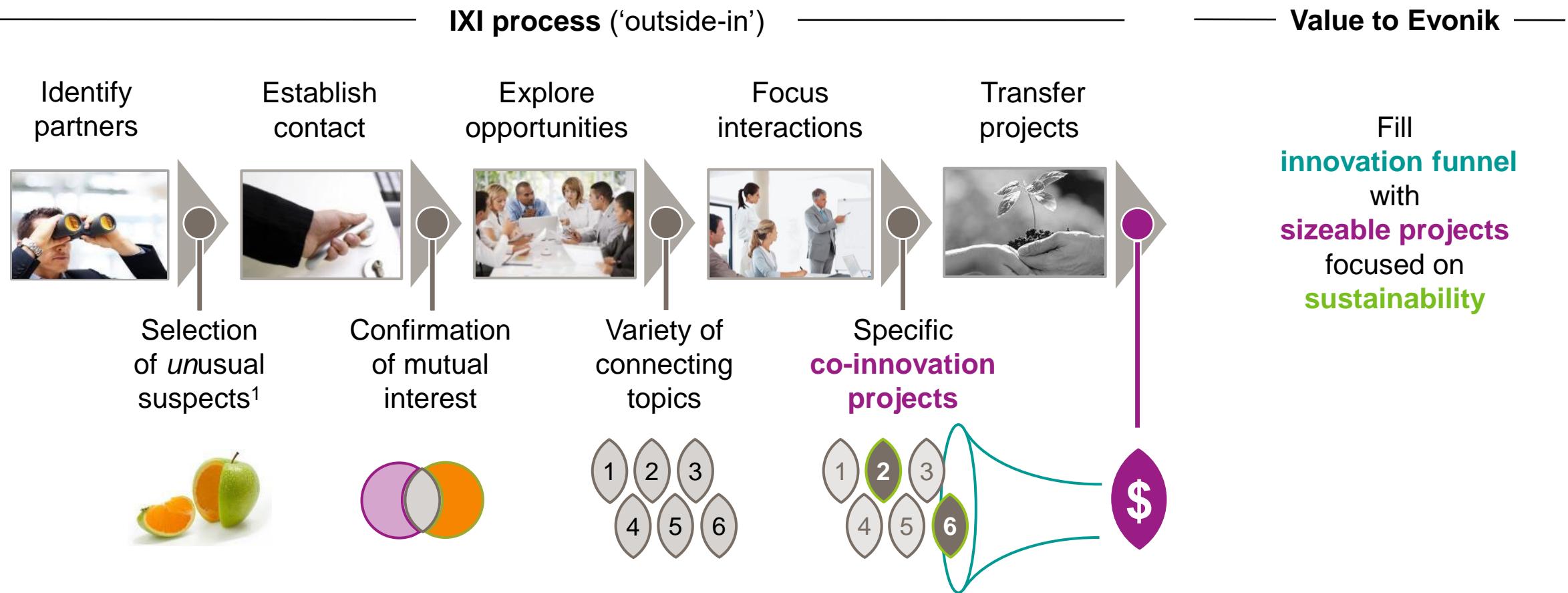
IXI listens to players along the value chains, across industries and amongst different sectors and paves the way towards new business opportunities



Examples shown are selected players, evaluated in 2021 - 2023

IXI fills Evonik's innovation funnel with co-innovation projects

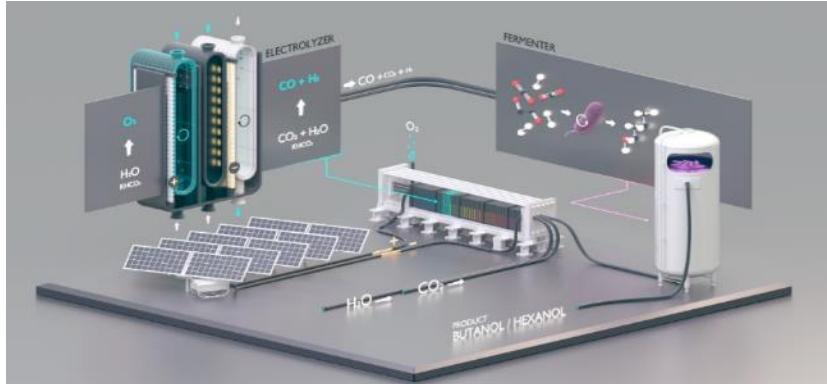
Uses an optimized 'outside-in' process



¹ For example from different industrial value chains, different sectors (new innovation networks via GIZ, UNIDO) or players in less-explored regions (Vietnam, Ecuador).

