

## MCP CASE STUDY - ELECTONICS



# Furukawa Industrial S.A. Eléctricos

## Furukawa adopts Lean Manufacturing concepts and improves delivery performance with Preactor

Founded in 1884 in Japan, led by Furukawa Electric, Furukawa Group is one of the world's manufacturers of optical fiber cables. Part of this big group, Furukawa Industrial S.A. Produtos Eléctricos is focused on the telecommunications sector selling into North America, Africa, Asia, Europe and Latin America and have a channel network strategically located, with distribution centers, sales offices, and three manufacture plants in Curitiba/PR, Salto/SP in Brazil, and Berazategui in Argentina.

The Curitiba's plant was the site for the Preactor project and is recognized by the group as the Latin American Excellence Center for optical and metallic cable manufacturing. With about 540 employees – where are more than 90 engineers are responsible for continuous product development – the unit had revenues of around 525 million Rias in 2011.

Growing demand revealed Furukawa's problem related to the production scheduling. Based on spreadsheets and employee's intrinsic knowledge, production scheduling was a process totally dependent on people, where the planners drove production based on bottleneck occupation, and the rest of the factory was organized to meet this demand.

For companies where bottlenecks definition is an easy task, a simple model can work perfectly, however his is not Furukawa's situation. Greater

product variety and the variable demand mix hinders bottleneck identification, which changes dynamically. Moreover, Furukawa has a mixed production system. Some products are held in stock to be consumed by the demand and refilled by Kanban systems in a make to stock concept. Most of the other products are produced by demand, in a make to order concept. These two models are mixed in the production process and sometimes share resources, creating a trade-off between stock balances and delivery deadline adherence.

Thus, the company's big challenge was to ensure the just in time adherence for the main products by the stocks levels (kanban system) without compromising delivery deadlines, making the production scheduling process independent of individuals and systemic.

In the past Furukawa had tried, without success, to implement a production scheduling tool with APS concepts. Even with this failure, the company didn't give up its objectives and searched again for a solution that could really manage this production process. The ERP supplier (ORACLE) presented its own APS software, however the project stopped due lack of progress in adhering to the Furukawa production process. Now with Preactor, Furukawa has finally found the ideal tool to reach its objectives.

### Company and product

Furukawa Industrial S.A. Product Eléctricos is focused on the telecommunications sector

### Key challenges

- Time reduction for planners to make the production plans
- Find bottlenecks
- See clearly the key factors such as waiting times between operations and resources occupation

### Key Benefits

- Specific report developed in Preactor
- Better synchronism between production and material arrivals, supporting stock reduction
- Minimize the impact of possible delays and support the planners to make decisions about scenario changes and allows any problem to be communicated earlier to customers

### System architecture

ORACLE

According to the company, the main factors that drove the choice of Preactor were the number of success cases in companies from the same sector, good experiences in visiting some Preactor customers from the other sectors supported by ACCERA, and mainly the Starter Pack results that showed the tool's flexibility and applicability to the Furukawa production process.

### The Project

The project was carried out at the Curitiba/PR unit and focused on three main product lines; optical cables, telephonic metallic cables, and LAN cables. From the beginning, the company's commitment to the project objectives was apparent and it was proven by the engagement and positive participation from several company departments during the specification detail through to the project conclusion, which had seven months duration.

The project execution followed the ACCERA implementation methodology, observing the follow steps:

- Prepare to Implementation (Starter Pack)
- Detailed Specification
- Development
- Operational Simulation
- Start-up

The Starter Pack stage proved to be important because at this step the ideal Preactor version was defined. The Preactor 500 APS version was chosen because of some components synchronism necessity at the middle of the finished product production process.

During the Prepare to Implementation and Detailed Specification stages all the solution requirements were identified, among which the requirement for matrices parameterization for specific setups by resource, rules for batch's splitting and automatic transfers, rules for new orders simulation aimed generate scenarios, evaluating the capacity and suggest reliable delivery dates for urgent sales and/or big contracts; and rules to automatic order generation for items held by the kanban system for stock balancing. That last one called not for just simple tool parameterizations, but also for revisions in the production process and strategies.

One of the criticisms of kanban users is the poor speed of reaction to demand changes, where sometimes the kanban stocks level fulfillment is prioritized without consideration of product demand over time. As a way to balance stocks levels and orders adherence, the resupply algorithm was added to Preactor and adjusted to meet the Furukawa's requirements. In this model the system uses the order book data and also the demand forecast to calculate production

requirements and order priority, taking into account of products held by the kanban system as well as other Furukawa products.

The Development step also contained the environment preparation task. In this case, Furukawa presented a particular situation. All its software structure is hosted at an outside Data Center, and with Preactor it wasn't different.

The system was installed in a hosting model where the users access by a Windows Terminal Server.

Because of the big data volume and the speed and agility necessities for the planning process, it was found that a superior volume of RAM memory was also necessary. To make it possible, the servers were designed in a 64 bits Windows Server Environment that allows a bigger memory management. This project step coincided with the release of Preactor v11.1 which has a new licenses management tool, making Furukawa one of the first costumers to use this new technology. To make process systemic and minimize the dependence on individuals Preactor was completely integrated with Furukawa's ERP and other specialized systems to make the production scripts management, order generation, and factory floor updates all developed in the Oracle database. After this was completed it was possible to proceed to the operational simulation steps and the solution start-up.

After the solution start-up one of the first effects noticed was the time reduction for planners to make the production plans, find bottlenecks and see clearly the key factors such as waiting times between operations and resources occupation. So, delivery deadlines definition was no longer based on the occupation of some resources defined like bottlenecks in an empirical way, but instead on a more global scenario vision considering all the restrictions.

The result was a 98% on time delivery adherence in just a few months after implementation, almost a five times reduction in delayed orders. Through a specific report developed in Preactor, it is now possible to provide required by dates to the supplier for material for packages (reels), which has created a better synchronism between production and material arrivals, supporting stock reduction.

Another important factor for Furukawa is the relationship with its customers. In this sense, a tool that gives big order delivery dates, and also a planning impact report to help order prioritization, supports the planners to make

decisions about scenario changes and allows any problems to be communicated earlier to customers, minimizing the impact of possible delays. Currently, following the first project success, the company is evaluating the solution expansion for the strings assembly area and the implementation in Salto/SP e Berazategui (Argentina).

**“Our expectations were exceeded for sure.”**

*Reinaldo Nakano, Project Manager, IT*

### Key Benefit

**98% on time delivery adherence in just 5 months after implementation**

**“Preactor proved to be a flexible tool, with alternatives available to cover all the problems which appeared during the implementation process.”**

*Marcelo Baldaña, Project Manager – Production Planning*

**“I can recommend PREACTOR without fear for any discrete manufacture company, because even in our factory where we have a mix of Make to Order, Make to Stock, and kanban, and we were still able to have a successful implementation”**

*Reinaldo Nakano, Project Manager, IT*

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