Covestro Turns Process Data into a Competitive Advantage with Self-service Industrial Analytics

Learn how Covestro uses self-service industrial analytics to improve control, increase production efficiency and continuously reduce energy consumption, enabling them to overachieve their corporate operational targets.

COVESTRO is a leading chemical company producing polyurethanes, polycarbonates and specialty chemicals, former Bayer Material Science. One of the corporate goals is to control and even reduce the overall energy consumption and reduce the CO2 footprint. To meet organizational objectives, data analytics was required; not just to analyse the large energy consumers, but also to monitor and reduce the energy consumption.

In this success story, Tim Timmermans shares the industrial analytics journey of Covestro, leading to better control and even reduction of energy consumption at their site. Besides this focus in the use of industrial analytics, TrendMiner has been used for many other use cases on a daily basis. Their gained insights led to extended use of OSIsoft PI within their entire organization as well as a further increase of data resolution for higher analytics accuracy. TrendMiner helps Covestro to improve production and reduce costs while complying with applicable regulations.

HARNESSING FOR GROWTH

Covestro is a world-leading supplier of high-tech polymer materials: innovative, sustainable and diverse. Thanks to their global presence and close proximity to customers, they are the partner of choice for a wide variety of industries. In the years that lie ahead, the key polymer industry segments in which Covestro is active will continue to grow faster than the global economy. To harness potential for growth, Covestro defined the following strategic pillars:

- Promoting sustainability
- Boosting innovative capability
- Maintain efficient production
- Realising competitive costs

Covestro realized that in order to achieve these objectives, they needed to turn the possibilities of Industry 4.0., Industrial IoT and Big Data into their advantage. Smart use of data would be inevitable if they want to continuously improve process performance and maintain competitive costs.
Tim Timmermans, Operational Expert at Covestro is responsible for capturing process data with the help of OSIsoft PI. Timmermans: "The PI system makes a massive amount of process data available for analysis. However, turning our most valuable asset into knowledge is a different story. Ideally, analysing big data should be simple, easy and fast and provide knowledge with context. Conventional methods such as Excel sparked too many complications. Moreover, it would obstruct Covestro entering the digital age."

Covestro was facing two main issues. First of all, big-data analytics was done in MS Excel. A slow process, obstructing engineers to use all data. Also, handling large volumes of data, the team needed a supercomputer to get work done. Secondly, with complex problems Covestro turns to their analytics experts for data-modeling. This not only demands a lot of investigation and modeling time, but also leads to potential knowledge loss at the plant.

To leverage OSIsoft PI to the max, Timmermans and his team started looking for a way to advance the use of data. In order to do so, Covestro selected TrendMiner's self-service industrial analytics software. From day one, TrendMiner software provided tangible benefits, such as:

- No data modelling needed
- No Excel needed
- Risk of data loss is greatly reduced
- Simple and easy to use
- Direct answers to issues
- Graphical visualization of data
- Fast – no super computer needed

With TrendMiner there was no complex integration needed to get the software up and running. The plug-and-play architecture allows that TrendMiner is simply put on top of OSIsoft PI to start working with the software.
**SOLUTION**

**LEVERAGING TIME-SERIES PROCESS DATA TO THE MAX WITH TRENDMINER**

The use cases below show how TrendMiner self-service industrial analytics software enabled process engineers at the site in Belgium to contribute to the previously mentioned strategic growth pillars:

1. **Reduce emissions by improving off-gas treatment**

Covestro was experiencing problems during off-gas treatment. With data from the PI System and TrendMiner’ Search and Discovery Analytics, Covestro was able to do a hypothesis check easily and fast. Confirming their hypothesis enabled the team to decrease problematic situations with off-gas treatment with 63% and by doing so, greatly reducing emissions, too.

**Focus on sustainability**

With TrendMiner we are able to do a hypothesis check easily and fast. We were able to decrease problematic situations with 63%.

2. **Efficient production**

In this case, Timmermans experienced a bad quality production run in which the root cause was not clear. He used TrendMiner software to compare good quality periods with bad quality periods in production runs. Through TrendMiner’s Layer compare feature, he was able to easily identify what caused the problem. It helped him to secure high quality production runs in the future.

**Efficient production**

With TrendMiner we are able to easily identify the problem. Comparing good quality periods with bad quality periods lead to the root cause.
3. Eliminate a potential production loss of 125 tons

Process engineers experienced unwanted production stops. By tagging good badges as "Fingerprints" in TrendMiner software, Covestro was soon able to identify deviations in production runs – leading them to a problem in the control system. Finding the root cause with Fingerprints helped them eliminate a potential production loss of 125 tons or €255K.

Competitive costs

With TrendMiner we are able to easily identify the problem. We are able to eliminate a potential loss of €255,430.

4. Knowledge transfer leads to innovation

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Innovation as a core element

With TrendMiner we are able to capture the stories our process data tells. This leads to a maximum of knowledge transfer.

5. Energy monitoring without Excel

Nowadays, energy monitoring is an important factor in focussing on sustainability. In the past, Covestro would use Excel files to manually compare energy consumption data from one year to the other. TrendMiner helped them bring a certain year to display. By adding the following years of energy consumption as layers, they are able to easily compare large periods of time. No Excel needed anymore.

Focus on sustainability

With TrendMiner we are able to do an energy monitoring and consumption check without excel-files. Simple, easy and fast tool for project verification.
Implementing TrendMiner’s self-service industrial analytics on top of their current OSIsoft PI data system helped the process engineering team in Belgium to directly contribute to achieving Covestro’s strategic goals and harnessing potential for growth:

- Focus on sustainability: decrease problematic situations and do project verification in a simple, easy and fast way, instead of juggling around with data in MS Excel.
- Innovation as a core element: push boundaries by simple, easy and fast knowledge transfer. New hires are quickly up and running with our production “secrets” and get the lessons learned during their process performance analysis work.
- Efficient production: identify and mitigate problems which decreased productivity in a simple, easy and fast way, leading to increased dollar value production
- Competitive costs: reduce potential costs to a minimum by avoiding unnecessary waste and increased process reliability.

“Process data tells stories – all we need to do is capture them. By implementing TrendMiner’s self-service analytics on top of OSIsoft PI, we are able to turn process data into competitive advantage.”

Tim Timmermans
Operational Expert at Covestro

WHAT DOES A SELF-SERVICE ANALYTICS PROJECT WITH TRENDMINER LOOK LIKE?

Structuring your self-service analytics project well is essential for a successful outcome and gaining business value. To make sure you make the most out of your self-service analytics project, at TrendMiner we always use three essential building blocks.