Preactor® INTERNATIONAL

Preactor & Lean

Installed by more than 3,000 companies in 67 countries around the world.

5 IMPORTANT FACTS ABOUT PREACTOR

Preactor provides a tool to meet your lean objectives. There are 5 key reasons for this:

1 | USES LEAN PRINCIPLES

Preactor automates the process of generating good, feasible schedules that incorporates lean principles to identify inefficiencies and minimize waste.

2 | REDUCES WASTE

Synchronization of materials flow with an achievable schedule reduces unwanted inventories without having to use methods that are inflexible and rely on dedicated resources and a steady mix of product demand.

3 | INCREASES EFFICIENCY

Demand driven manufacturing often means smaller and smaller batch sizes. More intelligent and dynamic aggregation combined with optimized sequencing reduces changeover time and maximizes value-add activities.

4 | NO UNNECESSARY WIP

Visibility of the forward load and available capacity identifies bottlenecks before they arrive so that action can be taken to smooth production flow.

5 | REAL-TIME DECISIONS

As unexpected events occur, planners have a 'what if' tool to test solutions and make better, leaner, decisions in a fraction of the time using traditional methods.

LEAN MANUFACTURING

Lean manufacturing represents a cultural change at all levels of a company. Its prime objective is to eliminate waste, whatever form that takes. The most obvious examples in the production area might be excess materials in storage, work-in process, and finished product waiting for buyers, but it can also be unnecessary movement of staff and many other processes that do not 'add value' to finished items such as setup time. The objective is to deliver orders on-time with minimum inventory with the shortest lead time and highest possible utilization of resources adding value.

Most lean initiatives start with a process called Value Stream Mapping. This really is a formal way of analyzing how we produce things and identifying tasks or areas where no value-add takes place. The process then moves onto what is termed 'lean thinking'. This is about looking at average production rates for each product (Takt Time), load levelling (Heijunka) and process redesign to attack the waste problem.

Process redesign will often use techniques such as kanban to provide an easily understandable and visual method of controlling the movement of materials and controlled by demand order pull rather than what has been called MRP push. Kanban can be central to lean initiatives but, in reality, it is just one step along the road to the ultimate lean environment which is Make (or Build) to Order or MTO.

Why is this? The ultimate test of how lean you are is to ask the question – if you stopped accepting orders today and then waited until the factory stopped how much inventory would you have left? If it is none then you are truly in a MTO environment but if you relied on kanban systems, only final assembly or dispatch are MTO. All upstream processes are Make to Stock. Kanbans are simply a better and more visual way of controlling inventory. It is not the leanest you can be and, while demand is pretty stable they work very well, but they are less well able to deal with variable demand.

THE ROLE OF PREACTOR

Preactor represents the ultimate step to lean manufacturing. It can perform the dynamic aggregation of batches generated by MRP to minimize changeover times by sequencing these smaller batches in a way that they become the 'big batch' we want at critical process steps where resource throughput is a key element of productivity and efficiency. Often there is a trade-off between minimizing changeover time and delivery performance and a 'what if' tool to see the impact of dynamic aggregation is essential to making the right decisions.

Preactor and Lean initiatives are complementary. Value Stream Mapping is used to identify issues to tackle, VPC in the form of kanbans reduce inventory but do not eliminate it. Preactor provides a decision support tool to the planner to help eliminate non-value added activities and get deliveries on time.

For the Leanest Lean you need Preactor.

PREACTOR AT TOYOTA

TPS or Toyota Production System is world renowned in manufacturing as being at the pinnacle of best practise in production control. Many of the lean principles that are used today were developed and pioneered by Toyota.

TPS strives for the absolute elimination of waste, overburden and unevenness in all areas to allow members to work smoothly and efficiently. The foundations of TPS are built on standardization to ensure a safe method of operation and a consistent approach to quality. Toyota members seek to continually improve their standard processes and procedures in order to ensure maximum quality, improve efficiency and eliminate waste.

In an automotive assembly plant component parts are made available to the assembly line from small kanban controlled WIP stores. To balance the assembly line the product mix, sequence and repetitive period is typically pre-defined each month (such as 10 Type A, 10 Type B, 10 Type A, 10 Type B, repeating every day). Each WIP store will contain a number of 'kanbans' or 'totes' of the components and each time one tote is removed from the store a kanban signal is sent to the component production cell as an 'order' to replenish the store. The minimum production quantity is one tote full.

In a perfect world the component cells would simply make one tote full of each item whenever a kanban signal arrives, but the world is far from perfect and the component cell may have to develop a schedule that is very different to that of the main assembly line.

For example, the dashboard injection moulding cell at Toyota's UK plant cannot make all the components one tote at a time because the number of setups required means that they would not have enough capacity to meet their demand. They have to make larger batches, but at the same time they must keep the WIP stores between their minimum and maximum levels. The problem is further complicated by the fact that the component cell works three shifts to achieve the required capacity whereas the main assembly line works two shifts.

Calculating a feasible sequence of component production to match the demand, given the parameters of the demand pattern, tote size, minimum and maximum store levels, production rates, setup times and shift patterns is known as Heijunka (load-levelling). This is a non-trivial calculation that must be carried out every time the assembly mix, quantity or sequence varies.

A Preactor Advanced Planning and Scheduling system with a "Heijunka" scheduling rule is being piloted by Toyota to calculate the component sequences and batch sizes, and has dramatically reduced the time required to perform the calculations.

Many lean manufacturers would see the level monthly demand typically achieved by the automotive sector as unobtainable, and the more variable the demand, the more Heijunka scheduling is required to assist the kanban production control.

Finally, if we extend the concept of Heijunka scheduling across more component cells and the final assembly areas of our lean factory we can achieve visibility of the effects of the variable demand leading to better decision making about priorities, delivery performance, resourcing levels, etc.

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4 OF OUR CUSTOMER TESTIMONIALS

1 | WELLMAN HUNT GRAHAM

"Our OTIF delivery rate has gone from less than 50% to 85-90% since implementing Preactor. It is very much a management tool for us because it allows us the flexibility to do what we need to do for our customers. If we do have a problem which means an order might run late, we can see these weeks away and make the necessary decisions internally about how to respond."

Chris Clarke, Operations Director

2 | VECTOR

"Thanks to implementation of Preactor it has become possible to generate real and feasible production schedules, as well as a substantial time reduction in its preparation. It has enabled a reduction in work in process by about 50% and increased on-time deliveries from 40% to 80%, which helped improve Vector's competitiveness and strengthened its position in the telecommunications services market.

Leszek Kleinert, Planning Manager

3 | WILLERBY HOMES

"With better schedule accuracy and control of the machining processes, things became much clearer. In the absence of inventory on the shop floor, visibility was created and the number of missing and damaged items dropped to a handful. Bottleneck processes were easily identified by Preactor and contingencies were discussed months in advance."

Ian Shufflebotham, General Manager

4 | PP PAYNE

Tight integration is saving more than 10 hours a week. Batch cards are now available at the click of a button as the interface uses the Preactor schedule to automatically release and update orders in Fourth Shift. It also allows the CRM functionality of the Fourth Shift system to instantly make available the end times of jobs to customer services, allowing them to deliver more accurate information to end users.

Steven Leese, Planning Manager