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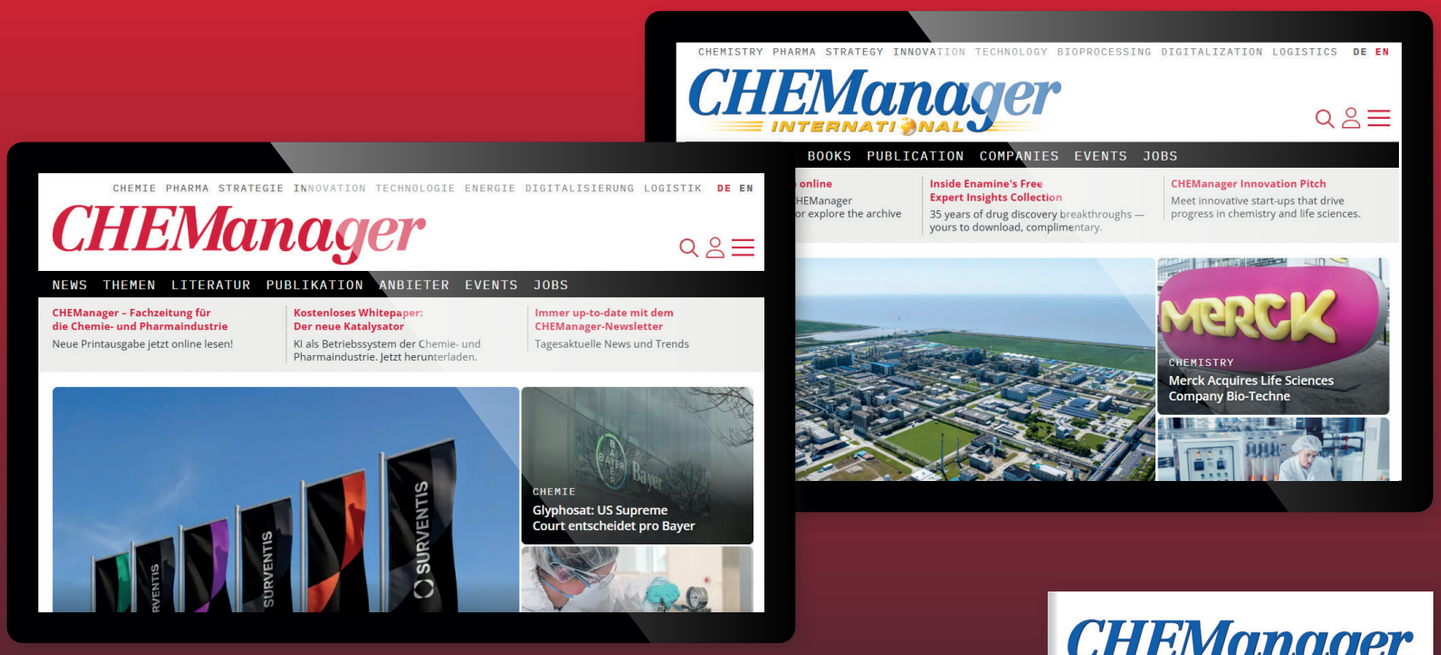

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CDMOs/CMOs: The Key Moves in 2026

From Peptides to Biologics: Where CDMOs Are Placing Their Bets in 2026

What have been key moves—capacity additions and acquisitions by CDMOs of drug substances (small molecules and biologics) thus far in 2026? A roundup of key developments.

CDMOs: Key Moves Thus Far in 2026

In looking at news from CDMOs of drug substances in 2026, certain themes emerge. The blockbuster success of the glucagon-like peptide-1 (GLP-1) receptor agonists for treating obesity and Type 1 diabetes and related drugs has been a major impetus in driving peptide-based drug development overall, and in 2026, peptides were again a focal point of several moves by CDMOs. Also, several CDMOs are investing in small-molecule active pharmaceutical ingredient (API) manufacturing, including for highly potent APIs (HPAPIs), and large- and mid-scale biomanufacturing projects continued in 2026. And US-based investments were a target of several CDMOs.

Peptides Making the Moves

One of the largest acquisitions by CDMOs announced thus far in 2026 was in peptides with the pending $1.8-billion acquisition of PolyPeptide Group, a CDMO focused on peptide-based APIs, by Samsung Biologics, a CDMO of biologics, advanced therapies, antibody drug conjugates (ADCs) and other complex conjugates. With the acquisition, Samsung Biologics will expand its capabilities beyond antibodies and ADCs to include peptide therapeutics. The transaction is expected to be completed toward the end of 2026.

PolyPeptide has six cGMP development and manufacturing facilities, and these facilities will join Samsung Biologics' biomanufacturing network, which currently includes two bio campuses with a total of five facilities in South Korea. In late August, Samsung Biologics announced a rights offering to raise KRW 3 trillion ($2.2 billion) to fund its acquisition of PolyPeptide and for facility expansions. In 2025, the company brought on its fifth biomanufacturing facility and reported in August that it is evaluating bringing additional capacity online sequentially through three additional plants at its Bio Campus II in South Korea, which would boost its global manufacturing capacity to 1.385 million liters by 2032. In addition, earlier this year (March 2026), the company acquired from GSK a 60,000-L biomanufacturing facility in Rockville, Maryland, marking the company's first US-based biomanufacturing facility.

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Patricia Van Arnum, Editorial Director, DCAT

CordenPharm added to its position in peptides with the acquisition of AmbioPharm, a CDMO specializing in peptide-based APIs. AmbioPharm has two sites, one in North Augusta, South Carolina, and one in Shanghai, China, and the acquisition adds differentiated peptide manufacturing capabilities to CordenPharma's existing peptides platform, capacity, and expertise.

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Bachem announced plans to build a new large-scale production facility in Sisslerfeld (Eiken, Switzerland) with an investment of more than CHF 500 million ($610 million) as part of a strategic customer collaboration following the signing of an agreement to supply large volumes of peptides. Start of commercial production at the new site is expected in 2030.

Moves in Small-Molecule API Manufacturing

Other CMDOs are expanding small-molecule API capacity, including for HPAPIs. In July, Evonik announced a $100-million investment at its API manufacturing site in Lafayette, Indiana, to modernize key equipment, including large reactors and other systems. The site, which Evonik acquired from Eli Lilly and Company in 2010, is its second-largest site in North America. Evonik says it is balancing its global asset footprint across North America, Europe, and Asia, with a particular emphasis on North America for its drug-substance CDMO business.

In June, Siegfried inaugurated a new large-scale production facility for API manufacturing in Minden, Germany. The facility adds 100 m³ of reactor capacity and includes high-containment capabilities. Also, earlier this year, Siegfried acquired three small-molecule drug-substance sites, respectively from Noramco, Extractas Biosciences, and Purisys (a Noramco subsidiary) from affiliates of the private-equity firm, SK Capital Partner. The acquired businesses include (1) Noramco's commercial-scale manufacturing site in Wilmington, Delaware; (2) Purisys' clinical API development and manufacturing facility in Athens, Georgia; and (3) Extractas Bioscience, a manufacturer of purified products based in Westbury, Tasmania, Australia. SK Capital retains ownership of Halo Pharmaceuticals, a CDMO of drug products, purchased by Noramco in 2023.

Cambrex is investing more than $120 million to expand its Charles City, Iowa, site. The project will add a new plant with 140,000 liters of capacity, including large-scale (16,000-L) and mid-scale (4,000-L) reactors, as well as advanced Hastelloy agitated filter dryers. Upon completion, the Charles City site will see a 20 % increase in large-scale manufacturing capacity, supporting projects with complex chemistry, including controlled substances, HPAPIs, and commercial-scale liquid-phase peptide manufacturing. Also in the US, in August, the company successfully completed three pre-approval inspections at its High Point, North Carolina, facility by US, Japanese, and Australian regulatory agencies to establish the facility as its newest commercial manufacturing site. This follows Cambrex's $38-million expansion of the High Point facility completed in 2023, which added analytical and chemical development laboratories, clinical manufacturing suites, and commercial manufacturing operations with reactors up to 2,000 liters. The site supports lower-volume commercial products, including orphan drugs, precision medicines, and other specialized therapies for smaller patient populations.

In Europe, Cambrex is investing $30 million to expand its R&D laboratory footprint and enhance production capabilities at its Milan, Italy, site. The project will add new analytical development, quality control, process R&D capabilities and upgrades to multiple existing production plants. The R&D expansion is expected to be completed in the second half of 2027.

"In 2026, peptides were again a focal point of several moves by CDMOs."

HAS Healthcare Advanced Synthesis Group is proceeding with a five-year investment (2026–2030) program exceeding $120 million that the company announced in January, which includes several key expansions for ADC capabilities, HPAPIs, and R&D and API capacity upgrades. This follows its 2025 acquisition of the CDMO Cerbios-Pharma to further build its drug-substance capabilities, including in HPAPIs. In August, the company successfully completed the Swissmedic inspection process for a new ADC suite at Cerbios-Pharma.

Also in ADCs, in June, Lonza announced plans to enhance its drug–linker center of excellence and expand payload–linker manufacturing capacity at its site in Visp, Switzerland, to establish new commercial-scale capabilities for HPAPIs and ADC payload-linkers. The investment will add new manufacturing capacity within an existing GMP facility, bringing additional payload–linker production and purification alongside dedicated analytical and process development laboratories. The facility is expected to be operational in 2028.

Biomanufacturing: Investments Continue

On the biologics side, earlier this year, Fujifilm Biotechnologies opened a £400 million ($546 million) expansion of its biomanufacturing facility in Teesside, UK. The expansion introduces 2,000-L and 5,000-L single-use bioreactors with a total capacity up to 19,000 L to provide small- and mid-scale antibody manufacturing, with the flexibility for future expansion. In parallel, the company opened a Bioprocess Innovation Center UK, which includes a laboratory for both high-throughput, and continuous process development capabilities and which will operate as a Global Center of Excellence for Biomanufacturing Innovation and Process Development. The more than 102,200-square-foot facility doubles the campus' existing lab footprint and complements the sites' expanded biomanufacturing capabilities. In Toyama, Japan, the company completed construction of a 16,000-m² site with small- and mid-scale single-use capacity in December 2025 with future ability to manufacture ADCs. The site is anticipated to be operational in 2027. Also, in late 2025, Fujifilm Biotechnologies and Johnson & Johnson (J&J) announced a $2-billion partnership over 10 years with J&J securing a 160,000+ square-foot dedicated manufacturing facility at Fujifilm's biomanufacturing site in Holly Springs, North Carolina. In 2025, Fujifilm opened the first phase of a planned $3.2-billion investment of the Holly Spring site.

Thermo Fisher is expanding with additional biologics drug-substance capacity across facilities in the US and Switzerland, including launching new GMP monoclonal antibody (mAb) manufacturing capabilities in Plainville, Massachusetts, in the second half of 2026, to support large-scale production of mAb therapies. The company also expanded its global Bioprocess Design Center (BDC) network with new BDC facilities in the US and India, complementing existing centers in China, Korea, and Singapore.

Note: Investment amounts and currency conversions are as of time of news announcement.

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This article was first published August 13, 2026, in *DCAT Value Chain Insight*, an online publication covering the business of bio/pharmaceutical development and manufacturing of the Drug, Chemical & Associated Technologies Association (DCAT), and was edited and updated for publication in CHEManager International.

Why Reinvention Matters for the Chemical Industry

Refocusing on Innovating, Producing, Selling

Chemical companies face rising volatility, weak demand, and structural challenges. AI-powered reinvention can offer a path to faster growth, lower costs, and greater competitiveness by transforming how work gets done.

Anyone currently working in the chemical industry is acutely aware of the challenges we face—geopolitical conflict, logistics disruptions, regulatory intervention, and more. The question becomes, how does the industry return to what it does best, innovating, producing and selling, during times of unprecedented change and almost daily disruption. It's a question that Accenture attempted to answer in our most recent report.

"If there's one industry that understands reinvention, it's the chemical industry."

Compounding these external pressures are industry specific challenges including slowdowns in key end markets, overbuilt value chains that are creating supply and demand imbalances, stagnant views on how work should be organized and the looming retirement wave. These circumstances are creating an environment that is making it extremely difficult for chemical companies to return to growth and provide shareholder value.

