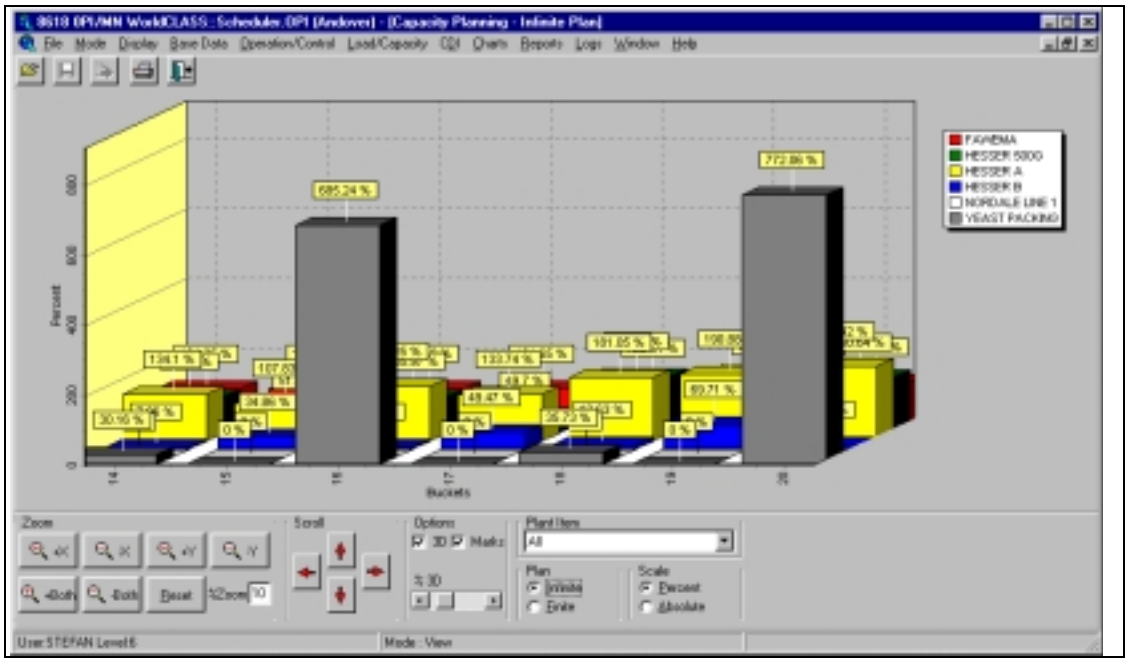
Product Brief: WorldCLASS::Capacity Planner



"At Last - A Breakthrough In Mid-Range Planning"

Finite capacity planning has long been regarded as the 'black art' of manufacturing management. Its function seems simple enough: to match the demand to the available production facilities over a certain timescale. However, the practice of utilising capacity as efficiently as possible still remains an elusive goal for many companies.

Effective capacity planning requires three stages. Firstly, assuming infinite capacity, a plan is created from the demand forecast, taking into account manufacturing methods and delivery dates. Secondly, each resource type is analysed for capacity overloads. Then finally the plan is modified to smooth these overloads, optionally utilising any slack and producing revised plan dates.

While most companies experience little difficulty creating their plan or identifying the overloads, few have mastered the ability to re-plan effectively. This is mainly due to the complexity of modern manufacturing, where a minor change to one element of the plan can have major, sometimes unforseen, effects in other areas.

The WorldCLASS CAPACITY PLANNER provides a breakthrough in this challenging area of production control. For the first time, planners are able to create realistic capacity plans, smooth capacity overloads and produce revised plan dates, automatically and without compromising manufacturing methods.

