

# CHEMManager<sup>4/2025</sup>

INTERNATIONAL



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## Markets & Strategies

Anniversary Editorial,  
Driving Sustainability Collaboration,  
Net-Zero Efforts, Sustainability Progress,  
Leading Transformation

## Distribution & Logistics

Four Ways to Win Amid Uncertainty,  
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Sustainable Pathway, Alcohols & Jet Fuel,  
Sim2Real Materials

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**Heraeus**

Precious Metals

20 years of **CHEManager International**

## Precious news need a reliable catalyst

A milestone worth celebrating. Just like our catalysts, your impact is lasting, selective, and highly efficient.  
**Thank you for being a trusted partner in progress. We look forward to the next decade of shared success.**



# Going Global

## CHEManager International's 20<sup>th</sup> Anniversary Marks the Starting Signal for a New Era

*As editors, we've had the privilege of guiding CHEManager International through a period of remarkable transformation. Our journey began in 2005, when the English-language edition launched as CHEManager Europe. Back then, our goal was on mirroring the success of the German edition in the international market and our focus was on serving the European chemical and pharmaceutical management community, providing insights tailored to a regional audience.*

However, as the industry's boundaries blurred and globalization accelerated, we recognized the need to broaden our perspective. In 2014, we rebranded as CHEManager International, embracing a global outlook that reflected the interconnected nature of our readers' work. Today, our publication reaches decision-makers across Europe, America, Asia, and the Middle East, with a digital circulation of 120,000 copies. This evolution has been driven by our commitment to adapt and respond to the changing needs of the industry, ensuring our editorial direction remains relevant and forward-thinking.

### Back to the Beginning

But let us look back to when it all started. This anniversary could not be celebrated if CHEManager, the German-language trade journal, had not been founded in 1992. Within a short period of time, it became the leading industry newspaper for executives and decision-makers in the chemical and pharmaceutical industry.

In 2002, CHEManager was acquired by the renowned chemistry publisher Wiley headquartered in Hoboken, NJ, USA. This circumstance was a decisive factor in the subse-

quent internationalization strategy. In 2005, an English-language edition was launched under the name CHEManager Europe. At the same time, a US office was established at Wiley's headquarters in Hoboken, and CHEManager founding member Michael "Mike" Reubold moved to the US for three years to expand international business with North American customers.

*"We recognized the need to broaden our perspective"*

Initially printed in newspaper format, CHEManager Europe developed successfully and established itself in the echelon of leading international chemical industry media. The name change to CHEManager International and the switch to a more internationally common tabloid format marked the beginning of its second decade in

2016. Meanwhile, CHEManager International has become one of the premier media brands for the chemical, pharmaceutical, and biotech industries empowering managers and executives with a competitive edge through timely business news, expert insights, and the latest market data, enabling strategic business and investment decisions. State-of-the-art communication channels — including digital editions, a recently updated website, bi-weekly newsletters, expanded reach via LinkedIn channels, and direct engagement through virtual events — ensure 24/7 access to our target audience.

### Navigating Industry Transformation

Today, CHEManager International is part of Wiley's Corporate Solutions business, which underscores the purpose envisioned for the publication 20 years ago: We — Editor-in-Chief since early 2025, Christene Smith, and Mike Reubold and the entire editorial and sales team — aim to make the CHEManager brand the premier informa-





tion platform that delivers solutions for business processes at all levels, whether strategic or operational.

As Charles Darwin wisely said, “Nothing in the history of life is as constant as change”. The chemical industry, too, is subject to ongoing change; sometimes it is evolution, sometimes revolution, and currently there is a profound transformation driven by

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*“The way we deliver content has evolved alongside the industry itself”*

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multiple factors —geopolitical, industrial, technological, and societal. The chemical and pharmaceutical world looks very different from 2005, when we started this publication. Think of mega trends such as sustainability, circular economy, artificial intelligence that have set in motion an unprecedented, multi-layered transformation that we are currently experiencing and that will profoundly change the face of the industry. This transformation is also significantly driven by developing economies in Asia that are evolving from being the workbench for industrialized nations to becoming self-sufficient and even exporting nations that compete with Western industrialized countries.

## Adapting to Change

We have set out to accompany and help shape this transformation through substantiated and insightful information. Hence, industry transformation and societal change are being reflected: in the topics covered in CHEManager International, and for example, in the makeup of our authors and readership. Even though the ratio of male to female interviewees and authors still favors men, in recent years it has been shifting more toward women in leadership positions. The proportion of women now averages around 40%. Partnerships in recent years with organizations like Women in Chemicals, along with the natural evolution of the industry itself, help to positively influence this shift.

Just as evident as the changing gender ratio is the decreasing average age of our authors and read-

ers—not least since we introduced our CHEManager Innovation Pitch section in 2020, giving start-ups and young entrepreneurs the chance to present their companies and business ideas in CHEManager International. Thanks to our sponsors, start-ups are given a platform to reach supporters, investors, partners, or customers. Start-ups play an increasingly important role in the innovative capacity of the chemical and pharmaceutical industries. With this young target group, CHEManager International is also seeing changing reading habits.

Therefore, the way we deliver content has evolved alongside the industry itself. While print remains a cornerstone of our brand, we’ve expanded into digital editions, newsletters, social media channels, and invested in our online portal. This cross-media approach allows us to reach a wider audience and engage with readers



Current CHEManager Team at CPHI Frankfurt 2025. L-R: Florian Högn, Birgit Megges, Michael Reubold, Christene Smith, Thorsten Kritzer

in new, interactive ways. We’ve also embraced virtual events, creating platforms for dialogue and collaboration beyond the printed page. By integrating print and digital, we ensure CHEManager International remains accessible, timely, and relevant in a rapidly changing media landscape. Our commitment is to continue innovating how we share knowledge, supporting our readers wherever they are.

Thus, the “CHEManager Community” now consists not only of readers, but also of “visitors” and “followers.” Our bilingual online portal CHEManager.com consistently attracts over 80,000 visitors each month, and our LinkedIn channels (German & English

language) are followed by almost 48,000 LinkedIn members from all over the world.

## Leading Chemical Industry Insights

Throughout this journey, our editorial mission has remained clear: to deliver management insights that empower professionals in the chemical, pharmaceutical, and biotech sectors. Over the years, we’ve witnessed—and reported on—shifts in industry priorities. In our early editions, we focused on European markets, corporate strategies, and plant engineering. As digitalization and globalization took hold, our coverage expanded to include Industry 4.0, sustainability, and the circular economy. More recently, we’ve highlighted innovation, biotechnology, start-ups, decarbonization, and regulatory develop-

whether through decarbonization initiatives, circular economy models, or groundbreaking research. By sharing these stories, we hope to inspire our readers to pursue innovation and sustainability in their own organizations, fostering a culture of progress and responsibility.

## Team Spotlight

None of this would be possible without our exceptional team. We want to especially recognize Brandi Schuster, who played a pivotal role as the first Editor-in-Chief of CHEManager Europe and helped shape the international edition from its inception in 2005 until 2014. Ralf Kempf, who was acting Editor-in-Chief until earlier this year, also made significant contributions and his dedication remains part of our legacy. Our heartfelt thanks go to our assistants, Beate Zimmermann, Lisa Colavito, and Bettina Wagenhals, whose organizational skills and positive energy keep everything running smoothly.

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*“The CHEManager International team is more than just editorial—it’s a collaborative network”*

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More thanks to our talented layout colleague Oliver Haja who brings each issue to life visually. We’re grateful for our media consultants, especially Thorsten Kritzer, whose expertise ensures our content reaches the right audience. The CHEManager International team is more than just editorial—it’s a collaborative network of writers, consultants, designers, and support staff, all united by a shared commitment to excellence. Together, we celebrate every milestone and look forward to new challenges ahead.

**Christene Smith, Editor-in-Chief CHEManager International, and Michael Reubold, Publishing Manager CHEManager & Managing Editor CHEManager International**

ments such as the Supply Chain Act and PFAS regulations. By collaborating with experts and thought leaders, we strive to provide our readers with the knowledge they need to navigate a complex, fast-evolving landscape.

## Innovation and Sustainability Focus

Innovation and sustainability have become central themes in our editorial planning. The industry’s rapid embrace of new technologies, coupled with an urgent need for sustainable solutions, has shaped our content in profound ways. We’ve dedicated special issues and features to topics like digital transformation, green chemistry, and the rise of biotech start-ups. Our goal is to spotlight pioneering companies and individuals who are driving change,

# Driving Sustainability Through Collaboration

## Building Green Practices Across the Chemical Supply Chain

*Together for Sustainability (TfS) is a pioneering, member-led initiative working to accelerate the development of sustainable and resilient chemical supply chains. Since its founding in 2011, TfS has grown to over 50 members, bringing together leading companies across the global chemical industry. Led by President Jennifer Jewson, TfS continues to advance collaborative progress and resilience across the chemical sector – driven by the shared commitment and action of its member companies. Christene Smith of CHEManager discusses with Jennifer the origins of TfS, its evolving goals, its present-day challenges, and the initiative’s enduring impact and outlook for the future.*

**CHEManager: Looking back, what inspired the founding of TfS, and what gaps did the initiative seek to fill in the chemical supply chain sector?**

**Jennifer Jewson:** TfS was founded on a shared vision among six leading chemical companies – BASF, Bayer, Henkel, Evonik, Lanxess, and Solvay –

who saw procurement as a lever for change. In 2011, sustainability action across chemical supply chains was fragmented and inefficient. Each company was running its own assessments and audits, often duplicating efforts and missing opportunities for real improvement. TfS was launched to fill this critical gap: a unified, industry-wide approach to responsible sourcing that



Jennifer Jewson, President, Together for Sustainability

addressed environmental, social and governance issues holistically.

The founders understood that collaboration was key. By pooling resources and agreeing that ‘an audit for one is an audit for all’, they created

a system that was not only more efficient but more impactful.

**How has TfS evolved since its founding?**

**J. Jewson:** TfS has grown from a bold idea into a pioneering initiative for responsible procurement in the chemical industry. What began in 2011 with six founding members has expanded to 58 companies, representing a combined €800 billion in turnover and €550 billion in spend. Our reach is now truly global, with regional teams in Asia, North America and Latin America driving local engagement and supplier training. By partnering with regional chemical associations and hosting joint events, these teams have raised awareness and increased the adoption of TfS standards globally.

TfS is a member-led organization, committed to fostering resilient, sustainable supply chains through collaboration, innovation and continuous improvement. We’ve developed robust infrastructure – from our audit and assessment tools to the TfS Academy, which now supports over 12,000 users, to our Scope 3 GHG emissions program, which helps members tackle one of the most complex sustainability challenges.

*“Joining TfS as a member gave me insight into the value of collaboration. Leading it as President has shown me the scale of what’s possible when that collaboration is structured, strategic and ambitious.”*

**LyondellBasell joined TfS in 2021. How has your own perspective shifted since becoming TfS President in 2023?**

**J. Jewson:** Joining TfS as a member gave me insight into the value of collaboration. Leading it as President has



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shown me the scale of what's possible when that collaboration is structured, strategic and ambitious. One of my proudest achievements has been shaping and launching Accelerate4Impact, our new strategy for 2030. It builds on the foundational Grow & Deliver strategy, not only focusing on expansion but also on more impactful execution. Accelerate4Impact is designed to catalyze change and speed the development of sustainable, resilient chemical supply chains through effective collaboration and operational efficiency.

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*“Our members know that focusing solely on cost won't get them there. By investing in sustainability performance indicators like energy use, logistics efficiency and emissions – they're building resilience and competitive advantage.”*

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My perspective has evolved too. In my role at TFS, I've seen firsthand how sustainable procurement can drive meaningful progress across the chemical industry. The Accelerate4Impact strategy is helping us turn ambition into action – embedding sustainability into day-to-day operations, enabling measurable improvements and strengthening resilience across the value chain. It's a privilege to help guide that shift. We've also introduced Excellence Groups, which allow members to share their knowledge and best practices on effective implementation of the TFS program in areas like supplier improvement, emissions tracking and audit follow-ups. These groups are agile, member-led and focused on outcomes that are then shared with all TFS members.

At TFS, we don't see sustainability as a compliance exercise, but as a strategic lever for growth, innovation and resilience. This was a central theme at our Annual Workshop in Zaventem (October 2025), where member companies shared how they're embedding sustainability across functions – from procurement and R&D to sales and compliance. These discussions reinforced the business case for sustainability and the importance of shared ownership in driving long-term value. Reliable data, particularly on product carbon footprints, remains a critical

enabler for informed decision-making and customer trust.

We also recognize the importance of listening. Our engagement with regional chemical associations ensures we're considering a wide range of perspectives and local realities. That global view helps us shape a sustainability agenda that's both ambitious and inclusive – and ultimately more effective for the industry.

As President of TFS, I am proud to reflect on the achievements of our recent workshop. The conversations focused on resilience and responsibility in global supply chains, and how sustainable procurement and risk management are becoming essential in today's volatile environment. I encouraged members to connect policy with practice, foster collaboration and explore innovative approaches. By leveraging technology and building strong supplier partnerships, we can drive meaningful progress. Let us continue to lead with purpose, prioritize ethical conduct and champion sustainability as the foundation for our future success.

*How have the goals and priorities of TFS evolved since its inception, especially as new environmental and social challenges have emerged?*

*J. Jewson:* The world has changed dramatically since 2011, and TFS has evolved to meet those changes head-on. One of the most significant shifts has been our response to meeting global climate targets – specifically, the challenge of Scope 3 emissions, which often account for more than three-quarters of a company's total emissions.

To address this, TFS launched the Scope 3 GHG Emissions Program, helping the chemical industry tackle the Scope 3 challenge through harmonized, digital and collaborative solutions, including:

- The PCF Guideline, now in version 3.0, aligned with ISO and GHG Protocol standards
- The PCF Exchange solution (SiG-REEN)
- A PCF Verification and PCF Program Certification Framework: developed with Catena-X
- A Data Model for consistent reporting across the value chain

*With current turbulence in the chemical industry – volatile markets, geopolitical tensions and supply chain challenges – how does TFS balance immediate operational needs with*

*long-term sustainability commitments?*

*J. Jewson:* The chemical industry is experiencing a period of significant change, with companies navigating both immediate challenges and long-term priorities. At TFS, we support members in managing this complexity by demonstrating how sustainability and business performance go hand in hand.

Our members know that focusing solely on cost won't get them there. By investing in sustainability performance indicators like energy use, logistics efficiency and emissions – they're building resilience and competitive advantage.

The Scope 3 program is a case in point. Customers are demanding lower-emissions solutions, and TFS gives members the tools to deliver. Procurement teams are no longer working in silos – they're collaborating with operations, sustainability and finance

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*“Through collaborative workstreams and regional teams, TFS members are actively engaged in addressing emerging issues – from circularity to human rights due diligence. Together, we're raising the bar for sustainability across the industry.”*

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to embed ESG into decision-making. This kind of cross-functional integration is key to building resilient supply chains that meet both immediate business needs and long-term sustainability goals.

*How does TFS assist member companies in not only achieving compliance but making sustainability an integral part of the business and achieving value through sustainable development?*

*J. Jewson:* TFS equips members with the data, tools and networks to embed sustainability beyond compliance. Reinforcing this commitment, our revised key performance indicator (KPI) framework – effective from 1 January 2025 – places greater emphasis on driving improvement and measuring impact. As part of the individual and collective

member targets, new KPIs track suppliers with below-average scores and monitor audit outcomes through corrective action plans (CAPs), based on documented or completed actions. As a global initiative, TFS tailors implementation for regional contexts across North America, LATAM and Asia. Continuous exchange between global and regional leadership fosters mutual learning and alignment. To support inclusive governance, the newly introduced Global Steering KPI measures the proportion of leadership roles held by representatives from member companies headquartered outside Europe. This approach ensures diverse perspectives and strengthens our collective impact on sustainability across the chemical value chain. Beyond metrics, TFS works closely with regional chemical associations and global partners like the World Business Council for Sustainable Development (WBCSD). We contribute to initiatives such as The Climate Drive, an open digital platform that supports companies in implementing emissions reduction targets through sector-specific guidance. TFS encourages members and suppliers to share use cases via the Climate Drive Library, now integrated into the TFS Academy.

Through collaborative workstreams and regional teams, TFS members are actively engaged in addressing emerging issues – from circularity to human rights due diligence. Together, we're raising the bar for sustainability across the industry.

*What does success look like in terms of environmental, social and governance performance?*

*J. Jewson:* Success is about impact. In 2024, 66% of reassessed suppliers improved their scores, with the biggest gains in environmental performance. These results highlight meaningful progress and reinforce the effectiveness of our approach.

But we're going deeper. Our new measurement systems help us detect risks in the most vulnerable parts of the supply chain – whether it's forced labor, water management or biodiversity. We're expanding our Action Priorities Dashboard to include these issues, helping members take proactive steps.

And strategically, success means delivering on the refined KPIs approved by our General Assembly – metrics designed to better track progress, identify areas for improvement and demonstrate tangible impact.