A Traditional Response to an Untraditional Problem

To combat these forces, both internal and external, companies have relied heavily on traditional cost-reduction programs such as headcount reductions, asset optimization, spending freezes, and incremental efficiency initiatives. The same levers the industry has relied on for the past 30 years.

The outcomes of these efforts have become increasingly insufficient. Profitability has remained strained due to price pressure outpacing cost reduction. Organizations are showing fatigue from being asked to repeatedly execute similar programs with diminishing returns. On the financial side, investors can no longer differentiate between companies leading to waning enthusiasm.

The industry's traditional ways of working are being tested like never before, revealing that for the industry to return to what it does best, a fundamentally new approach must be taken. That game changer is reinvention.

AI-based Reinvention is a Game Changer

Reinvention is more than just change. It's a practical operating shift using a different set of capabilities underpinned with artificial intelligence (AI).

If there's one industry that understands reinvention, it's the chemical industry. For decades, the industry has met changing customer needs by adapting technologies, processes, and business models. Today's advancements in digital and AI are creating new pathways to solutions, tools and combinations that simply didn't exist before.

Big Tech is investing billions of dollars each year in AI and AI-related infrastructure, and the race is on. Organizations that move first tend to stay ahead of their competition, as value capture accelerates and compounds along the curve.

AI adoption in the chemical industry has begun but at an uneven pace and a lower intensity than in many customer-facing or adjacent industries. This hesitancy in the industry is creating a growing capability gap at precisely the moment when speed, precision, and foresight matter most.

Furthermore, for real value to be achieved in the adoption of an AI-enabled enterprise, the use cases need to be specific to each company's asset base, data footprint, operation model, and customer set. It's not a one-size-fits-all approach. It requires deliberate choices on where to focus, which capabilities to build, which tools to deploy, and how fast to move.

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Bernd Elser, Senior Managing Director, Accenture

The Reinvented Chemical Company

A reinvented chemical company can operate at levels of precision, speed and insight that are out of reach today.

Imagine being able to tap into decades of R&D data never before explored by the human mind; or the ability to replicate your best production days reliably every day by optimizing plant performance from integrating and analyzing operational data across systems such as OSI PI and IP.21; or having the insight to identify customer demand and value-creation opportunities earlier and more precisely.

In a reinvented chemical company, the value chain shifts from a

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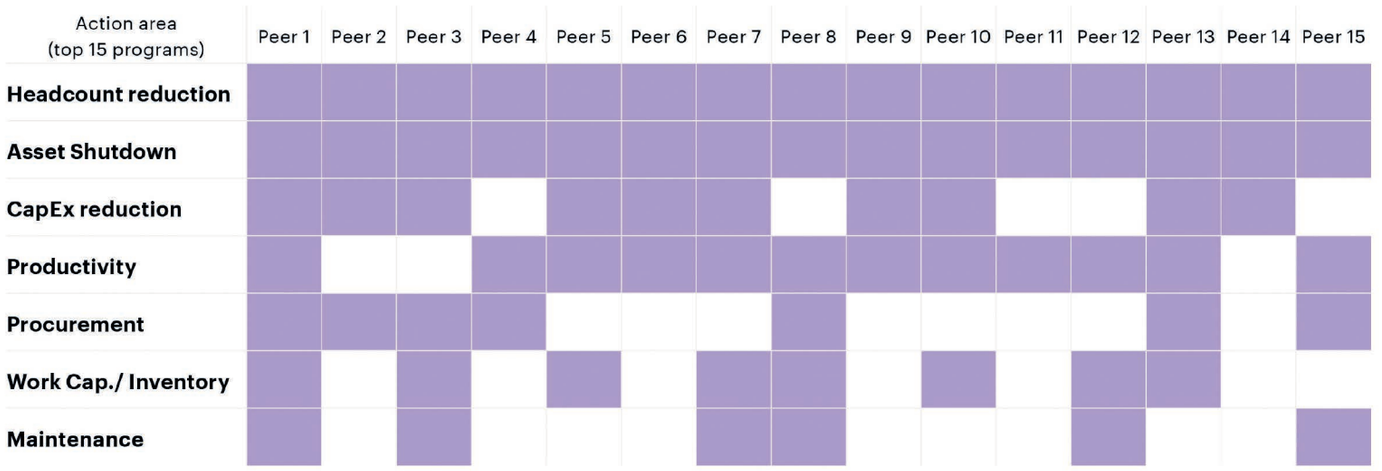

Source: Company quarterly and annual earnings report/presentation, press releases related to cost-saving programs, current and past.

Fig. 1: Chemical companies resort to the usual cost reduction actions

mix of core and non-core activities to a sharper focus on industry's core strengths—innovating, producing, and selling. Asset– and people–intensive non-core activities are reduced or operated with partners, freeing capacity to focus on more important initiatives.

The reinvented chemical company's business model also shifts from selling molecules to a more customized customer experience where problems are solved through tailored solutions. Reinvention unlocks additional value along the value chain, helping to break down silos.

Simply put, a reinvented chemical company is comprised of four clear and observable differences:

- A new speed. Value chains are refocused on innovating, producing and selling, while non-core activities are reduced, and processes are simplified or partnered.
- Greater differentiation. Innovation cycles accelerate, enabling more customized solutions and deeper customer relevance.
- Increased simplification. Fewer processes, lower manual effort, and reduced organizational complexity.
- A new performance frontier. An EBIT uplift of 60–80 %, driven by lower costs and faster growth enabled by new capabilities.

How Work and Organizations Change

For the most part, a typical chemical company has operated the same way for decades despite technological advancements. In a reinvented chemical company, work itself is transformed. Humans and AI work together, with AI augmenting, not replacing human judgment.

In innovation, lab teams shift from one Ph.D. and two to three technicians supported by limited data to teams fully supported by AI systems that work 24/7 testing unexplored option spaces.

"Reinvention unlocks additional value along the value chain, helping to break down silos."

In production, operations move from being primarily experience-driven to continuously optimized through AI-supported recommendations based on decades of operational data.

In selling, human intuition approaches are augmented with AI-generated customer value chain insights for a more focused approach.

Accenture modeled chemical companies across the full operating scope to visualize the impact these changes could have on a typical company. Looking at 250 Level-4 processes, more than 90 core organizational roles, 150 financial and non-financial performance indicators and 100 AI agents, our research suggests:

- A reduction of more than 40 % in Level-4 processes through automation, augmentation, and elimination.
- A significant reallocation of workforce capacity—on the order of 40 % toward higher-value activities.
- A meaningful shift in productivity, addressing a gap that has remained largely unchanged over the past 15 years.
- Relief from demographic pressure, as AI helps offset the impact of the anticipated 25–30 % of employees retiring over the coming decade.
- As work is reinvented, organizational layers are reduced, decision-making accelerates, and new capabilities emerge.

The Role of Leadership

The most critical factor in a successful reinvention is the company's leadership. Without explicit ownership, the company's reinvention will fail. Leaders should set a clear ambition focused on structural change rather than small incremental operational improvements.

This translates into the break-up of functional silos to establish true end-to-end accountability with new delivery models designed around human and AI collaboration. Humans remain in the lead, especially in areas where judgement and accountability matter.

With any major organizational change, there is always some employee resistance. Strong leadership to actively manage this resistance is important to help alleviate fears and support the adoption of new ways of working.

There's significant value that can be unlocked in a reinvented chemical company, helping restore confidence that the chemical industry can once again operate on the frontier of innovation.

"The growth opportunities are clear: faster innovation, shorter cycle times, structurally lower back-office costs, and renewed growth."

The Reinvention Imperative

The growth opportunities are clear: faster innovation, shorter cycle times, structurally lower back-office costs, and renewed growth. Many chemical companies already have pilots that validate this potential but struggle with how to scale.

Even amid ongoing macroeconomic uncertainty, growth opportunities still exist. Chemical companies that act with foresight and speed will be best positioned to capture growth. AI-enabled reinvention is rapidly becoming a competitive necessity and may be the most defining leadership imperative of the decade.

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From Scientific Excellence to Industrial Implementation

China's Biopharmaceutical and Medtech Sector in 2026

China enters the 15th Five-Year Plan (2026–2030) after remarkable progress in public health during the previous planning period. Life expectancy reached 79.3 years in 2025, and nearly 95 % of the population is now covered by statutory health insurance; private insurance plans covering more costly therapies are on the rise.

At the same time, demographic aging has become one of the country's greatest long-term challenges. More than 224 million people are aged 65 years or older, a number expected to approach 350 million by 2050.

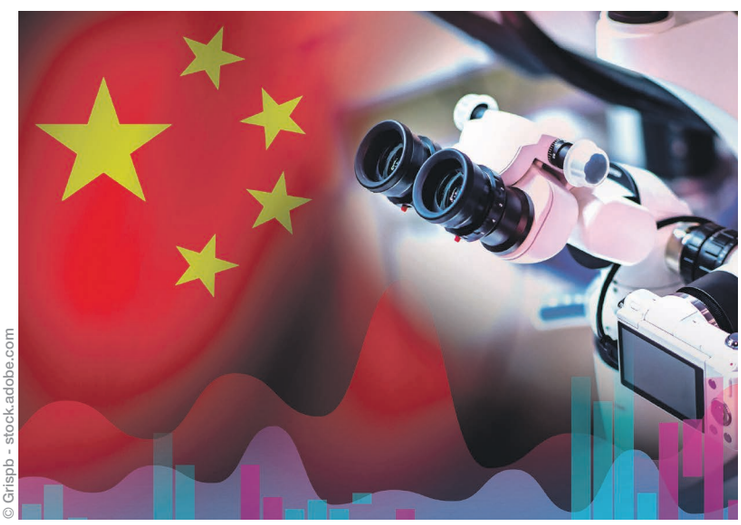
Public Health: a Strong Foundation for Innovation

China's epidemiological profile is changing accordingly. Chronic diseases—including cardiovascular disorders, cancer, diabetes and neurodegenerative diseases—now account for most morbidity and mortality, driving demand for innovative pharmaceuticals, medical devices, diagnostics and digital healthcare. Supported by more than 38,000 hospitals, over one million community health centers and nearly five million physicians, the healthcare system provides an increasingly strong platform for nationwide innovation. By 2030, the government aims to expand healthcare quality nationwide while increasing life expectancy to around 80 years. These demographic and structural developments provide an economic rationale for China's sustained investment in biomedical research and innovation.

Pharmaceutical Industry: from Manufacturing Base to Innovation Partner

With a market volume of approximately RMB 1.9 trillion ($280 billion) in 2025, China has become the world's second-largest pharmaceutical market. Although more than 5,000 manufacturers remain active, the industry's center of gravity is shifting from generics and active pharmaceutical ingredients towards innovative medicines.

Biologics—including monoclonal antibodies, cell and gene therapies, and antibody-drug conjugates—have become major growth drivers. This transformation is increasingly visible internationally. Chinese companies are evolving from technology licensees into licensors of innovative drug candidates. Out-licensing transactions reached approximately $136 billion in 2025, while growing numbers of Chinese compounds entered multinational clinical development through partnerships with leading international pharmaceutical companies. China's pharmaceutical industry is evolving from a manufacturing base to an important contributor to global drug innovation.



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Medtech and Diagnostics: Rapid Technological Upgrading

China's medical technology industry is undergoing a similarly rapid transformation. More than 35,000 certified manufacturers operate in the country, while in vitro diagnostics remains one of its fastest-growing segments.

Chinese companies are becoming increasingly competitive in advanced imaging, surgical robotics, genomic technologies and AI-supported medical devices. United Imaging introduced a commercially available 5.0 Tesla MRI scanner, while more than 600 sequencing companies now contribute to one of the world's largest genomics ecosystems.

"The framework of China's 15th Five-Year Plan confirms biomedicine as one of the country's strategic future industries."

Digitalization, artificial intelligence and nationwide 5G infrastructure are accelerating the convergence of medical devices, diagnostics and digital health. An illustrative example is the AI-enabled Kangbao healthcare robot, which combines contact-free optical monitoring with continuous analysis of vital signs. Such developments demonstrate how engineering, photonics, artificial intelligence and clinical medicine are increasingly integrated within China's healthcare innovation system.