The Problem In Perspective

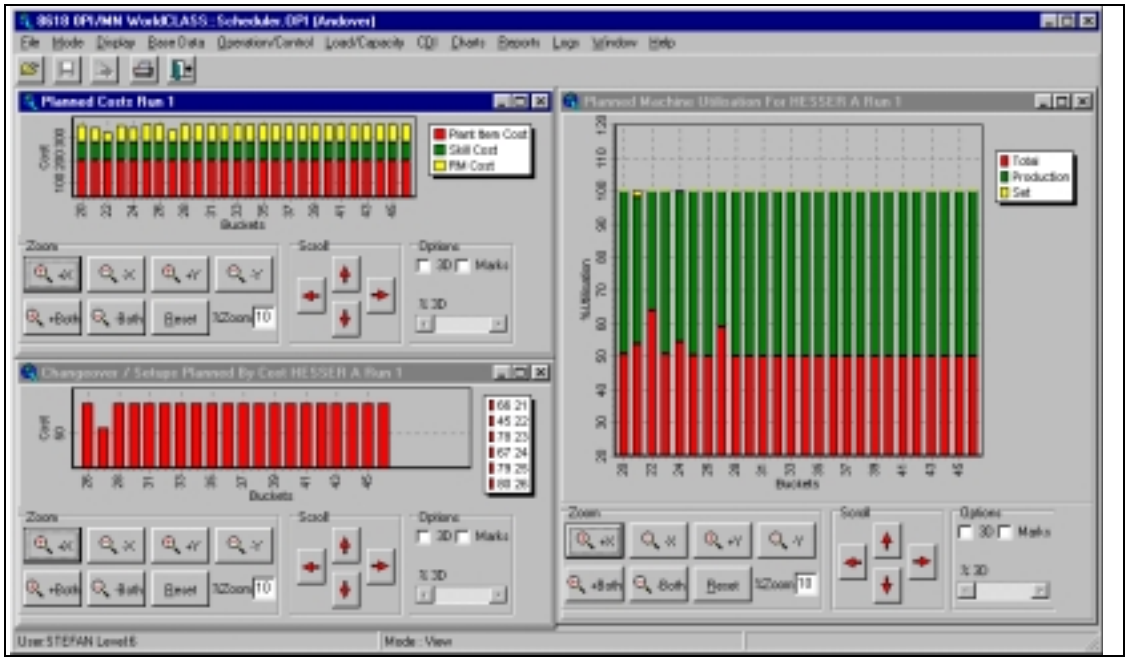
Traditionally, finite capacity planning has been performed manually or by using a spreadsheet. With the growing complexity of modern manufacturing, such methods have proved inadequate. The problem is that planning within one work centre (machine, machine group, product line etc.) is invariably affected by previous and subsequent operations.

Although software tools have been partially effective in addressing the problem, they only plan to an infinite capacity and then identify capacity overloads. They do not provide a means of 'smoothing the load'.

This leads to:

Unrealistic loadings which lead to missed due dates.
Difficulty in estimating available capacity for rush orders.
Extra cost of overtime of shift work.
Stock control with shelf life and storage space constraints.
Raw material availability and transport / logistics of deliveries.
Bottlenecks of machines and people.
Extra work for production planners and shift teams.

The WorldCLASS CAPACITY PLANNER addresses these problems by taking capacity planning beyond simple static analysis and into dynamic control where planners can act upon information to create revised plan dates.



"A powerful decision support tool" the WorldCLASS CAPACITY PLANNER liberates managers from the rigour of systematic, step-by-step, day-by-day planning.

Smoothing The Peaks And Troughs

The WorldCLASS CAPACITY PLANNER smoothes the peaks and troughs of production imbalance by bringing forward or pushing back batches.

The system first tries to move the highest priority order or batch in the overload 'time bucket'. The priority can be customer or product based. Alternatively it can be a variable calculated from, for example, the closeness to due date or lateness.