■ [www.tfs-initiative.com](http://www.tfs-initiative.com)

# Anchored in Sustainability

## Sustainable Progress Amid Evolving Global Challenges

*Dow is re-examining what it means to be resilient and competitive in a rapidly changing global landscape, where energy volatility, regulatory shifts, and mounting climate pressures are fundamentally reshaping the chemicals industry. For Haley Lowry, Global Sustainability Director at Dow, steering these transitions means weighing immediate business challenges alongside long-term goals for decarbonization, circularity, and sustainable growth. In this interview with Christene Smith of CHEManager, she shares how a holistic view of strategy, innovation, and collaboration can help organizations adapt and deliver meaningful impact—today and into the future.*

***CHEManager: As Global Sustainability Director at Dow, what drives your personal passion for advancing sustainability and circular economy initiatives, and how do your own values and experiences influence your approach to transformative change within the company?***

***Haley Lowry:*** As the Global Sustainability Director for Dow's Packaging

and Specialty Plastics business, I help integrate environmental goals with our commercial goals by driving circularity at scale and transforming our business into what the market wants and the world needs.

I lead projects to convert materials from waste to value, driving innovation and investment to create new technology that scales the circular life of plastics.



Haley Lowry, Global Sustainability Director, Dow

***How does Dow's overarching business strategy integrate sustainability as a core driver of long-term value creation across its product lines and global markets?***

***H. Lowry:*** We're committed to making circular and low-carbon products competitively and making that value accessible, scalable, and impactful for our customers and society.

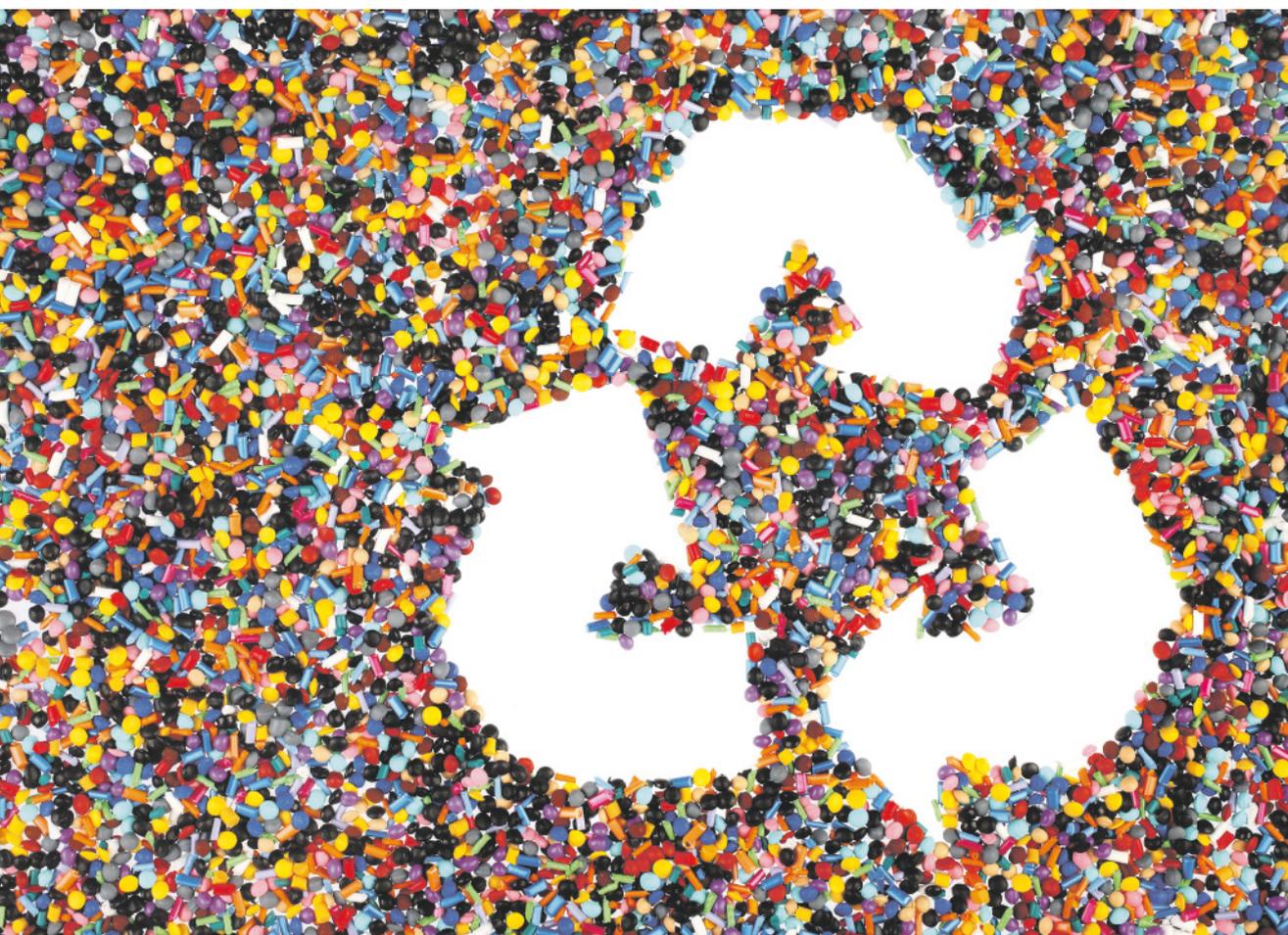
To make that happen, demand pull is essential. Circular and low-emissions products won't scale or become cost-competitive unless the market actively asks for them. Right now, circular resins often cost more than virgin materials, but that gap can close if we create the right conditions for demand to grow – conditions that support scale, efficiency, and fair competition.

For Dow and the industry to succeed, we need a robust policy framework that supports circularity across packaging, automotive and other critical market segments. This means recognizing all recycling technology routes to count toward recycled content targets. Legal recognition of mass balance, for instance, is essential to unlock scale and make circular business models viable.

At the same time, Dow is not waiting for policy alone to drive progress. We're actively managing risk and creating value through a diverse innovation portfolio. We're working with multiple partners and technologies—from early-stage prototypes to commercial solutions already delivering impact. This end-to-end innovation pipeline is how we stay agile, resilient, and customer-focused—while keeping sustainability and competitiveness firmly aligned.

***Dow has set several ambitious sustainability targets — such as achieving carbon neutrality and advancing a circular economy. How are you measuring progress toward these goals, and what milestones are most critical in the next five years?***

***H. Lowry:*** We have long believed that sustainability is a value driver for Dow and our customers. Our sustainability targets reflect our commitment to decarbonization, circularity, and water and nature. This comprehensive approach recognizes the inherently linked facets of sustainability and performance – for Dow, our customers and our shareholders





On Circularity, we have set targets to transform the waste and grow our circular and renewable solutions while delivering value. In the decarbonization space, by 2030, we will reduce our net annual carbon emissions by 5 million metric tons compared to our 2020 baseline. We continue to source more than 50% of the company's purchased electricity from renewables.

Several factors influence the acceleration of circularity such as technology advancements, feedstock availability, infrastructure investments, system economics, and end-market demand. One of the most critical factors is policy – as it is the hinge to demand for sustainable and low-carbon solutions. For example, recycled content mandates can drive demand for recycling and help stabilize the market by ensuring that producers buy recycled materials regardless of price fluctuations.

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*“Dow is not waiting for policy alone to drive progress. We’re actively managing risk and creating value through a diverse innovation portfolio.”*

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Our annual Intersections Progress Report reflects Dow's climate-related performance and strategies.

*Dow recently announced closures of several upstream assets in Europe, citing high energy costs and structural market challenges. How can Dow's decarbonization initiatives help mitigate the risk of similar closures in the future?*

**H. Lowry:** As a company we are adapting strategically to regulatory and economic realities in Europe. We remain committed to drive circular and lower carbon future for the region, but it is clear that the EU currently suffers from a lack of overall competitiveness.

This does not mean that individual plants and sites are necessarily uncompetitive but the overall attractiveness of Europe for investments is currently low. This is particularly important as the desired industrial decarbonization will require significant amounts of investment.

Our recent announcements to shut down three upstream assets in Europe will right-size regional capacity, reduce

merchant sale exposure, and remove higher-cost, energy-intensive portions of Dow's portfolio in the region.

While Europe is working on strengthening its competitiveness, Dow continues to invest in projects that decarbonize and advance a circular economy for plastics globally, targeting partners and locations with strong investment climates. We are actively scaling low carbon and circular solutions across all major geographies, including Europe.

A couple of examples:

- We recently announced an investment in Xycle to support the construction of their advanced recycling facility in Rotterdam, transforming 21 kilotons of plastic waste annually into high-quality circular feedstock.
- We acquired Circulus in North America in 2024, adding 50,000 metric tons of post-consumer resin (PCR) capacity annually through mechanical recycling. We also signed a JDA with P&G to develop a new technology to help recover PE from hard-to-recycle waste for reuse in consumer packaging.
- Also in 2024, we signed a first-of-its-kind memorandum of understanding circularity partnership with SCG Chemicals in Asia Pacific to transform 200 kilotons per annum of plastic waste into circular products by 2030.

*Innovation plays a central role in Dow's sustainability approach. Could you share examples of breakthrough technologies or material innovations that support circularity or significantly reduce environmental impact?*

**H. Lowry:** I'll share three recent examples I am excited about that show how we work across the materials ecosystem for better ways to make, use and reuse plastics.

We're helping our customers meet their Scope 3 targets by providing low-carbon products enabled by our decarbonization efforts. Early this year, we signed a long-term contract with a leading consumer goods company for the supply of low-carbon products, aiming to reduce several million metric tons of GHG emissions over the next decade. Recently, we have also expanded our long-standing strategic partnership with Henkel to accelerate decarbonization in adhesives manufacturing across technologies. A critical enabler in these agreements is Dow's ongoing efforts to significantly lower GHG emissions from its own manufacturing operations.

A recent example of a breakthrough plastics innovation is our collaboration with Zermatt, a packaging converter, and Nature's Variety, a European pet food brand. Together, they've developed a pet food packaging pouch that incorporates food contact-compliant recycled content from advanced recycling. This innovation not only addresses recyclability but also helps meet the EU's 2030 packaging waste regulation targets.

And last, I am excited about our collaboration with Materra, a team inside Alphabet's Moonshot Factory, to develop an AI database to identify films and other flexible plastics that can be used to advance sortation and recycling of these historically tough-to-recycle materials. Alphabet is the parent company to Google. AI and this initiative has the potential to elevate the value and end markets of such materials, positioning them as competitive alternatives to virgin materials. This collaboration is part of our research and development team's sustainability work. Dow has made sustainability a core business strategy, with over 90% of our R&D portfolio now directly aligned with sustainability-focused projects.

*You were an active part of Dow's involvement with the Alliance to End Plastic Waste, which recently released a progress report. How has the alliance shaped Dow's sustainability strategies and internal priorities?*

**H. Lowry:** The Alliance is an important part of our broader work in the materials ecosystem, together with other partners like Circulate Capital,

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*“There are many gaps in the circular economy today, and the Alliance to End Plastic Waste's focus on building basic waste collection, sortation and recycling infrastructure and capacity reduces leakage of plastics into the environment in lasting ways.”*

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Closed Loop Partners, Delterra and The Recycling Partnership. The plastic waste challenge requires every stakeholder in the value chain to pull its weight, and the Alliance is part of

our “team” strategy to create a circular economy.

There are many gaps in the circular economy today, and the Alliance's focus on building basic waste collection, sortation and recycling infrastructure and capacity reduces leakage of plastics into the environment in lasting ways. The Alliance refreshed its strategy last year to consolidate its attention on tar-

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*“Sustainability is how companies future-proof themselves by reducing risk, creating value, and earning trust. Sustainability is resilience. Companies that integrate sustainability into decision making, product design, and culture will be the ones that thrive now and into the future.”*

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get countries and themes, such as on flexibles, Indonesia, India, South Africa, Brazil and the Gulf Cooperation Council area, in order to achieve impact at scale. We are seeing paybacks in this strategy change through the catalytic funding it has been able to attract from development finance institutes such as the Asian Infrastructure Investment Bank, and the support it has received from government partners.

Dow is actively engaged in these country and thematic programs to bring our industry knowledge to the table, so that the waste which the Alliance helps to divert from the environment and landfills can be valorized in a profitable and sustainable circular economy.

*What role does sustainability play in driving business resilience — both in supply chains and in maintaining stakeholder trust amid accelerating environmental and social pressures?*

**H. Lowry:** Sustainability is how companies future-proof themselves by reducing risk, creating value, and earning trust. Sustainability is resilience. Companies that integrate sustainability into decision making, product design, and culture will be the ones that thrive now and into the future.

■ [www.dow.com](http://www.dow.com)

# Leading Transformation

## The Path to Sustainable Growth

*As Executive Vice President of International Chemicals since early 2024, Antje Gerber has been steering Sasol through a pivotal reset – focused on resilience, innovation, and bold sustainability goals. Under her leadership, the company is reshaping its go-to-market strategies and recalibrating its asset footprint – all while fostering a dynamic workplace culture amid industry challenges. In this interview with Christene Smith of CHEManager, Gerber shares insights on balancing short-term profitability with long-term green investments, scaling sustainable technologies worldwide, and cultivating an agile organization ready for the future of chemicals. This conversation offers a compelling glimpse into the strategic vision and leadership fueling Sasol’s transformation journey.*

**CHEManager:** *Since your appointment as EVP, what has shaped your overarching strategic vision for building resilience and long-term value in Sasol’s international chemicals business?*

**Antje Gerber:** Coming from outside the company, I knew Sasol had a fantastic

reputation in the market. And once I began working and got to know the company from the inside, I saw first-hand our strengths – a highly capable workforce, excellent customer relationships, robust research and development, great products, and some tremendous assets.

But I also saw that we were underperforming our peers, even though we

were all facing the same challenging global chemicals market.

To change the company’s trajectory, I recognized that we must move away from the fragmented, siloed structure that had developed over time and become a global, collaborative organization – removing the regional mindset from our business and replacing it with an “all for one” approach, both in how we work and how we view our progress and results.

From there, a three-pronged strategy was developed to build long-term value.

First, adopt a new go-to-market approach, one that uses different models for commodities and specialties and focuses on value over volume. We are “leaning in” to the markets and products where we have an advantage and working to strengthen our offerings and our presence. In the past we tried to be everything to everyone, but we cannot afford that approach. So, we have begun a disciplined segmentation approach to our portfolio that is leading to more value-focused technical engagements.



Antje Gerber, Executive Vice President International Chemicals, Sasol

Second, optimize our asset base, close or mothball underperforming assets – including non-core facilities in the US, Germany and Italy. That was a difficult but necessary step to improve our long-term financial performance.





And finally, work diligently – and successfully – to reduce our cost structure. We have a leaner executive team; we've consolidated functions along the global value chain; and we're standardizing systems and implementing best practices globally. Today, we are more efficient and we make decisions more quickly.

*What unique strategies have you introduced to cultivate a resilient and agile workplace culture — enabling innovation while navigating significant organizational changes as EVP of International Chemicals?*

**A. Gerber:** Building and maintaining a culture is hard work. Culture is the result of how you work day-to-day and the elements of the job you focus on. In other words, you have to walk the talk.

Our primary focus has been changing our mindset to break down our regional and functional siloes and work more collaboratively. Someone may sit in the US or Germany, but we are part of a global company with tremendous resources around the globe, and we need to work together, share ideas and best practices, and learn from and support each other.

That level of collaboration is vital in today's world. An idea that begins in Marl, Germany, can be nurtured in Lake Charles, USA, and blossom in Nanjing, China – and we all can benefit.

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*“When people see that collaboration is supported and valued, and how it benefits our customers, they will adopt those behaviors. That's how culture is built.”*

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I see our culture defined by four key attributes: seamless collaboration; calculated risk-taking; spirit of winning; and driving innovation.

So building our culture requires us to continually encourage our people to collaborate; knocking down the organizational and structural barriers that prevent them from doing so; and celebrating our successes when we do. It's not something you do once and then move on; it needs to be embedded in how we work every single day and how we approach challenges and opportunities.

When people see that collaboration is supported and valued, and how it benefits our customers, they will adopt those behaviors. That's how culture is built.

*Your targets for 2030 include a 30% reduction in greenhouse gas emissions. What transformative technologies, efficiency measures or external partnerships do you see as central to hitting these decarbonization goals? And what are some of the circular economy initiatives that you see making a difference?*

**A. Gerber:** Sasol International Chemicals is using two key levers to achieve our sustainability goals.

The first lever is how we operate our facilities. To that end, we are reducing the carbon intensity of our

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*“We are working diligently to reduce the environmental impact of our products throughout their lifecycle.”*

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operations using renewable energy and continuous process optimization.

For example, we recently announced a new virtual power purchase agreement with Akuo, an independent developer and producer of renewable energy, of that will deliver the equivalent of 91 megawatts, or 250,000 megawatt hours, annually of renewable energy capacity – an amount equal to approximately half of the annual energy consumption at our Lake Charles Chemical Complex. When implemented in the second half of 2026, the agreement will reduce Sasol's CO<sub>2</sub> emissions by approximately 90 thousand tons a year.

That's a significant step forward, but it's just one of the ways we are using this lever. We have implemented renewable energy activities in Germany, Italy, Slovakia and China, in partnership with local providers. Each of these initiatives gets us closer to our objective.

