

MxD 15-02-08	Category: Recurring Manufacturing
Title:	Factboard: Real-Time Data-Driven Visual Decision Support System for the Factory Floor
Completion Date:	2018-06-30
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Summary:

This project team generated the **FactBoard application** which is a shop floor decision support system that converts thousands of existing real-time transactional data inputs from logistics and production systems into a collection of visual dashboards. Through industry implementation and test demos, **FactBoard** has shown the potential to improve productivity, to aid manufacturing operations in decision making, and provide new product markets for software companies.

**FactBoard** provides visualization capabilities of the shop floor environment with real time operation data. **FactBoard's** decision support engine communicates much needed real-time information of plant status to enable effective factory-wide decision-making. The Dashboard module visualizes the current state and historical performance of the factory including cycle times and quality issues. The Sequencer module provides real time communication of schedule changes across production lines. Lastly, the Inventory Reconciler enables inventory modeling and predicted shortages which are communicated to the Sequencer. These three modules allow for early identification of possible problems and enable decision makers to best redirect resources to minimize the impact of unexpected problems across the plant to ultimately reduce costly mistakes.

Early implementation of the tool is promising. Pilot studies of similar concepts deployed in isolated environments have demonstrated 98% reductions in line stoppages due to logistics issues, 86% reductions in on-site inventory, and 50% reductions in indirect material handling labor, all while simultaneously increasing productive throughput by nearly 10%. All of this contributes to reducing operational costs and increasing the ability of the factory and its supply chain to respond faster to changes in requirements.

**FactBoard** can bring the most value to markets with complex multi-line assemblies or complex supply chains. The light, web-based tool enables a high level digital network that can communicate problems between otherwise separate manufacturing lines. **FactBoard** makes information sharing easy whether between internal lines or between external suppliers. An additional future market could include extending the software to suppliers. The company can benefit from the digital network with real-time status of critical components. Real-time problems can easily be communicated which enables proactive solutions. This could be the future of supplier management.

The implementation of **FactBoard** requires only existing transactional data of manufacturing processes, access to a server, and a modern Windows computing system. **FactBoard** avoids the major cost of implementing new data collection capabilities by utilizing current capabilities to power the tool.

The project team involved consisted of two large-scale vehicle-manufacturing firms (Boeing and Deere), along with two SME commercial manufacturing software development firms (Proplanner and FactoryRight) and a major engineering university (Iowa State University). Over the course of the project, **FactBoard** was developed and modified to meet the needs of these large-scale manufacturers. During early implementation at our industry partners, **FactBoard** has been well received and identified as a tool that could add value to their operations.