IXI initiated a variety of different innovation partnerships (exemplary projects)

CO₂ utilization



High performance ceramics

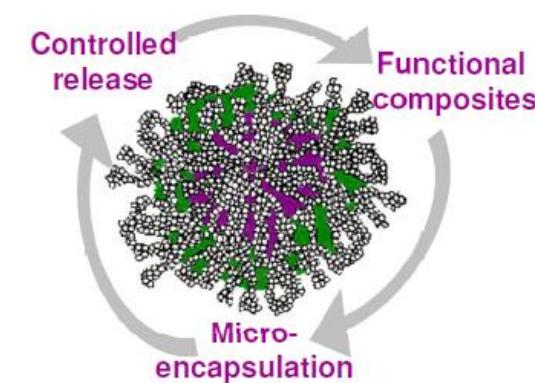


IXI

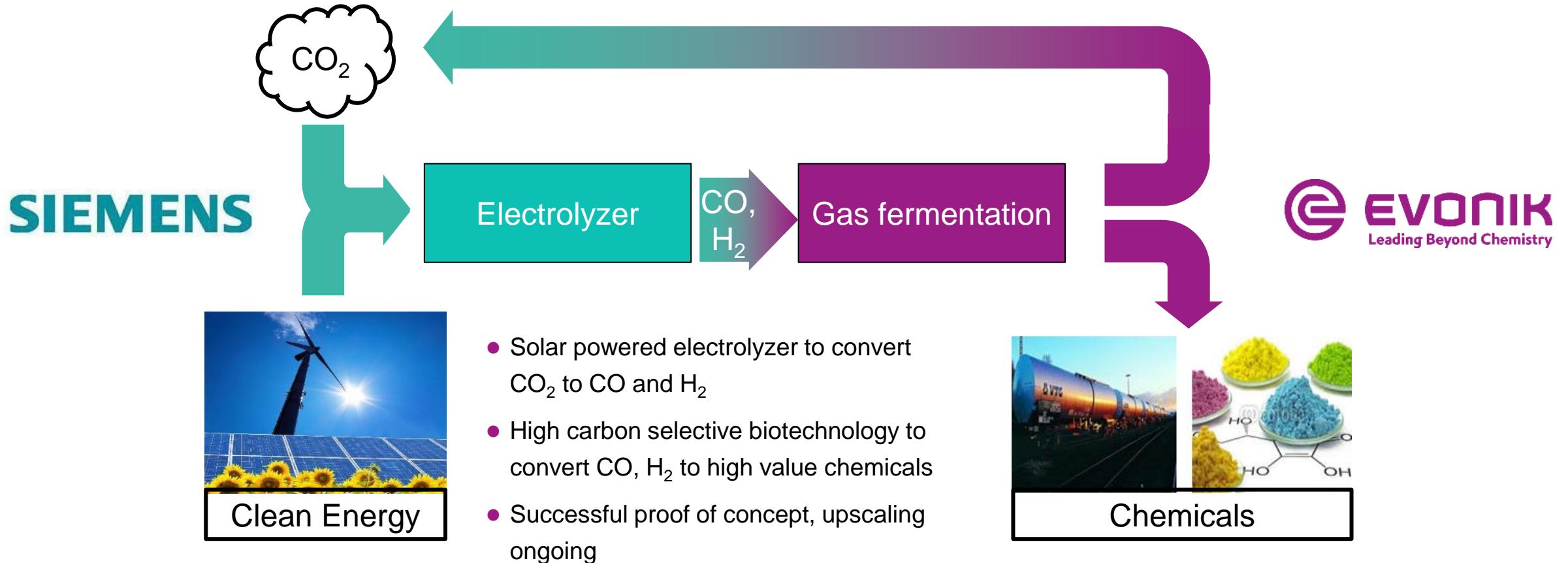
Renewable fuels



Controlled additive release via encapsulation



Evonik & Siemens: Co-Innovation on “artificial photosynthesis”



<https://www.youtube.com/watch?v=VK-dULEK-rc>

Nature Catalysis 1, 32–39 (2018)

