Aiming to avoid manufacturing line instability and downtime

Toray Plastics (America) Inc. wanted greater operational control and less downtime for its film manufacturing. Line stability was of the utmost importance.

Distilling data into insights with a solution on Microsoft Azure

Microsoft partner TwinThread implemented its Predictive Operations Center, powered by Microsoft Azure Machine Learning, to help Toray’s engineers.

Uncovering the root causes of problems saves time and money

The solution has enabled engineers to identify anomalies and prevent film breaks, improving uptime and saving Toray hundreds of thousands of dollars.
TwinThread's predictive analytics empower industrial experts

TwinThread is a Microsoft gold partner with offices in Charlottesville, Virginia, and Bedford, Nova Scotia, Canada. TwinThread's staff of 50 aims to empower industrial experts to innovate and drive efficiencies throughout their manufacturing processes. TwinThread's Predictive Operations Center, available in the Microsoft Azure Marketplace, is a self-provisioning Software as a Service (SaaS) solution that comprises Azure IoT, data, analytics, and AI services. TwinThread utilizes Azure SQL Database to store context for industrial digital twins. Azure App Service queries data for analysis and context. Azure Kubernetes Service autoscales analytics, and Azure Machine Learning Studio automates predictions on all assets. Business teams can use Microsoft Power BI to make decisions that are based on the automated curated data.

Toray Plastics (America) Inc. is headquartered in North Kingstown, Rhode Island, where it manufactures highly engineered plastic films that are specified for a wide range of finished goods for consumer and industrial applications. Toray is renowned for high product quality and maintains exacting standards for its finished film. Deviation in quality is not acceptable. Film production is extremely complex by nature, and Toray wanted to reduce line instability, which can cause a film break. The disruption delays production, impacts quality, generates waste, and requires cleanup. The downtime is costly: Each film break can cost the company up to tens of thousands of dollars.

‘A big difference to our process engineers’

TwinThread's predictive insights were presented to Toray's engineers on user-friendly displays, which are backed by Azure Machine Learning analytics. Those analytics consist of thousands of pieces of manufacturing data that are distilled into the information Toray needs to address its production challenges.

“TwinThread's Predictive Operations Center is making a big difference to our process engineers, giving them real-time feedback on the stability of our production,” said Domenic Verte, Manufacturing Application Manager at Toray.

TwinThread’s platform allows engineers to identify both root-causes and anomalies in real time, thus preventing film breaks. As part of an overall plan to optimize quality and production continuously, Toray has implemented an innovative program that enables its process engineers and operations teams to work in partnership around the clock, guided by real-time data and analytics. Toray uses the Predictive Operations Center to pull data from disparate sources, monitor more than 400 measures of line stability, and predict the potential causes of line instability and film breaks. The process has raised uptime from the mid-80 percent level to higher than 90 percent overall and is saving Toray hundreds of thousands of dollars.

“Toray is applying high-level discipline to quality and production reliability, and in that respect it is an industry leader. Microsoft Azure IoT and its cognitive services support TwinThread’s Predictive Operations Center by providing our customers, like Toray, with the visibility and actionable insight they need.”

- Erik Udstuen, CEO, TwinThread Inc.