National High-Tech Parks: Engines of Biomedical Innovation

A distinctive feature of China's innovation strategy is its nationwide network of national hightech parks. By the end of 2025, 178 parks had been established, generating roughly 13 % of China's GDP while hosting tens of thousands of hightech enterprises, research institutes and State Key Laboratories.

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Rolf Schmid, Founder, Bio4Business

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Xin Xiong, Professor, Reutlingen University

Leading parks—including Shanghai Zhangjiang, Beijing Zhongguancun, Guangzhou, Shenzhen and Suzhou—combine universities, hospitals, start-ups, venture capital, contract research organizations and pharmaceutical manufacturers within highly integrated innovation clusters. These ecosystems increasingly resemble the world's leading biomedical hubs by linking scientific excellence with technology transfer, industrial scale-up and rapid commercialization.

They are also producing internationally recognized scientific achievements. The high-resolution Yao reference genome strengthens China's capabilities in precision medicine and AI-supported genomics, while rapid progress in brain-computer interfaces illustrates the country's ability to integrate neuroscience, engineering and clinical medicine. These examples demonstrate how the national hightech parks have evolved beyond industrial estates into comprehensive innovation ecosystems that connect scientific discovery with clinical translation and commercial application.

Scientific Excellence, Clinical Translation, and Commercialization

The framework of China's 15th Five-Year Plan confirms biomedicine as one of the country's strategic future industries. Priority areas include biomanufacturing, innovative pharmaceuticals, high-end medical devices, brain-computer interfaces, and digital healthcare. Compared with the previous planning period, however, the strategic focus has

shifted. While the 14th Five-Year Plan primarily strengthened scientific capabilities and promoted technological breakthroughs, the new plan emphasizes industrial implementation, clinical translation and commercialization.

At the same time, investment in basic research continues to expand. Strategic programs in population genomics, brain science and biomanufacturing are creating proprietary scientific resources and enabling technologies designed to support the next generation of biomedical innovation. Rather than separating fundamental research from industrial development, China is integrating both within a coordinated innovation strategy.

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Trends, Opportunities and Risks

For international companies, China remains one of the world's most attractive healthcare markets, driven by demographic change, the growing burden of chronic disease and rising expectations for healthcare quality. At the same time, the 'Made in China First' principle (国产优先) remains a central element of China's healthcare reforms. The goal is to strengthen domestic innovation and reduce reliance on imports. As a result, competition is intensifying. Domestic companies are moving rapidly into technology-intensive market segments, supported by substantial public investment, expanding venture capital, regulatory reforms and the innovation ecosystems of the National High-Tech Parks. Success in this market depends not only on market access and regulatory expertise, but increasingly on scientific collaboration, local partnerships and participation in China's innovation ecosystem.

As China evolves beyond its role as a sales market to become a strategic location for research, clinical development and technological collaboration, companies able to participate in this ecosystem may benefit from rapid innovation cycles and access to world-class scientific capabilities. Those remaining outside it risk losing competitiveness in some of the fastest-moving areas of biomedical innovation.

Outlook

China's healthcare sector has entered a new stage of development. The country is no longer expanding healthcare capacity or manufacturing output alone. It is systematically building an integrated biomedical innovation ecosystem that combines scientific research, clinical excellence, industrial development and commercialization.

Whether China ultimately becomes one of the world's leading sources of pharmaceutical and medical technology innovation will depend on its ability to sustain scientific excellence, encourage entrepreneurial creativity and remain connected to international research networks. During the 15th Five-Year Plan period, China will seek to strengthen its highly integrated research and innovation ecosystem in order to translate scientific findings into industrial innovations even more effectively.

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The Search Function

What AI Can't Replace in Biopharma Innovation

As biopharma R&D leans further into AI, the advantage increasingly lies not only in what companies discover internally but in how well they can see, evaluate, and act on innovation happening outside their own walls. In this CHEManager Leaders & Motivators interview, Nishtha Jain, Global Search and External Innovation Platform Leader, R&D at CSL, discusses building AI-enabled platforms that help R&D teams identify and assess high-impact global opportunities, what it takes to keep human judgment central as these systems scale, and how leadership must evolve at the intersection of AI, ethics, and innovation.

CHEManager: Your role sits at the intersection of AI, digital platforms, and external innovation strategy. How do you define your mission at CSL right now, and what does building a future-ready innovation portfolio look like in practice?

Nishtha Jain: Biopharma R&D generates enormous amounts of signals – academic research, biotech pipelines, licensing activity, competitive moves scattered across thousands of sources worldwide. My role is focused on creating an AI-enabled "search platform technology" that continuously scans, structures, and surfaces external intelligence signals against our therapeutic area strategy, so our scientific and business teams are looking at a curated set of high-conviction opportunities instead of starting from zero every time.

In practice, a future-ready innovation portfolio means three things: visibility (can we see what's happening globally, not just in our usual networks), velocity (can we evaluate and act before someone else does), and validation (can we trust the recommendation enough to bring it to a decision-maker). The platform work is in service of all three, but the strategy work is deciding what „high impact" even means for CSL's specific pipeline priorities at a given moment, which is a human judgment call the technology supports, not replaces.

You've built digital and innovation capabilities at Takeda, GSK, Biogen, and now CSL, each with its own culture and constraints. What lessons from those different environments most shaped how you approach platform-building today?

N. Jain: Each company taught me a different constraint to design around. Every environment reinforced the same core lesson from a different angle: whenever you set out to build a technology: a tool, a platform, an AI capability, the business need or user problem must be the thing you design around first. Not the technology itself. At Takeda, I created Innovation Board, a „Shark Tank" style process where business users had to pitch and defend


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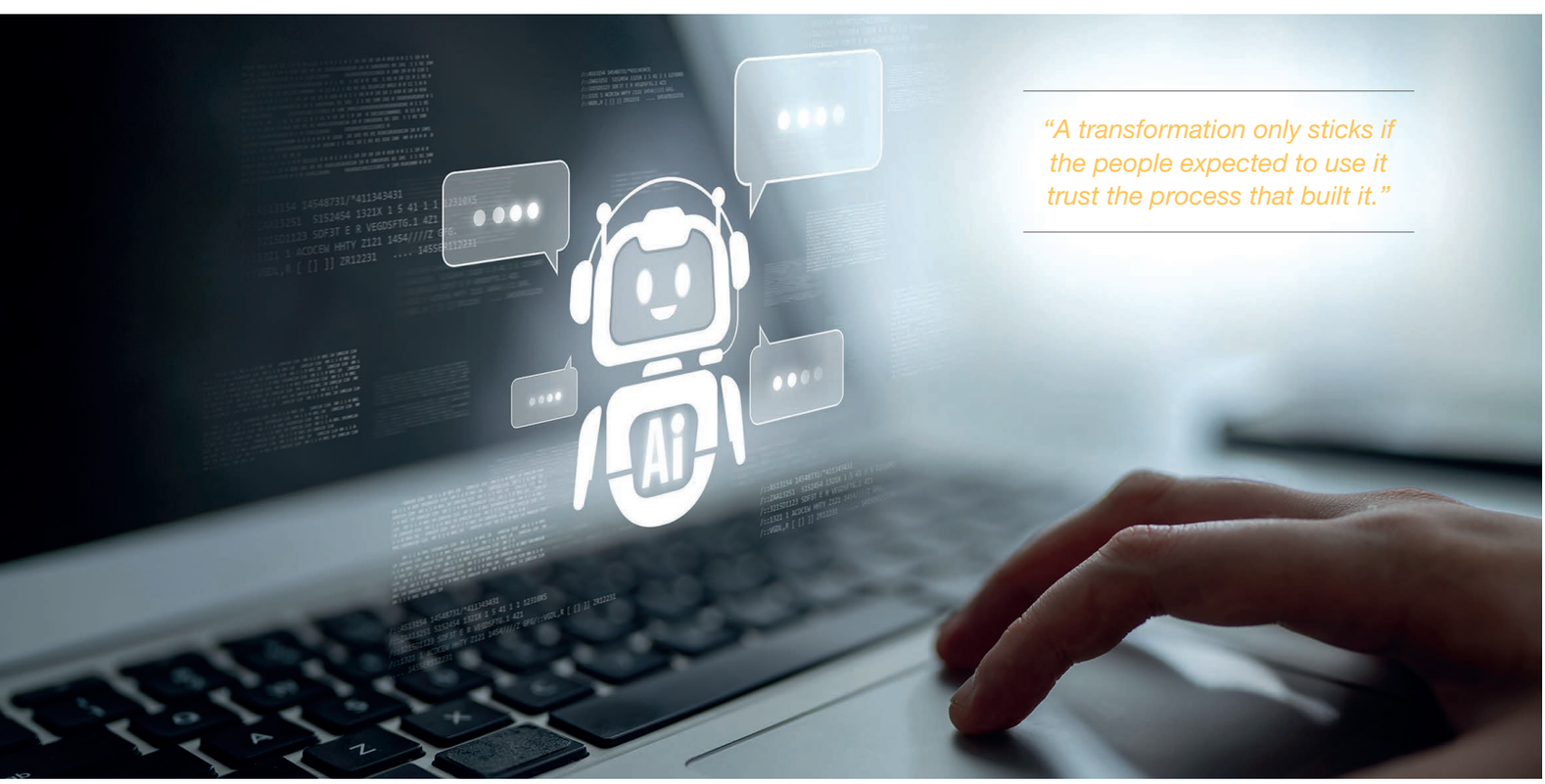
Nishtha Jain, Global Search and External Innovation Platform Leader, R&D, CSL



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> *"A transformation only sticks if the people expected to use it trust the process that built it."*

the problem before any funding or build conversation happened. That forced discipline mattered more than any technology choice we made afterward. The same principle shaped Digital LEAP IN: it wasn't built because a learning platform sounded innovative, it was built because teams had a real fluency gap that was going to block adoption of everything else, we wanted to do.

> *"The time spent getting precise about the real problem is never wasted, and it's usually the difference between a platform that gets adopted and one that gets shelved."*

I've seen the inverse happen too, elsewhere, a genuinely well-built platform sitting unused because it solved a problem nobody was actually asking about or solved it for the wrong stakeholder. That's the trap in innovation roles: it's easy to get excited about what technology can do and back into justification for it, instead of starting from the friction a team is feeling and working forward.

I often think of it as falling in love with the problem, not the solution. The moment you're more attached to a particular tool or technique than to the outcome it's supposed to serve, you've lost the thread. Einstein is widely credited with saying that if he had an hour to solve a problem, he'd spend fifty-five minutes defining it and five minutes solving it. The time spent getting precise about the real problem is never wasted, and it's usually the difference between a platform that gets adopted and one that gets shelved.

So across every company, the lesson has stayed consistent: start with the business need or user problem, keep it at the center through the build, and let the technology be the answer to that never the starting point. That's the filter I run every platform decision through today at CSL.

Innovation and transformation roles often mean tearing down what already works to build something better. What personally motivates you to keep choosing that harder path?

N. Jain: Uncertainty is the breeding ground of innovation, not the obstacle to it. The moment something feels fully settled and predictable, it's usually because the interesting problems have already been solved or nobody's looked closely enough yet.

That belief traces back to my own path. I started as a software engineer, then made the deliberate, admittedly uncertain choice to move into biotechnology, leaving a track I understood for one I'd have to learn from scratch. There was no guarantee that pivot would work. But it opened a door I couldn't have designed for in advance: a career built at the exact intersection of technology and biopharma, which is where I still find the most meaningful problems today.

That's what tearing down „what already works" is about for me, not destruction for its own sake, but a bet that an unfamiliar, uncertain path can lead somewhere the familiar one never could. When I've pushed teams to rebuild a process or rethink a platform from scratch, it's rarely because the old way was broken beyond repair. It's because staying inside it guarantees you'll only ever get an incrementally better version of the same outcome. Choosing the harder, less certain path is what makes room for outcomes that would have looked genuinely impossible from where you started a faster way to spot a promising therapy, a platform that changes what an R&D team believes is even worth searching for.

So, the motivation isn't discomfort with the status quo for its own sake. It's a conviction, tested in my own career more than once, that uncertainty is where the biggest leaps come from and that the only way to find out what's on the other side of a hard pivot is to make it.

Your TEDx talk, "The Digital Drug", and your work on ethical technology and digital wellness speak to the human cost of poorly designed tech. How do those convictions show up in the day-to-day choices you make leading AI transformation inside a regulated pharma environment?