The second lever is the solutions we offer customers. We are working diligently to reduce the environmental impact of our products throughout their lifecycle, from sourcing and manufacturing through transportation, use and end of life.

This is an area where the innovation of our people and our proprietary

technology can really make a difference. Take, for example, Renke Rommerskirchen, one of our research and development managers in Germany. He has been working for several years to produce a novel surfactant from insect oils, using the byproduct of a process to make sustainable proteins for animal feed.

Renke led a cross-functional team that brought this product to market this year. Called Livinex IO7, it is a bio-circular, palm- and deforestation-free nonionic surfactant for the fabric, home care and industrial/institutional cleaning markets, and we believe it has great potential for customers who are seeking products made from renewable feedstocks.

Renke's innovation shows how one individual can make a difference. By championing his idea from initial research to commercialization and working across functional lines, the team developed an innovative nonionic surfactant that uses a first-of-its-kind feedstock.

I also recognize that there is no single solution to reducing greenhouse gas emissions; it's a complex issue that requires multiple strategies across every aspect of our business. I'm excited about the progress we've made and the initiatives we have under way, and I'm proud of the way we are using human ingenuity, technology and collaboration to tackle the issue across the breadth of our operations and our portfolio.

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*How does Sasol decide which emissions-reduction projects have the largest impact or strategic priority — and what role do collaborations with key industrial and governmental partners play in your decarbonization journey?*

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**A. Gerber:** Our team is constantly analyzing technologies and processes using a science-based lifecycle assessment, which enables us to properly evaluate the environmental footprint of possible initiatives. In general, these solutions fall into one of three buckets – renewable energy, process optimization/improved energy efficiency or the implementation of low-carbon utilities. And our R&D function, through cooperation with external partners and our commercial teams, focus on development and evaluation of renewable feedstock-based options for future products. Understanding the implementation of these technologies or initiatives and accurately identifying their impact requires a cross-functional team that can analyze costs and ben-

efits and identify those opportunities that should take priority.

There's no doubt that partnerships play a major role in this effort. We are fortunate to have strong relationships with the utilities that serve our facilities and our local governmental and regulatory agencies, and work closely with independent providers to identify and analyze opportunities. The same holds true for renewable feedstock providers.

Our work is paying off. International Chemicals' scope 1 and scope 2 greenhouse gas emissions in FY25 were 23% lower than the 2017 baseline and 5% lower than the previous fiscal year. While some of that was due to lower utilization rates amid a subdued global chemical market, we achieved a 12% cut through our emissions reduction roadmap.

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*Financial pressures are persistent in the chemicals sector. How is Sasol balancing short-term financial goals with the need to invest for longer-term profitability?*

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**A. Gerber:** We are resetting International Chemicals for long-term, consistent profitability and growth, with a vision to be a global leader in surfactant and related value chains.

In fiscal year 2025, we were in the first phase of a three-phase effort to achieve superior financial performance

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*“Understanding the implementation of these technologies or initiatives and accurately identifying their impact requires a cross-functional team.”*

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relative to our peers. Our focus there was on the items discussed earlier – improving our cost structure; implementing our new, focused go-to-market model; simplifying our operating model; streamlining our asset portfolio; and embedding the culture shift as an enabler for innovation and customer centricity.

We've made great progress with each of those efforts and the results are clear. In FY25, International Chemicals delivered more than US\$120 million EBIDTA uplift, demonstrating early results from our reset initiatives.

■ [www.sasol.com](http://www.sasol.com)

# Collaborating Towards Net-Zero

## EPCA's New Committee Guiding EU's Petrochemical Transition

Europe's petrochemical sector plays a vital role in achieving climate neutrality. The European Petrochemical Association (EPCA)'s Net-Zero Transition Committee was established to help EPCA member companies navigate this transformation. The Net-Zero Factsheets and Enablers provide clear, practical insights into technologies, trends, and policies shaping the path to net-zero, offering a foundation for informed action across the value chain.

### The Petrochemical Sector's Role in Climate Neutrality

Europe's petrochemical industry is essential to the continent's net-zero ambitions. It provides key materials for renewable energy systems, circular products, and low-carbon manufacturing. Yet, it remains one of the most energy-intensive sectors, contributing significantly to global industrial emissions.

Decarbonizing this sector requires more than innovation — it demands collaboration, knowledge sharing, and actionable strategies. Whether large corporations or SMEs, the challenge is the same: how to move from ambition to implementation while remaining competitive.

To support this transition, the European Petrochemical Association (EPCA) established its Net-Zero Transition Committee in 2024. The Commit-

tee serves as a neutral platform for experts to guide the industry toward sustainable business models.

### Mapping the Pathways

The Committee's mission is to provide clarity in the face of evolving policies and technologies. As a knowledge hub, it maps initiatives, identifies opportunities, and presents information in an accessible, unbiased format. The scope of the initiative encompasses decarbonization technologies, circular economy strategies, and sustainable finance, with a particular emphasis on small and medium-sized enterprises (SMEs) that frequently encounter resource limitations.

The objective is to provide a comprehensive view of the industry's current state and the actions that can be

taken. By connecting expertise, the Committee empowers companies of all sizes to make informed decisions.

### From Insight to Action: The Net-Zero Factsheets and Enablers

In October 2025, the Committee delivered its inaugural major deliverable: the EPCA Net-Zero Factsheets and Enablers. This publication provides high-level practical guidance on ten key technologies and trends that are shaping the sector's future, alongside the regulatory and business conditions that enable their deployment.

Each Factsheet explores a specific technology, from hydrogen and chemical recycling to Power Purchase Agreements, highlighting current status, barriers, and strategic responses. The objective is to assist organizations, particularly SMEs, in designing climate roadmaps and identifying innovation and partnership opportunities.

One key opportunity lies in electrifying and optimizing heat generation. High-temperature heat is central to petrochemical production and among its hardest challenges to decarbonize. Two of the Factsheets — Heat Optimization and E-boiler / Heat Pump — show how improving heat recovery and electrification can act as pow-



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Lydia Pernal-Stoddart, Senior Advisor, EPCA

erful levers to reduce Scope 1 emissions. Using renewable electricity and advanced electric systems can significantly cut direct emissions and enhance cost stability, provided grid capacity is sufficient.

Another opportunity lies in transforming feedstocks to reduce reliance on fossil fuels. The Bio-based Chemicals and Chemical Recycling Factsheets examine how renewable and circular feedstocks can progressively replace virgin hydrocarbons, thanks to the significant advances in mechanical and chemical recycling, bio-based raw materials, and process integration across Europe. Despite progress, challenges remain around feedstock availability, quality, and certification frameworks. Both Factsheets stress the need for standardized methodologies, transparent traceability, and cross-sector collaboration to ensure that circular and renewable feedstocks scale effectively and reliably.

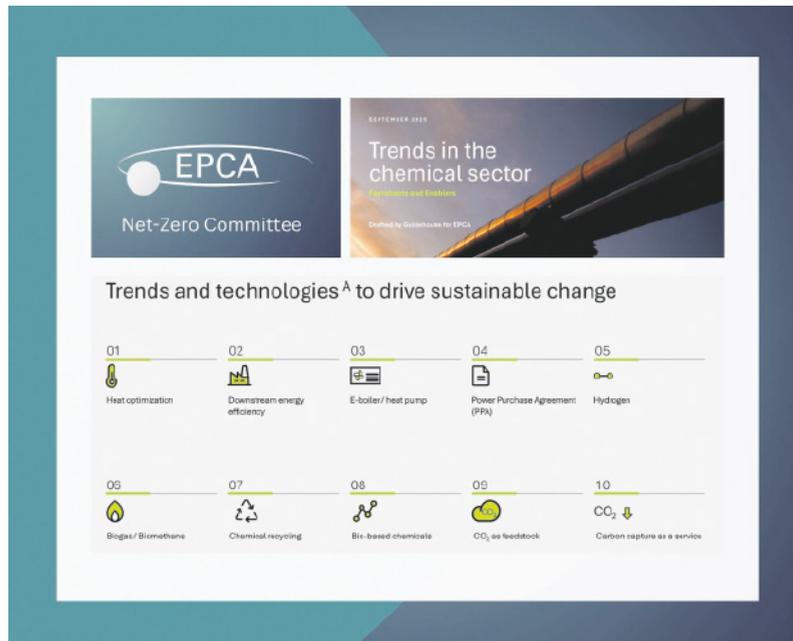




### Enabling the Transition

The Enablers section of the report underlines that technologies alone are not enough. Success depends on the conditions that allow them to be financed, regulated, and deployed at scale. Clear and predictable regulatory frameworks are central to this. Coherent climate and energy policies — such as the EU Green Deal, the Fit for 55 package, and the Industrial Carbon Management Strategy — help by providing the long-term visibility investors need to commit capital to low-carbon projects.

Innovation ecosystems and cross-sector partnerships in de-risking emerging technologies and aligning them with upcoming regulations also play a key role. For example, hydrogen and carbon capture projects depend not only on technical readiness, but also on coordinated infrastructure planning, permitting processes, and policy incentives. By mapping these links, the report highlights that enabling conditions as



Trends and technologies to drive sustainable change

well as the technological trends is what will ultimately determine whether the

petrochemical industry can realistically decarbonize itself.

### Looking Forward: Informing Decisions Across the Value Chain

The Factsheets and Enablers aim to build a shared understanding of the challenges and opportunities that define the industry's transformation. For SMEs, they offer a first reference point to navigate complex regulations and identify technologies suited to their scale. For larger players, they provide a summary of the broader landscape.

This publication marks a milestone — but it's just the beginning. EPCA's Net-Zero Transition Committee will continue exploring ways to go further with this work and build roadmaps to support members on their journey to climate neutrality, turning today's challenges into opportunities for innovation and resilience.

*Lydia Pernal-Stoddart,  
Senior Advisor, EPCA, Brussels,  
Belgium*

■ [www.epca.eu/net-zero-factsheets](http://www.epca.eu/net-zero-factsheets)

**speedikon FM**  
Aktiengesellschaft

## If Your Chemical Site Could Speak – What Would It Tell You?

For 20 years, CHEManager International has been the voice of innovation in the chemical industries. Today, digital transformation defines which companies will be able to take the next leap forward. And speedikon VIP provides the strategic platform needed for staying ahead of the competition.

By uniting spatial, process, asset and energy data, speedikon VIP helps chemical producers:

- Optimize energy use and reduce emissions
- Understand workflows & sites and how to improve them
- Accelerate investment decisions, e.g. new assets or production relocations
- Build resilient, future-ready chemical production facilities



Transform your site into an intelligent, data-driven asset and know what's happening, from planning to operation.

Learn more at [www.speedikonVIP.com](http://www.speedikonVIP.com)

# Sustainability in Chemical Logistics

## Climate Action as Part of Corporate Responsibility

*The world is changing — economically, socially, and ecologically. What does this mean for logistics, which plays a key role in reducing greenhouse gas emissions? Increasingly, it finds itself caught between growing demand for transport services and rising requirements to mitigate climate change. Companies in the chemical industry rely on secure, predictable, and international supply chains — so they need their logistics partners to be committed not only to efficiency but also to environmental responsibility.*

As a global logistics provider, Dachser does not shy away from its responsibility for the sustainable transformation of supply chains — with a clear corporate strategy and holistic measures that are commercially viable in the long term. For Dachser, the pursuit of greater sustainability isn't just an additional task or a marketing tool, but rather an integral part of its business dealings. The company has a strategic focus program, 'Dachser Climate Protection', that brings together all its activities in the area of sustainability and centers on four fields of action:

process efficiency, energy efficiency, research and innovation, and initiatives beyond the company's boundaries that combine social commitment and climate action.

Crucially, these four fields all pursue continuous development — building on proven technologies, processes, and regulations with a view to measurably supporting the environment and partners, while safeguarding the company's performance at the same time. The focus is on responsibility, transparency, and verifiability. Dachser is investing specifically in low-emission



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Michael Kriegel, Dachser

technologies, digital processes, and sustainable infrastructure, always with an eye on their impact and profitability. The aim is to develop sustainable logistics solutions and make them practicable at scale in close cooperation with customers, partners, the scientific community, and employees.

### E-Mobility: The Heart of the Sustainability Strategy

One direct lever for climate action is to increase efficiency. Every empty-truck km avoided and every instance of capacity utilization optimized means lower CO<sub>2</sub> emissions — a win for both

### PERSONAL PROFILE

**Michael Kriegel** has more than 30 years of professional experience in the logistics industry. He completed a dual degree program at Dachser in Hanover in 1995 and has been centrally responsible for companies in the chemical industry since 2003. Since 2007, Kriegel has been responsible for the Dachser Chem Logistics industry solution in the Executive Unit IT & Development (ITD). The unit's goal is to promote global logistics solutions for the chemical industry.

the environment and profitability. But efficiency alone is no longer enough.

That is why freeing road transportation from fossil fuels has become a central goal. This is a mammoth task: In Germany alone, road freight transport is responsible for around 20% of CO<sub>2</sub> emissions, and the German Federal Ministry of Transport forecasts a further 50% increase in transport volumes by 2050.

In facing up to this reality, Dachser is putting its faith in battery-powered e-mobility. The company believes that in the medium term, this technology will be the dominant form for emission-free transportation solutions in Europe in both short- and long-distance transport. Dachser is also researching and testing hydrogen fuel-cell drives, but so far, this field has raised more questions than answers.

The first of Dachser's pioneering e-mobility pilot projects was launched ten years ago. What began with a small electric van in the city center of Málaga and progressed to the all-electric FUSO eCanter light truck in 2018 has spawned a Europe-wide program: 'Dachser Emission-Free Delivery'. Deliveries to defined downtown areas in 21 European cities are now emission-free; by the end of 2025, the program will cover 25 cities.

Dachser's constantly growing fleet of e-trucks has now also started serving longer routes: The latest stage in the company's shift toward emission-free supply chains came at the beginning of 2025, when it put twelve all-electric MAN eTGX trucks into service — and thanks to these ultra-low-liner trucks, the e-fleet now includes mega trailers. In double-deck load-



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ing, these can transport up to 67 pallets each. Added to that are the eActros 600 from Mercedes-Benz Trucks, which entered service at the end of 2024: With a range of 500 km, they can be used in multiple scenarios. All this shows that electromobility works – provided the infrastructure is in place. That’s why the company is investing not only in the vehicles themselves but also in charging infrastructure, grid connections, and intelligent load management.

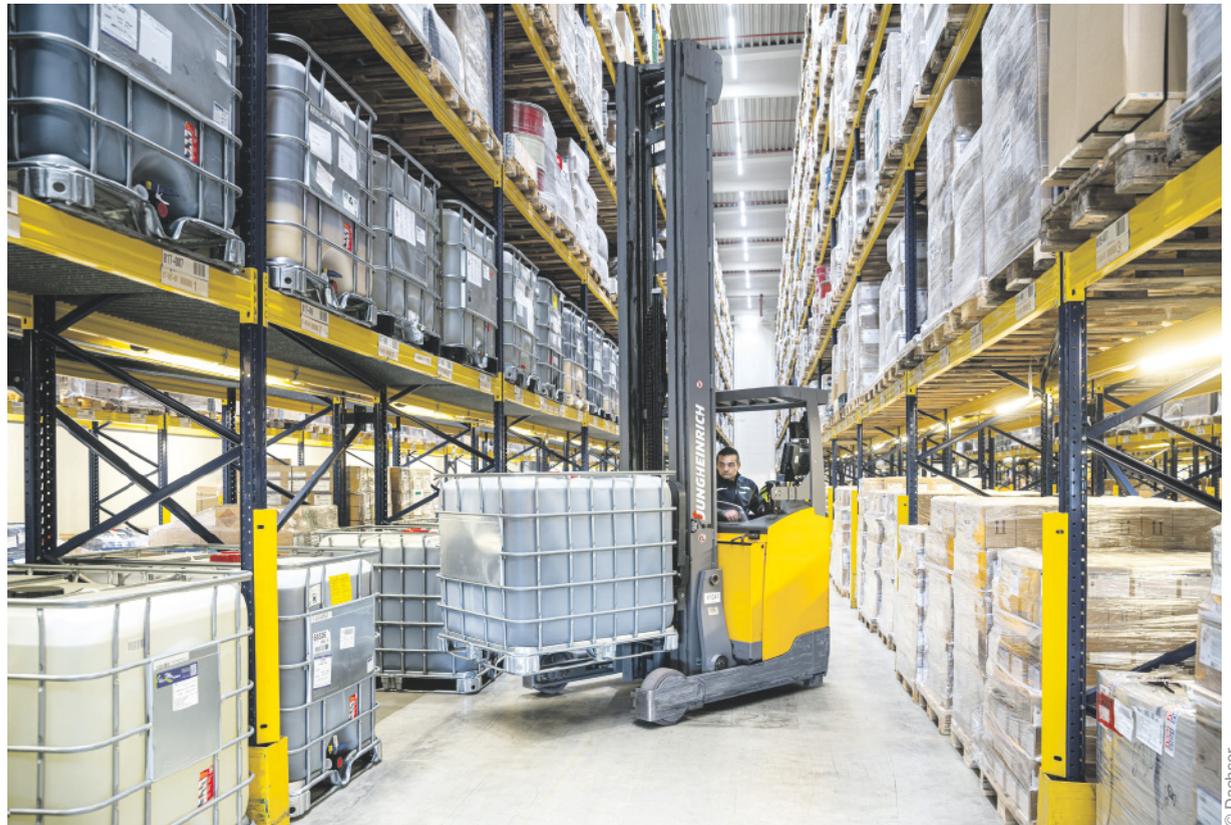
At present, the Dachser network features 160 battery-electric trucks across Europe. Even if these are only the first steps toward decarbonization in logistics, they are clear proof that emission-free transportation has long since arrived in regular operations – not only in urban delivery transport but also on long-distance routes. This sends a strong message to the chemical logistics business, where safety and quality are key requirements: Sustainability and reliability are not mutually exclusive. Today, with a few exceptions, alternative drive technologies such as battery-electric systems are perfectly capable of transporting dangerous goods as well.

