



## Reduce Cost by Millions when Considering All Factors

### Problem

Numerous factors influence production schedules, variously referred to as constraints, rules, restrictions and so on. Some examples are: the capacity of a plant or supplier, the lifetime of a die, SKU based changeover times, the ideal batch size for a paint color. To ensure that the schedule is executable, all of these factors must be considered when creating it. Every factor that is ignored or violated has implications in terms of lost throughput, additional inventory, offline workforce, delayed deliveries, stability loss due to frequent rescheduling and more. Each has a cost impact.

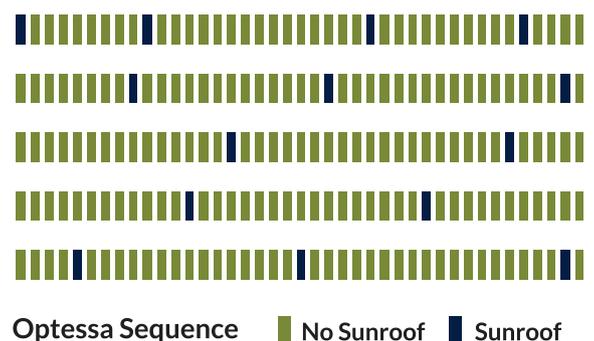
### Solution

When creating schedules, Optessa considers constraints and rules in a complete model. Constraints and rules may conflict with each other, so Optessa allows the user to prioritize each factor, while recognizing that some factors just cannot be violated (often called "hard constraints"). The resulting Optessa schedule will offer the best balance among these factors and save costs to the tune of \$ millions.

### Example: Cost Savings in Spacing Product Features

The assembly of cars with Sunroofs is an excellent example of how Optessa saves significant costs. Fitting Sunroofs has higher work content, takes more time and thus may reduce the throughput of the line. Sunroofs cannot therefore be scheduled back to back. Spacing out the Sunroof models ensures a smooth schedule and optimal throughput. The legacy schedule showed multiple violations of this rule, resulting in an average annual loss of 435 vehicles due to reduced throughput. This was equivalent to roughly \$300,000 annually. Optessa schedule had no violations of this rule. This saved the entire \$300,000 for the manufacturer - for this rule alone! The image below shows Sunroof orders spaced evenly across the sequence.

Significant cost savings accrued from just the sunroof spacing constraint. When all rules and constraints were considered, the annual cost savings for a single car plant was estimated at \$4 million. All industries have such rules and constraints and can derive similar benefits from Optessa scheduling.





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### **Purpose of Production Scheduling**

### **Stamping Press Scheduling - Case Study**