N. Jain: "The Digital Drug" was about a simple but uncomfortable truth: technology designed to capture attention rather than serve people ends up costing us in ways we don't notice until the damage is significant to focus, to wellbeing, to how we relate to each other. I carried that conviction directly into how I think about AI in a regulated pharma environment, where the stakes of getting design wrong aren't just personal wellbeing, they're patient outcomes and scientific trust.

Day to day, it shows up as a few specific habits. First, I ask whether a tool is designed to genuinely make someone's judgment better, or just to make them use it more — those are different design goals, and it's easy to optimize for the second while telling yourself you're doing the first. Second, I insist on transparency about a model's limitations rather than letting confident-looking outputs oversell themselves; in a regulated environment, a tool that quietly overstates its own certainty is a bigger risk than a tool that's visibly imperfect. Third, I try to protect against a subtler harm: the erosion of a team's own judgment that happens when people start deferring to a system instead of exercising the expertise they were hired for. That's the R&D equivalent of the attention-capture problem — not addiction to a screen, but a slow surrender of critical thinking to a black box.

> *"Technology designed to capture attention rather than serve people ends up costing us in ways we don't notice."*

Ultimately, ethical technology in this context isn't a separate workstream from AI transformation, it's the same job. The teams I build for are scientists and BD leads making judgment calls that affect real people down the line. If the tool I build makes that judgment sharper, it's succeeded. If it makes people feel like they don't need to think as hard, it's failed, no matter how impressive the model behind it is.

You've been recognized as a Boston Business Journal 40 Under 40 honoree and for AI innovation and leadership impact. Across such varied roles and companies, what has stayed constant in your leadership philosophy?

N. Jain: What's stayed constant is starting from the problem, not the technology, the same instinct we talked about earlier, just applied to leadership itself rather than to platforms. Whether it was a "Shark Tank"-style Innovation Board at Takeda, a Women Innovation Network at Biogen, or an AI-enabled external innovation platform at CSL, I've tried to define the real problem and bring the right people into the room before reaching for a solution.

The second constant is that I've never treated the „people" side of transformation as separate from the technical side. I've spent as much of my career in DEI and ERG leadership — Women's Leadership at GSK, Women Innovation Network at Biogen, gender parity work at Takeda, various leadership roles at the Healthcare Businesswomen's Association as I have in building platforms, and I don't experience those as two different jobs.

> *"Uncertainty is the breeding ground of innovation, not the obstacle to it."*

A transformation only sticks if the people expected to use it trust the process that built it, and trust is built the same way whether you're rolling out a new AI tool or trying to close a gender parity gap: you listen first, you make the process visible, and you follow through.

The third is a bias toward the harder, less certain path when it's the right one — which is really the uncertainty conviction again, showing up as leadership philosophy rather than career choice. Recognition like the 40 Under 40 honor is meaningful, but what I actually think it reflects is a pattern: choosing to rebuild rather than settle, repeatedly, across very different companies and cultures, because the alternative is comfortable stagnation.

So, if there's one thread: lead with the problem, never separate the technology from the people who have to trust and use it, and be willing to choose the uncertain path when the certain one only gets you an incremental version of the same result.

■ www.csl.com

Beyond Cost

What Manufacturers Look for in Investment Locations

For decades, the global pharmaceutical industry operated on a singular priority: optimize supply chains for maximum efficiency. The just-in-time manufacturing model kept inventories lean and production centralized, all in service of a stable global supply chain.

Then COVID hit, and a perfect storm of macroeconomic and geopolitical pressures upended that paradigm. Since the pandemic, organizations have shifted toward a multinational approach — spreading manufacturing across regions to build resilience. That shift requires a refreshed view on location selection, talent, and technology.

Intensifying geopolitical concerns and unpredictable regulatory and pricing volatility mean manufacturers now need supply chains built for regionalized hubs, balancing operational flexibility with geographical security — all while managing cost. Navigating that transition means building ecosystems designed to absorb macro shocks without upending supply stability.

The Geopolitical Shield: Mitigating the Risk of Isolation

The traditional, centralized multinational approach to manufacturing faces significant risks as countries move to domestic-first production mandates.

For manufacturers and their supply chains, these mandates create new complexities. Global tariffs have dominated the news in the last 18 months. At the time of writing, minimal direct tariffs exist on pharmaceutical products themselves. However, the surrounding supply chain has been severely impacted.

From packaging to specialized materials and even the critical raw components, global players have noted that these tariffs have resulted in upwards of $400 million in costs that must be absorbed. In turn, it has forced organizations to reconsider supply chains, especially as they look to optimize pricing and reduce costs overall.

The growing threat from tariffs, as well as the uncertainty of their impact over the next several years, has forced global firms to rethink their global manufacturing plans.

In Europe, the proposed Critical Medicines Act will incentivize companies to manufacture essential therapeutics within the region to prevent future shortages. Simultaneously, the current administration in the United States has set pricing targets and domestic capacity mandates. For the first time, firms must consider these changes and their impact on production assets. Splitting assets across geopolitical lines meets the requirements

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Rory Mullen, Head of Biopharma & Food, IDA Ireland

"Stability against disruption or trade barriers matters just as much."

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established by particular regions, but it inserts uncertainty and complexity into the supply chain.

For the global firms that have trusted Ireland as a key location for regional production, it has become a major competitive advantage. Ireland offers an environment of stability, given its non-aligned, open trading economy.

Eli Lilly have significant manufacturing requirements due to their impressive pipeline of monoclonal antibody and GLP 1 therapies. They are responding by expanding their manufacturing capacity in Kinsale and Limerick in Ireland whilst concurrently expanding production in several US locations as well.

Geographical resilience has become a necessary requirement to ensure seamless and stable production for products if another location faces significant disruption or trade barriers.

Similarly, in March of this year, Novo Nordisk announced a €432 million investment to vastly expand and retrofit its manufacturing facility in Athlone. The expansion will establish the Athlone plant as a critical global hub for producing the tablet form of its weight-loss drug, Wegovy, for markets outside the United States. Novo has a similar site in North Carolina for the US market.

"Navigating that transition means building ecosystems designed to absorb macro shocks without upending supply stability."

Eli Lilly isn't the first global pharma company to build this kind of regionalized footprint — 13 of the top global pharmaceutical companies now have significant operations in Ireland, and cost is no longer the only factor driving those bets. Stability against disruption or trade barriers matters just as much.

Regulatory Safe Harbor: Navigating Compliance Mandates

Commercial margins continue to face challenges from regulatory shifts and pricing constraints. Together, these create locational challenges for global manufacturing decisions.

While regulatory changes focus on aligning evolving patient needs with localized healthcare policies, they often result in fragmented regional constraints. These geographic differences can create constraints in manufacturing site selection, as well as the overall operational footprint for a particular location.

Evaluating a site location requires more than looking at tax rates or financial incentives. Understanding how the country supports global organizations in meeting regulatory requirements can help firms determine how the location fits into the global supply chain. A compliance failure or inspection shutdown can erase those tax savings fast.

"The growing threat from tariffs, as well as the uncertainty of their impact over the next several years, has forced global firms to rethink their global manufacturing plans."

Ireland addresses this by serving as the global gold standard for compliance and regulatory requirements. In fact, Ireland hosts the highest concentration of U.S Food and Drug Administration (FDA)-approved facilities per capita in Europe.

Within Ireland, the Health Products Regulatory Authority (HPRA) focuses on supporting multinational firms through its deep, specialized mastery of international inspection bodies, operating in seamless alignment with both the European Medicines Agency (EMA) and the U.S. FDA.

As a result, multinational firms can focus on operational excellence to maintain uninterrupted market access, without getting bogged down in administration gridlock.

Building Industrial Capacity for the Future Supply Chain

To effectively balance pricing pressures with the rising cost of manufacturing, global firms must transform.

Biologics manufacturing capacity requirements continue to grow, with recent estimates showing that it will continue to increase by 10 percent annually. Manufacturing biologics requires increased water and energy usage. At the same time, leading global manufacturers have set aggressive carbon-neutral footprints.

Balancing both the increasing resource requirements with sustainability initiatives and goals requires a focus on adopting advanced technology throughout the manufacturing lifecycle and operations footprint. Multinational firms will need to focus on locations that will support the advancement of electrical systems powered by sustainable grids.

Additionally, through IDA Ireland, the Irish government invests significant funds to incentivize sustainable manufacturing practices.

All these pressures have driven an accelerated transition to continuous manufacturing. Earlier this year AstraZeneca opened its next-generation active pharmaceutical ingredient (API) manufacturing facility in Dublin, an always-on paperless smart factory. With a focus on advanced technologies integrated into the manufacturing process, it supports the company's goal of delivering medicines to patients faster, cheaper, and more sustainably manufactured.

However, for multinational companies like AstraZeneca to build manufacturing sites to support future technology and supply chain requirements, it requires that they have the workforce to support the advanced capabilities to program, validate, and maintain digital production systems.

"The most competitive manufacturing locations in the next decade will be defined by three critical pillars: capability, cost, and stability."

Ireland's National Institute for Bioprocessing Research and Training (NIBRT) trains more than 4,000 specialists a year in the cutting-edge technologies that are now being used in continuous manufacturing processes. From complex biologics lines to always-on manufacturing facilities, a talent pool that's ready to work as operations move to a stable market like Ireland, can reduce time to market and overall operational costs.

In addition, the Irish government through IDA Ireland has recently established Digital Manufacturing Ireland which is an industry-led national center of excellence that helps Irish-based manufacturers trial and accelerate the adoption of new digital technologies to improve global competitiveness.

Next-Gen Manufacturing: The Shifting Global Supply Chain

The future of the global supply chains rests on the decisions that are made today for sites that will be built in the next decade. In some cases, global firms will focus on acquisitions as a key element of their growth strategy.

No matter how they secure global manufacturing locations, the increasing geopolitical uncertainty and ongoing regulatory shifts means manufacturers must focus on how they can build a resilient supply chain that can respond to any of these dynamics that may erupt in the next decade.

The most competitive manufacturing locations in the next decade will be defined by three critical pillars: capability, cost, and stability.

Combined, these three pillars redefine how forward-looking global firms will evaluate long-term return on their investments. As organizations move beyond the baseline cost of inputs and instead focus on how to measure stability and capability of site locations, the overall operational cost – and benefit – will be evaluated as a component of the supply chain.

After all, a true partnership between a country and a global firm cannot be built on financial benefits alone. It requires a proven track record – the kind demonstrated by legacy partnerships like Pfizer. The multinational firm established its first footprint in Ireland in 1969 and has continuously expanded its biologics and API lines over the last five decades.

As global multinational firms continue to navigate an increasingly volatile global landscape, Ireland's open, collaborative, and highly integrated industrial economy continues to showcase the value that a stable and highly capable location offers to the future of global health supply chains.

Rory Mullen, Head of Biopharma and Food, IDA Ireland

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Beyond the Catalog

Enamine's Journey to Global Drug Discovery Partner

In 2026, Enamine marks its 35th anniversary — a journey that began as a small grant-funded group at the Kyiv Institute of Organic Chemistry and has since grown into a global partner to pharmaceutical, biotech, and academic institutions, with more than 3,000 people across six countries. In this interview, Christene Smih of CHEManager speaks with Andrey A. Tolmachev, Founder and Owner of Enamine, reflecting on the decisions that shaped the company's growth, why collaboration has become as central to Enamine's identity as chemistry itself, and where he sees the next chapter of drug discovery heading.

CHEManager: Looking back across 35 years and roughly three million stock compounds later, which turning point in Enamine's history do you consider the most consequential — the one that most changed the trajectory of the company?

Andrey A. Tolmachev: If I had to name one turning point, it is the thorough investment in people and the knowledge we have gained together every single day over 35 years. Our scientists and all people in Enamine are the around that has always been our greatest asset. But in terms of a strategic milestone, the creation of the Enamine REAL approach was the moment that changed everything: the idea that readily accessible molecules could be built through parallel synthesis in just a few steps unlocked a chemical universe that today holds trillions of synthesizable compounds. That single innovation became the engine behind everything we built after, like screening collections and building blocks as well as the integrated platform.

You've described Enamine's evolution as moving from a supplier of screening compounds to a fully integrated partner spanning chemistry, biology, and computational science. What had to change internally, in mindset and structure, to make that shift possible?