### Integrated Measures Along the Entire Logistics Chain

Dachser is also paying particular attention to the interplay between zero-emission vehicles, charging infrastructure, and intelligent energy management. Accordingly, the company has developed its sites in Freiburg, Hamburg, and Malsch near Karlsruhe into e-mobility sites. Since 2022, the focus here has been on researching

*“The focus is on responsibility, transparency, and verifiability.”*

zero-emission technologies, their integration into processes, and intelligent electricity and load management, as well as testing these factors’ suitability for practical use. Dachser is incorporating the knowledge it gains at these locations as it expands its network – both for regional distribution transport and on transregional routes. This results in scalable solutions that are also suitable for use in the highly complex field of chemical logistics; after all, the Karlsruhe logistics center near Malsch, with its three hazardous mate-



Warehousing is another sustainability focus for Dachser: The company has exclusively been using electricity generated from renewable sources at all its branches worldwide since January 1, 2022.

rials warehouses, is an important location for Dachser Chem Logistics.

Warehousing is another sustainability focus for Dachser — and that goes explicitly for chemical logistics, too. For example, the company’s new hazardous materials warehouse in Rastatt, not far from the Karlsruhe logistics center, operates entirely without fossil fuels. Instead, it features photovoltaic systems, heat pumps, and panel heating based on 100% electricity from renewable sources as the backbone of emission-free warehouse operations. In any case, Dachser has exclusively been using electricity generated from renewable sources at all its branches worldwide since January 1, 2022.

In addition to overland transport and stationary logistics infrastructure, Dachser is also pushing ahead with measures to reduce emissions in other modes of transport. The technological paths forward for trucks are already more clearly discernible, but for other modes — particularly air and sea freight — numerous technical challenges make things more complex. Sustainable aviation fuels (SAF) and sustainable maritime fuels (SMF) play a central role here. These are regarded as essential bridging technologies on the way to more climate-friendly air and sea transportation. Based on residual and waste materials such as used cooking oils or animal fats, these fuels can at least partially replace fos-

sil fuels. The addition of SAF means Dachser’s air freight shipments can be transported with 30% less greenhouse gas emissions.

### Rooted in the Corporate Strategy

Dachser’s sustainability strategy is predicated on the close integration of technology, organization, and corporate culture. This isn’t just about investing in green technologies, but also about knowing how to plan and implement their use sensibly. What’s particularly important here is to calculate and reduce emissions along the entire supply chain. In the chemical industry in particular, Dachser can act as a partner on equal terms and provide well-founded CO<sub>2</sub> assessments for joint optimization projects.

Customers from the chemical industry are of course pursuing their own sustainability goals, and they expect their logistics partners to play a verifiable part in cutting CO<sub>2</sub> emissions, always in conjunction with compliance, quality, safety, and transparency. Dachser offers solutions with measurable emission savings that customers can integrate into their sustainability footprints.

The path to emission-free logistics is complex, lengthy, and associated with numerous challenges. This

is precisely why it is not a question of promising to meet symbolic targets that have no realistic hope of implementation, or of acquiring CO<sub>2</sub> credits or merely offsetting emissions. Instead, it is about effecting a lasting transformation and taking long-term initiatives — with scalable solutions, a sound data

*“Sustainability and reliability are not mutually exclusive.”*

basis, and the ambition to be an initiator for the entire industry. The result is a fact-based, technology-neutral approach to climate action that is financially and technically feasible. For Dachser, one thing is certain: Sustainability isn’t a trend, it is an entrepreneurial attitude — one that’s both deeply rooted and operationally effective. And this is also, indeed especially, true in chemical logistics.

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# A Balanced Model for the Future of Life Sciences

## Brenntag is Building a Unique Position in Both Traditional Pharma and Biopharma

*Brenntag is transforming its Pharma business — part of the Specialties division — with a bold new vision: to become the trusted strategic partner for biopharma innovation, while continuing to strengthen and grow its traditional Pharma business.*

The pharmaceutical industry is undergoing profound change, and Brenntag is positioning itself at the center of this transformation. Biopharmaceuticals — therapies derived from living organisms rather than purely synthetic chemistry — are setting new standards for treatment. Monoclonal antibodies, recombinant proteins, mRNA vaccines, and advanced cell and gene therapies are reshaping medicine. The biopharma industry is expanding at more than 10% per year globally, outpacing traditional pharma, fueled by the increasing share of biologics in the drug pipeline, the rise of biosimilars, and breakthroughs in personalized and advanced therapies.

From our perspective as a chemical distributor, for customers this creates new challenges: demand for GMP-compliant raw materials, stricter qual-

ity requirements, smaller pack sizes, and value-added services that safeguard product integrity. For suppliers, it opens new opportunities — but also barriers: limited ability to serve smaller customers, meet regulatory complexity, and scale specialized pack formats.

Brenntag is embracing this challenge by building a unique position in both traditional pharma and biopharma — a combination that few players in the industry can match.

### Traditional Pharma — Driving Growth Across Four Segments

Traditional pharma has long been the foundation of Brenntag's business. But far from being a static or

defensive position, it is an area where there are significant opportunities for growth. Brenntag's strategy is focused on four attractive segments: regulated synthesis, excipients, APIs, and nutritional health.

In regulated synthesis, we are upgrading and broadening our portfolio in monograph-compliant and regulated, GMP-grade process chemicals and intermediates to ensure we remain an undisputed leader in this space. In excipients, we are building a comprehensive offering supported by formulation know-how, and technical expertise, while leveraging relationship with principals as well as our growing biopharma platform. In APIs, we are selectively expanding in low-volume and high-potent products to complement our excipient offering and address customer needs in differentiated therapeutic areas, while also pursuing China and India as important sourcing platforms to strengthen our competitiveness. And in nutritional health, we see attractive opportunities to apply our regulatory expertise and distribution capabilities to a growing global market.



Gust Desmedt,  
Brenntag  
Specialties

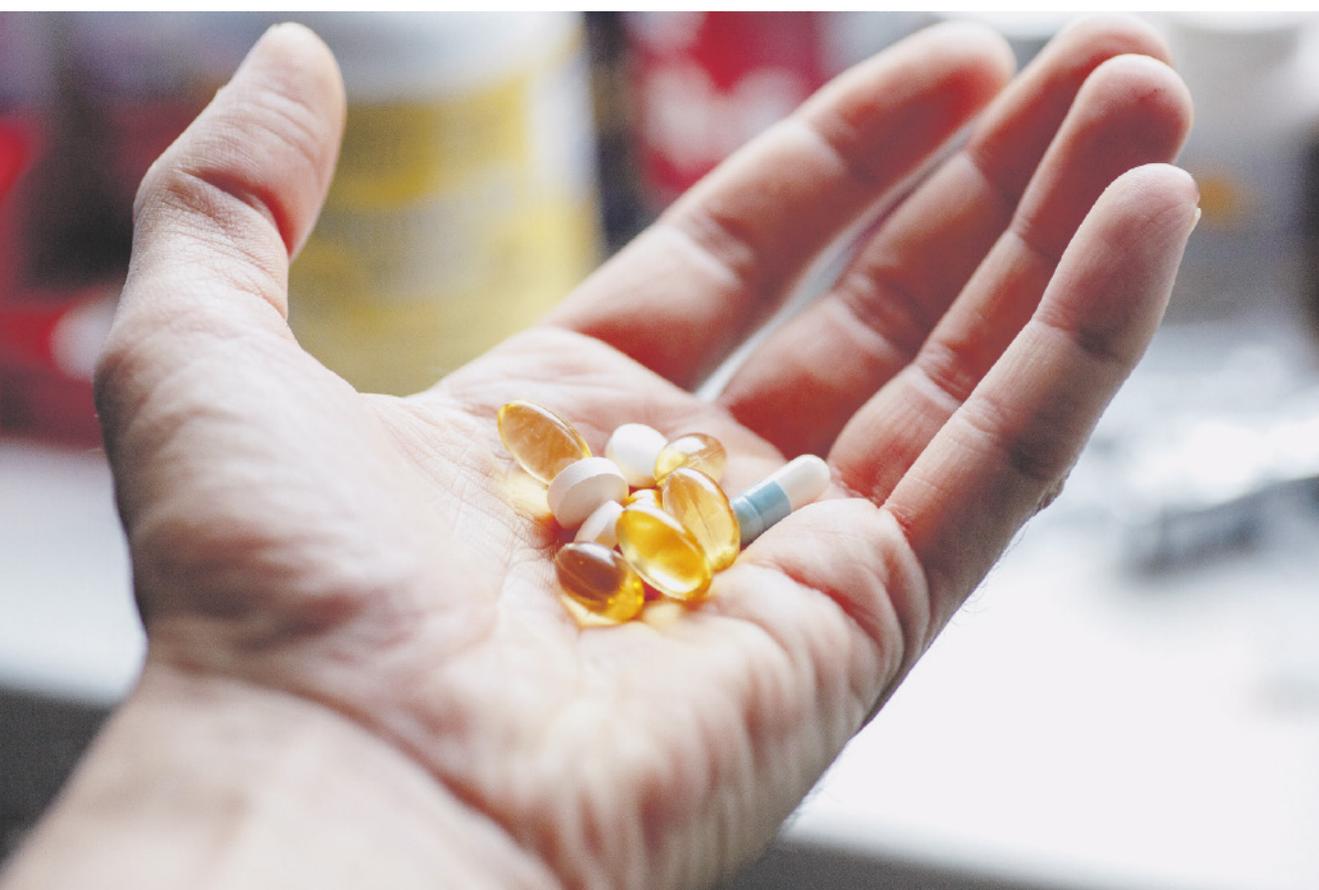
This approach allows us to grow smartly against incumbent players, defend our core, and expand selectively into higher-value areas — strengthening Brenntag's position as a trusted partner across the spectrum of traditional pharma.

### Biopharma — Capturing the Next Wave of Growth

Biopharma represents the fastest-growing frontier in life sciences. Here, raw materials are not commodities but critical enablers of product success. Customers require GMP-compliant materials with low impurity, low bioburden, and endotoxin control, delivered in flexible pack sizes and often accompanied by testing and certification. Increasingly, both large and small biopharma companies are outsourcing their buffer and critical material needs to trusted partners.

*“We are developing a focused biopharma portfolio that leverages formulation services and selective co-branding with principals.”*

Brenntag is deliberately investing to capture this growth. With the acquisition of MCE Pharma in the Czech Republic and the establishment of a state-of-the-art GMP hub in EMEA, we are creating a dedicated platform that bridges the gap between material supply and process readiness. This hub provides blending, conditioning, certification, and other formulation services that help reduce manufacturing





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bottlenecks and accelerate commercialization.

Our strategy goes further. We are developing a focused biopharma portfolio that leverages formulation services

*“Pharma is an area where there are significant opportunities for growth.”*

and selective co-branding with principals — a unique approach that strengthens partnerships and differentiates in a market where leading players market under their own brands. In China and India, we complement this with own-brand offerings tailored to local demand. With value-added services such as powder down-packing and liquid dilution, we enable suppliers to access smaller customers that have historically been served by life science solution providers, strengthening supplier relationships and securing new mandates.

### Serving the Full Spectrum of Life Sciences

Together, our strong position in both traditional pharma and biopharma allows us to serve the full spectrum of life sciences — from small molecules to biologics, biosimilars, and advanced therapies. Traditional pharma provides maturity, regulatory depth, and formulation know-how across regulated synthesis, excipients, APIs, and nutritional health. Biopharma adds agility, innovation, and high-value services designed for the next generation of medicines.

This balanced model combines stability with innovation, maturity with growth, and scale with specialization. It ensures that Brenntag is not just keeping pace with the transformation of the pharmaceutical industry but actively shaping it — building a distribution model that enables the future of medicine.

*Gust Desmedt, Global President  
Pharma, Brenntag Specialties,  
Essen, Germany*

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# From Digital Ambition to Measurable Enterprise Value

## Pharma 4.0 – the Key Enabler for Successful Digital Transformation

*Communicating technical content to budget holders and management decision-makers remains a challenge. Specific stakeholder communication bridging the business case to the application of ISPE's Pharma 4.0 principles is key.*

Who is interested in technical business cases and how can the cause-and-effect chain of technical measures leading to the desired financial benefit be made clear, transparent and comprehensible to other stakeholders than engineers or IT experts? This is one challenge. Another one is to understand the capitalization effort required for each investment in order to achieve the desired improvements in flexibility, productivity and cost reduction without jeopardizing patient safety.

The ISPE Pharma 4.0 Operating Model is the key enabler. It describes the holistic approach of a good preparation of all necessary prerequisites (both technical, workforce and organizational) for successful digital transformation as well as the processing of

large amounts of data for the development of new potentials in pharma. While some parties explain in addition to industry 4.0, industry 5.0 for Workforce only, ISPE Pharma 4.0 is a holistic integrated approach also including workforce.

### Building a Business Case for Pharma 4.0

Digital transformation is no longer a question of if, but of how fast and with what return. For leaders in manufacturing, quality, and supply chain, the challenge is not technology availability, but business justification. This section outlines a structured approach to developing a Pharma 4.0 business

case that speaks the language of senior management: quantified, risk-aware, and aligned with enterprise goals.

A compelling business case begins by anchoring the digital initiative to a single enterprise-level goal that is already monitored at board level. These typically include:

- Time-to-market acceleration – to drive early revenue from new product launches
- Supply chain resilience – to safeguard continuity in times of global disruption
- Cost leadership – to protect margins under increased pricing and regulatory challenges

To gain approval, a case must translate strategic intent into role-specific relevance:

- Chief Executive Officers (CEOs) seek tangible business outcomes: growth resilience license to operate and reputation with regulators and investors
- Chief Financial Officers (CFOs) expect clear Net Present Value (NPV),

Internal Rate of Return (IRR), cash flow timing and quantified risks

- Chief Operating Officers (COOs) focus on throughput, productivity, compliance and cost-to-serve
- Chief Information Officers (CIOs) look for architecture simplification, cybersecurity, data governance and interoperability with existing platforms while avoiding technical debt
- Site and Plant Managers care about operational stability, resource efficiency and workforce enablement
- Laboratory and Quality Managers want fewer deviations, shorter cycle times and audit-ready data integrity

### Top-line Effects

- Accelerated time to market: cutting tech transfer by 4–6 months can generate €15–25 million in NPV for a mid-scale biologic
- Real-time release: reduces batch release delays by up to 12 hours,



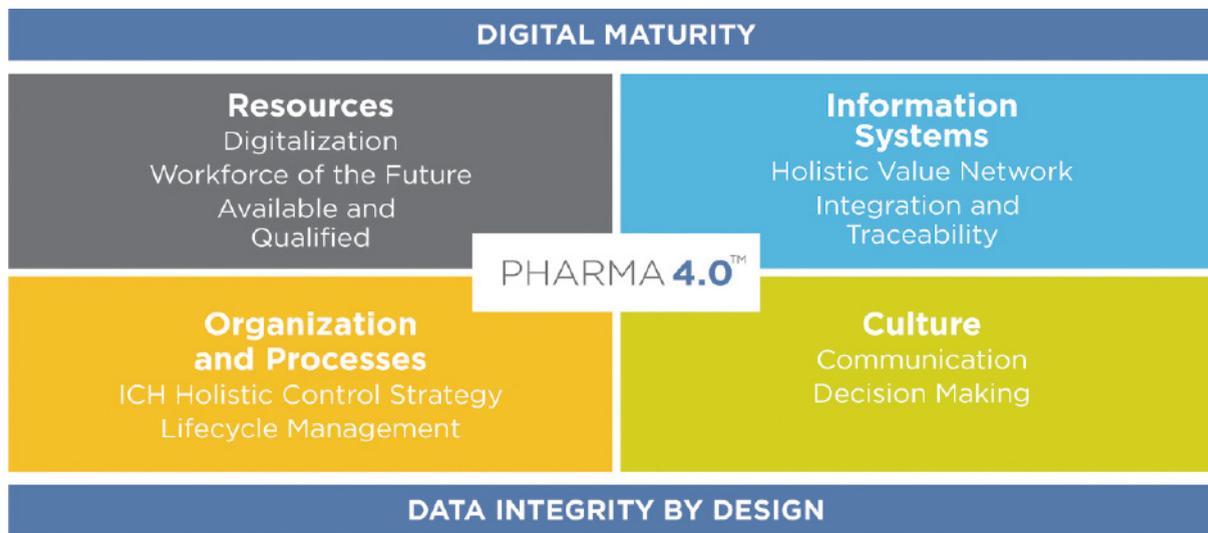


Figure 1: Pharma 4.0 Operating Model

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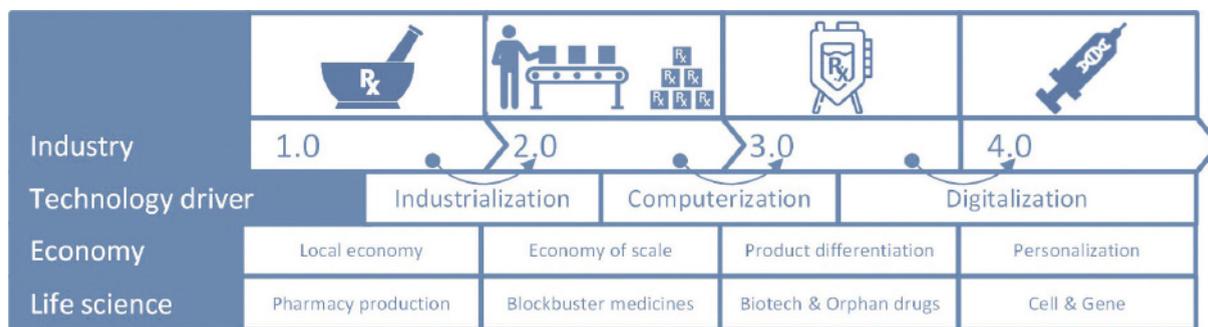


Figure 2: Operating Model Evolution

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Key challenge to achieve this, is the preparedness to reach the right digital maturity level based on data availability, data accuracy and all ALCO+ criteria to meet performance and compliance expectations.

