



## CASE STUDY

# How Pienomial alleviates compliance nightmares and delivers value

A leading manufacturer of space-qualified electronics was contracted to provide high-fidelity complex electronic components to a satellite manufacturer. The components need to survive in harsh environments, and are subjected to several tests prior to satellite assembly operations. A complication arose when test results at the satellite manufacturer were inconsistent. Investigations revealed that the processing of material very early on in the process was inconsistent. Specifically, operators in different shifts had adjusted the temperature of an oven to inconsistent settings. Over a period of 5 weeks, every batch of product was examined, every operator record was evaluated, and every test result was scrutinized going back 3 years. The financial impact was estimated at ~\$9M. The severe reputational impact from delays to satellite launches could result in the demise of the firm.

### **The Solution:**

Pienomial is designed to address and rectify deviations before it impacts product delivery and quality. Pienomial addresses these challenges utilizing the six tenets outlined above

- Pienomial built a process modeling environment that decomposes complex procedures into simple, intuitive and immutable steps that each operator must follow
- Pienomial connected with real-time sensor data as well as historical data (in .CVS and .XLS formats) to track operator setpoints and process variables continually. The data is provided on-demand to process engineers and quality control staff in intuitive, customized graphical formats.
- Variable ranges were specified during setup. Pienomial flags any excursions, and messages the teams with context- and role-specific information.

- The conversational UI-UX design allows for collaborative problem-solving. The engineers and operators can confer and choose to accept, rectify or remedy the deviations.
- Pienomial's AI/ML and Natural Language Processing (NLP) engines learn the engineer's responses to deviations. This enables Pienomial to detect incipient deviations and recommend courses of action to the engineering and operator community
- Pienomial customized an executive dashboard that quantifies the operational and financial impact of deviations and remediations. Additionally, since Pienomial continually tracks every step of the process, compliance reports are generated using a one-click button.

Pienomial's solution is expected to improve both compliance as well as resiliency of the operation. This manufacturer can now assess the impact of deviations to operations and to their financial performance. They are able to quickly generate compliance reports to regulatory authorities. Most importantly, Pienomial ensures traceability so customers are no longer seriously impacted. We anticipate a 20% increase in yield and throughput, a 10% quality and on-time delivery premium that the firm can charge, and, the elimination of a substantial reserve on the balance sheet to address such intractable issues.