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Corning World   /   Building a resume... for glass

Building a resume... for glass

Posted on May. 26, 2022 in **MAPs/Strategy Feature Story**

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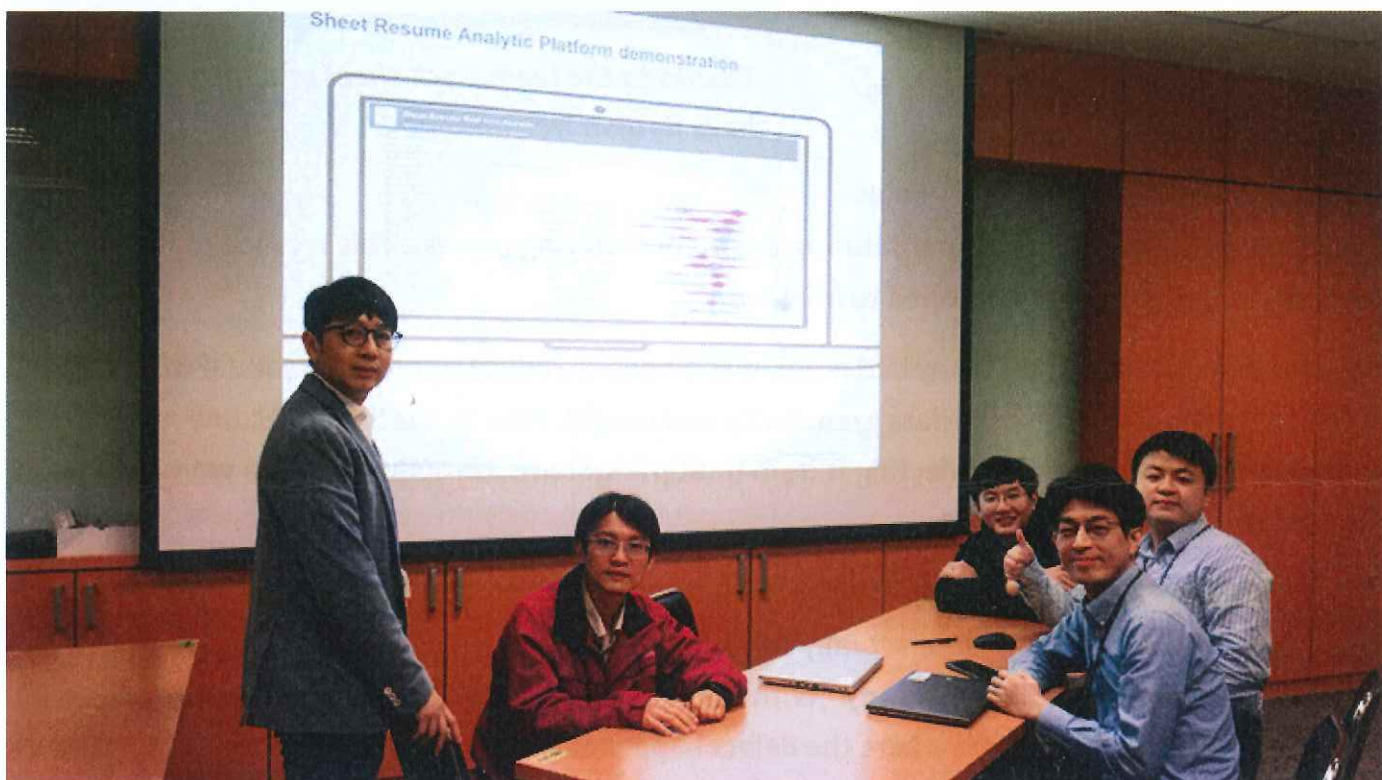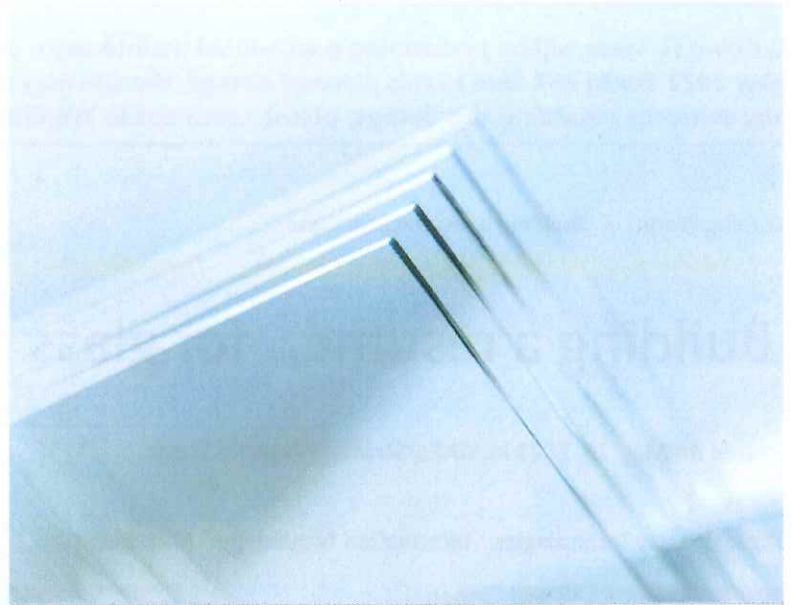