A. A. Tolmachev: We realized that everything, starting from chemistry to biology and computational science, can and should work as a single organism under one big roof. Our partners do not need to go to two or three different service providers or catalog companies, they need just one point of contact: they need Enamine. Making that vision real required us to fundamentally change how we thought about our role, moving from ‚what compounds can we provide?' to ‚what does our partner need to succeed at every stage?' That meant the teams should evolve and adjust accordingly. Above all, it took the proactivity and professionalism of our people, who embraced that ambition and grew with it every single day. Frankly speaking, it took a while, and we are still learning, but it is all a part of the process.

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Andrey A. Tolmachev,
Founder and Owner, Enamine

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Enamine's REAL Database and REAL Space have grown from millions to tens of billions of synthesizable molecules. How has the strategy behind building and using these ultra-large chemical spaces changed as computational tools and AI have advanced?

A. A. Tolmachev: When we introduced the REAL approach, the strategy was straightforward: build the largest possible collection of synthetically accessible, drug-like compounds that could be delivered within weeks. But as the space grew from millions to hundreds of billions, now into the trillions, the challenge fundamentally shifted from building the space to easily navigating it. That is where AI and machine learning (ML) became not just useful, but essential: today we deploy purpose-built ML methods at every scale, from synthon-based exploration of ultra-large spaces to active learning-accelerated docking, generative design, and multi-parameter ADMET optimization, each one answering a specific question at a specific stage of the proj-

ect. The real value of a multi trillion-molecule space is not in making them all, but in knowing that the right compound is in there, and having the tools to find it and successfully synthesize it within weeks for screening.

You've grown from 50 chemists in 1996 to a workforce of more than 3,000 people across Ukraine, the US, Latvia, Poland, Germany, and Switzerland today. What has been hardest about scaling Enamine's culture and quality standards across that many sites and disciplines?

A.A. Tolmachev: Scaling people and building new teams is always harder than scaling chemistry or biology, while keeping a shared sense of mission and passion. We have always believed that culture is built through people, not policies, so we invested heavily in developing leaders from within who carry our values forward naturally. The standard we set from day one — that every compound we deliver, every result we report, must be something we stand behind completely, no chance for a compromise.

Your participation in the open-science COVID Moonshot initiative, and your collaborations with Ukrainian academic institutions, point to a company that values partnership beyond pure commercial contracts. How do you decide which collaborations are worth pursuing, and what do you look for in a true partner versus a customer?

A.A. Tolmachev: The COVID Moonshot collaboration was a perfect example of what we look for in a true partnership: a shared mission that goes beyond commercial interests. In this case, delivering a broad-spectrum coronavirus antiviral as a direct-to-generic, globally accessible treatment. We joined the consortium from its earliest days, contributed over 2,000 new compounds, handled compound management and logistics, and ran ADME testing in close proximity to the depository, all of which compressed the Design-Make-Test-Analyse cycle significantly, ultimately leading to the nomination of pre-clinical candidate ASAP-0017445. It was a fantastic project, and we love it so much. For us, there is no difference between a customer and a collaborator, because at the end of the day we are all scientists, and science is about cooperation and partnership.

> *"That single innovation became the engine behind everything we built after."*

Enamine built its reputation on chemistry, but biology has become a fast-growing part of the company — with the biologist team roughly doubling in the past year alone and the recent launch of an integrated chemistry-biology-computation platform. What drove the decision to build biological services in-house rather than partnering out, and how do you see that side of the business evolving?

A.A. Tolmachev: When we launched biology services back in 2011, we saw that the friction between chemistry and biology was one of the biggest bottlenecks in early drug discovery: compounds would leave our hands and go to another organization. Later, weeks would be lost to communication gaps, data handoffs, and misaligned priorities. By building biology in-house and co-locating those teams with our chemists and computational scientists, we eliminated that bottleneck entirely since the same people who design the compounds are rooms away from the people testing them. As for where it goes from here, the vision is clear: a seamless loop where computational predictions feed chemistry, chemistry feeds biology, and biology feeds back into the next DMTA cycle, all under one roof, one team, one data environment, without a single unnecessary handoff.

Drug discovery increasingly depends on partnerships that cut across pharma, academia, CROs, and now AI companies. How do you expect the shape of those collaborations to change over the next decade, and what role do you want Enamine to play in that shift?

A.A. Tolmachev: The boundaries between pharma, academia, CROs, and AI companies have been already blurring for quite some time, and I think the next decade will dissolve them even more. The old transactional model with deeply integrated, data-sharing ecosystems where every partner contributes what they do best. What we are already seeing in collaborations like LIGAND-AI, ANTARES, the ASAP consortium, and our work with AI companies like SyntheticGestalt, is that the most powerful drug discovery outcomes come when chemistry, computation, biology, and clinical insight are combined from day one, not handed off sequentially. The role we want Enamine to play in that shift is to be the fully integrated discovery backbone that makes those ecosystems possible: the partner that brings not just compounds, but synthesizability, scale, speed, and scientific depth. Rarely a 'NewCo' can bother having it all in one place. At 35, we are not watching this transformation from the outside, no. We are helping to build it, and build it properly.

> *"For us, there is no difference between a customer and a collaborator, because at the end of the day we are all scientists, and science is about cooperation and partnership."*

You're bringing the Enamine Drug Discovery Conference to Riga this September, in the same year as the company's 35th anniversary. What do you most want the global drug discovery community to understand about where Enamine — and the field — is headed next?

A.A. Tolmachev: The message is simple: the era of slow, old-school drug discovery is over, there is no more such thing like this. We have spent 35 years building the scale, the chemistry, and now the fully integrated platform to prove that finding the right drug candidate can be done easier, cheaper, and, most importantly, faster than ever before. We are happy to be where we are now, and I am personally very proud of the team we built and what we have achieved. And I want the scientific community to show and speak about it in Riga. See you there!

■ www.enamine.net

Designing Materials

Why AI Is Becoming a Strategic Necessity

Chemicals companies are under pressure from several directions at once: sustainability mandates that demand new formulations, supply chains that need to be reshored or diversified, and R&D budgets that are expected to deliver faster without growing larger.

Trial-and-error development, the industry's default for decades, is increasingly seen as too slow and too expensive to meet these demands alone. AI-driven materials informatics platforms have emerged as a possible solution, helping scientists mine decades of experimental data, run virtual experiments, and narrow the search space for new materials before a single sample is made in the lab. Citrine Informatics, founded in 2013, was among the first companies to build a commercial software platform around this idea, and has since worked with manufacturers across chemicals, batteries, semiconductors, and industrial materials. CHEManager's Christene Smith spoke with Greg Mulholland, CEO and co-founder of Citrine Informatics, about how the market for materials informatics has matured, what still holds companies back from adopting it, and where he sees the industry heading next.

CHEManager: Citrine has been arguing that AI belongs in materials R&D since 2013, well before the current wave of AI enthusiasm. Now that every software vendor claims an AI story, how do you convince a skeptical R&D leader that this is substantively different from the hype cycle around it?

Greg Mulholland: It's been a very interesting journey, and it is exciting to see other companies pile in where we have been plugging away for a decade. We've shown the technology works and that business value can be generated. That's why there is now a market for it!

These leaders are asking the right questions, because it is sometimes hard to separate hype from reality. Fortunately, Citrine has been battle-tested over the years, and our customers are willing to talk about their success using our platform. Having them speak for us is much more convincing. You can hear from them at conferences and on our webinars and YouTube channel. You don't have to believe us.

The materials and chemicals industry has historically been slow to digitize. What has changed in the last two to three years — in the technology, the data, or the mindset of customers — that is now accelerating adoption?

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Greg Mulholland, CEO & Co-Founder, Citrine Informatics

G. Mulholland: It isn't the technology or data. Our technology does continue to improve, but it really is mindset. We

"Already, the top companies are not competing on whether they use AI, they are competing on how well and how broadly they use AI."

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used to have to explain what machine learning is and that AI isn't science fiction. Now everyone understands that AI is the future, and they are open to it being useful.

Where do you see the greatest resistance to adopting AI-driven materials development, and is it more a technology problem, a data problem, or an organizational and cultural one?

G. Mulholland: There are a few misconceptions around AI-driven materials development that sometimes slow down adoption and implementation. The biggest is the data myth. AI first took off in industries with lots of data, for example in finance and retail where hundreds of thousands of data points are generated each day. Management magazines and courses then spoke about data as the new oil and encouraged the creation of data lakes etc. as an important first step. Materials and Chemicals are different. Our data comes from physical experiments. It's costly and time-consuming to acquire. In 50 % of projects customers start with fewer than 100 datapoints. And that's fine. We have spent a decade honing our ability to do AI on small data. Many companies waste a year or two trying to get their scientists to agree on a standard nomenclature or do data entry into a complicated system for no immediate benefit. They delay getting value from AI.

> *"Many companies waste a year or two trying to get their scientists to agree on a standard nomenclature or do data entry into a complicated system for no immediate benefit. They delay getting value from AI."*

We advocate a parallel strategy. Start with a focused AI project using the messy data you already have. Learn from it, which data is useful, and how it needs to be structured in the future. Then continue to add data to the system as you do more AI projects. That way, the scientists can see the benefit of adding data to the system, the company sees value from its data straight away, and the organization isn't taking on the cost of organizing their data only to realize that they did it in a way that isn't ideal for AI. We see this kind of wasted money and time often.

Data ownership and IP are sensitive topics when a third-party platform sits inside a company's R&D process. How has Citrine had to design its business model and technology around that trust question, and has that changed as customers have become more sophisticated?

G. Mulholland: We have always had a very simple answer to this question. We develop software. We don't develop materials. We don't own or want to own materials IP. Our business model is to sell software, and we want to be the first ones that get a call when our customers create that next market-defining material. Our customers' data is safer with us than with anyone else. We are ISO 27001:2022 certified. Each customer's data is private from every other's. No models are ever shared or trained between customers. We have customers who are commercial rivals. If we leaked or shared their data, it would be bad news for us and our customers. We take that responsibility very seriously.

> *"Companies can't afford to wait, and AI is the only lever long enough to help move at the necessary speed."*

Sustainability regulation, reshoring, and supply chain security are reshaping what materials companies need to develop and how quickly. How is that changing the kinds of problems customers bring to Citrine compared with five years ago?

G. Mulholland: The chemicals market has always had to adapt formulations because of legislation, raw material price changes, and consumer demand. I think the change over the last 5 years is urgency. Companies can't afford to wait, and AI is the only lever long enough to help move at the necessary speed. It reduces the number of experiments you need to do to hit target properties and can intelligently substitute the ingredients that everyone is trying to remove from their supply chains.

What is the biggest misconception people outside the industry have about what AI can and cannot yet do in materials science?

G. Mulholland: There seems to be an idea outside the industry that AI in materials is all about discovering brand new materials: molecules, compounds, crystals. Everyone wants the next Nobel Prize. We have worked and had success on such projects, but de novo materials discovery is only really a business in pharma. In the rest of the industry, we have to produce within current facilities, at high volume, and maintain quality. Most of the projects run on our platform are for materials and chemicals that can be qualified and manufactured efficiently and sustainably this year, not for a hypothetical future where the practicalities of something totally new have all been ironed out.

If you look five to ten years out, do you expect materials informatics to become a standard, almost invisible part of how R&D is done, the way CAD became standard in engineering, or will it remain a specialized capability for companies that choose to invest in it?

G. Mulholland: It will be table stakes. Already, the top companies are not competing on whether they use AI, they are competing on how well and how broadly they use AI. It is also being used by our customers to accelerate scale-up, optimize processing, enhance yield, and improve customer responsiveness. Without AI, any margin enhancement will be off the table, and companies will be in a race to the bottom on price while the AI-enabled companies run ahead with more performant products at higher margins.

■ citrine.io

Beyond Open Innovation

How to Make Pharma–Biotech Collab Work at Scale

Pharma companies increasingly use structured open-innovation platforms to access breakthrough science faster. Bayer Co.Lab exemplifies this: a global network of life science incubators giving startups labs, infrastructure, and pharma proximity to speed the path to clinic. CHEManager's Christene Smith spoke with Ruth Shah, Head of Bayer Co.Lab Berlin, about how the model works, its edge in a competitive incubator landscape, and how it delivers value for startups and pharma alike.

