

A PATH TO THE FUTURE

How Two Steel Manufacturers Updated Legacy Systems and
Eliminated Technical Debt





With over 25 years of experience supporting steel manufacturers, the Flexware Innovation team understands what it takes to modernize plants effectively. That's why two major steel manufacturers turned to Flexware to help them replace their legacy systems. This collaboration resulted in two strategic modernization efforts aimed at eliminating technical debt, unlocking critical data, and laying the foundation for future digital transformation.

THE CHALLENGE: TECHNICAL DEBT

The legacy systems deployed across both manufacturers' plants were becoming expensive to maintain, hard to support, and prone to downtime, driving up technical debt.

One manufacturer was struggling with an expensive SCADA platform that was difficult to troubleshoot and often required time-consuming workarounds. Its cluttered screens further hindered efficiency and accessing meaningful data remained a constant challenge. The other manufacturer faced performance issues with their legacy HMI.

For example, loading screens on a wet grinder took up to 20 minutes. They also had several processes that were still manual. In one case, only one employee knew how to operate a 4,500-ton press optimally, posing a serious risk of downtime.

Although both companies recognized that modernization was essential to stay competitive, the scope and complexity of the effort left them unsure where to start.

5 Signs It's Time to Upgrade Your Legacy Systems

1. Constant workarounds are required to maintain operations
2. System updates are infrequent or non-existent
3. Young engineers aren't familiar with the system
4. Performance issues disrupt efficiency
5. Downtime is becoming harder to prevent





THE SOLUTION: STRATEGIC MODERNIZATION

Flexware begins every modernization project with a comprehensive assessment of existing technology in order to build a phased roadmap that effectively prioritizes the most critical areas. This includes evaluating each plant's systems, counting tags, analyzing backend scripts, and rating screen complexity to estimate the effort required for each project. Flexware also develops proof-of-concept tests to ensure critical .NET application functionality is preserved during migration. This approach results in a tailored, best-practice roadmap that guides each manufacturer's modernization journey.

For one manufacturer, the roadmap outlined a multi-year plan to modernize multiple processes across several plants. Flexware recommended Ignition as their new SCADA platform due to its ease of use, cost effectiveness, quick and responsive updates, active user community, and data capabilities. This choice supported the manufacturer's broader goal of standardizing system architecture, security, and user interface design.

The other manufacturer's roadmap focused on replacing outdated HMI systems on individual lines across six plants with Microsoft Blazor—a natural fit given their team's existing expertise. During implementation, Flexware automated manual processes to enhance efficiency and resiliency. For instance, a critical vertical annealing system was migrated from a physical machine to a virtual environment. To ensure reliable performance and avoid production delays, each solution was thoroughly tested using simulation software, then on a single line to validate functionality.



THE OUTCOME: STABILITY, EFFICIENCY, AND GROWTH

Flexware Innovation gave both manufacturers the confidence and tools they needed to advance their modernization efforts. The detailed assessments and phased roadmaps provided a clear migration path, and the justification required to secure leadership buy-in.

For the manufacturer that has already begun implementation, the benefits are clear: more stable systems, real-time visibility, and better insights into inefficiencies. Technical teams now have the tools to proactively resolve issues, and a unified architecture brings much-needed consistency. Together, these improvements led to reduced downtime, increased efficiency, and higher output.

In both modernization efforts, Flexware collaborated closely with the manufacturers to understand specific needs and preserve valuable existing technology where possible. Beyond implementing technical solutions, the team focused on building long-term relationships, offering strategic guidance, reducing risk, and supporting each company's journey toward scalable, sustainable growth.