The IXI methodology can lead to different strategic options for collaboration

Examples

Customer <> supplier

Research contracts

Co-Innovation / JDA

Licensing

Joint market Routes

Branding

Investment

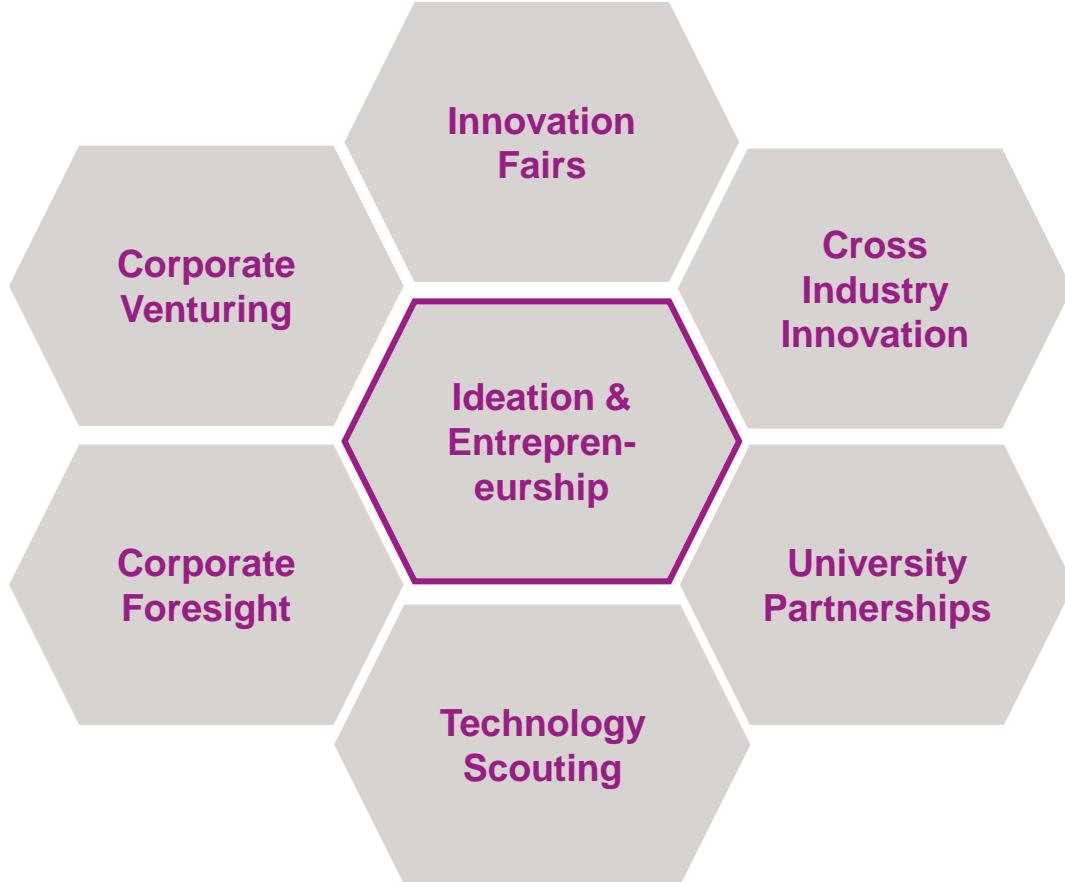
Joint Venture

Acquisition



Open Innovation at Evonik:

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Ideation & Entrepreneurship

		Client	Crowd	Community Size	Deliverables
Internal	 Global Ideation Jam	CIO	all Evonik Employees	4.500	ideas, training, network, branding
	 Ideation Workshops	BL	selected employees	<100	ideas
	 Seek & Solve	all Evonik Employees	all Evonik Employees	5.500	network
External	 Challenges	BL	Academia, startups, supplier, ...	open	ideas, network, branding
	 Lead User	BL	Target market users	<50	ideas, network

Open Innovation Formats

Open Innovation challenges have a long history at Evonik with different formats

We look forward to
your proposal!

Topic: Novel Technology for Taste Masking

The Evonik Call for Research Proposals—the CCRP—is a new approach to open innovation of Evonik Industries AG. We want to address scientists at universities and research institutes, with the aim of drawing them directly into the discussion. The search for solutions to problems is opened to us. We are also offering the opportunity to demonstrate your university by proposing solutions in the topic indicated above.



Evonik Call for Research Proposal

Challenges targeting professors with BL topic, invited participation (2013-2018)



Chemtrepreneur Award

1 day event with University of Münster on Creavis topics, selected students



Ekipa Challenge

Challenge students with BL topic, open participation (2019-2021)



Student Entrepreneurship Sprint

Master course at TUM, 6 BL challenges, 30 students



Evonik Open Innovation Challenges

Public challenge about BL topic, open participation (since 2022)



Young Polymer Scientist Forum

2 days, Evonik polymer topics, selected students

Evonik Call for Research Proposals (ECRP) 2016- India region

Topic

Novel approach to the synthesis of methionine

Participants

Universities/research institutes from India

Methodology

- List of participants(~70)
- RFP and other docs. communicated by email
- Telephonic contact and follow- up by mail/phone
- Concept popularization by participation in a seminar

Timeline

Start: 7th January 2016

Deadline: 30th April 2016, Extended: 13th May 2016

Results

Overall, the contest generated 27 proposals. Top 3 ideas received Evonik prizes



Prizes

- 1st ranked project proposal: 10.000 €
- 2nd ranked project proposal: 5.000 €
- 3rd ranked project proposal: 2.500 €