Industry 3.0 and recently 4.0 replace in a different pace per industry the industry 2.0 operating model (fig. 2). These different paces are caused by the impact of this new science and technology on the different industries and the competitive advantages these give to companies adopting them.

The increased amount of products, product lifecycle changes (product differentiation) and smaller therapeutic areas and series (market segmentation) follow the example earlier observed in other industries. A clear example of that is the high tech industry that changed from electronics to micro-electronics.

All this opened the door to big data, and only digitalization and AI can help to analyze and to learn from data. Again, Pharma 4.0 describes the preparedness for it.

*Michelangelo Canzoneri, Hans Heesakkers, Teresa Minero, Christian Wölbeling and Thomas Zimmer, ISPE*

www.ispe.org

freeing capacity equivalent to two additional production weeks per year

- Data-enabled services: such as remote monitoring, create recurring revenue streams and fast responses for market changes

### Bottom-line effects

- Yield improvement: predictive analytics can improve first-pass yield by 2 percentage points, saving €5 million in API costs annually
- Deviation cycle time: automated investigations reduce resource effort by 30–40%
- Inventory optimization: integrated planning can reduce working capital by 10–15%

### Digital Transformation - 10 Years after the Start of Pharma 4.0

The idea of the digital transformation is not new. The “FDA’s Pharmaceutical Quality for the 21st Century Initiative” was launched on August 21, 2002, coming along with the concept of a Risk Based Approach which aimed to modernize the regulation of pharmaceutical manufacturing and product quality. Pilot projects started to

design process models and control strategy mechanisms to better control our complex pharmaceutical processes. Lighthouse projects had been prototyped, but the overall understanding on the management level wasn’t there.

10 years later, the term digital transformation was brought into the industry by the initiative of Industry 4.0. Digital transformation was the strategic goal for the management and the European government – but the question was how to bring it into the pharmaceutical industry? The Special Interest Group Pharma 4.0 had been created ISPE and the term Pharma 4.0 was born. A strong community of engaged engineers, quality experts and operations practitioners started to think holistically.

This operating model is based on a holistic approach for the creation of the pharma specific “Holistic Control Strategy” which is referencing to the regulatory framework of ICH Q 8-12 guidelines along the whole pharmaceutical lifecycle. As a holistic model, Pharma 4.0 includes already the additional aspects of Industry 5.0 as there are sustainability (Community of Practice), human-centricity (Cultural Excellence) and resilience (Drug Shortage Initiative), which are initiatives in ISPE already for a long time.

Time to market and drug availability with the right quality are the major challenges for the pharmaceutical organizations to serve the patients.

# Resilient Industry Adapts to Challenges

## Strategic Agility and Resilience Define the 2026 Contract Manufacturing Landscape

*The 2026 SOCMA Contract Manufacturing Outlook captures an industry that is resilient, innovative, and prepared for the challenges ahead. Nearly 70 percent of survey responses came from companies with annual revenues of \$100 million or less, providing a strong perspective from the small to midsized businesses that form the backbone of the specialty chemical sector.*

The operating environment continues to be defined by tariffs, trade uncertainty, regulatory complexity, and an evolving cybersecurity landscape. Across three years of survey data from 2024 through 2026, one theme emerges clearly: there is certainty in uncertainty.

The story is one of continuity and agility — this industry not only adapts as market conditions shift but uses volatility as a proving ground for resilience and leadership.

**Chemistry Demand and Operational Investment** Across three years of survey data, the mix of chemistries shifted dramatically, with legacy processes giving way to more specialized, value-added reactions. Polymerization, once the dominant process at nearly 60% in 2024, has fallen to just above 30% in 2026. By contrast, esterification has surged to more than 50%, making it the top-utilized chemistry, and ethoxylation has nearly doubled in demand. These movements high-

light the industry's pivot toward performance-driven and application-focused chemistries.

At the same time, processes such as hydrogenation remain widely used but at a lower level than in previous years, while sulfonation and quaternization are gaining traction, reflecting diversification across manufacturing capabilities. Unit operations like distillation continue to serve as a universal backbone across the sector, reinforcing continuity even as specialization grows.

The data also shows ongoing investment in automation and digitization by contract toll manufacturers. Companies are adopting technologies to improve reliability, throughput, and visibility across plants and partnerships. Maturity varies by firm: some are in the early stages of digital adoption while others are moving into more advanced applications such as integrated data environments, predictive



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Vera Stoeva,  
Interim President &  
CEO, SOCMA

maintenance, and automated quality workflows.

Capital expenditure intent remains firm but selective, with companies prioritizing resilience, maintenance, and HSE initiatives.

### Contracting and Sourcing Strategies

Contracting and sourcing strategies have matured from reshoring rhetoric



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ric to pragmatic regionalization, balancing domestic security with global efficiency. Contracting practices have become more practical and outcome-oriented. However, persistent supply chain uncertainty and elevated costs continue to make long-term agreements difficult, reinforcing reliance on shorter terms and flexible pricing mechanisms.

### Cybersecurity as a Critical Differentiator

Cybersecurity is rapidly becoming one of the most critical risks facing the industry. While not every company has yet felt the full impact, the magnitude of the threat is undeniable. Some firms may underestimate the scope of potential disruption, but customers are increasingly weighing cybersecurity preparedness as a key factor in supplier evaluations.

This shift is moving digital resilience from a peripheral concern to a

core differentiator in contract manufacturing.

### Manufacturing to Standard: Bottleneck to Opportunities

As customers place greater emphasis on GMP and FDA requirements,



Customers seeking regulatory certifications

manufacturers with the ability to produce to regulated standards are gaining ground. Demand for these capabilities is rising, yet the number of facilities operating under such oversight remains limited, creating both a bottleneck and a market opportunity. Firms that invest in risk-based, science-driven systems differentiate

themselves by accelerating commercialization, reducing risk, and building credibility with customers. In a market defined by quality and reliability, regulatory readiness has become more than a compliance exercise—it is a strategic advantage that shapes sourcing decisions, partner selection, and long-term growth potential.

### Moving Forward Through Uncertainty

Amid a volatile operating environment marked by geopolitical shocks, shifting tariffs, and regulatory flux, the industry is not hunkering down — it is moving forward. Innovation now extends beyond chemistry into

business models, digital infrastructure, and supply chain strategy. Each challenge, whether compliance barriers, regulatory complexity, or geopolitical risk, has prompted pragmatic new solutions.

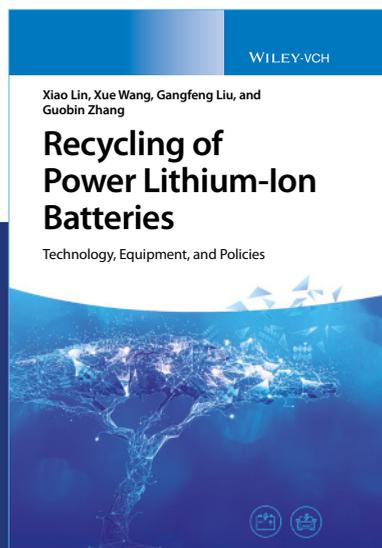
The sector's next leap forward requires working hand in hand with Congress and regulators to establish science and risk-based regulations that unlock the industry's full potential. With the right policy environment, the specialty chemical industry will not only weather uncertainty but accelerate into stronger, more sustainable growth.

This Outlook affirms that the sector is not merely surviving — it is thriving and ready to lead.

*Vera Stoeva, Interim President & CEO, SOCMA, Arlington, VA, USA*

www.socma.org/  
contract-manufacturing-outlook-report

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Lin, X. et al. 125,00 Euro. 978-3-527-35108-4

Overviews the latest development and trend of the global recycling of lithium-ion power batteries, providing an important resource for scientists, engineers and government authorities who would like to learn more about this area.

Features typical industrial case studies in different regions like Europe, the United States, Japan and China.

This book aims to form a roadmap for the development of spent power battery recycling industry in order to provide support for the sustainable development of the new energy vehicle industry via analyzing the multi-level development status of resource supply, utilization technology and equipment, process pollution control, policies and regulations, and upstream and downstream industries from the perspective of the entire industry chain of power battery recycling.



# Chemicals for the 21<sup>st</sup> Century

## Realigning Environmental and Business Sustainability

*In the current climate, most senior executives don't wake up thinking that they must urgently turn their business model around and suddenly become "green". In fact, the word green has become a bit of a cliché and one could argue that any significant change has been in rhetoric rather than substance. Some companies have even publicly rescinded their stated environmental goals or kept quiet about the benefits to appeal to growing populism and cynicism relating to environmental sustainability.*

Defossilization of industry has happened in fits and starts, but it has met serious headwinds in recent years, for a variety of reasons. Perhaps most fundamentally, companies cannot choose environmental sustainability at the expense of business sustainability. Moreover, many green companies have promised to fill the gap - offering defossilized alternatives to traditional petrochemical products - but have failed to produce economically viable solutions or even survive past scale-up stage. This has only exacerbated the skepticism around the viability of pursuing environmental sustainability as a pillar of long-term business sustainability.

In addition, thirty years of overreliance on shipping goods from continent to continent, with total disregard to the carbon consequences, as well as the recent imposition of trade barriers, create even more complexity. The traditionalist consumers among us want the same products tomorrow as we are used to today, or until we develop a superior product solution. And the traditional basic chemicals industries have made their fortunes shipping commodity chemicals in bulk quantities from a low-cost base to multiple far-flung mar-

kets, without considering the environmental consequences and costs.

Yet, despite the many challenges, the journey of the renewables industries shows us that the decoupling of environmental and business sustainability isn't an inevitability.

### Lessons from Solar and Wind

In the solar and wind industries, the road to adoption was long, but has accelerated immensely in the last ten to fifteen years. Solar photovoltaic costs have fallen by 90%; onshore wind by 70%. Solar, once considered one of the most expensive sources of electricity in the world, is now the world's most economical sources of power and solar and wind are the cheapest forms of new generation, without subsidies. This sea change is widely attributed to technological and manufacturing improvements and major scale-ups in production, in addition to targeted regulatory support in various countries.

Like the solar and wind industries of the last decade, the chemical industry of the 21st century is poised for a seismic shift. Technological innovation

and commercial scale production are starting to make it possible for environmental and business stewardship to align in our industry.

### The Game-Changer: Marrying Biofeedstocks with Petrochemical Technology

Many well-funded companies with promising technologies have attempted to revolutionize the chemical industry over the last two decades. Several of these companies raised many millions of dollars and inked major commercial partnerships. Some even made it to commercial scale, launching plants with great fanfare. However, most were powered by fermentation technologies, which have regrettably proven to be difficult to scale and unable to compete with petrochemicals from an economic perspective. With limited exceptions, the fermentation pathway has been insufficiently robust to power industrial chemical production at commercial scale.

The evolution of high-efficiency, high-selectivity catalytic technology, processing renewable, bio-feedstock, is changing the rules of the game. Catalysis - the acceleration of a chemical reaction by the action of a catalyst - began to be employed in the eighteenth and nineteenth centuries to power chemical reactions. Today it is a technology that underpins 90% of our industry's processes. It is proven and ubiquitous; catalysts have a wide variety of industrial uses - from the production of food products, to biofuels, pharmaceuticals, plastics and chemicals.



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Tony Short,  
Chief Commercial  
Officer, Catalyxx

### 21<sup>st</sup> Century Chemicals: Renewable, Carbon-Negative, Local

The chemical industry is transitioning toward bio-based chemicals derived from renewable biomass such as agricultural products and waste. These chemicals offer molecularly identical or functionally equivalent alternatives to traditional fossil-based products. Recent advances in catalytic and biotechnological processes have enabled energy-efficient conversions with high catalyst stability and selectivity, demonstrated at pilot and demonstration scales.

Bio-based chemistry converts widely available feedstocks like ethanol—produced from crops such as sugar beet, sugar cane, and corn—into higher-value alcohols including butanol, hexanol, and octanol. These molecules act as key building blocks for coatings, inks, adhesives, food ingredients, pharmaceuticals, and other industrial applications. By redirecting carbon from fuels into durable, sustainable products, the industry is fostering circularity and reducing greenhouse gas emissions.

By utilizing abundant local feedstocks and reducing dependence on



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global logistics chains, technologies like these help lower volatility and emissions associated with long-distance transport. Together, such innovations point toward a more sustainable, distributed, and resilient chemical value chain for the 21st century.

**Better for the Earth, Better for Your Bottom Line**

While fermentation offers a sustainable route to bio-based chemicals, it faces challenges like slow reaction rates, nutrient demands, complex downstream processing, and scale-up difficulties. Identical drop-in molecules,

produced via catalysis, allow manufacturers to deploy bio-based, carbon-negative versions of their petrochemical building blocks in their manufacturing processes, and offer renewable, high-performance, low-carbon product options to their consumers. Moreover, deployed in large scale commercial production and using locally sourced ethanol, products will be commercially competitive with fossil-based products.

At Catalyxx, we are employing catalytic technology to produce molecularly identical, bio-based, drop-in replacements for fossil-based chemicals starting from ethanol. An improved version of the catalytic Guerbet reaction, our process is character-

ized by energy efficiency and excellent catalyst stability and selectivity to the target bio-alcohols. The technology systematically moved through lab, bench, and pilot scales to a TRL7 demonstration plant in Sevilla, Spain, clocking more than 120,000 hours of testing, with consistent catalyst performance. As of today, our demo plant has run nearly 20,000 hours, our catalyst has been utilized more than 3000 hours without deactivation, and our technology has scaled nearly 25,000 times. Our process has also been validated by the European Innovation Council as carbon-negative.

Moreover, deployed in large scale commercial production and using

locally sourced ethanol, our products will be commercially competitive with fossil-based products.

Ultimately, to be viable, technologies must be impactful not just for the environment, but for the balance sheet. The next frontier of chemicals is arriving, and it will finally deliver on the elusive promise of promoting both environmental and business sustainability.

*Tony Short, Chief Commercial Officer, Catalyxx Inc., Chesterfield, MO, USA*

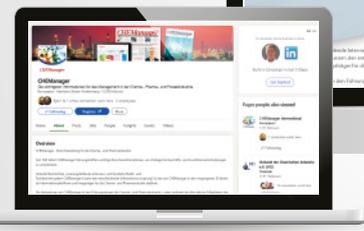
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# The Sustainable Pathway

## Shaping Outcomes for Future-Focused Sustainability

Following a significant name change from Cepsa to Moeve, Alfredo Lopez, Sustainability Director at Moeve Chemicals, has taken on a central role in shaping the company's chemical business unit sustainability outlook amid a rapidly changing landscape. As Moeve boosts its strategy, pursuing new models for circularity, decarbonization, and cross-industry collaboration, Lopez combines personal conviction with strategic vision to lead teams through transformation. In this CHEManager Leaders & Motivators interview, he shares how formative experiences inspire practical action, why partnerships and innovation are at the heart of Moeve Chemicals' next chapter, and what it means to drive meaningful progress and resilience in today's global chemical sector.

**CHEManager:** Moeve has emerged out of a major transformation from Cepsa. How has this transition shaped your sustainability ambitions at Moeve Chemicals and the company's renewed commitment to climate leadership?

**Alfredo Lopez:** Moeve Group's ambition and strategy have strengthened our understanding of stakeholder needs within Moeve Chemicals. Today, both the Group and the Chemicals business

are at the forefront of the energy transition. Each business unit is channeling resources toward the development of green molecules, with the goal of delivering sustainable products and services tailored to our customers' needs.