CHEManager: What needs to change in how large companies engage with early-stage innovators to make collaborations faster, more effective and genuinely founder-centric?

Ruth Shah: The first shift has to be one of mindset before mechanism. For open innovation to truly work, large companies need to approach early-stage innovators not as acquisition targets or option pools, but as partners who are building something of real, independent value. That means removing the friction that founders feel the moment they engage with a corporate.

At Bayer Co.Lab, we've designed our engagement around a simple principle: meet founders where they are. We offer access to Bayer's expertise, partners, and global networks, all with no strings attached. To us, "no strings attached" means that startups remain independent and are not required to give Bayer exclusivity or a predetermined right to their technology. Instead, we focus on helping them reach the next meaningful scientific and business inflection point. That isn't just a slogan; it's a structural choice. If we want founders to trust us enough to share their boldest ideas, the relationship has to be built on genuine support rather than transactional leverage.

The second change is about being genuinely founder-centric. That means listening to what a specific startup actually needs – whether that's wet-lab space or desks alone, regulatory know-how via Co.Lab AdVise to our Bayer experts, access to investors via Co.Lab AdVenture, or simply a landing pad into Berlin – and then tailoring our support accordingly. No two startups are the same, and corporate innovation programs that treat them as if they are will always fall short.

Finally, I think the industry needs to accept that speed is not a feature you bolt on; it's a culture. If internal review cycles take six months, no platform or accelerator will fix that. The companies that will lead in open innovation are the ones willing to streamline their own decision-making to match the cadence of the ecosystem they want to engage with.

How do you define the role a corporate-backed incubator in today's innovation ecosystem — and what should it not try to be?

R. Shah: A corporate-backed incubator's greatest strength is the ability to connect early-stage local entrepreneurs to world-class expertise, experience, resources, and global networks that would otherwise take years to access. It's a launchpad for acceleration. Scientific breakthroughs defy borders and their impact depends on global scaling. That's the role we see Bayer Co.Lab playing: a bridge between the agility and daring of a startup and the depth and scale of a global life science company.

Bayer Co.Lab is a global network of life science incubators, present in the world's most important innovation ecosystems – Berlin (Germany), Cambridge (USA), Kansai region and Tokyo (Japan), Shanghai and Beijing (China), Seoul (South Korea) and Basel (Switzerland).

Our role in each of those locations is to be deeply embedded in the local biotech community while also giving our startups access to a cross-border network of peers, mentors, partners, and talent. That combination – local immersion and global reach – is something very few standalone incubators can offer.

What a corporate incubator should not try to be is a controlling entity. If the model is designed to funnel startups toward a predetermined outcome, founders will sense that immediately, and the best ones will go elsewhere. We have to be honest: the value we provide has to stand on its own. Startups should want to be in our portfolio because of the mentorship, the community, the facilities, and access, not because they feel they have to be there to unlock a future deal.

I'd also say a corporate incubator should not try to replicate what venture capital or contract research organizations already do well. Our differentiation is the ecosystem and the pharmaceutical expertise, not competing on term sheets or running experiments on behalf of startups. One example is our complementary (not competing) relationship with the venture capital ecosystem via Bayer Co.Lab AdVenture; a dedicated platform connecting our tenants to venture capital partners. We provide the environment; they retain the ownership of their vision.

Many open innovation platforms talk about combining startup speed with pharma scale, yet founders often experience the opposite once interfaces multiply. What are the hard structural trade-offs pharma has to accept if it truly wants to preserve startup speed — and where do corporates still underestimate the cost of that commitment?

R. Shah: This is one of the most important questions, and the tension between scale and speed is indeed real for all types of company. The honest answer is that it is not possible to have both to the fullest extent at all times. A global pharmaceutical organization will never be able to move at the same speed as a team of five people. However, the blanket statement that ‚start-ups are fast and corporates are slow' also misses important nuances.

Experience, quality processes and governance, and having the right people in the room are all real values that

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Ruth Shah,
Head of Bayer Co.Lab Berlin, Bayer

scale can bring. Sometimes taking an extra two months to choose the right partner can save you 12 months down the line. To me, open innovation is about combining the strengths of both. It's about understanding that there are different methods for solving different problems and being open and flexible enough to adapt when needed.

> *"No two startups are the same, and corporate innovation programs that treat them as if they are will always fall short."*

That said, there are of course some realities that startups face. I think corporates still underestimate the invisible burden of the number of meetings, reporting requirements and ‚quick chats' that multiply and result in lost time. Every week a founder spends navigating a corporate interface is a week not spent in the lab or talking to investors. We must be disciplined about minimizing this, even when it feels like we're adding value by connecting people internally. If every interaction a startup has with Bayer has to pass through multiple layers of internal re-

view, we've already lost. So, the structural question is: are we willing to give our incubator teams authority and autonomy to make decisions quickly and at the point of contact? At Bayer Co.Lab, we do as a design principle. Our teams can move at the speed of the founders they support.

What lessons has Bayer taken from working closely with start-ups that are now influencing broader innovation across the organization?

R. Shah: Bayer Co.Lab is an important pillar of Bayer's external innovation strategy, aimed at fostering open collaboration within the biotechnology ecosystem. But learning flows in both directions and working closely with startups has influenced how we think about innovation across the organization.

Our tailored mentorship program Co.Lab AdVise, built specifically for our startup tenants, is a good example of this. The trigger to establish a mentoring relationship between a startup and a Bayer expert comes from the startup and is built exclusively around their needs. However, what we've observed is that many of these mentoring relationships continue over a longer period of time than expected due to the mutual value both parties receive. It's a great learning experience for everyone.

> *"Scientific breakthroughs defy borders and their impact depends on global scaling."*

One such lesson is about decision velocity. Startups move from idea to experiment in days, not months, and that can prompt real internal reflection on where our own processes can be streamlined – distinguishing between process that adds value and process that simply adds time.

We've also seen the power of proximity. Having startups embedded in our innovation spaces creates a cross-pollination that you cannot replicate through occasional scouting or partnering meetings. By engaging with young companies early and regularly, Bayer colleagues gain closer visibility into emerging science, new platform capabilities and the practical challenges founders are solving. At the same time, startups gain insight into the evidence and development questions that matter to a global life science company.

Will today's incubator and partnership models remain fit for purpose, or will pharma need fundamentally different engagement mechanisms?

R. Shah: Yes, I believe incubation and partnership models will remain fit for purpose – but only if they keep evolving. Incubators will remain relevant, but the building alone will not be the model. Founders today expect speed, transparency, flexibility, trust, and meaningful access to ecosystems. That is why Bayer Co.Lab's model is so important: a globally connected network of incubators that combines infrastructure, tailored expertise, global access and local ecosystem integration, while preserving startup independence. Berlin is a clear example of the importance of evolving with the ecosystem. We are progressing from today's incubator, which is embedded in the headquarters campus of Bayer Pharmaceuticals, towards a significantly expanded facility called Riverside Labs together with the Berlin Center for Cell and Gene Therapies from 2028. This will create greater capacity and a stronger pathway from early company formation towards clinical translation and manufacturing. Going forward, the most successful models will be those that stay truly founder-centric, offer tailored support, and adapt continuously as science and market conditions change.

■ colab.bayer.com

Bridging Speed and First-Time-Right Scale-Up

The Cohance CDMO Advantage

The pharmaceutical outsourcing landscape is evolving rapidly. Contract Development and Manufacturing Organizations (CDMOs) are expected to accelerate programs from laboratory development to clinical and commercial manufacturing while maintaining uncompromising standards of quality, safety, and regulatory compliance. Across a diverse portfolio spanning intermediates, KSMs, RSMs, and APIs, speed and quality has become an essential competitive differentiator. However, achieving First-Time-Right (FTR) scale-up remains a significant challenge due to limited process understanding, technology transfer gaps, equipment differences across scales, raw material variability, and insufficient analytical readiness. These factors can lead to process deviations, yield losses, prolonged troubleshooting, and out-of-specification (OOS) results.

The successful CDMO operations ensure that speed and quality are not opposing objectives, rather, both are achieved through a science-based development strategy that builds deep process understanding early and systematically transfers that knowledge throughout the product lifecycle.

Building an Integrated R&D Organization

In a CDMO environment, where projects differ significantly in maturity, complexity, and customer expectations, an R&D-driven organizational structure is one of the most powerful enablers of successful scale-up. Effective integration of Process R&D, Analytical R&D, Process Safety, Engineering, Pilot Plant, and Project Management creates a framework that enables faster decision-making, rapid problem-solving, clear ownership, and effective risk management throughout development and commercialization.

> *"One of the most effective strategies for achieving FTR scale-up is to incorporate manufacturing considerations throughout the development journey."*

Development programs rarely progress in a linear manner, and organizations must be designed to respond quickly to evolving technical challenges that support rapid learning while maintaining quality and compliance at the core.

Moving Beyond Yield Optimization to Process Understanding

While yield remains important, robust scale-up of development programs requires a much deeper process understanding should include reaction kinetics, mixing sensitivity, heat and mass transfer characteristics, thermal behavior, crystallization mechanisms, impurity generation pathways, and process safety considerations. Understanding the scale-dependent effects early is critical to reducing risk during commercial implementation.

Design of Experiments (DoE) provides a structured approach to identifying critical process parameters and understanding operating ranges. Similarly, Process Analytical Technology (PAT) tools enable development teams to gain real-time insight into reaction kinetics and process dynamics. Together, these approaches help create robust processes capable of tolerating operational variability while consistently delivering quality and yield targets.

Designing for Scalability from Day One

One of the most effective strategies for achieving FTR scale-up is to incorporate manufacturing considerations throughout the development journey. Early involvement of process engineering teams allows to evaluate equipment fit, identify scale-dependent risks, conduct hazard assessments, and define appropriate control strategies.

Particularly for downstream operations such as workup, filtration, drying, isolation, and solid handling, the use of miniature plant-equivalent equipment can provide valuable insight into potential scale-up challenges.

The Pilot Plant as a Learning Laboratory

The pilot plant serves as a critical bridge between laboratory development and commercial manufacturing. A well-designed pilot program functions as a learning laboratory where process assumptions are challenged, control strategies are tested, and equipment compatibility is assessed under manufacturing-relevant conditions. The first reactor-scale demonstration provides an invaluable opportunity to validate process understanding, evaluate reproducibility, and build confidence in product quality and yield performance.

Technology Transfer: Beyond Documentation

Establishing a robust and structured technology transfer process that emphasizes effective knowledge transfer and supported by comprehensive documentation, standardized checklists, and rigorous review mechanisms to ensure accuracy, compliance, and seamless execution. While documentation is essential, successful technology transfer also depends on transferring tacit process knowledge, including critical observations, troubleshooting experience, and process sensitivities. Furthermore, ensuring successful knowledge transfer must involve continuous handholding and technical support throughout the transfer journey to the manufacturing success.


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Ashok Jha, Ph.D.,
Head, R&D
Cohance Lifesciences

Continuous Process Improvement

First-Time-Right manufacturing does not end with a successful scale-up campaign. Sustainable operational excellence requires continuous learning and process improvement throughout the commercial lifecycle. Post-campaign reviews, process performance trending and deviation analysis, identify opportunities to improve yield, reduce cycle times, enhance robustness, and strengthen process control.

Delivering Speed with Reliability

In today's CDMO ecosystem, speed alone is not a competitive advantage. Sustainable success comes from combining scientific rigor, robust process understanding, and effective knowledge transfer throughout the product lifecycle.

As customer expectations continue to rise, the pharmaceutical industry increasingly values partners who can combine scientific rigor with operational excellence. At Cohance, the focus is not simply on moving faster, but on enabling faster learning, smoother technology transfer, and reliable commercial execution.

