management consulting partners

MCP CASE STUDY – WOOD WORKING

Unicasa:
Lean Produktion bei Unicasa durch das effiziente APS Preactor

INTRODUCTION

UNICASA is a company in the furniture sector at Bento Goncalves, one of the most important centres of this sector in Brazil. The group comprises the brands DELL ANNO, NEW and FAVORITE, with over 1,100 stores throughout Brazil. Established 25 years, the company owns an industrial park of over 65 thousand square meters. With about 800 employees, UNICASA has an installed capacity of about 65,000 pieces per day. The main products are kitchens and bedrooms, offering a wide variety of choices for customers, with over 10 thousand active items that can be configured to assemble customized projects.

THE CHALLENGE

UNICASA works predominantly in an Assembly-to-Order production environment. Production resources have a range of capability and focus with some dedicated to mass production of common parts while others are more flexible and can be used for many purposes. Because of this there are many alternative routes that use different resources so requiring regular planning and scheduling activities every day. Delivery times are very short comprising only 5 days in to accomplish the processes of cutting, edging, drilling, packaging and shipping. Every day, thousands of orders are generated, each with their own set of process steps. The main operations are controled on the factory floor through an MES system, which collects the beginning and end dates of the orders and stop times of the machines.

Some machines have high setup costs, which can only be optimized with intelligent sequencing according to several attributes, such as color, material, thickness and type of product. Besides, the physical space is also a limiting factor because the pieces are generally large and high production volumes necessitates the use of storage space between operations and in inventory.

The cutting operations require an additional program to generate the cutting plan. This groups parts together onto the same sheets of material with the goal of increasing its utilization. Another constraint is the fact that there are more machines than operators, so that a schedule must take into account the availability of labor.

After making considerable investment in education and training and the acquisition of modern machinery to increase productivity and flexibility over several years, the next challenge to UNICASA was become leaner and improve profitability by reducing inventories and increased productivity.

"We were striving for excellence in production management and we saw basically two paths: begin to spread the concept of Lean through seminars, workshops and training or find a system and partner who could support the initiatives of implementing Lean Manufacturing concepts straight away. We decided to go for the second option because we believe that today

Company and product

Unicasa's main products are kitchens and bedrooms with a wide variety of choices for customers.

Key challenges

- There are many alternative routes that use different resources so requiring regular planning and scheduling activities every day.
- There are more machines than operators, so that a schedule must take into account the availability of labor.entories and increased productivity.
- Unicasa wanted to become leaner and improve profitability by reducing

Solution

Preactor works fully integrated with the ERP system, which has centralized all master data and generates orders. Then, Preactor performs the scheduling of orders and updates the ERP every 15 minutes.

Key Benefits

- Planner has greater control over the plant, with more visibility of production capacity
- Relocating labor to the bottlenecks and priorities
- More security and flexibility to meet the changes in demand

System architecture

ERP: Focco 3i

education in concepts is less important than know-how. Preactor brought us the necessary support to the needs of PCP, which could not be met by our ERP system. Moreover, the concepts of Lean within the tool allowed us an evolution of knowledge without spending time and money on education and consulting. Today we are sure that this option is giving us the competitive edge demanded by the market."

Giancarlo, IT Manager at UNICASA.

THE SOLUTION

The solution works fully integrated with the ERP system Focco 3i, which has centralized all master data and generates orders. Then, Preactor performs the scheduling of orders and updates the ERP. The execution information is updated in Preactor every 15 minutes, allowing rapid rescheduling when significant deviations occur. The exchange of data between systems is accomplished through the application ACCERA CONNECT, which communicates directly with the ORACLE database.

At the cutting stage Preactor chooses the orders and makes the production sequence, generating a list of priorities for further preparation of cutting plans. The edging and drilling operations are scheduled individually using rules to make delivery dates yet minimize setups and working

with inventory levels and actual consumption of materials for packaging.

Because there is a wide variety of items and the constant launch of new products, it was necessary to adopt methods to make data maintenance in Preactor simpler and faster. Rather than inform for each stage of each part which machines can perform the operation and how long the process would take, the solution adopted considers the development of different standards to choose resources and calculate process time. Depending on product attributes such as color, thickness, material and cargo volume, Preactor determines which resources are able to perform these operations, as well as setup and run time. UNICASA uses the Preactor 400 APS, which fully meets all their needs. Besides the conventional monitor, the user also uses an additional 32-inch screen to analyze scenarios and share information for brief meetings. The schedule scenarios can be generated very quickly, usually in less than five minutes. Thus, it is possible to perform several alternative schedules before releasing one of them to the factory.

The project also contributed to changes in the physical layout of the factory. The conveyors that are used to hold and move WIP, which previously had no logical organization, were reorganized according to the type of material and the resource to which the part should be taken making the flow smoother and efficient.

Preactor sequences the orders and chooses the resources as well as the person responsible for the movement of materials and parts to the location defined by the schedule. Thus, the site is more organized, the bottlenecks are more visible and controller of the next stage knows where to find the parts that are scheduled for their resources.

The project took four months to complete, practically without any delay. Before going live with the final solution, a workshop was held with key leaders at the factory with a motivational lecture, demonstrations of the system and load leveling concepts.

RESULTS

The main design goals were met and even exceeded: inventories were reduced by over 50% and productivity increased by 10%. According to Giancarlo da Silva, IT Manager at UNICASA, Preactor has paid for itself in less than one month with these results.

Besides these results, other gains were also identified. The planner has greater control over the plant, with more visibility of production capacity and agility for rescheduling. Decisions on the shift patterns within the plant could be made with more confidence, reducing the need for overtime and relocating labor to the bottlenecks and priorities. The factory now has more security and flexibility to meet the changes in demand within the sales mix and the ability to simulate scenarios assist in making daily decisions. The project had influence on all efforts to minimize waste characterized by Lean Manufacturing:

1. Overproduction: the appropriate strategy for each product type by the curve ABC reduces unnecessary production of low volume items and keeps the level of repeaters;
2. Waiting: the synchronization of operations and the visual control of the work in process reduces waiting queues;
3. Transportation: the organization of the conveyors synchronized with schedule helped in locating and identifying waste due to unnecessary movements;
4. Extra processing: the intelligent scheduling to optimize setups avoids the use of non value added processes and loss of productive capacity;
5. Inventory: the production strategy used for strategic-stock items with constant and predictability demand reduced unnecessary inventory;
6. Motion: the organization of the work-in-process in accordance with the sequencing reduces handling loss;
7. Defective Products: organized and focused planning reduces unnecessary handling of parts, which are mainly the cause of defects and imperfections in the product.

As next steps, UNICASA plans to expand the solution to work with third parties and suppliers of raw materials. In addition, the company is also expanding the deployment to another company in the same group in an attempt to achieve similar results to the first project.

Key Benefit

ROI in less than 1 month

Key Benefit

Inventories were reduced by over 50% and productivity increased by 10%

"Preactor brought us the necessary support to the needs of PCP, which could not be met by our ERP system. "

Giancarlo Fontoura da Silva, IT Manager

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