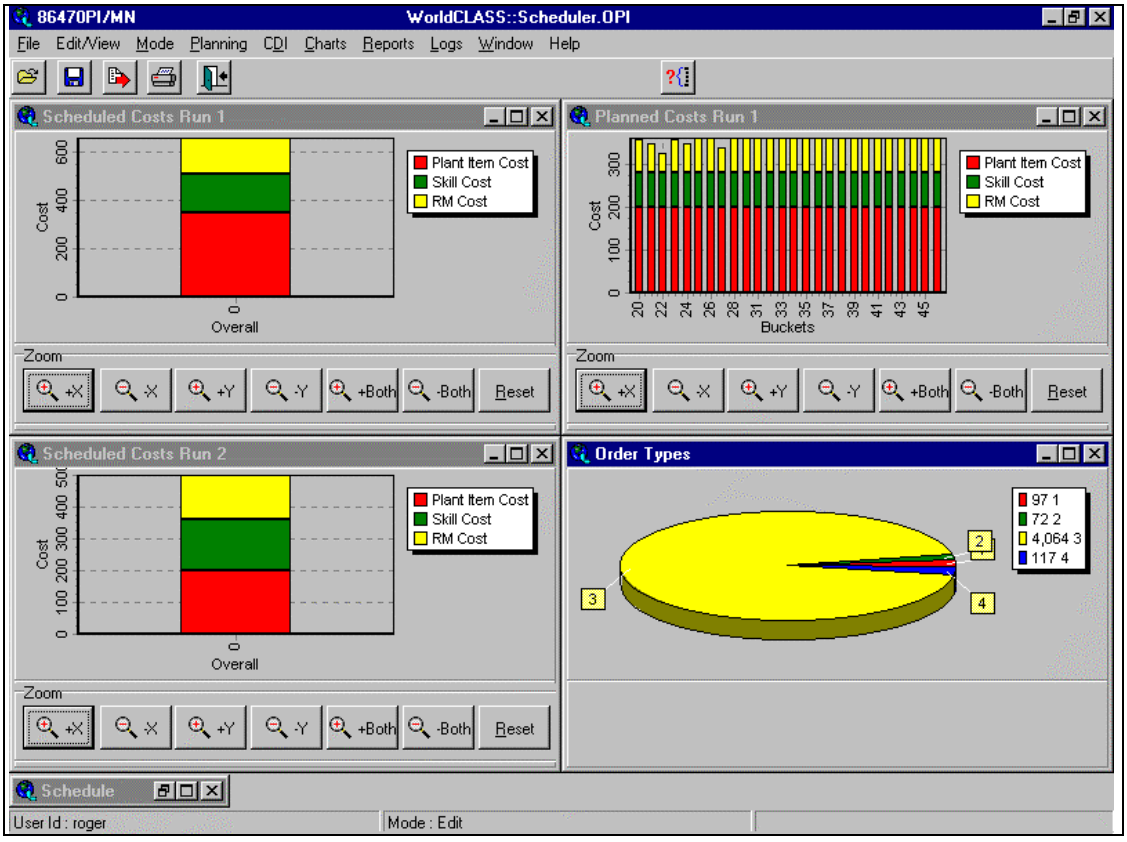
This order/batch is then moved forward, on the same resource or resource type, to the next slot of available capacity. The previous operation is then identified from the manufacturing data and also moved forward at least the same amount of time to the next available capacity slot on the resource. In this way, the timing relationship between operations is maintained.

This process is continued until all previous operations are successfully re-planned or one is moved forward into the commitment horizon where no changes are allowed. In the latter case, the original plan dates are reinstated and the next highest priority order/batch is brought forward instead.

If none of the overload can be moved forward, then the lowest priority order/batch is selected and moved out. This may result in a revised due date, which is why the lowest priority is selected.

If the planned resource is flexible, such as labour, then overtime or extra shifts can be planned and the effect analysed using the 'what-if' tools within the WorldCLASS CAPACITY PLANNER.

"With the WorldCLASS CAPACITY PLANNER, management's decision support is improved, customer service is enhanced and 'guestimating' is all but eliminated".