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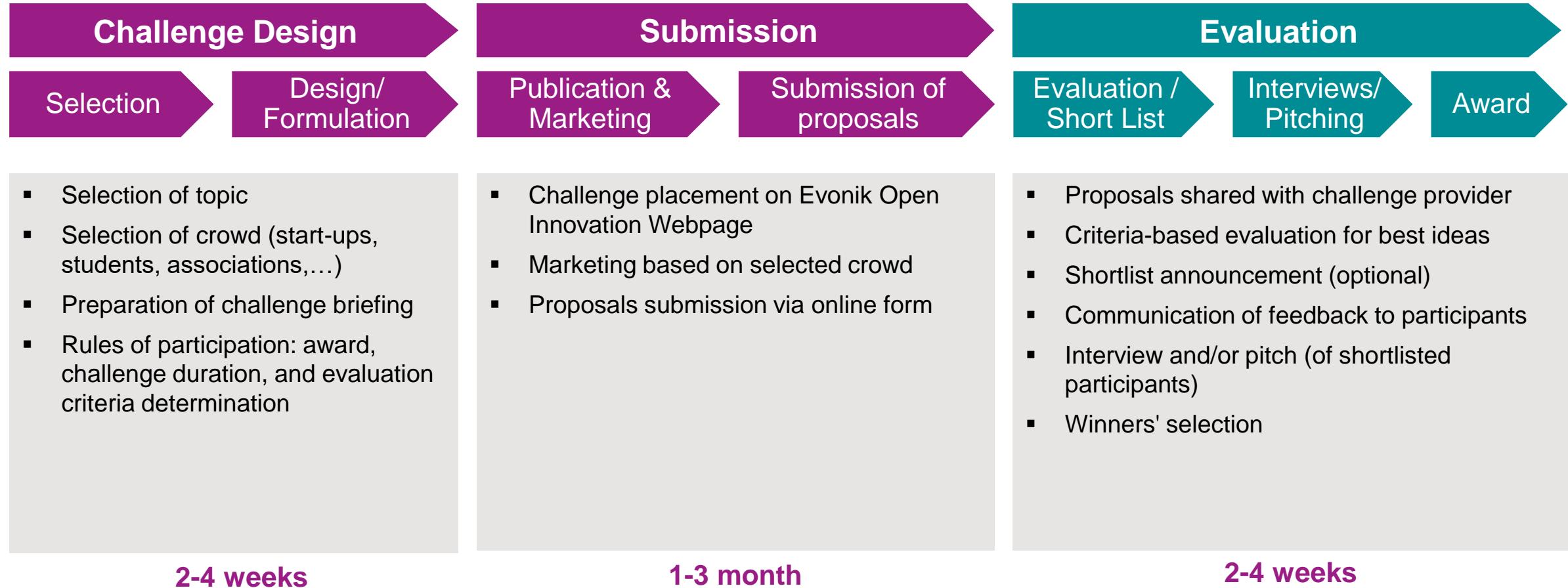


Young Polymer Scientist Forum

2 days, Evonik polymer topics, selected students

Open Innovation Challenge

Together with our internal partners, we create an individual challenge concept



Open Innovation Challenge

New applications wanted for VESTENAMER®

OPEN INNOVATION CHALLENGE:

Application innovation for VESTENAMER®



With this competition, Evonik is looking for new innovative ideas to expand the field of application of VESTENAMER® and to explore new markets with this product.

Which new applications could be addressed with VESTENAMER®?

In which applications is good compatibility with rubber or rubber-like materials required?

5000 EUR Reward

CHALLENGE CLOSED ON JUNE 30th, 2022



Challenge Outcome

- 9 relevant proposals out of 8 different countries
- Participants were professors and students



Rewarded Ideas

2500 EUR

Reactive diluent for UV curable powder coating,
Dr. Aarti P. More, Institute of Chemical Technology,
Mumbai, India

1500 EUR

Encapsulation for epoxy curing agents, Volodymyr
Dukko, University of Bayreuth, Germany

1000 EUR

Novel functional derivatives for polymers and bio-renewable co-polymers, Prof. Harald Gröger and
Adil Allahverdiyev, Bielefeld University, German

OPEN INNOVATION CHALLENGE

Discover new
applications for liquid
polybutadienes and
shape tomorrow's
mobility!

POLYVEST®



Submit your innovative ideas for a chance to win
€5000 and collaborate with our experts!
Open until 30.11.2023



OPEN INNOVATION CHALLENGE

Within our defossilization strategy, Evonik is looking for sustainable production reducing the CO2 formation globally. We are seeking for an alternative usage of an effluent containing 17 mass% Acrylic Acid, 1 mass% Acetic Acid and 3 mass% Formaldehyde.



Submit your innovative ideas for a chance to win €5000 and collaborate with us to reach sustainability!

Open until 15.02.2024



