A winning formula for innovation in chemicals

Catalyzing value through digital technologies

Disruptive forces like the COVID-19 pandemic, the related economic downturn, and trends like market consolidation could have major influence over the chemical industry. How can the sector accelerate sustainable growth when facing an uncertain future?

Innovation may be the solution. But it will require chemical companies to significantly rethink their traditional research and development (R&D) departments. Learn how material informatics platforms and experimental innovation strategies can help catalyze long-lasting value amid an evolving industry landscape.

How can chemical companies drive efficiencies?

Leverage advanced digital technologies:

- **Material informatics:** Innovation labs are moving from R&D labs to material informatics, which operates at the intersection of material and computer science to improve the process of developing and discovering new chemicals.
- **Analytics and machine learning (ML):** Machine learning (ML) algorithms can replace traditional experiments and varied sources into a single, reliable, searchable format to develop new innovations quickly and efficiently.

What's the formula to help unlock innovation?

Collaboration plus partnerships will yield successful results. No one company can lead the charge:

- **Material informatics.** In innovation labs, the chemistry process moves from R&D labs into material informatics, which operates at the intersection of material and computer science to improve the process of developing and discovering new chemicals.
- **Advanced Material Systems (AMS):** AMS can help identify opportunities for new products and market needs and fill them by materials innovation. First, megatrends influencing the market are reviewed at the broader level; they are then distilled down to identifying new applications that can potentially fulfill the unmet needs of customers.

In 2009, there were only a few hundred studies published in journals describing the use of ML in chemistry. In 2019, this rose to 8,000—a significant increase of 35% per year in just a decade.

ML algorithms are increasingly being used to:

- **Enable cross-collaboration and dissemination of best-product technologies and practices across the organization internally.**
- **Work with strategic lenses to better the industry: customers, academia, and competition.**

Reactivate your methodology

With a host of cost-effective digital R&D tools at their disposal, chemical companies can acquire, amalgamate, and nurture the best combination of systems, products, and processes, even during tough times. To make this possible, consider adopting the innovative approaches that suit your business models and organizational cultures.

Chemical companies that reframe innovation by accelerating investments in digital capabilities, focusing on collaboration, and partnering with ecosystem stakeholders could be successful in reducing overall costs and creating new products that customers need quickly and that ultimately create long-term value.

Explore our full report, *Innovation in chemicals: Choosing to create long-term value*, to learn more.

Let's talk

Get in touch to discuss your chemical innovation needs:

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