



OPTIMIZED PROCESSES FOR CUSTOMER FORECASTS AND CADENCES

Customer:

PFW Aerospace GmbH

Project:

Demand forecast for the aviation supplier

Aircraft manufacturers understand cadences to mean production plans and forecasts that extend far into the future. One might think that this foresight also gives suppliers planning security, but often the opposite is the case. In order to always produce according to the needs of the customer, suppliers often have no choice but to use a supporting analysis/planning application.

Suppliers to the aerospace industry benefit from aircraft manufacturers' advance orders. They can plan their production early with the help of forecasts and production plans - so-called cadences - from the major manufacturers. While this initially sounds positive, suppliers are faced with the challenge of using the additional information correctly without drowning in administrative effort.

Long value creation processes

Due to the complexity of manufacturing and procuring components for the aviation industry, the value creation processes often take a long time and are very demanding. In addition, customer orders are manufactured as late as possible (to avoid stocks) and as early as necessary (to avoid overloading capacities) due to cost pressure and limited capacities. In order to organize procurement and production, reliable short, medium and long-term planning is therefore required. In general, production and sales planning in the aviation industry can be divided into three areas:

ABOVE

The **PFW Aerospace GmbH** has been one of the most important aviation companies in Germany for more than 100 years. The company is considered the world market leader in the field of piping systems in aircraft.

The entire range of services also includes structural components such as the Bellyfairing, pressure bulkhead, pressure floor, support structures, RAT frame, inner landing flaps, light band covers, ram air outlet, APU compartment and fuel tanks. At the Speyer (Germany), Nuneaton (Great Britain) and Izmir (Türkiye), PFW Aerospace GmbH employs around 1,800 people.

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The short-term horizon includes current customer orders. The second horizon includes the customer's demand forecast (customer forecasts). However, in many cases this is not enough, which is why separate forecasts must be added. The structure of the three forecast horizons differs depending on the customer: some aircraft manufacturers provide their suppliers with a delivery forecast through a special supplier portal in the form of CSV files, while others transfer the planning data in the form of Excel files, which must be imported into the ERP system.

Overlaps are possible

For most customers, the periods of ordering and the demand forecast overlap. It is mainly the numerous small customers who increase the planning effort either through different forms of provision or through a complete lack of a demand forecast. Provision via Excel and PDF also has the potential for errors due to the media disruption. In the end, the demand forecast no longer reflects the expected quantity required per month or sometimes even has gaps. This means that separate forecasts must be created. The so-called cadences, i.e. the planning the expected monthly production figures for each aircraft model. The cadences extend significantly further into the future than the customer's demand forecast. If it is known which components will be used in which aircraft models and in what quantities, an initial internal forecast can be made. However, suppliers are not always fully aware of this parts list relationship. In addition, there are optional parts that do not play a role in every customer order. In such cases, usage probabilities must be calculated.

Complicated Comfort

To improve data quality, some aircraft manufacturers have set up their own controlling system. The accuracy of a forecast indicates what proportion of the forecast quantity was actually realized as a customer order quantity in an analysis period. The forecast stability is used to measure the uniformity of all forecasts for a specific period and can be used to measure the fluctuations in the forecast values transmitted weekly.

However, suppliers are often faced with the challenge of regularly determining and archiving the required data quality indicators. Controlling process is difficult to handle without system support and requires a concept for automated calculation and control of the key figures. On closer inspection, the supposedly comfortable forecasting situation in the aviation industry turns out to be extremely complex.

IT-supported sales planning

PFW Aerospace GmbH (PFW), based in Speyer, is also dependent on its customers' forecasts as a supplier of pipe systems, structural components and additional tanks for aircraft manufacturers and was confronted with the problems mentioned above. There was a lack of technical support to counteract the problem areas in forecast planning and thus to establish a consistent 24-month demand plan for all customers.

For a long time, the sales were planned using Excel forecast data. The customer's requirements were analyzed and adjusted if necessary. The aim of the forecast analysis was to identify the largest deviations in the customer data. In addition, PFW checked during planning whether the incoming customer orders corresponded to the forecast data fit. However, due to the large amount of data, these were only checked to a limited extent. The random

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Marie-Catherine Peressini
Head of Sales Planning, PFW Aerospace

However, the test entailed the risk that not all errors in the forecast data and thus incorrect forecasts were passed on to procurement and production. So PFW decided to introduce a sales planning tool.

One of the goals was to create a consistent requirements plan for a period of 24 months and to map the different data models (CSV, Excel) in a uniform manner.

Gross and net planning

The choice fell on the planning and forecasting tool DISCOVER from SCT Supply Chain Technologies. The add-on solution communicates with PFW's SAP system via configurable standardized interfaces. Forecast information can now be imported into the tool and displayed as continuous material number-specific time series over short, medium and long-term planning horizons. The tool simplifies long-term planning through its own forecasts. Planning weaknesses in the form of missing or inadequate customer forecasts are minimized. These forecasts, in turn, are set as gross or net planning. A net planning mechanism is used when the forecast data has already been adjusted for customer orders. The gross planning mechanism is used when the time series of the order dates and the forecasts overlap.

Kocontinuous monitoring

Continuous controlling has been implemented to monitor the forecast data. The tool offers various reporting options and an integrated module for pivot analyses.

A&K consultants achieved seamless long-term forecasts and automation of sales planning in accordance with the requirements of the aerospace industry.

and pivot representations, which can be used, among other things, to ensure forecast accuracy and stability of the provided customer forecasts to determine.

This allows the customer forecasts provided to be continuously checked for their quality.

Assistant warns of errors

The sales planning system not only supports the evaluation of past forecasts, but also provides early warnings when forecasts are missing or unexpectedly fall. The functionality was tested in a pilot phase and then rolled out to all planning objects at PFW.

Forecasts and customer orders can now be displayed graphically and in tabular form per material on an aggregated monthly basis or in a daily grid and, after checking and possible manual additions by the sales planner, transferred to the SAP system in the form of planned independent requirements.

Interpreting Targeted Data

The introduction reduced the planning effort and the focus of sales planners' work changed from the extensive and error-prone manual preparation of series of figures to their intelligent interpretation, checking and supplementation.

The unification, automation and standardization of the collection and processing of forecast data in DISCOVER and the associated elimination of media discontinuities also led to the desired material number-specific rolling 24-month planning at PFW Aerospace GmbH and thus to a much clearer demand situation.