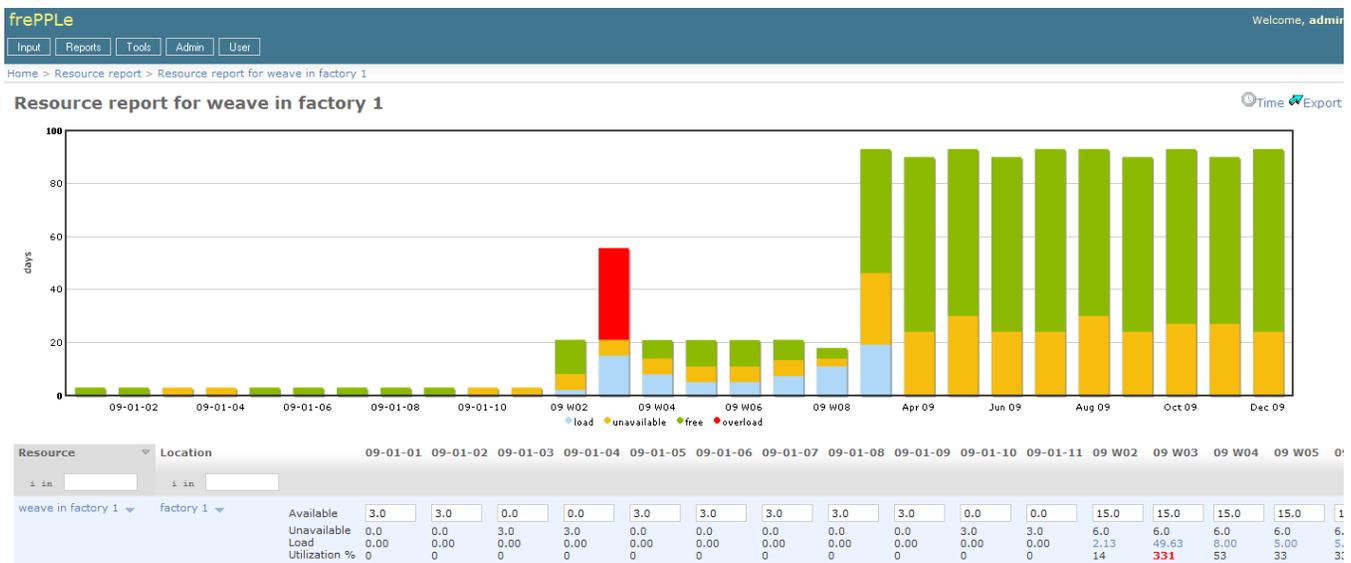# frePPLe
a Free Production Planning Library

Introduction

Companies striving to unleash trapped value in their supply chain operations in order to stay competitive, face two key challenges. The first is how to accurately predict future customer demand and the second is how to synchronize procurement and production in order to satisfy that demand at minimum cost.

Starting with demand forecasting, companies aim at automatically creating a baseline statistical forecast using historical sales data. Furthermore, they want to apply market intelligence and business knowledge in order to refine this baseline forecast and come up with the final approved forecast. In production planning, they want to take into account operational constraints and business rules to create material and capacity feasible plans that maximize customer service level while minimizing inventories and operational cost.

frePPLe is an open source application that targets both these key challenges by enabling demand forecasting and production planning in an integrated fashion. It has advanced modeling and planning capabilities, combined with a rich framework for data management and reporting.

Solution Capabilities

Demand forecasting
frePPLe uses historical sales data for statistical forecasting. It applies a set of standard time series analysis methods (e.g. moving average, single/double exponential smoothing) and provides a pick-best capability to automatically select the most preferable method based on the mean absolute deviation. The outcome of this automated process is the baseline statistical forecast. In the next step, the user can aggregate/dissaggregate the information in terms of time and manually overwrite the forecast values by applying market intelligence and business knowledge to come up with the final approved forecast that drives all further activities of the company. frePPLe also offers profiling capabilities to bring the forecast to the right time granularity for production planning. Additionally, it provides customer order netting functionalities to calculate the net forecast taking into account existing customer orders.

Production planning
frePPLe has modeling capabilities that accommodate all production environments (eg. make to stock, make to order, configure to order). It applies Just-in-Time principles to automatically generate material and capacity feasible plans for procurement and production. It offers a wealth of functionalities to model various business rules (eg. fixed and variable lead times, order prioritization, lot sizing, alternate operations, resource availability, assembly coordination, order pegging). Furthermore, frePPLe enables the fast assessment of various business scenarios, such as the choice between adding an extra production shift or overtime capacity. In an integrated demand and production hypothesis the user can make a decision on the most preferable time period for a future promotion, with respect to material and capacity availability. In addition, frePPLe can be configured to provide accurate promise dates for new customer orders, taking into account the current production status.

Data management & reporting

Data management & reporting

frePPLe provides a rich framework for data management and reporting, based on an easily extensible and customizable architecture. This framework covers the fundamental business need to consolidate all relevant data (e.g. bills of material, lead times, orders, historical sales data, calendars, on-hand quantities) into a single repository. Furthermore, it offers strong capabilities to cleanup and maintain these data through a flexible web based user interface. In addition, it provides a user administration framework for security enabled access and logging.

Benefits

frePPLe can help companies reduce manufacturing cycle times and improve customer service levels, that can also be differentiated for high priority customers. It can also contribute to reducing inventories of raw materials, intermediate items and final products and increasing the utilization of high value assets. It also helps reduce other operating cost such as overtime cost, premium shipment cost and freight cost. Furthermore, it enhances the company's visibility in the future, providing the necessary information for proactive decision making. Finally, it improves planners' productivity by automating their routine daily work and allowing them to focus on the critical decisions.

The OptimalCore Differentiator

OptimalCore is a partnership of experts in the field of Supply Chain Planning and Optimization with more than 15 years of experience in large scale supply chain planning projects and broad exposure to various industries including Metals, Pharmaceuticals, Consumer Goods, Process, Industrial Products and Hi Tech. This experience is combined with strong academic backgrounds in mathematical programming and optimization.

OptimalCore is actively engaged in the frePPLe development community. It helps companies assess whether frePPLe is the right fit for them and successfully implements frePPLe to deliver maximum value. Furthermore, it provides education services and full support, including issue identification, workaround investigation & code fixing, for live implementations.

Technology Details

- Open source application based on C++, Python and the Django web application framework
- Supports Oracle, PostgreSQL, MySQL and SQLite databases
- Deployable on Linux and Windows environments

Contact Info

www.frepple.com

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