



**WESTINGHOUSE
ELECTRIC COMPANY**

**Transforming Nuclear Fuel
Manufacturing
Westinghouse's Digital Twin-
Based Scheduling Journey**



MANUFACTURING

BACKGROUND

Westinghouse Electric Company is a global leader in nuclear energy technology with nearly 140 years of innovation and a footprint spanning 21 countries, 11,000 employees, and 90 facilities worldwide. Its nuclear fuel business unit manages highly complex, multi-stage manufacturing processes to produce fuel assemblies for PWR, BWR, VVER, and AGR reactor types. Production activities are distributed across five major international sites, each contributing different stages of manufacturing within a tightly interconnected supply chain where material flow, sequencing, and resource coordination are critical.

Despite this operational scale and engineering sophistication, production planning and scheduling were primarily supported through manual, Excel-based processes, with each site maintaining its own standalone set of planning data. This created limited visibility across the global network, slow response to unplanned events, and significant delays in assessing the impact of schedule changes or customer priorities. What-if scenario analysis could take days or weeks, restricting agility and decision-making. To address these challenges and unify planning across all sites, Westinghouse partnered with MOSIMTEC to implement a Simio-based digital twin to serve as a dynamic, data-driven platform enabling real-time capacity-feasible scheduling, integrated visibility, and transformative improvements in planning efficiency and responsiveness.

CHALLENGE

Westinghouse's nuclear fuel manufacturing operations span multiple globally distributed facilities that must coordinate complex material flows, resource dependencies, and production constraints. While the organization had deep technical expertise and mature operational processes, its planning and scheduling functions relied heavily on manually maintained spreadsheets and isolated site-level workflows. This made it difficult to maintain an integrated view of capacity, anticipate bottlenecks, or understand the full impact of schedule changes across interconnected facilities.

As a result, evaluating what-if scenarios, responding to unplanned events, or prioritizing customer needs often required extended analysis cycles. Decision-making was slowed by fragmented data, inconsistent system inputs, and limited visibility across the supply chain. For large cross-site changes, assessing downstream implications could take weeks, restricting agility in a highly regulated, demand-sensitive environment where precision and response time are critical.

SOLUTION

To address these challenges, Westinghouse partnered with MOSIMTEC to develop and deploy a digital twin of its fuel manufacturing operations using Simio. Built through a structured implementation approach, including functional specification, phased development, model verification, data integration, and user training, the digital twin created a dynamic, real-time representation of the production system capable of executing capacity-feasible planning and rapid scenario evaluation.



The solution integrated operational, inventory, equipment, and labor data from key enterprise systems (including SAP, IMS, Ariba, and Excel) through a dedicated ETL pipeline. Custom dashboards and model-driven scheduling tools provided planners with insight into throughput, material movement, resource utilization, and end-to-end progress of production orders. Importantly, planners were empowered to update inputs, run schedules independently, and use the platform for ongoing tactical and strategic decisions.

BENEFITS

The digital twin reduced planning cycle time, cutting scenario analysis and schedule adjustment from weeks to hours. Planners can now quickly test alternatives, evaluate trade-offs, and respond faster to customer requests or operational disruptions.

Centralized visibility across all sites has improved coordination, enabling teams to identify bottlenecks earlier, understand true capacity constraints, and make decisions based on validated data rather than assumptions. Production schedules are now integrated and capacity-feasible, reducing rework and planning uncertainty.

The implementation also exposed and helped resolve data inconsistencies across systems, improving overall data quality and confidence in planning results. With the ability to maintain and run the model independently, Westinghouse now uses the digital twin for ongoing tactical and strategic planning and is positioned to expand its use across additional business units.

MOSIMTEC expertly guides clients – from pharma to farming, from climate change to change management – through simulation modeling so they get the MOST knowledge, the MOST insight, and the MOST intelligent answers to Future Proof their Business.