We see a unique opportunity to lead by example, acting ahead of our peers and before regulatory pressures or deadlines take effect.

Moeve Group's transformation will also open access to a broad portfolio of sustainable feedstocks, from diverse

business units such as bios and green hydrogen, helping our customers advance their own defossilization and decarbonization objectives.

**What role do you see policy and regulation playing in enabling or accelerating Moeve's sustainability journey, and how do you engage with these external stakeholders?**

**A. Lopez:** Policy plays a pivotal role in the transformation of the chemical sector. We're deeply involved—working hand in hand with CEFIC, Feique (the national federation), and Moeve Group's advocacy teams. We don't want to be mere spectators; we're actively contributing ideas to promote smarter, more efficient policies that create real impact for both our industry and society, while protecting the environment and ensuring sustainable models for future generations. We take part in numerous decision-making and technical groups. And because we operate factories across four continents—each with its own climate policy—we're strong advocates for globally harmonized rules.

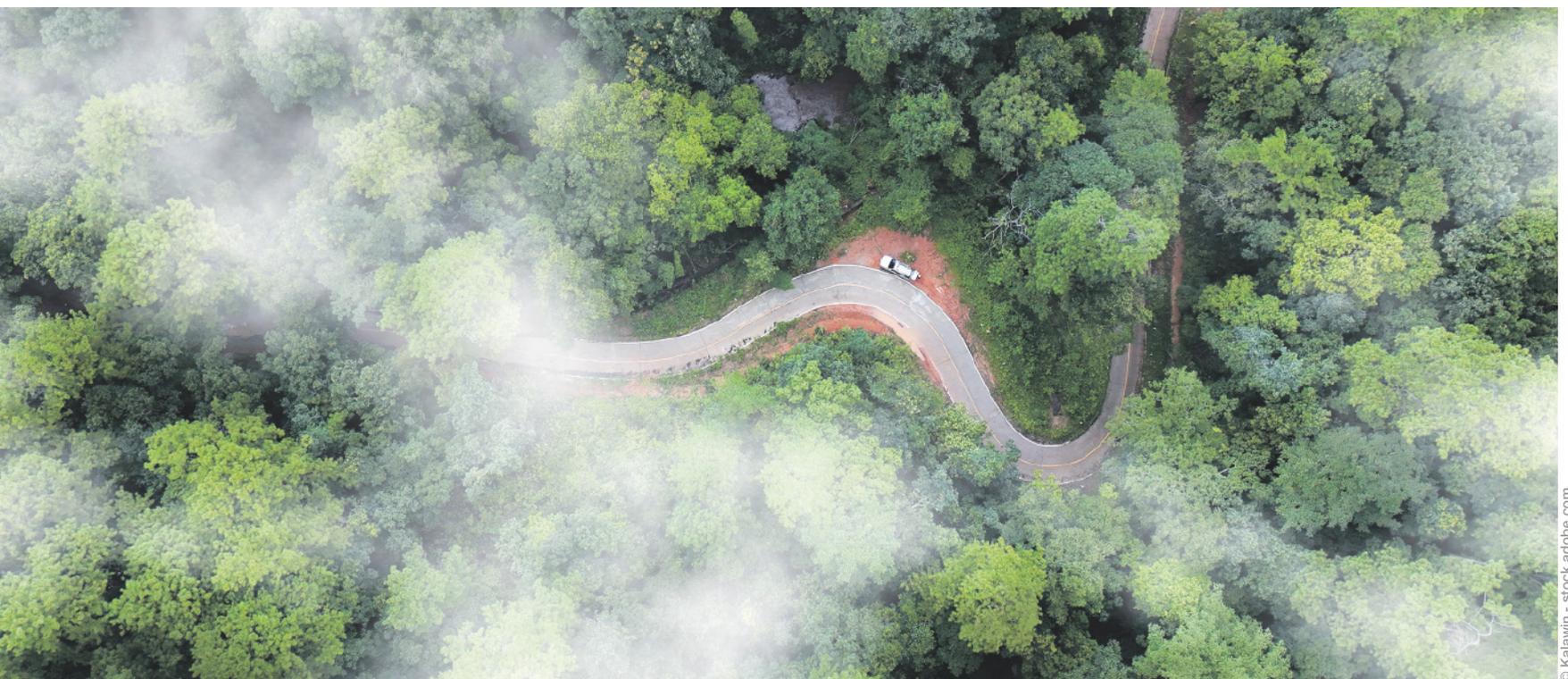
At the same time, policymakers need to build a stronger ecosystem for energy-intensive industries such as



Alfredo Lopez, Sustainability Director, Moeve Chemicals

cement, steel, and chemicals, ensuring there is a viable market for low-carbon products. A premium margin is essential to finance this transition. One effective policy tool would be to establish mandatory minimum quotas for sustainable products within value chains, an approach that has already proven successful in other sectors.

Policymakers are also increasingly aware that penalty-based mechanisms,





like the ETS, are already in force, while most industrial facilities still lack the enabling conditions needed to decarbonize, such as access to power grids for electrification projects. What we need now are practical tools and frameworks to help meet these ambitious targets

*“We don’t want to be mere spectators; we’re actively contributing ideas to promote smarter, more efficient policies that create real impact for both our industry and society, while protecting the environment and ensuring sustainable models for future generations.”*

*Decarbonization is central to Moeve’s future. What are the biggest technical and strategic challenges in scaling your sustainable portfolio and how are you working to overcome them?*

**A. Lopez:** We have already been offering low-carbon chemical products and are actively implementing a comprehensive decarbonization plan to further reduce our footprint. Across all business units and product lines, we now provide special batches manufactured with clean energy and/or sustainable feedstocks available upon request. We’ve already completed several cost-effective decarbonization projects and invested substantial resources in evaluating larger initiatives based on

mature technologies such as electrification. However, these projects require customer offtake agreements to help the transition. A few of them are already ready for final investment decisions.

From a technical standpoint, one of the main challenges lies in securing access to primary clean energy sources such as electricity, biogas, or biomass. The absence of CO<sub>2</sub> capture and transport infrastructure poses another major obstacle. Some of these factors are entirely beyond our control, while others—like access to power grids—remain difficult to predict in terms of timeline and quantities.

On the strategic side, the uncertainty surrounding the energy transition has pushed us to focus on the most resilient decarbonization projects, those capable of adapting to a wide range of future scenarios and maintaining long-term viability.

*Collaboration is often key to success. How do you approach partnerships—across sectors and with customers—to accelerate decarbonization and innovation?*

**A. Lopez:** We cannot move forward alone. Moeve’s businesses, such as green hydrogen, bios, and biogas, are fundamental pillars of our decarbonization strategy. Partnerships with utility companies willing to invest in clean energy assets are also critical to keeping our footprint reductions competitive. Together, we are developing long-term PPAs and biogas purchase agreements, with Moeve acting as the offtaker.

But our greatest asset, by far, is the strong relationship we maintain with

our customers around sustainability. Each customer has unique priorities and expectations when it comes to sustainable solutions. Some are looking for cost-effective, drop-in options to reduce their carbon footprint, while others place greater emphasis on transforming their feedstock sources.

*Moeve’s Positive Motion 2030 strategy emphasizes innovation. What new technologies or business models are you most excited about, and how do they align with your sustainability goals?*

*“Our greatest asset, by far, is the strong relationship we maintain with our customers around sustainability.”*

**A. Lopez:** We are also driving disruptive R&D projects focused on developing the next generation of sustainable molecules, those that deliver added value beyond simply reducing our carbon footprint. These include compounds designed to generate lower emissions during their use phase, thanks to improved efficiency compared to current alternatives. Our innovation teams are developing these new processes in close collaboration with our customers, who have been actively involved from day one.

*Was there a pivotal moment or experience that sparked your passion for sustainability, and how does that*

*continue to influence your leadership at Moeve?*

**A. Lopez:** Having previously worked as an environmental regulator for the European Commission, I am deeply committed to driving transformative change rather than settling for marginal optimization. This conviction is also profoundly personal, shaped by childhood memories of summers in southern Europe, when temperatures above 35 °C were rare and the season felt truly idyllic. Watching climate forecasts evolve, and seeing the steady rise in days exceeding 35 °C, was something of a wake-up call for me. It highlighted the urgency with which we must confront the challenges ahead.

*Looking ahead, what is your vision for Moeve’s evolution as a sustainability leader, and what advice would you offer to others tasked with leading transformational change in the chemicals sector?*

**A. Lopez:** The next steps for our product sustainability team focus on supporting our feedstock suppliers in managing and reducing their CO<sub>2</sub> emissions. We are also continuing to strengthen our role in policy advocacy to help drive broader impact. From our experience, developing multiple decarbonization pathways that compete with one another has proven highly effective. Since the rules of the decarbonization game are constantly evolving, maintaining a diverse portfolio of options has become a truly valuable strategy.

■ [chemicals.moeveglobal.com](https://chemicals.moeveglobal.com)



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# Four Ways to Win amid Uncertainty

Strong Supply Chains, Efficiency, Digitalization, and Talent Development are Crucial for Chemical Distributors

Global chemical distribution is entering a new phase, shaped by persistent macroeconomic uncertainty, rising tariff pressure, and intensifying demands for value in principal–distributor relationships. Geopolitical fragmentation, shifting trade flows, and evolving end-customer needs are prompting producers to rethink outsourcing strategies and consolidate around fewer, more capable strategic partners.

For distributors, given the current market circumstances, this is a moment to move beyond operational execution and become resilient, digitally enabled, and proactive strategic allies – leveraging capabilities in AI, regulatory expertise, and regional market adaptation. The impact, however, will differ sharply by region and between specialty and commodity segments. In this volatile environment, the ability to navigate disruption, deliver targeted value, and tailor strategies to segment-specific demands will define competitive advantage. Those investing early in resilience, depth of capabilities, and alignment with principal expectations will shape the industry’s next chapter.

## Six Key Findings

Since 2012, we at BCG, have published a biyearly chemical distribu-

tion outlook report. Our analysis integrates insights from a survey of more than 300 leading chemical principals and interviews with over 20 distributors across regions and segments. We present six key findings that capture the strategic pressures and capability shifts transforming the chemical distribution landscape, setting the stage for four imperatives that will help distributors to win amid uncertainty.

### Key Finding #1: Growth is Slowing Linked to Uncertainty in Overall Demand

Growth in the distribution market is projected to slow down chemical from 7.1% CAGR (2019–2024) to 2.9% CAGR (2025–2030). This decline is driven both by reverting the one-time increase in price levels due to inflation and supply chain constraints in the years between



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2021 and 2023, as well as structural overcapacities impacting overall price levels. On the volume side, this sharp downgrade reflects continued geopolitical tensions, persistent tariff risks, and a slower-than-expected recovery in global demand.

To account for ongoing macro dynamics, we have introduced three distinct market scenarios for the first time in our market model: a base case, a downside, and an upside case that explicitly differentiate between global

macroeconomic developments (see figure 1). This divergence underlines the structural volatility that distributors and principals must now plan for.

Global chemical distribution growth is increasingly shaped by emerging regions. Despite its deceleration, China remains the largest absolute growth region through 2030, adding to a market size of ~€140 billion in 2025 – stemming from its scale and increasing outsourcing penetration. While relative growth leadership across regions shifts to Middle East and Africa (MEA) at 5.2% CAGR (2025–2030), Africa is pushing the growth with 6.2% CAGR (2025–2030) with strong regional variation. Beyond MEA, APAC exclud-

*“Global chemical distribution growth is increasingly shaped by emerging regions.”*

ing China also shows strong relative growth with a projected CAGR of 4.5% (2025–2030), fueled by India’s standout performance as the top-growth market. Latin America is projected to grow at 3.3% CAGR (2025–2030), with specialty chemicals shaping most of this momentum at 4.7% CAGR. In contrast, mature regions post significantly more moderate growth with margins under pressure: North America at 1.8% CAGR (2025–2030), supported by basic chem-





ical reshoring, and Europe at 2.0% CAGR (2025–2030), held back by suppressed demand from end industries.

Recent developments signal shifting regional demand centers across key end markets: Automotive output declines in Japan, Korea, and ASEAN (Association of Southeast Asian Nations) as tariffs and tight credit bite. Europe's construction demand stays weak, while APAC and Africa gain from urbanization and infrastructure spending. Electronics face near-term headwinds but are set to rebound from 2026 with semiconductor and AI growth.

**Key Finding #2: Consolidation of Chemical Distribution Through M&A**

M&A has always been key to the chemical distribution industry. Despite an increase in transaction volumes from 2019 to 2022, recent data points to slowing momentum – in line with broader trends in the capital markets. However, we expect M&A activity to reaccelerate in line with the drivers listed below. Notably, in 2023, five players out of the top 50 global chemical distributors executed over 70% of the acquisitions, highlighting ongoing market concentration.

*“The largest distributors pursue distinct regional acquisition strategies.”*

The largest distributors pursue distinct regional acquisition strategies, with some continuing their expansion in APAC, while others showed little to no M&A activities in this region in 2024. Acquisitions in EMEA and North America remain largely stable, with no noticeable decline. Continuous investments in LATAM companies underscore dynamic trade flows and a rising regional trajectory.

When M&A activity accelerates, service capabilities and supply chain integration are becoming increasingly important, including the set-up of infrastructure and regional hubs, the expansion of logistics services, and the broadening of specialized services and technical support. At the same time, strategic partnerships have gained relevance as distributors modularize expertise across technology, sustainability, and logistics. Particularly, a strategic partnership can enable accelerated access to AI applications

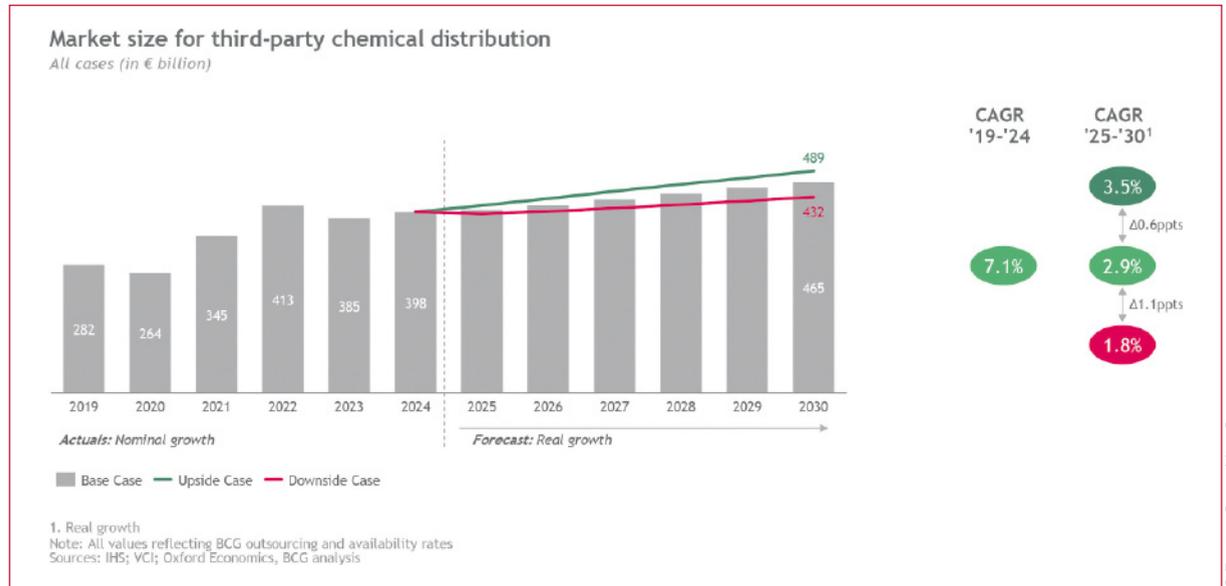


Fig. 1: Total chemical distribution market growth

in product data management, customer interactions, supply chain transparency, and sustainability agenda.

**Key Finding #3: Outsourcing Trend to Distributors Continues But in Nuanced Ways**

We believe there is substantial room for continued growth in outsourcing to distributors, especially given the current market circumstances. However, near-term dynamics are more complex: Principals report a relative slowdown in outsourcing growth, driven by structural changes and temporary headwinds. In 2025, 71% of chemical principals expect to increase outsourcing three years from now – down from 84% in 2021. Against a backdrop of margin pressure, some suppliers are attempting to reclaim profitability by bringing accounts back in-house. In prac-

tice, most of these efforts have limited success and often disrupt customer service levels. Rather than reverting to direct models, the more productive path is for principals to redevelop channel management strategies, working more closely with distributors to reduce cost, extend reach, and unlock efficiencies that benefit both parties.

Cost pressure has become a markedly more significant motive for principals to outsource. The share of principals citing “reduce cost” as a reason increased from 43% in 2021 to 58% in 2025, reflecting margin erosion and highlighting a sharper focus on measurable return on investment (ROI) (cf. fig. 2).

Despite prevailing cost pressure, distributors seem less prone to margin swings than principals: While supplier EBITDA margins have largely reverted to their 2014 levels, distributors have demonstrated sustained resilience,

preserving margin quality through periods of volatility preceding, during, and following COVID. This underscores the structural robustness of the distribution model, even as upstream profitability compresses.