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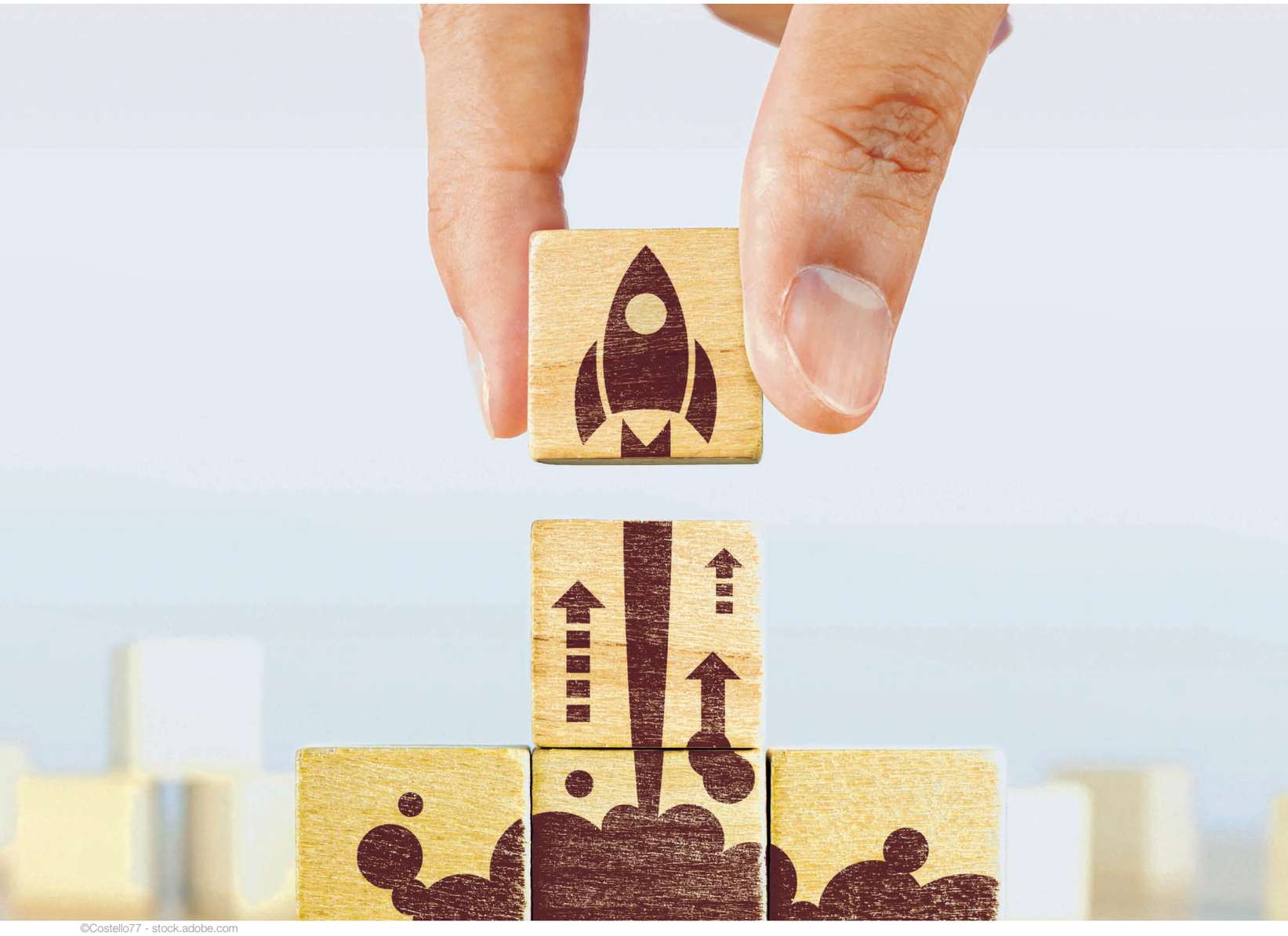
CHEManager INTERNATIONAL

INNOVATION PITCH



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Chemical Expertise Encoded
Turning Expert Knowledge into Chemical Industry Growth

India's Agrochemical Hub
Atomgrid's Specialty Chemicals Growth Story

WILEY

Encoding Chemical Expertise

Turning Expert Knowledge into a Growth Engine for Chemical Firms

Most of what a chemical company knows was never written down. It sits with a handful of chemists and technical service engineers, often one expert for every fifty people who need what they know. This is also why most corporate AI projects disappoint: a 2025 MIT study found that 95% of enterprise AI initiatives deliver no measurable return, not because the models are weak, but because the systems never capture what the organization actually knows and never learn from it. Kimia, founded in 2023, was built to close exactly that gap: capturing and codifying expert knowledge and turning it into answers the whole commercial organization can use. CHEManager spoke with co-founder and CEO Farid Mirmohseni.

© Kimia

Farid Mirmohseni,
Co-Founder and CEO, Kimia

CHEManager: Where did the idea for Kimia come from?

Farid Mirmohseni: From my father, really. He is a chemist, and he built a business making polymer coatings, adhesives and composites, which I worked in for nine years. Every difficult technical question ended up on his desk, which grade survives a cure schedule, why a bond that held on one substrate let go on the next, and he was very good at it. The trouble was that he was one person, so when he was travelling, customers waited. I put that down to us being a family business, until I started working with companies a thousand times the size and found the same three or four names holding everything up.

Give us a concrete example. What does a hard problem look like in your customers' world?

F. Mirmohseni: Say a formulator is bonding polypropylene to aluminium on a packaging line, needs open time under thirty seconds, and cannot move on the customer's VOC limit. The data sheet gives a viscosity of 3,000 mPa·s and says the product suits flexible packaging lamination, and all of that is information. Knowing that on untreated polypropylene the bond starts letting go above 80 °C is knowledge, and it sits in somebody's head, not a document. Knowing it rules the product out for this line is intelligence, and that last step has always been a person.

Your customers already have ChatGPT and Copilot. Why would they need something else?

F. Mirmohseni: Because those tools only work with what somebody wrote down, and in this industry most of what matters never was. It sits with formulators and technical service engineers, so we capture it first. And this is not a general model sitting on top of your documents. One European distributor indexed 750,000 of theirs and almost nobody used it: retrieval is not an answer, you ask which product to recommend and fourteen documents come back. Kimia is also built for chemistry, so it reasons about formulation, application and regulatory limits together. That is the difference between an answer and a confident guess.

> *"We wanted to be useful sooner, so we started where the knowledge is already in use every day, with the people answering customer questions."*

Most AI companies in chemistry start with research and discovery. You started somewhere else. Why?

F. Mirmohseni: Formulation is my own passion, so it was not for want of interest, but a system that knows everything about everything needs enormous capital and a decade. We wanted to be useful sooner, so we started where the knowledge is already in use every day, with the people answering customer questions. Every time one of them corrects an answer we capture something that existed in no system anywhere, and that compounds.

Who is actually running this, and what changed for them?

F. Mirmohseni: Arkema, Univar Solutions, and Stahl, among others. I grew up in this industry, so I know those names do not take bets on outsiders. Bostik is a clear example. A buyer lands on their website needing an offset for something they can no longer source, wants a sample that week, and is comparing them against two competitors, so whoever gives that buyer confidence first takes the order. They implemented our Concierge on their site, six months later, their sample requests were up six-fold.

Capturing what is in people's heads sounds like a project in itself. How does it happen?

F. Mirmohseni: If it were a project, it would fail. Nobody is going to sit an expert down for six months to write out what they know, and half of it would be out of date by the end. The capture happens inside the work. An engineer asks the system a question, and if the answer is not right they correct it in a sentence, the way they would a new colleague. That correction now belongs to the company, and the next person to ask gets it, whichever office they sit in.

Chemical companies have been burned by data projects. What do you ask of them to start?

F. Mirmohseni: Far less than they expect. The objection we meet is almost never budget, it is that they have lived through one data project and do not want another. So we start narrow, with one business unit and the questions already coming in. At Stahl, their experts have put roughly 30,000 data points into the system by hand, across about a thousand products, and more than 400 people there now use it. None of it came out of a project to write it down.

Where does this go next?

F. Mirmohseni: Every chemical company will end up with its own captured knowledge, the way every one of them ended up with an ERP. The difference is that this one compounds, so a company that starts now has something in three years a competitor cannot go out and buy. For us the next step is depth rather than breadth: further into the technical workflow, from the first customer question to the documentation that follows it, and further into Europe, where we opened in Germany this month.

Personal Profile

Farid Mirmohseni is co-founder and CEO of Kimia. He holds a PhD from the University of Sydney and grew up in his family's polymer manufacturing business. He previously founded WipeHero, commercialising a waterless cleaning material he developed himself and scaling it to seven figures with enterprise fleet customers across North America and Asia. He founded Kimia in 2023 with his cousin Sajjad Azami, the company's CTO.

BUSINESS IDEA

Chemical Intelligence

Chemical companies do not have a knowledge shortage. They have a distribution problem. The expertise exists, built over decades, but it sits in technical data sheets, regulatory records, old email threads and the heads of a few experienced people. A specialty chemicals sales representative may cover 500 or more products across dozens of application areas. No one person holds that much, so representatives default to the handful of products they know well, and customers wait.

Kimia captures that knowledge and turns it into something the whole organization can use. What was never written down is captured as the system is used, so knowledge that once lived in one head becomes something the company owns, and it keeps compounding. The system is built for chemistry rather than adapted from another industry: it reasons over formulations, applications, regulatory constraints and commercial context together, so an answer accounts for what a product does, where it is approved, and whether it suits the customer's process.

Technical sales teams get answers to customer questions in seconds instead of hours. Customer-facing websites get an expert that understands the portfolio, asks the right questions back, and hands sales a qualified enquiry with context rather than a name and an email address.

Kimia was founded in Sydney in 2023 by Farid Mirmohseni and Sajjad Azami and builds chemical intelligence for manufacturers and distributors. The name is the word for chemistry across dozens of languages, from Arabic and Turkish to Indonesian, and in Persian it carries the older meaning still: alchemy, something rare. The company launched publicly in April 2026 announcing a $7 million seed round led by Airtree Ventures, with Blackbird Ventures and Skip Capital participating. Its customers and partners include UL Solutions, Univar Solutions, Bostik, Stahl, tesa, Arkema and Intertronics, with teams across the US, Europe and APAC.

■ Kimia, Ultimo, Australia
https://kimia.ai

ELEVATOR PITCH

Using AI to Capture Expert Knowledge to Supercharge Growth

Milestones

■ 2023
Kimia founded in Sydney with a mission to build the AI infrastructure for the global chemicals industry.

■ 2024–2025
Early enterprise deployments with companies including Stahl, Arkema, Univar Solutions among others establish Kimia across some of the world's leading chemical organizations.

■ April 2026
Kimia emerges from stealth and announces a $7 million seed round led by AirTree Ventures, with participation from Blackbird Ventures and Skip Capital.

■ May 2026
Kimia expands its ecosystem through major industry partnerships, bringing AI-powered chemical knowledge and product discovery to a broader global audience.

■ July 2026
The Kimia platform expands beyond internal enterprise workflows into customer-facing AI experiences, connecting chemical knowledge across the full commercial journey.

■ August 2026
Kimia establishes its European presence in Germany. Frank Schneider, former Managing Director of IMCD Germany, joins as the company deepens its presence across the global chemicals industry.

■ Today
Tens of thousands of knowledge workers use Kimia across the global chemicals industry, as the platform scales across manufacturers, distributors and industry partners.

Roadmap

Deeper into the daily work of chemical companies: today Kimia answers the first customer question; next it will support everything that follows, from the sample request to the paperwork that closes the deal. Every answer a company's experts correct or confirm makes the system smarter, so the knowledge keeps building. Geographically, continued European growth from the new Düsseldorf office. The mission behind it all is: chemical companies that own their intelligence in the age of AI.

Farid Mirmohseni and Sajjad Azami, co-founders, Kimia

Building India's Global Agrochemicals Platform

How Atomgrid is Scaling a Downstream-First Specialty Chemicals Business from India to the World

Atomgrid is a speciality chemicals platform built on a simple bet: put customer access before manufacturing. Co-founded by Siddharth Gupta and Lakshit Bansal, the company is scaling a "downstream-first" agrochemicals business towards global category leadership.

CHEManager: What inspired you and Lakshit to launch Atomgrid, and what gap in the speciality chemicals market did you set out to fill?

Siddharth Gupta: We started exploring the speciality chemicals space in 2020, drawn in by the strong public market performance of listed Indian players like PI Industries and Neuland Labs. Coming from investment banking and startup backgrounds, we saw that mature, listed companies pointed to a scalable opportunity – but with two clear gaps: most Indian speciality chemical firms had limited export exposure, and existing B2B sourcing and manufacturing businesses lacked strong margins. We wanted to build something with a large global market opportunity, strong margin potential, and a clear focus on innovation.

