Using the Optessa Planning engine to prioritize orders

Key Takeaways:

▪ **Utilization of a robust and adaptable model serving as an enabling technology, allowing planners and schedulers to react quickly and effectively to changing requirements**

▪ **Allows the user to dynamically assign relative priorities to specific order characteristics to allow more precise scheduling**

Problem:

A major automotive manufacturer has been generating optimal scheduling solutions in production for more than a year. Due to changing business processes and the introduction of new strategic initiatives, the customer wanted to add in additional scheduling requirements which their initial model was not set up to handle.

Under these new requirements the customer wanted to generate a plan for several weeks of capacity based on many order selection and order placement criteria, including prioritizing orders based on the exact second at which the order was placed. Older orders need to be given priority to be planned, and should be planned earlier into the production horizon wherever possible. Other prioritization criteria also includes: order market, type of order, and customer priority.

A new scheme within Optessa was designed to allow the manufacturer to dynamically prioritize orders based on a variety of constraints without the need to write code.

In short, although Optessa was producing better results in the first year using the same requirements as were defined in the legacy system, the modeling capabilities in Optessa subsequently allowed them to adjust the requirements, something that was not possible in the legacy system.

Solution:

Optessa's powerful constraint library mixed with a high degree of system configurability with the new approach in place we can easily account for new or changing requirements without changing or adding custom code.

Rather than trying to predict and model all possible combinations which could show up in the data, we decided to have the system analyze each data set and scale the model

according to the unique order selection and placement criteria in that specific dataset, based on user input priorities.

This allows two things:

✓ Provides users a way to modify and configure the order selection and placement criteria dynamically for any given dataset. When new requirements come in, updating the order selection criteria is as easy as making a few configuration updates.

✓ The number of unique combinations we need to consider is significantly reduced, as the largest number of unique combinations for any given dataset will always be equal to or less than the number of orders in the dataset. This brings us down from a range of 2 trillion or more, to a range of 100K-150K, and allows us to ensure an optimal solution given any set of business rules.

Result:
This demonstrates the ability of Optessa to translate between new business requirements and the planning technology, solving a complex business process using constraints and penalty weights.

The users now have a model that is robust and adaptable enough to allow any number of new selection and placement criteria to be considered. Adjustments to handle new order selection requirements can be managed by simple configuration updates and the system will provide an optimal solution while considering any number of criteria.

In this way, Optessa serves as an enabling technology, allowing planners and schedulers to react quickly and effectively to changing requirements and changing environments. Schedulers at the manufacturer have given uniformly positive feedback that this solution meets their needs.

About Optessa

Optessa provides top global manufacturers with the only planning, sequencing, and scheduling software that mathematically guarantees results using patented algorithms that adapt to all challenges without custom code. The software works equally well in a broad range of manufacturing industries, as well as in shipping and logistics. Headquartered in Alberta, Canada, with branches in Hazlet, New Jersey, USA, and Goa, India, Optessa's leadership team leverages its deep expertise in software, mathematics, manufacturing, and optimization technologies to deliver unmatched customer satisfaction.

To learn more about Optessa please visit www.optessa.com.

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Prioritizing Orders with Production Planning