

## Digicon DCA Synchronises production of Aerospace parts using Preactor APS



Founded in 1977, Digicon S/A is a subsidiary of the Digicon Group, formed by three companies, Perto, Digicon and Numericon. Located in a plant covering 100,000 m<sup>2</sup> in Gravataí, Brazil, the companies work in the development, production and commercialization of products and services in the areas of industrial, commercial and banking automation.

Starting in 1986, the company developed a special department for producing aircraft components inside the Digicon S/A, the DCA. Currently, this unit is responsible for production and commercialization of approximately 90 sets of Air Conditioning valves for English Hamilton Sundstrand aircraft.

Differentiating itself in the market through the aggregation of technology at all levels of the production chain from product development through to distribution, the DCA meets all quality requirements of this sector as attested by ISO 9001:2000 and AS 9100 certification earned by the company.

### The Problem

Despite having an accurate demand forecast, DCA production follows a make-to-order policy in which items are produced only after the confirmation of the customer's request. This aims to reduce the stock volume throughout the production process.

However, difficulties in the assessment of the impact of batch sizes on production and delivery performance were affecting the benefits of making to order, because, without a tool to provide visibility through simulation of various scenarios, decisions were being taken without careful full analysis of the implications.



The sequencing of production orders was carried out manually with the support of spreadsheets. This did not allow a careful review of the priority of orders and possible optimizations on the factory floor.

And in addition it demanded a lot of effort to keep the plan up to date to ensure the synchronization of the parts and pieces throughout the production process and avoid unnecessary downtime of machines caused by work starvation on some resources and overload on others.

For all this reasons, Digicon (DCA) hired ACCERA Supply Chain Solutions, a Preactor Solution Provider in Brazil, in March 2008, to deploy Preactor. The goals of the project were:-

- to guarantee the synchronization of parts and pieces throughout the production process;
- to decide on production priorities during schedule generation;
- to ensure that all orders are being supplied on time;
- to simulate scenarios with changes to the production mix;
- to apply possible changes in the plan and see the impact of these changes as well as to make the whole process of production planning and scheduling more systemic and dynamic.

### The Solution

The first step in the process of PREACTOR deployment at DCA was the definition of the technical requirements of the solution. At this point ACCERA evaluated the current planning process, scheduling and production control at DCA, in addition to the systems involved throughout this process. This initial assessment also established the requirement of Preactor 400 APS.

Furthermore, it was decided that the solution should include the integration with Logix (ERP) provided by Logocenter, to import production orders, routes and production times of the items, and with the data collection system of Numericon (MES), to update the progress of the schedule in real time.

After these initial discussions ACCERA started some specific surveys on all available resources in DCA and its peculiarities. Next they detailed the constraints to be considered in schedule generation for example the impact of specific tools for lathes and machining centres. Finally, with the Preactor model completed, user training was carried out before the system went live.

## Results

With Preactor implementation, Digicon's DCA started to work with a tool that is flexible, dynamic and fully integrated to the other systems in the company. Thus, the time needed to update data in multiple spreadsheets and the generation of a schedule has been reduced significantly. With more time available and an intelligent tool for sequencing, the programmer can now perform many simulations of scenarios before releasing the production schedule. The smart scheduling algorithm optimizes the use of production resources trying to maintain a sequence of production that reduces setup time while respecting all the restrictions of the process.

The integration with the Numericon data collection system allows the monitoring of the progress of the schedule in real time and speeds up the decision making on contingencies that may occur during production. In addition, the firm planning horizon ensures visibility of the whole order book, and potential delays are displayed in advance, allowing corrective actions through simple changes in priorities of the orders or other scheduling scenarios.

To expand on the gains made in intelligent sequencing, currently the DCA of Digicon is broadening the scope of the initial project, with the inclusion of a new Preactor solution, looking at longer term planning. The focus of this new project is to analyse production batches, evaluate the schemes of work and the needs of the workforce through long-term analysis of the order portfolio and estimates of demand.

“With PREACTOR, we anticipate problems and we act quickly, optimizing our production planning in order to meet the complexities of our demand, which is characterized by high product mix and small batches. Furthermore, we highlight the power of ACCERA's team in the modelling and deployment of the software.”