The Sheet Resume team helps harness data to better inform business decisions.

The folks reinventing Corning's manufacturing processes – this time with artificial intelligence and machine learning – are pushing Corning's digital transformation forward. Their work has won Corning three awards *from the Manufacturing Leadership Council, recognizing Corning's strength in Manufacturing 4.0. In this piece, dive into CDT's Sheet Resume project, which harnesses the power of data.*

Danny Wang is excited for the future. Not just for the future of Corning Display Technologies (CDT) and the Sheet Resume project, a time saving, data analytics project he helped initiate specifically for CDT Taiwan, but for the future of digital at Corning.

Danny, a senior data analytic engineer from MT&E Asia, knows that every manufacturing process has a direct impact on the quality of glass produced. To ensure the highest quality product, engineers must also understand which key process input variables (KPIVs) are having a direct effect on key process output variables (KPOVs). But how can you understand which variables affect certain outcomes?

Throughout the production line, the Sheet Resume process collects data for every sheet of glass, giving it a full "resume" when it's finished. This helps

Thanks to the team, each sheet of display glass can have its own "resume."

operators see exactly what happens during the manufacturing process. This is called root cause analysis, something that CDT hoped to improve.

The problem statement, as Danny laid it out, was a need to reduce significant manual work for the process engineers and increase data granularity and insight. Prior to the Sheet Resume project, analyzing data first involved collecting it from multiple systems, compiling it into a working data file, and then finally analyzing it.

"Before we implemented the new software, people spent 80% of their time doing data collection and only 10% to 20% of their time actually solving the issues. Now, with the new process, those numbers are flipped," explained Danny. "With the sheet resume solution, engineers can now identify the exact point in time where the defect happened and have greater insights into the root causes."

The new process is enabled by ETL software, which helps to compile data into a single system that can be filtered by product line or defect type. This data is then processed via the sheet resume traceability system, making it easy to see trends. This is all part of a machine learning pipeline that allows engineers to quickly identify which KPIVs are affecting quality and present the data results in an easy-to-read dashboard. What used to take over two hours can now be done in less than 15 minutes.

It's not just Danny and his team who are happy about the success of the project; customers and leaders alike are thrilled with their work and want to expand this technology to other product lines. The next phase of this project is "Sheet
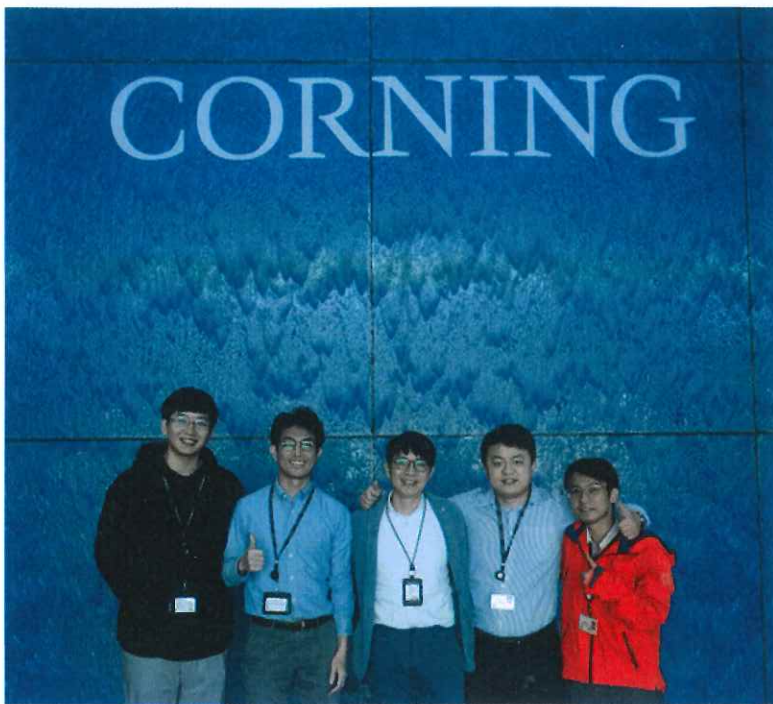
The team is helping pushing Corning's digital transformation in factories.