*“Cost pressure has become a markedly more significant motive for principals to outsource.”*

While distributors historically managed their margin well, some major chemical distributors forecast a continued profit decline for 2025, anticipating no recovery. Consequently, margin compression and volatility intensify even for distributors with limited tariff exposure.



Fig. 2: Key drivers for outsourcing

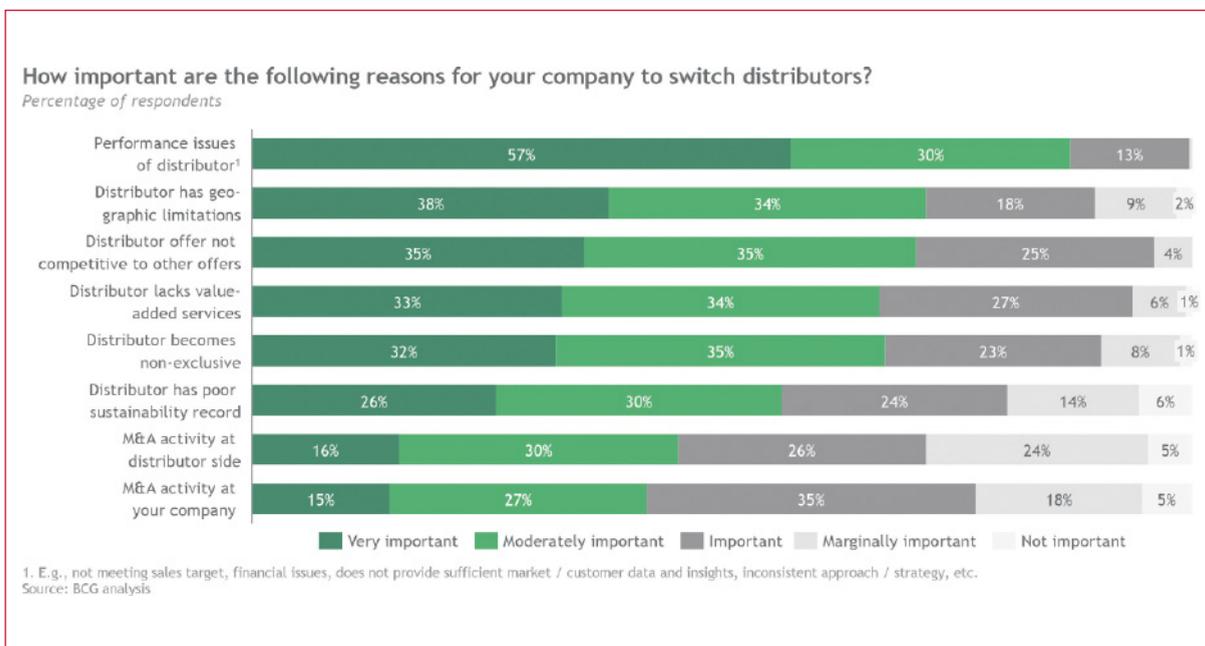


Fig. 3: Reasons to switch distributors from principal's perspective

#### Key Finding #4: The Bar for Performance Continues to Increase

Strong gains in satisfaction are raising the bar for distributor performance and accelerating the consolidation of principal-distributor relationships. Service improvements implemented during the COVID pandemic are demonstrating measurable impact: Satisfaction with distributors has increased significantly, reducing the global intent to switch from 64% in 2023 to 43% in 2025. Satisfaction levels increased across all Switch distributors segments and regions, with Europe showing the most pronounced improvement. This higher

*“There is substantial room for continued growth in outsourcing to distributors.”*

satisfaction does not reduce scrutiny – it raises expectations. Performance shortfalls remain the top reason for switching distributors, with geographic reach and competitiveness gaining in importance and now nearly matching performance in triggering change (cf. fig. 3). Principals still prioritize timely and complete deliveries but increasingly expect distributors to cover more geographies and defend price and service levels amid tighter market conditions.

The nature of distributor-principal relationships is evolving from trans-

actional execution to strategic cocreation. Mitigating supply chain risk, granular data transparency and regulatory coauthoring define the new baseline. Those lacking scale or digital infrastructure risk being deprioritized. The result will be a more concentrated landscape in which full-service distributors capture more volume and redefine performance standards across the ecosystem.

#### Key Finding #5: Importance of Sustainability Varies Greatly by Region

In our 2025 survey, only 22% of principals state that distributors are actively pushing to buy sustainable materials and phase out nonrenewable inputs – down from 41% in 2023, marking a drop of nearly 20 percentage points. Only 2% see a strong push today suggesting that responsibility for product sustainability still sits primarily with chemical producers.

Nonetheless, sustainability remains relevant and can provide strategic opportunities, particularly in niche areas. Certain products with sustainable attributes remain in short supply, providing distributors who can reliably source them with a competitive edge across their broader portfolios. Moreover, even for products without distinct sustainability profiles, increasing regulatory and end-customer demands for data transparency will necessitate ongoing investments in reporting and compliance capabilities. For some distributors, building robust transparency systems could become an important competitive differentiator.

#### Key Finding #6: Continuous Capability Building And Tech Upgrading Required to Stay Ahead in Uncertainty

Digital technology and generative artificial intelligence (GenAI) are reshaping the chemical industry and competitive dynamics – and distribution is no exception. Early adopters are driving implementations of use cases like (Gen)AI-powered safety data sheets, predictive pricing and conversational catalogues that reduce quote-to-order time. These applications not only enhance customer interactions but also significantly improve operational productivity and flexibility. However, current adoption levels in the industry fall behind expectations, often due to lack of resources.

Digital capabilities, or their absence, will increasingly influence the distributors that principals and customers select, shaping decisions on service levels, speed, efficiency, and availability.

#### The Way Ahead: Four Imperatives for Chemical Distributors

The chemical distribution industry faces growing market uncertainty marked by softening demand, shifting trade flows, and fragmented regulatory landscapes. Despite these pressures, distributors' business models have demonstrated resilience – often surpassing chemical manufacturers – given their essential role in stabilizing supply chains through volatile market conditions. Yet, growth, regulatory, and outsourcing dynamics differ greatly by region and end market,

requiring distributors to adapt locally while maintaining efficiency in terms of both cost and processes.

Looking ahead, four imperatives emerge:

- 1. Rewire Supply Chains: Abandon linear models and redesign networks for resilience, with multisourcing, regional hubs, and flexible routing as the new baseline.
- 2. Cut Cost to Serve: Operate as true efficiency engines – invest in capabilities while reducing cost in logistics, sales, and support to prove measurable ROI.
- 3. Scale Value and Digital Technologies: Provide tangible, value-adding services – from labs and blending to AI-enabled compliance, repackaging, and data-driven insights.
- 4. Unlock People Advantage: Invest in talent, digital skills, and organizational agility; systematically transfer experienced employees' institutional knowledge.

Winning distributors who master these imperatives position themselves as strategic business partners who simplify complexity for both principals and customers, while at the same time paving the way for cost efficient growth.

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What do executives of large chemical distributors think of the findings presented in the chemical distribution outlook report by Boston Consulting Group. We asked some of them to share their opinions on the report's conclusions with us.



# Resilience, Adaptability, and Efficiency

## Success Factors that Shape the Future of Chemical Distribution

The chemical distribution outlook report by Boston Consulting Group, outlined on the previous pages, presents six key findings that capture the strategic pressures and capability shifts transforming the chemical distribution landscape, setting the stage for four imperatives that will help distributors to win amid uncertainty. Madjar Navah, one of the authors of the report, introduced the most significant results of the study at the FECC Annual Meeting in Hamburg, Germany, in mid-September. Among the audience were executives of the largest chemical distribution companies, some of which we asked to share their opinions on the report's conclusions with us. It is obvious that the leaders of Azelis, Biesterfeld, Brenntag, IMCD, and Nordmann share a clear common ground: all five emphasize the need for resilience, adaptability, and efficiency in the face of industry uncertainty and transformation. They highlight the importance of building robust and flexible supply chains, investing in digital and technological capabilities, and most notably, prioritizing their people. They also stress the balance between operational efficiency and forward-looking investments, particularly in digitalization and sustainability. Ultimately, the leaders agree that the future of chemical distribution will be shaped by those who combine technological advancement with human expertise, collaboration, and strong customer focus.

## Staying Agile, Adaptable, and Focused

Jens Birgersson,  
CEO, Brenntag

The chemical industry is navigating a prolonged period of uncertainty and structural challenge. In this environment, success will belong to those who stay close to their customers and supply partners, while rewiring their supply chains for greater agility and reach and reducing the cost to serve through more efficient operations.

As a distributor, our role has never been more important. We stand at the center of global supply networks, connecting producers and customers, and ensuring cost-effective sales, reliability, safety, and compliance. To strengthen this position, we need to rethink and evolve our supply chain: making it more inter- and intra-regional, more local where diversification matters, more digital to enable speed and visibility, and more flexible to meet evolving customer needs.

At the same time, we must continue to simplify and optimize our supply chain network. Agility, consolidation, and operational excellence are essential levers for the interconnected chemical supply chain of the future to deliver scale advantages.



“As a distributor, our role has never been more important.”

But it is not only about efficiency. It is also about building the competence and capacity to drive top-line growth by empowering our frontline teams and enhancing digital capabilities. At Brenntag, we have the fundamental strengths for continued success: our people, our unique ability to adapt to market circumstances, our market-leading positions, and strong value propositions in both divisions with unmatched scale and global reach.

We are not immune to the challenges around us. But by staying agile, adaptable, and focused on execution, we will continue to shape and strengthen the role of chemical distribution in an evolving global landscape.

## Building more Resilient Supply Chains

Anna Bertona,  
CEO, Azelis

BCG's latest findings capture the key themes shaping our industry, and many of them reflect what we are already seeing and acting on at Azelis. The report reinforces that, despite the uncertainty, the fundamentals of the distribution model remain strong, and distributors continue to deliver tangible value by connecting principals and customers, enabling innovation and ensuring resilience across complex global supply chains.

Building more resilient supply chains is critical. We have been adapting our network to be both global and local, ensuring we respond quickly to disruptions and continue serving our customers and principals wherever they operate.

We also agree that cutting the cost to serve must go hand in hand with investing for the future. We are taking a disciplined approach to efficiency while continuing to strengthen our digital, innovation and sustainability capabilities. Our higher capital expenditure in the first half of the year reflects this commitment, with increased digital investments even as we streamline costs elsewhere. That balance is what allows us to stay agile through a challenging market.



“Despite the uncertainty, the fundamentals of the distribution model remain strong.”

The point on scaling value and digital technologies is particularly relevant. We have consistently led the industry in using data and digital tools to enhance how we work with partners, from formulation support in our labs to smarter compliance and insight-driven decision-making.

And finally, the focus on people truly resonates. Our technical experts and commercial teams are what make Azelis different. Investing in their skills and enabling them to share knowledge across the business is one of our biggest priorities.

In many ways, BCG's report validates the path we are on. These imperatives are not abstract ideas for us. They are part of how we are building a stronger, more connected Azelis that's fit for the future.

## Efficiency with Impact

Ulrich Cramer,  
Managing Director, Nordmann

The four imperatives mirror the path we've already chosen. At Nordmann, resilience is built into our DNA - our global network with 24 strong regional footprints serving almost all industries have proven a strategic advantage even and especially in volatile times and markets.

Equally important is efficiency with impact. Cutting cost to serve must go hand in hand with smart investments. Our strategic MoVE program is the foundation of our digital strategy. By integrating advanced digital platforms, data analytics, and AI-powered tools, we will empower our teams to deliver greater efficiency, and smarter solutions for our principals and customers.

Nordmann's strength lies in value creation beyond pure distribution, embodied in our slogan "Knowledge in Action." From application know-how, regulatory support, sustainable solutions to data-driven insights, we deliver solutions that make our partners more



“Cutting cost to serve must go hand in hand with smart investments.”

competitive. AI will accelerate this transformation.

Finally, our people set us apart. Technology alone cannot drive transformation. We invest in continuous learning, digital skills development, and organizational agility, empowering our employees to thrive in a fast-evolving environment.

At Nordmann, we believe that true progress comes from combining expert knowledge with digital capabilities and empowered people. This is how we turn challenges into opportunities and deliver sustainable value for our partners.

## People Make the Difference

Marcus Jordan,  
CEO, IMCD

BCG's findings certainly resonate with what we see as intensifying demands from both customers and suppliers create opportunities for those distributors that adapt quickly and add real value for our partners.

At IMCD, we see the current volatile macro-economic environment as an opportunity to focus on and further strengthen our commercial and operational capabilities. That means ensuring that our supply chains are both flexible and transparent, further advancing our digital capabilities, and collaborating closely with both suppliers and customers to anticipate, not just react to, change.

As our industry continues to consolidate, scale and technology are powerful advantages, but what truly makes the difference is people. Investing in talent, transferring expertise, and creating a culture of learning and adaptability are essential if we want to keep pace with AI, new regulations, and evolving market needs.

Technical and formulation expertise remain at the heart of what we do. Our 80+ laboratories worldwide help partners accelerate innovation, improve performance, and translate ideas into market-ready solutions.

Sustainability continues to drive value creation. Through our broad portfolio and close



*“Scale and technology are powerful advantages as our industry continues to consolidate.”*

work with suppliers, we support customers in reformulating products that perform better and meet rising regulatory and environmental expectations. And until the industry has standardized ways to measure carbon data, collaboration along the value chain is critical.

In short, distributors have evolved from being operational middlemen to being true partners in innovation and growth. Efficient service and strong execution are what earn long-term trust. In the end, reliability is key.

For us, that means being the partner of choice, combining commercial excellence with technical expertise, digital capability, and sustainable ambition. That's how distributors will win in uncertainty, by doing more of what they do best: solving problems, connecting people, and creating opportunities.

## Customer Centricity is Key

Stephan Glander,  
CEO, Biesterfeld

Changes in the chemical distribution landscape are largely structural rather than cyclical. This is evident on the supply side, and in many industries and regions, also on the demand side.

As a fully family-owned company, Biesterfeld has the advantage of being able to think strategically in the long term, building a stronger business for the next generation. This enables us to systematically invest in people and skillsets needed to master the future.

We have started our transformation journey two years ago with four clear objectives: to grow faster despite sluggish demand, to put emphasis on customer segmentation and marketing, to become more agile and less hierarchical and to expand into specialties and new geographies. This will require a greater contribution from acquisitions alongside historically strong organic growth. Size, and more specifically the ability to scale will matter especially with respect to investments in IT, AI, and Regulatory & Sustainability. These investments will be inevitable and difficult to manage without achieving a critical size. They also require increased emphasis on back-office process standardization and smart centralization, with clear efficiency improvements. We must preserve our culture of going the extra



*“We invest in people and skillsets needed to master the future.”*

mile for our customers, a trait rarely found in large corporations. Our business model remains essentially decentralized, with many different local aspects and a large variety of customer segments. The deep understanding of customer needs will increasingly shape our portfolio and service offerings. This includes new products, potentially new suppliers, as well as maintaining strong partnerships with our existing suppliers. We continue to believe that exclusivity is the best approach for marketing and growing true specialties regardless of globally changing supply chains. However, reconfiguring will be necessary for commodity products in our portfolio. Again, this will be handled based on customers' needs.

Biesterfeld is well-positioned not only to master the uncertainties, but also to capitalize on the opportunities arising from current changes and disruptions.

