

Chemical Week

Next frontier

Canadian petrochemical investment ramps up



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Digital strategies gain traction

Companies target improvements in innovation, customer experience, and efficiency

by Akshita Bhatia

Digital developments are driving shifts in strategy as chemical makers and distributors leverage new tools and processes to increase value and improve competitiveness. Digital investment offers opportunities for companies to increase market share, product mix, and margin through closer customer relationships and more efficient commercial and innovation operations.

Digitizing manual processes allows companies to collect and analyze large amounts of data efficiently, helping companies minimize human error and address consumer-facing transactional problems in a timely manner. “Digitalization helps to shorten development time by driving formulation suggestions from data and machine learning rather than solely from experiment,” says Henrik Hahn, chief digital officer at Evonik Digital GmbH. Expected benefits of digital are “strategic impacts, such as sales growth and time-to-market; operational impacts, such as productivity and efficiency gains; and reducing administrative costs.” The impact of digitalization is becoming more transparent throughout the supply chain as more companies are innovating their business models to attract an array of consumers.

Melanie Kalmar, Dow chief digital officer, corporate vice president, and chief information officer, promoted the commercial impact of digitalization as “the power of digital technologies such as artificial intelligence, AR/VR, or conversational interfaces, such as chatbots, to transform the way customers engage with us.” Digital has improved Dow’s productivity while reducing high-risk instances, such as risk of falls by working on elevated spaces. Kalmar cited the use of robotics and drones in 2018 as eliminating “more than 1,000 instances where employees entered high-risk areas and 1,000 instances where employees did elevated work on external inspections. By 2025, we [Dow] expect to have zero high-risk work done by people.” Kalmar quantified the return on investments in digital to be a 2:1 ratio on value investment

via growth and productivity. She adds that customer experience is the “true measuring stick” of value added.

McKinsey & Co. found chemical distributors that utilize digital tools in sales and transactions attract more customers and are more competitive in the market, with the overall potential to increase earnings for the sector by an additional \$45–60 billion. The study also found the cost to serve for digitally equipped companies fell by 15–20% because of streamlined operating costs.

The digitization of transactions is not a modern phenomenon. The former Dow Corning, now owned by Dow, implemented its online platform Xiameter back in 2002, then as part of joint venture with Corning. Xiameter served as a distribution channel for silicon-only low-end commodities to be sold online. This shift toward online transactions of silicon commodities bolstered Dow’s silicon production capacity by freeing up additional costs for R&D. Kalmar said the transformation following the launch of Xiameter “had a high degree of cross process integration, both in skill sets and technical enablement by optimizing the digital thread from the customer to the manufacturing plant floor.” The platform was revolutionary because it transformed an entire transactional process and made silicone readily available to consumers with the click of a button.

Dow Corning exemplified how moving regular transactions to online portals would enhance company relationships with more strategic accounts while remaining accessible to consumers globally. Companies are replacing paper and manual processes with software to collect data automatically, which can then be mined to understand process performance, cost, drivers, and risk analysis.

Digitization enhances R&D processes

Evonik’s opening of Evonik Digital GmbH, which functions as an R&D department dedicated to innovating product technology and operation processes, and BASF’s addition of a digital global division earlier this year, depict the organizational transformation

required to promote digitalization. Companies that commit to digitalization are bound to experience a faster lab experimenting process allowing them to innovate at a higher rate, as reported by McKinsey. This will increase company margins, add value, and promote market competitiveness. As Hahn said, digital has changed R&D by allowing “customers to find the right products faster, get technical information directly delivered on the spot, and identify the right person to interact with.” Companies will have to reallocate their funds to hire more software engineers and developers.

BASF exemplifies this change in human skill set required to make digital happen by opening a global digital division early this year and appointing Christoph Wegner chief digital officer, who will report directly to the executive board of the company. BASF plans on expanding the digital division by next year and renaming it “Global

Digital Services,” to pool experimenting, research, and development into one department. This way the value added of using digital tools is made more transparent in the supply chain.

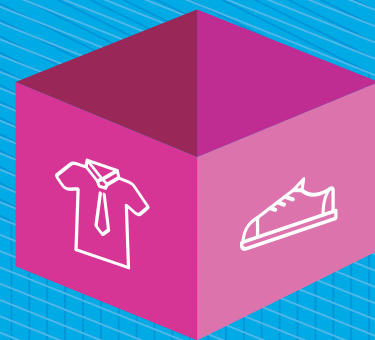
Accenture found digitalizing R&D processes speeds innovation by up to 15%, giving chemical distributors access to more data to improve product quality and conduct simulations of new products more efficiently. Some examples of how companies can implement digital to enhance R&D processes include developing new R&D data-driven business models, implementing applications for existing products, and increasing funding for innovation and research departments. ■



HAHN: Data, machine learning complement experimentation.



KALMAR: Transforming the customer experience.



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