How did you get into agrochemicals?

S. Gupta: Dyes and textile chemicals were our first bet, but after six to eight months we realised the segment lacked innovation and long-term differentiation – it was largely commoditised. Agrochemicals looked different: continuous innovation, new molecules, and shifting pest resistance mean the category never stands still. That kind of innovation-led dynamic is what we believe creates sustainable, defensible businesses, and it became a core principle for Atomgrid.

What were the biggest challenges in taking Atomgrid from an early idea to a global specialty chemicals platform?

S. Gupta: Early on, we wanted to launch with international sales offices and supply capability across India, China, Japan and beyond all at once. Over time, we learnt that scaling multiple categories and geographies simultaneously dilutes focus, so we narrowed to agrochemicals as our first category and adopted a "category-first" scaling strategy – go deep in one vertical before expanding into adjacent, innovation-led segments. Building capability across marketing, registrations, R&D, and manufacturing all at once, rather than sequentially, has also been demanding, but it's central to how we compete.

> *"Over time, we learnt that scaling multiple categories and geographies simultaneously dilutes focus, so we narrowed to agrochemicals."*

How have customers and manufacturing partners responded to Atomgrid's „downstream-first" approach so far?

S. Gupta: Very positively. Our customers are typically procurement teams at agrochemical companies looking to diversify away from China because of tariffs, geopolitical risk, and supply disruptions, and to move away from Indian suppliers with slow quotations and inconsistent execution. We've positioned Atomgrid as fast-moving, execution-focused, and globally reliable, and that's resonated – we now serve 200+ customers globally, with revenue growing roughly 3x in FY25–26. On the manufacturing side, we work with an asset-light network of 10+ partner units across Gujarat, Maharashtra, and Telangana that build exclusively for Atomgrid.

© Atomgrid

Siddharth Gupta,
Co-Founder, Atomgrid

What makes Atomgrid's model different from traditional Indian specialty chemical manufacturers?

S. Gupta: Most Indian speciality chemical businesses start with manufacturing and then look for customers. We do the opposite – we identify global market opportunities first, build and commercialise products proactively, and only then take them to market and scale manufacturing. We call it "downstream-first": reach customers globally, take registration, build R&D around what they actually need, then strengthen manufacturing integration. It's a real shift from the contract-manufacturing mindset that has long defined the industry, and that is why regulatory, registration, and R&D depth has become a core competitive capability for us, not an afterthought.

What's next for Atomgrid: new geographies, R&D, or manufacturing partnerships as you scale toward FY26–27?

S. Gupta: We're currently active in 10+ export markets, roughly split 50/50 between domestic and export revenue, and want to deepen our presence further, with a particular focus on Southeast Asia, Africa, and Latin America alongside deeper product registrations globally. We recently launched a dedicated R&D centre in Bengaluru and are investing heavily in patented formulations, moving beyond technicals into proprietary products. We're also beginning to explore biologicals, which we see as a natural adjacent category given the pace of innovation there. On the manufacturing side, we're launching new joint ventures across India. Having raised $8.25 million to date – a $1.25 million seed round followed by a $7 million Pre-Series A – gives us the capital to move on all of these fronts at once.

How do sustainability and regulatory compliance factor into Atomgrid's growth plans, particularly for customers in Europe?

S. Gupta: They are central rather than peripheral. Customers in Europe and other regulated markets expect full traceability, robust documentation, and adherence to the relevant frameworks, and our downstream-first model means we build those requirements in from the start rather than retrofitting them later. On the manufacturing side, we only work with partner units that meet our environmental, health and safety standards, and our Bengaluru R&D centre is prioritising greener process chemistry: lower-solvent routes, better yields and reduced effluent load. For us, compliance and sustainability are not a cost of doing business; they are part of what makes an Indian supplier a credible long-term alternative for global customers.

Personal Profile

Siddharth Gupta is Co-Founder of Atomgrid. An IIT graduate in industrial chemistry with an MBA from IIM Lucknow. He began his career in investment banking at Deutsche Bank, covering petrochemicals and specialty chemicals, before moving into high-growth startups. At Atomgrid, he leads long-term strategy, R&D, manufacturing, and fundraising.

> *"Most Indian specialty chemical businesses start with manufacturing and then look for customers. We do the opposite."*

BUSINESS IDEA

Downstream-First: Rethinking Specialty Chemicals

Atomgrid is building a new kind of specialty chemicals company, one that puts customer access before manufacturing. Rather than starting as a factory looking for buyers, Atomgrid identifies high-potential opportunities in the global agrochemicals market, develops the right formulations, and only then scales production and registrations to match. This „downstream-first" model flips the traditional Indian specialty chemicals playbook, long built around contract manufacturing with limited export reach and thin margins.

Founded by Siddharth Gupta and Lakshit Bansal, who bring together backgrounds in chemistry and materials science and building business functions in different startups. Atomgrid focuses on agrochemicals as its first category – a sector defined by continuous innovation, new molecules and shifting pest resistance, rather than commoditized competition. The company has raised $8.25 million to date, including a $1.25 million seed round and a $7 million Pre-Series A, and has grown revenue roughly 3x through FY26–27 while now serving over 200 customers globally, active across 10+ export markets.

The company solves two problems customers care about most: reducing overdependence on Chinese supply chains amid tariffs and geopolitical uncertainty and replacing the slow quotations and inconsistent execution of traditional Indian suppliers with fast, reliable, globally minded service.

On the manufacturing side, we work with an asset-light network of 10+ partner units across Gujarat, Maharashtra, and Hyderabad. A dedicated R&D center in Bengaluru, staffed by 20+ PhDs and MScs focusing on developing patented products. And expanding product registrations across new geographies, including Vietnam, Latin America, and Africa, are moving the business from today's roughly 50/50 domestic-export split toward a long-term goal of 80–90 % export-led revenue.

■ Truuchem Technologies Pvt Ltd. Atomgrid
Bengaluru, Karnataka, India
info@atomgrid.in

ELEVATOR PITCH

Market-Back, Not Manufacturing-First

Atomgrid is on a mission to build global, category-leading specialty chemicals businesses out of India, starting with agrochemicals. Instead of manufacturing first and hoping to find buyers, Atomgrid works backwards from the customer: identifying global market gaps, building the right product and registrations, and only then scaling manufacturing through an asset-light approach. The approach is already paying off, with revenue roughly tripled from FY25 to FY26 and a long-term ambition to scale globally.

Milestones

■ 2020
Founders begin exploring India's speciality chemicals sector, inspired by the public-market success of listed Indian players.

■ 2023
Company started – Pivot from dyes/textile chemicals into agrochemicals, chosen for its continuous innovation and long-term differentiation.

■ To date
~50 % India / 50 % export revenue mix.

Roadmap

■ FY 25–26:
Revenue grows approximately 3x year-on-year.

■ FY 26–27
Expand into Southeast Asia, Latin America and Africa; deepen global product registrations; launch new manufacturing joint ventures; explore entry into biologicals

■ Long-term
Shift toward an 80–90 % export-led business; build multiple global category leaders under the Atomgrid platform.

Atomgrid Team

Atomgrid's QC Lab

ISPE Pharma 4.0 and Biopharma Conference 2026

A The 2026 ISPE Pharma 4.0 and Biopharma Conference takes place December 10–11, 2026, in Berlin, Germany (and virtually), bringing together pharmaceutical and biopharmaceutical manufacturers, technology partners, academic experts, and global regulators for two days of exploring what's next in the industry and how to make it real. This year's program focuses on turning digital ambition into operational impact across the value chain,

■ www.ispe.org/conferences/2026-pharma-40-biopharma-conference

Advanced Recycling Conference 2026

The Advanced Recycling Conference will take place on 17–18 November 2026 in Cologne, Germany (and online), bringing together international recycling experts for collaboration and partnership across various value chains for two days. The conference highlights how innovative technologies maximise the valorisation of complex waste streams, including mixed plastics, textiles and automotive materials, with sessions covering physical, chemical, thermochemical and biochemical processes, add-on and digital/AI-based sorting and traceability solutions, and a special Vinyl Plus session on PVC recycling.

■ www.advanced-recycling.eu

SOCMA Show 2027

The SOCMA Show 2027 takes place February 24–26, 2027, at the JW Marriott in Nashville, TN, USA, bringing together the specialty, fine, and batch chemical industry for three days of B2B and commercial networking. Organized by the Society of Chemical Manufacturers & Affiliates (SOCMA), the show connects suppliers, buyers, and industry experts, with past editions drawing over 1,000 leaders, 150+ exhibitors, and dozens of company showcases, alongside sessions on regulatory and industry topics affecting the specialty chemical sector.

■ www.socma.org/events-meetings

Pharmapack Europe 2027

Pharmapack Europe 2027 takes place January 27–28, 2027, at Paris Expo Porte de Versailles, Hall 4, in Paris, France, bringing together the pharmaceutical packaging, drug delivery, and medical device community for two days of networking, engagement, and collaboration. Launched in 1997, the event has grown into Europe's leading platform in its field, hosting 400+ exhibitors and attendees from 100 different countries, with a dedicated CDMO Zone connecting contract development and manufacturing organizations with potential partners, alongside zones for machinery, labelling, smart packaging, and sustainability solutions.

■ www.pharmapackeurope.com

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Printed by: DSW GmbH & Co. KG, Ludwigshafen, Printed in Germany

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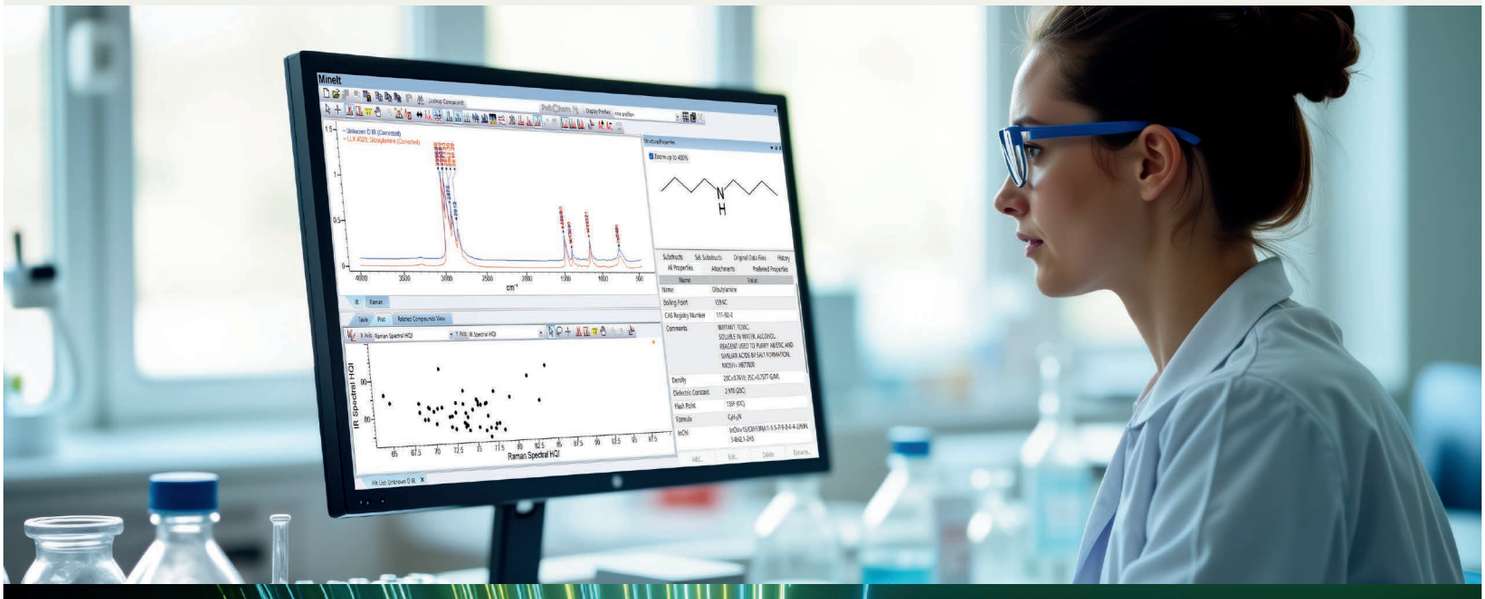

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