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Russian petrochemical major Sibur spearheads digital transformation



Russian petrochemical major Sibur told East-West Digital News it has developed a technology which allows high-precision modeling of physicochemical processes in petrochemical production

By East West Digital News in Moscow November 12, 2020

Russian petrochemical major Sibur told East-West Digital News it has developed a technology which allows high-precision modeling of physicochemical processes in petrochemical production. This technology is unique for Russia, says the company, reports East-West Digital News (EWDN).

A pilot project was launched at Tomskneftekhim in Tomsk, Siberia, where a digital model of a high-pressure polyethylene reactor made it possible to significantly optimize operating costs in its production.

Sibur's research center in Tomsk has become the center of such comprehensive efforts. Technologists of the company's enterprises undergo additional training there. Since 2019, as a result, every company within Sibur has its own modeling specialist.

In total, 139 combinations of various parameters of equipment operation, raw material consumption and reaction initiators were tested on the digital model at the Tomsk plant. The optimal mode, in effect, allowed to reduce the specific consumption of expensive additives by 12% without losing product quality.

International ecosystem for corporate transformation Sibur says it has been systematically developing the application of technological modeling for more than five years. These and other digital transformations are critical to the success of petrochemical companies and fundamental to their future, which is why Sibur has considerably increased capital investment in this field.

Sibur strives to expand utilization of working processes based on automation, visualization and data exchange in manufacturing technologies. This often goes with open innovation and international collaboration, as witnessed by Sibur's recent moves: Last year, Sibur opened the PolyLab research and development center in Skolkovo. Equipped with high-tech laboratories and 12 production lines, it allows to study the relationship between the properties of polymers and of finished products made from them.

In May, Sibur teamed up with Brochesia, an Italian provider of software solutions for wearable devices, to support its network digitalization effort. Thanks to joint efforts, the Russian giant was among the first petrochemical companies worldwide to adopt maintenance and support services using AR and developing remote assistance procedures.

The adoption of these solutions are a part of Sibur's digital transformation program, which encompasses three main fields. Advanced analytics are used to build predictive models based on machine learning, big data, and visualization. Process digitization improves and simplifies business processes leveraging mobile apps and software automation.

While technology deployments are crucial, it is also important to create digital processes that could showcase tangible results. Through multivariate analysis companies can better understand what causes quality to change from one batch of product to another, and can cut the development time for a new product from 2-3 years down to 4-6 months.

Improving production efficiency by 10% could yield up to \$220 million to \$260 million bottom-line impact on a single brownfield asset, according to McKinsey.

Innovation spreads globally Adopting digital processes comes with a unique challenge to petrochemical companies. Whereas many of the leading ones are in the process of digital transformation, a majority are just starting out.

Sibur was among the first companies worldwide to translate high-precision modeling of physicochemical processes in petrochemical production into practice – but it is not the only one in its sector in adopting breakthrough solutions.

Several other energy and petrochemical majors are also engaged in similar digitalization efforts. Among them are Bechtel, the US engineering, construction, and project management corporation: its data analytics team has helped improve decision-making in areas such as piping, productivity and staff logistics.

Major energy corporations such as Borealis and Qenos partnered with the AspenTech, the leading asset optimization software company. Most recently, Halliburton entered into a strategic agreement with Microsoft to stay on top of digital transformation.

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