

**Optimised processes for
customer forecasts and
cadences**



CUSTOMER

PFW Aerospace GmbH
D-67346 Speyer

PROJECT

Demand forecast at the
aviation supplier

CASE STUDY

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By cadences, aircraft manufacturers mean production plans and forecasts that extend far into the future. One might think that this foresight would also provide suppliers with planning security, but often the opposite is the case. In order to always manufacture in line with the customer's requirements, suppliers often have no choice but to use a supporting analysis/planning application.

Suppliers to the aerospace industry benefit from the advance orders placed by aircraft manufacturers. They can plan their production at an early stage with the help of forecasts and production plans - so-called cadences - from the major manufacturers. What sounds positive at first, however, presents the suppliers with the challenge of using the additional information correctly without getting bogged down in administrative work.

Long value creation processes

Due to the complexity in the manufacturing and procurement of aerospace components, the value creation processes often take a long time and are very demanding. In addition, due to cost pressure and limited capacities, customer orders are manufactured as late as possible (to avoid inventories) and as early as necessary (to avoid overloading capacities). Reliable short-, medium- and long-term planning is therefore needed to organise procurement and production. In general, production and sales planning in the aviation industry can be divided into three areas: The near-term horizon includes current customer orders. The second horizon includes the customers' demand forecasts (customer forecasts). However, in many cases this is not sufficient, which is why own forecasts have to be added. The structure of the three forecast horizons differs depending on the customer: Some aircraft manufacturers provide their suppliers with a delivery preview through a dedicated supplier portal in the form of CSV files, while others transfer the planning data in the form of Excel files that have to be imported into the ERP system.

Overlaps are possible

For most customers, the time periods for ordering and demand forecasting overlap. It is above all the numerous small customers who increase the planning effort either through different forms of provision or through a complete lack of demand preview. The provision via Excel and PDF also harbours potential for errors due to the media discontinuity. In the end, the demand forecast no longer reflects the expected demand quantity per month or sometimes even has gaps. So you have to create your own forecasts. A planning basis for this is provided by the so-called cadences, i.e. the planning of the expected monthly production figures of

About >>>

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 belly fairing, pressure bulkhead, pressure floor, girder structures, RAT frame, inner landing flaps, light band covers, ram air outlet, APU compartment as well as fuel tanks. PFW Aerospace GmbH employs around 1,800 people at its sites in Speyer (Germany), Nuneaton (Great Britain) and Izmir (Turkey).

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the individual aircraft models. The cadences extend much further into the future than the customer's demand forecast. As long as it is known which components go into which aircraft models and in which quantities, an initial in-house forecast can be built up. However, this BOM relationship is not always fully known to the suppliers. 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 realised as customer order quantity in an analysis period. Forecast stability is used to measure the uniformity of all forecasts for a certain period of time, with the help of which the fluctuations in the weekly forecast values can be measured.

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

IT-supported sales planning

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

The paragraphs were planned for a long time with Excel. The client's forecast data was analysed and adjusted if necessary. The aim of the forecast analysis was to identify the largest deviations in the

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*Marie-Catherine Peressini
Head of Sales Planning, PFW Aerospace*

customer data. In addition, the PFW checked in the planning whether the incoming customer orders matched the forecast data.

However, due to the large amount of data, these were only checked to a limited extent. The random check, however, harboured the risk that not all errors in the forecast data were detected and thus incorrect forecasts

were passed on to procurement and production. So PFW decided to introduce a sales planning tool.

The aim was, among other things, to create a consistent demand plan for a period of 24 months and to map the different data models (CSV, Excel) in a uniform way.

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 standardised interfaces. Forecast information can now be imported into the tool and displayed as consistent material number-specific time series over short, medium and long-term planning horizons. The tool simplifies long-term planning with its own forecasts. Planning weaknesses in the form of missing or inadequate customer forecasts are minimised. 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.

Continuous monitoring

Continuous controlling was implemented to monitor the forecast data. For this purpose, the tool offers various reporting options as well as an integrated module for pivot analyses and pivot representations, which can be used, among other things, to determine the forecast accuracy and stability of the customer forecasts provided.

This allows the quality of the customer forecasts provided to be permanently checked.

Assistant warns of errors

The sales planning system not only supports the evaluation of past forecasts, but also warns at an early stage if forecasts are missing or drop unexpectedly. The functionality was tested as part of 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 the daily grid and, after checking and any manual additions by the sales planners, can be transferred to the SAP system in the form of planned independent requirements.

Interpret targeted data

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

The unification, automation and standardisation of the recording and preparation 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 significantly clearer demand situation.

