

# Chemistry and the „Next Normal”

## Sustainability and Resilience as Ways out of the Crisis

*Numerous crises such as climate change, energy shortages, raw material shortages, war in Ukraine and the consequences of the pandemic are putting value chains worldwide to the test. The chemical industry, as a key supplier of raw materials and intermediates to almost all areas of daily life, is particularly affected by this. The International SAP Conference for Chemicals, held in Madrid on Sept. 28 – 29, was designed to show the extent to which digitization and innovative technology can help meet these challenges and open up ways out of the crisis. The focus was on topics such as digitalization, sustainable business models, and transparent and resilient value chains.*

### Sustainability as a Corporate Goal

Keynotes and numerous case studies from SAP customers and partners provided insight into SAP’s future strategic direction and the extent to which customers are al-

ready using SAP’s platform and cloud solutions to develop innovative business models, sustainable processes and cross-industry networks towards to ensure future competitiveness. For example, in his keynote, SAP’s Joao Paulo da Silva highlighted the need to move away

from linear value chains towards a circular economy.

The path to holistic sustainable value creation with products, services and business models geared to this can essentially be described in three transformative steps. The decisive factor in this transformation is that the sustainability goals are measured on the basis of economic performance indicators and go hand in hand with the profitability goals of the company.

### SAP’s Business Technology Platform as an Innovation Driver

In another keynote, SAP’s Frank Ruland explained the importance of SAP’s Business Technology Platform (BTP) and SAP Cloud solutions as the basis for innovations at the industry and process level, the so-called „next

practices.“ Here, cross-industry consortia are increasingly coming to the fore. „Catena-X“, for example, is the first collaborative, open data ecosystem that links global players from the automotive and chemical industries, among others, to form end-to-end value chains, with the aim of enabling standardized, global data exchange based on European values. An additional example is the „Global Battery Alliance“, in which SAP and numerous partners have set themselves the goal of recycling batteries in the sense of a circular economy.

Blockchain-based processes can also be implemented with the help of the SAP Business Technology Platform and are increasingly finding their way into the world of innovative business models. David Pereira from Eastman Chemical showed how circular economy for polymers can be realized using the example of an end-to-end transparent blockchain-based



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control chain with the help of SAP's Green Token solution. Here, mass balances can be used to trace the proportion of recycled material for each step of the chain in a tamper-proof manner. The decisive factor here is that all business partners agree on mass balance standards and a basic certification framework. QR codes in particular should serve as proof of origin.

As Claude Philippe Medard from SAP showed, even processes such as the output of a steam cracker can now be simulated or optimized with the help of complex mathematical models and the SAP HANA database. For example, the yield and distribution of the end products (C2, C3, C4 fraction as well as aromatics) can be represented as a function of the raw materials (e.g., naphtha, LPG or recycled ethane) and the operational parameters of the cracker using polynomial systems of equations or matrices, and optimized with the help of linear or nonlinear programming. On this basis, a digital twin of a steam cracker can be created and dynamically adapted as the system's boundary conditions change, thus creating the basis of a „closed-loop“ system.

Another interesting application of SAP HANA, especially against the background of considering the difficulty to predict commodity prices and margins, was presented by Robert Vultier and Karel Jirik (Mibcon NDC). The current situation on the market not only leads to strong fluctuations in raw material prices, but in addition, changes in raw material prices are traditionally communicated towards sales with a delay, so that a timely adjustment of prices taking into account with the goal to achieve target margins is often delayed. The SAP HANA-based application developed by Mibcon NDC for Clariant allows cost, price and margin simulations in real time across multiple process stages and based on a variety of different scenarios. With the help of the SAP Data Warehouse Cloud, raw material forecasts and simulations can be directly linked to Cost of Goods Sold (COGS) and Net Income data. This gives sales the transparency they need at all times to adjust prices and target margins based on current raw material price fluctuations in real time.

### Strategic Priorities for the Chemical Industry

The current global environment not only presents major challenges for



chemical companies, but also offers opportunities to emerge stronger from the current crisis. In his keynote, Matt Reyman of SAP outlined four strategic priorities for greater differentiation and realignment for the future. First, operational efficiency must be increased. To do this, all processes along the value chain must be fully integrated and automated. New technologies such as blockchain, artificial intelligence, digital twins, etc. play a crucial role in this. The end result is the vision of the self-controlling, autonomous company. Second, collaboration must be strengthened across industries with the aim of opening up new value-creating platforms and networks based on „shared risk and reward“ models. Third, companies need to become strategically agile, which means enabling themselves to dynamically adapt their own product and solution portfolio based on market requirements and to seize new growth opportunities through differentiation and diversification. Fourth, there should be a stronger orientation away from purely product-centric sales toward more customer-centric business models. This means looking at customer relationships more from the customer's perspective, better understanding the value of one's own products and services for the customer and, if necessary, taking over parts of the value chain from the customer in the sense of a „win-win“ partnership. The end result is not only higher margins, but also greater customer loyalty.

### Conclusion

The „International SAP Conference for Chemicals“ showed ways in which companies in the chemical industry can not only master current challenges with the help of digital transformation and innovative technologies, but also gain a long-term competitive advantage. Resil-

ient and sustainability-oriented processes and value chains play a key role here. SAP, with its business technology platform, cloud solutions, and industry-specific applications, has proven to be a strategic partner for this transformation process for many customers.

*Stefan Guertzgen, CHEManager*

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