THE WorldCLASS CAPACITY PLANNER - How It Works

The WorldCLASS CAPACITY PLANNER has access to a manufacturing database that includes information on forecast demand, orders required delivery dates resource availability, planned shifts and manufacturing methods. Combining this data with an in-built algorithm, the system initiates a three-stage planning process.

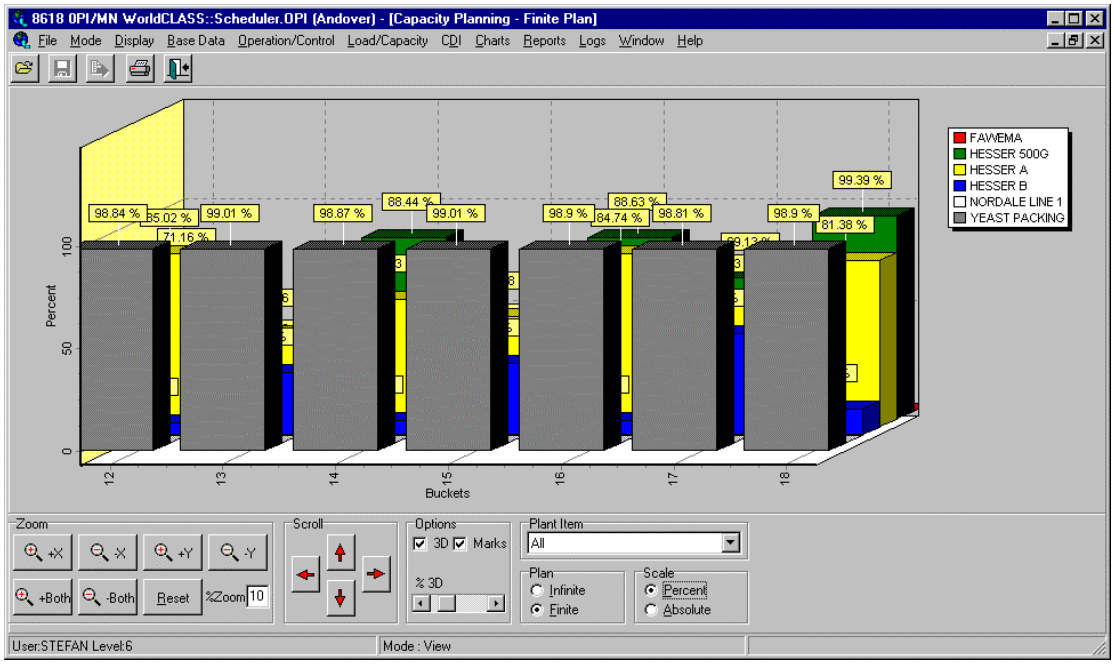
In the first stage, demand is planned either forward from a launch date or backwards from a due date, assuming infinite resources. In the second stage, the resource profile is compared against the planned availability for each resource and the overloads identified. In the third stage, the plan is modified to smooth any overloads.

Smoothing
The WorldCLASS CAPACITY PLANNER's smoothing algorithm works by moving forward the highest priority order or batch in the overload 'time bucket' while taking into account the previous operations.

If any revised plan dates fall within the commitment horizon - where no changes are allowed - the next highest priority order/batch is selected instead. If none of the overload can be moved forward, then the lowest priority is moved out.

The Result
The result is a set of plan dates - including revised launch dates or delivery dates - which can be fed back to a plant level system such as ERP (or MRP) to check for material availability.

The WorldCLASS CAPACITY PLANNER can also be used in 'what-if' mode to predict the consequence of factors such as rush orders, seasonal peak workload, extra shifts and planned maintenance.



Integration

The WorldCLASS CAPACITY PLANNER can be used on its own or integrated with existing MRP, stock control or financial systems. It may also be employed as a pre-stage to the WorldCLASS SCHEDULER and WorldCLASS SFDC systems.

Please contact the WorldCLASS sales office for further information, on: +44 941 111392.