Resume- SunMoonLake Scaling," an effort planned for 2022 that will integrate the Sheet Resume and SunMoonLake projects. SunMoonLake is a data lake or central repository for much of Display's big data that also utilizes image recognition for machine learning. Similar to Sheet Resume, SunMoonLake will leverage AI to reduce human inspection and better recognize bubbles and scratches on the sheets of glass to ensure better quality product.

While Danny hopes that others will see the success of this project and pursue their own ideas, he cautions that nothing can be achieved alone.

"This project is the result of a cross functional team," Danny says. "The teamwork that enabled this project is the most important thing. No one person knew everything about it; it took us all working together and learning from one another to be successful."

Many of Danny's teammates shared similar sentiments. Rick Wang, senior research scientist, gave this advice: "If you have an innovative idea, just go try it. We didn't know this project would work when we started, but after two years, it became a great success, and we have learned a lot about how to work together and create value for Corning."

When asked what the Manufacturing Leadership Award meant to him, Danny said, "I'm so honored that others are recognizing the work we've done and have been so supportive of our efforts. I think this is an incredible achievement. It is a great honor for MT&E, CDT, and Corning that our digital developments are being recognized on the same level as Cisco, IBM, and other famous companies."

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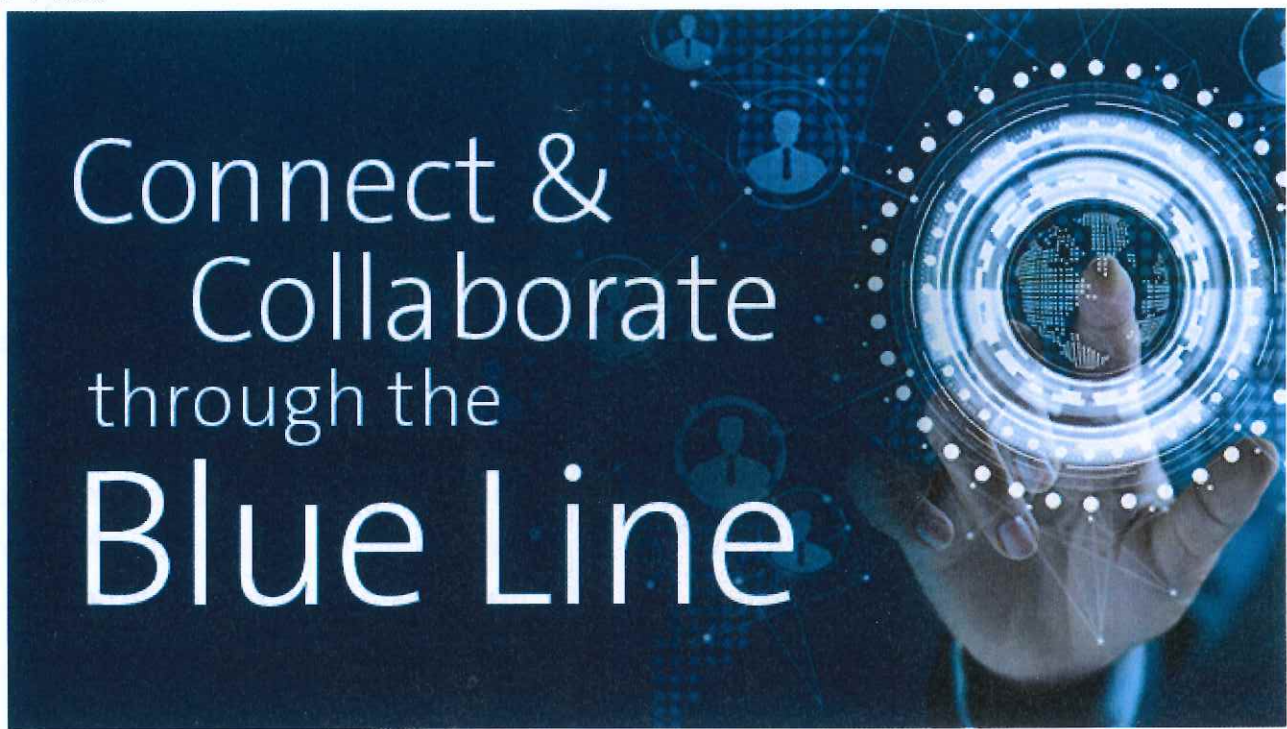
The Blue Line

Talk to Corning World