# Circular Plastics Economy

SEPTEMBER 2025

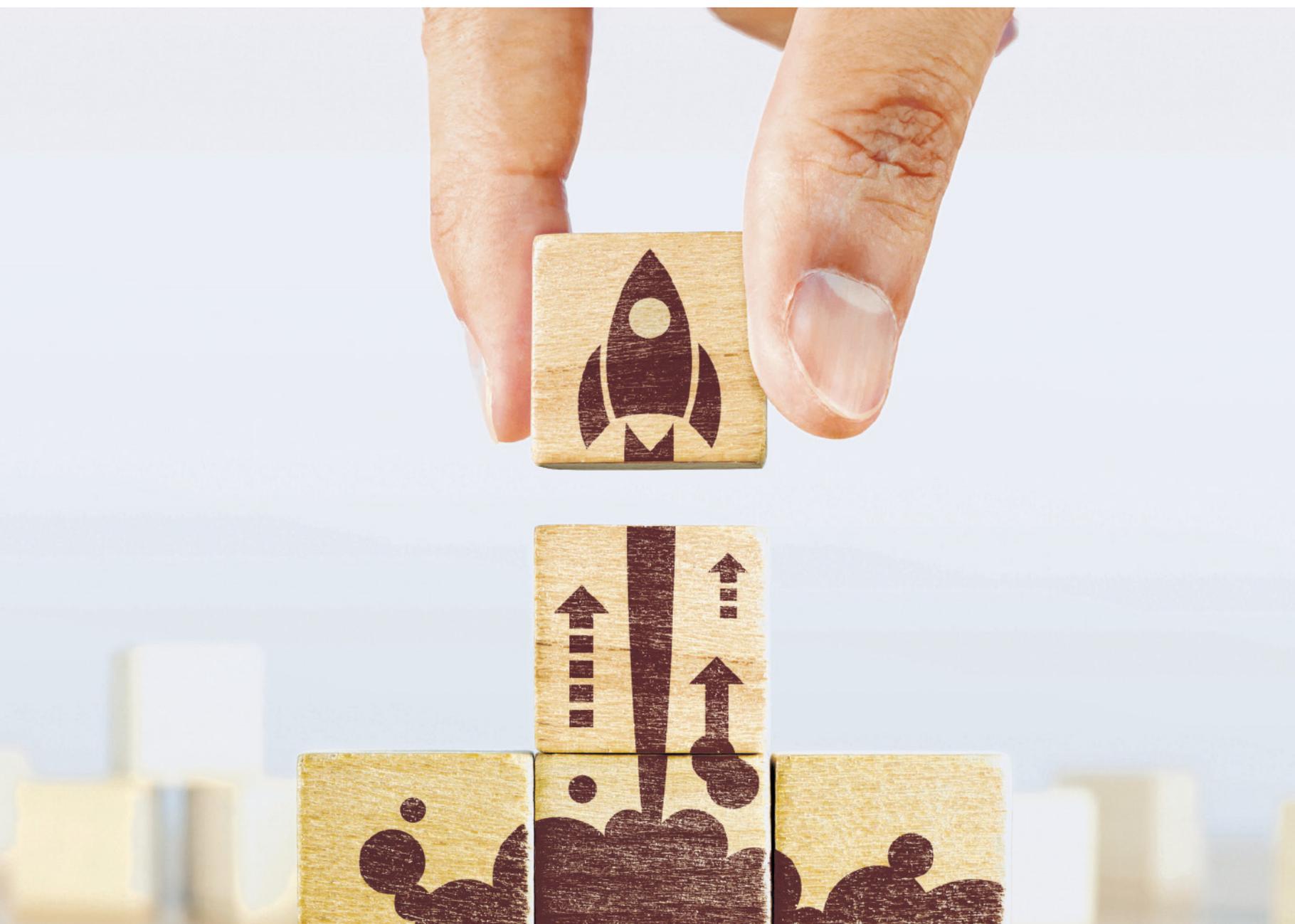
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# INNOVATION PITCH



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**Merging AI and Robotics to Accelerate Real-World Materials Discovery**  
Merging AI and Robotics to Accelerate Real-World Materials Discovery

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# Bridging the Sim2Real Gap in Materials

## Dunia Innovations Merges AI and Robotics to Accelerate Real-World Materials Discovery

*Dunia Innovations is redefining how the world discovers new materials. By closing the “simulation-to-reality” gap, Dunia’s AI-driven autonomous lab, IRIS, fuses robotics, real-world data, and multi-modal learning to accelerate the design of next-generation materials. From energy to chemicals to advanced manufacturing, Dunia is building the discovery engine for a sustainable, abundant future.*

**CHEManager:** *Dunia’s tagline is “Bridging the Sim<sup>2</sup>Real gap in materials discovery.” What does that mean in practice?*

**Alex Hammer:** For decades, materials science has been stuck in slow motion. We now start to have incredible simulations, but very little data to validate them. AI models can simulate thousands of interesting materials candidates, but frankly the only thing that matters is how those materials perform in the real world, at scale, and in actual industrial conditions. Dunia’s platform, IRIS, integrates AI with robotics to simulate, manufacture, stress-test, and analyze materials, learning from physical experiments and then continuously improving predictions and accelerating discovery.

*“AI models can simulate thousands of interesting materials candidates, but frankly the only thing that matters is how those materials perform in the real world, at scale, and in actual industrial conditions.”*

**Why is now the right time for this approach?**

**A. Hammer:** The world has never been hungrier for breakthroughs. I mean in areas like clean energy, in sustainable chemicals, advanced manufacturing, etc. But the materials that enable these breakthroughs take decades to develop, and we just can’t afford to wait that long. AI has already transformed

fields like protein design; we’re doing the same for materials but grounded in industrial data and automation.

**What makes Dunia’s platform different from other AI-for-science efforts?**

**A. Hammer:** Many efforts focus on simulations or digital twins. We focus on reality. Dunia combines real-world experimentation with multi-modal AI, in what we call the “Dunia Flywheel”: a continuous feedback loop powered by autonomous robots that run, test, and learn 24/7. The result is 50× higher throughput, 12× more reproducible data, and learning cycles that are six times faster than traditional labs. But speed isn’t everything. Every experiment we run is designed for manufacturability; grounded in real chemistry, process conditions, and industrial relevance. A “great” material that can’t be produced at scale isn’t really a breakthrough, it’s just an academic exercise.

**What types of materials are you working on today?**

**A. Hammer:** We started with catalytic and electrochemical materials, for example, precious-metal-free catalysts for hydrogen production and CO<sub>2</sub> conversion. But our platform is general-purpose. The same approach can accelerate discovery in batteries, semiconductors, membranes, and specialty chemicals. In short, anywhere materials limit progress, Dunia can move the needle.

**You mention “design for manufacturing.” Why is that important?**

**A. Hammer:** Discovery doesn’t change the world, it’s actual deployment. If a



Alex Hammer, Co-founder and CEO, Dunia Innovations

### PERSONAL PROFILE

**Alex Hammer** is the CEO and co-founder of Dunia Innovations, a deeptech startup tackling climate challenges through AI, robotics, and advanced materials. He holds an M.Phil. in Chemistry from the University of Cambridge and a Ph.D. from the University of Glasgow, where he worked on autonomous systems for chemical discovery. Before founding Dunia, Alex held roles in management consulting and R&D digitalization at Siemens and BASF, where he bridged scientific innovation with industrial application.

mining factor for future competitiveness in the industry.

**What’s Dunia’s long-term vision?**

**A. Hammer:** Our goal is to industrialize scientific discovery itself. To that end, we’re building a global network of autonomous Gigalabs; each operating as an intelligent and autonomous node in a connected global materials discovery ecosystem. Within a few years, we aim to discover a better material every 30 days, across domains from energy to electronics.

In the long run, one moonshot we are targeting is rebuilding one of nature’s most elegant systems: the Artificial Leaf. Photosynthesis took billions of years to perfect; we want to recreate that process in decades. It’s a symbol of

material can’t be scaled, integrated and produced efficiently, it stays stuck in the lab. That’s why IRIS is designed for manufacturability from the start.

*“Discovery doesn’t change the world, it’s actual deployment. If a material can’t be scaled, integrated and produced efficiently, it stays stuck in the lab.”*

We test under industrially relevant conditions. This also makes us a preferred partner to OEMs looking to go from concept to production without the decade(s) long lead time.

**Dunia already works with major industrial players. Can you share more about that traction?**

**A. Hammer:** Yes! We’ve signed the first contracts with Fortune100 global leaders, and our pipeline exceeds EUR 50 million in MoUs. For example, in October we announced a major collaboration with Valterra Platinum. Customer pull has been overwhelming as AI shapes out to become the key deter-

*“Ultimately, we want to make the physical world as programmable as software, accelerating humanity’s path to an abundant, sustainable future.”*

what our platform can do: merge biology’s ingenuity with machine precision. Ultimately, we want to make the physical world as programmable as software, accelerating humanity’s path to an abundant, sustainable future.



## BUSINESS IDEA

### Bridging the Sim2Real Gap

Dunia Innovations is building the world's most advanced autonomous labs for materials innovation. A new class of AI-native infrastructure, or industrial stack that closes the "simulation-to-reality" gap in materials science.

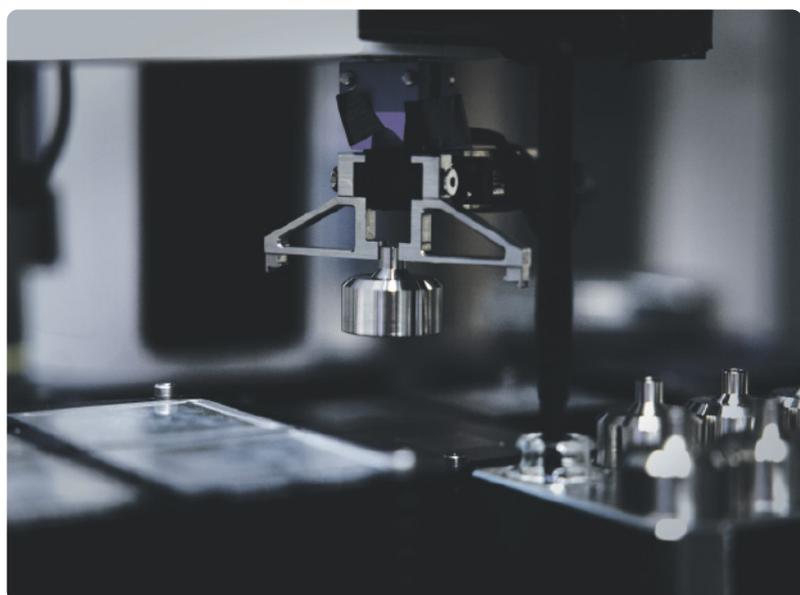
Founded in 2022, Dunia has developed IRIS, an AI-driven, self-optimizing discovery platform that fuses robotics, machine learning, and physics-informed modeling to turn experimentation into continuous computation. AI proposes; robots execute; real-world data is gathered; and this cycle repeats itself, refining the next generation of materials in real time."

With 50x higher throughput, 12x more reproducibility, and 6x faster learning cycles than traditional methods, IRIS delivers the speed of software to the physical world. Each experiment is industrial by design, tested under real conditions for manufacturability and scalability. This is why Dunia is the go-to partner for companies developing next-generation catalysts, membranes, coatings, etc..

Dunia's progress speaks for itself: a platform that outperformed human experts two years ago already, a state-of-the-art facility designed for manufacturing needs, actual commercial traction, an exponentially growing data set, and an unmatched

ambition for enabling a future of abundance world-wide. Winner of multiple awards across three continents Dunia is now scaling its Gigalab network: 5,000 sq. m AI-powered high-precision manufacturing facilities located worldwide at the center of the most dynamic industrial hubs. The Gigalabs will accelerate the development of the innovative materials that we cannot wait decades on to discover by chance, rather we create them by design.

■ Dunia Innovations, Berlin, Germany  
[dunia.ai](http://dunia.ai)



SCARA robot removes the cap from the catalyst ink container to enable pipette aspiration on the blade coating work cell.

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## ELEVATOR PITCH

### Industrializing Discovery

Dunia is building the world's most advanced autonomous labs for materials R&D, closing the "simulation-to-reality" gap that's held back industrial innovation for decades.

Our AI-native platform, IRIS, fuses AI and robotics to transform how materials are discovered, validated, and scaled. It's a self-optimizing discovery engine where AI proposes, robots execute, and real-world data makes the system smarter with every cycle. The result: breakthroughs that move from idea to industrial scale in months or weeks, not decades or years.

For global chemical, energy, and tech partners, Dunia offers a shortcut to world-class materials innovation, without the \$1B+ and 10-year investment needed to build internal capabilities. Our platforms deliver large scale experimentation capabilities, generating massive amounts of high-quality data daily to fuel the world's first multi-modal foundation model for materials.

We're already trusted by Fortune 100 companies and have received global recognition as one of the most ambitious deep-tech companies in this space.

#### Milestones

##### 2022

- Dunia founded
- Proof-of-concept outperforms top scientists

##### 2023

- Built V.1 of the Materials Acceleration Platform (MAP) from scratch

##### 2024

- First revenue
- Named Business Insider DeepTech Rising Star
- Joined the EIC Accelerator program

#### Roadmap

##### 2025

- Listed by Sifted as one of the "8 German AI Startups to Watch"
- Featured by Andreas Klinger as one of the most ambitious startups in Europe
- IRIS goes live
- Won Green Award at the GREEN-TECH Festival
- Hosted headline event at SF Deep Tech Week
- Named winner of the Zhang Fan Global AI Initiative Award in Singapore
- Recognized with an FI19 Innovation Award in Saudi Arabia
- Announced public collaboration with Valterra



Dunia Innovations Founders

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## Interpex 2026

Interpex 2026 is set to energize New York City's Javits Center from April 21–23, 2026, bringing together thousands of pharmaceutical and biotech professionals from across the globe. This renowned event showcases the latest advances in manufacturing, process development, and regulatory solutions, featuring interactive exhibitions, inspiring seminars, and live technology demos designed to spark collaboration and drive growth throughout the industry.

■ [www.interpex.com](http://www.interpex.com)

## DCAT Week 2026

DCAT Week 2026 will be held from March 23–26, 2026 in New York City, serving as a key business development event for the global (bio)pharmaceutical manufacturing ecosystem, featuring private meetings, educational sessions, and networking opportunities designed to foster strategic partnerships and industry growth. It is hosted by the Drug, Chemical & Associated Technologies Association (DCAT), a not-for-profit, member-supported, global business development association whose members include innovator and generic drug manufacturers, suppliers of ingredients, development and manufacturing services, and related technologies.

■ [www.dcatweek.org](http://www.dcatweek.org)

## SOCMA Show 2026

The SOCMA Show 2026, held from March 4–6, 2026 at the JW Marriott in Nashville, Tennessee, is the US specialty chemicals industry's premier trade event. It connects over 150 North American companies and 1,250 professionals to showcase new chemistries, technologies, and manufacturing solutions. The show offers educational sessions, and business development opportunities designed to foster partnerships and drive growth in the specialty and batch chemical sectors.

■ [www.socmashow.com](http://www.socmashow.com)

## Analytica 2026

Analytica 2026 will take place from March 24–27, 2026 at Messe München in Munich, Germany. It is the world's leading trade fair for laboratory technology, analysis, and biotechnology, bringing together industry experts, researchers, and professionals from around the globe to showcase innovations, discuss scientific advancements, and exchange knowledge. The event features exhibitions, a conference with renowned speakers, and special programs focused on topics like lab automation, bioanalytics, and sustainability, making it a vital platform for collaboration and industry growth.

■ [www.analytica.de](http://www.analytica.de)

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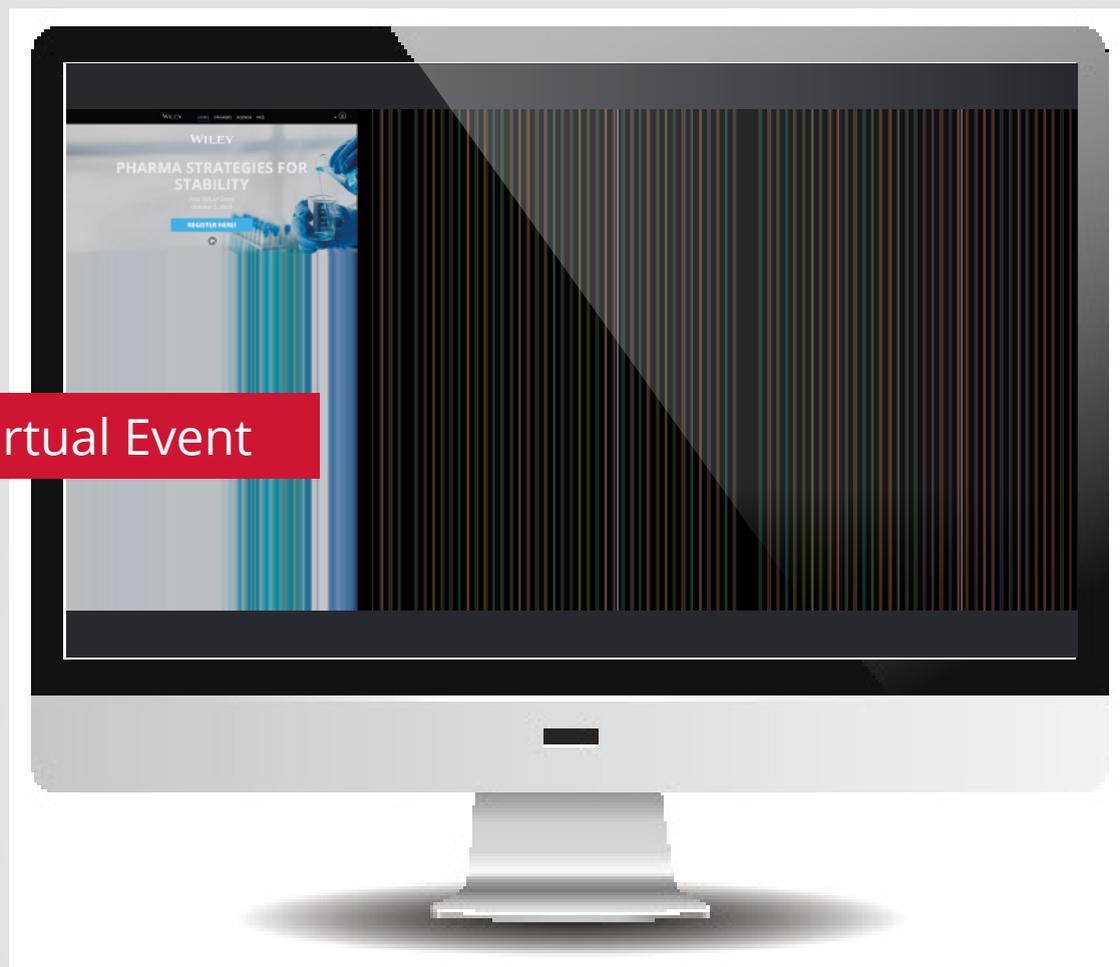
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