

# Manufacturing Pharmaceuticals

## Eliminating constraints to meet customer demand

**Customer service levels at one of Australia's largest pharmaceutical manufacturers are at a 30 year high as a result of a supply chain review program which streamlined production in its NSW manufacturing site.**

This pharmaceuticals site based in NSW produces a range of high demand consumer healthcare products. Consequently a significant number of customer orders are from grocery traders, an area where the company was not keeping pace with demand. With an ingrained culture of outstanding customer service, there was an urgent need to address the escalating back orders which were at \$2 million worth and climbing.

A variety of traditional approaches were implemented in-house to address the problem, including incorporating extra shifts and producing higher volumes of product. However, this did not equate to the required amounts of each product being produced, resulting in excess stock and climbing inventory levels in some areas and a persistent inability to meet demand in others. Further exacerbating the situation was the practice of fixed three month production schedules, which were inflexible and did not allow for adjustments according to demand or other variables.

With back orders climbing and no clear way to address the problem, SMT were brought in to assess the situation.

### The Solution – Theory of Constraints

SMT undertook a pilot study using the Theory of Constraints which involved reviewing the various areas of operations, identifying any significant constraints and then revisiting the relevant business management policies that applied to the problem areas.

To illustrate how certain aspects of the manufacturing operations were fostering constraints and to test possible solutions, SMT built a model of the manufacturing operations. Using finite capacity scheduling software to ensure it was a realistic business model, SMT then applied real customer demand levels. This allowed the team to have a comprehensive view of the business operations and how orders were processed – an activity that quickly identified the main production constraint.

*"Finite capacity modelling provides a very powerful tool that highlights any problems and demonstrates the measurable benefits of addressing the main constraint,"*

said Greg Bywater, Director, SMT Consulting.

*"In many organisations it's the first time a manager is afforded such a clear view of operations and presents a strong argument to focus on key areas, as opposed to wasting time fixing areas that really don't need it."*

SMT proceeded to identify a series of actions that could open up the major constraint and increase throughput of that area by 50 percent. The aforementioned model was utilised to simulate the action plan to demonstrate the outcomes of eliminating the constraint.

SMT was subsequently retained by the pharmaceutical giant to implement the plan.

#### The key areas the action plan covered included:

##### 1. Operation policies

Previously all manufacturing equipment was given equal priority regardless of demand or production complexities – the constraining resources were elevated and given priority and schedules were designed to optimise the use of this resource and synchronise other activities to support its throughput.



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### 2. Enabling software

SMT integrated Manugistics Finite Capacity Scheduling software to develop realistic and synchronised production schedules. This software synchronised operations activities, thus optimising delivery performance. The result – the right products are now being produced at the right time.

### 3. KPIs and workplace practices

Most businesses tend to focus on units or quantity as the major KPI. This often results in production staff prioritising easy to make, high throughput products leading SMT to introduce sequence and time as balancing KPIs. In order to achieve customer service and synchronisation across the plant, product must be produced as planned, in the right sequence and on time. These global production KPIs are known as the Schedule Adherence Scoreboard. This new approach has been adopted as a management tool for the entire workforce, providing targets for each month as well as realistic targets for each shift. These goals act as an effective tool to engage and integrate the entire site.

### Management and culture

SMT invested time with all levels of staff even attending midnight shifts with the operations team, to ensure they thoroughly understood the business and the concerns and requirements of all the staff.

SMT ensured that all levels of staff understood the wide-ranging benefits of the new supply chain program which resulted in enthusiastic staff across the company, who were committed to making the changes.

SMT understood the importance of having senior management on side and then worked with the shop floor to get them to commit to the KPIs and objectives, which is why such a major culture change was so successful.

### Key benefits

At the completion of the SMT implementation, the pharmaceutical manufacturing site experienced wide-ranging benefits including:

- 100 percent reduction in backlog orders
- 30 percent increase in capacity
- Consistently producing to schedule
- Close to 100 percent customer service levels
- Introduction of safety stock levels to cover fluctuations
- No out of stocks
- Trained staff to sustain changes

### The future

The success of the review has encouraged management of this pharmaceutical corporation to apply this approach in other areas of the business, with an implementation currently underway at two other sites in Australia.