



## Greater Planning Visibility from i2 Delivers Significant Cost Savings to ACI

ACI Glass Packaging has been manufacturing glass containers in Australia for more than 100 years. Using i2 Supply Chain Management™ (SCM) across its five factories located in Brisbane, Sydney, Melbourne, Adelaide, and Perth, ACI has achieved a greatly enhanced planning capability and has significantly reduced its inventory and the costs associated with warehousing and freight.

ACI is an operations-driven organisation that remains sharply focused on its strategic intent, low cost, and high quality. As the largest supplier of glass packaging to major food and beverage conglomerates, ACI has a dispersed and complex operation in Australia, with production facilities in Brisbane, Sydney, Melbourne, Adelaide, and Perth. The company's 31 machine lines produce five colours of glass, 500 products, and 2,500 SKUs. Each of ACI's customers has its own pallet requirements, resulting in SKU being determined by pallet.

Like the individual pallet requirements, there are many overlaying complexities in ACI's supply chain. For example, different products have to be made on special machines, and there are a variety of manufacturing processes involved. A food jar, for instance, requires a different manufacturing process than it does to make a wine bottle. One furnace can only produce one colour of glass at any one time, and the changeover time to produce a different colour can be up to a week.

This means ACI needs to hold buffer stock of certain coloured glass when another colour is in production to adequately meet demand. This tradeoff between colour production scheduling and stockpiling of other colours was one of the biggest problems ACI faced.



### Challenges

- Complex production processes
- High supply chain costs
- "Make" versus "move" decision-making

### Solutions

- Constraint-based planning and scheduling
- Greater visibility across the business
- Broader and deeper strategic decision-making

### Results

- Payback in 12 months
- Reduced inventory
- Reduced transportation and warehousing costs

### Company Description

**ACI Glass Packaging**, an affiliate of Owens-Illinois Inc., based in Toledo, Ohio, USA, has been manufacturing glass containers in Australia for more than 100 years. The company employs nearly 1,800 people who contribute to combined glass production totals of more than 4 billion containers per annum and total sales in Australia and New Zealand that are approaching A\$1 billion.

***“We needed a sophisticated supply chain tool, and we wanted to partner with a company that not only had the technological expertise, but one whose size and experience matched ours. i2 understood our needs and what we needed to do in order to move forward and reduce costs in our supply chain.”***

***— Rob Barnett  
General Manager  
ACI Glass Packaging***

The market and geographical complexities unique to Australia also have a direct impact on ACI’s operational costs.

Rob Barnett, General Manager of ACI, explained, “Australia’s a sophisticated market with a small population spread over a vast distance, which means that it’s difficult to get economies of scale in each location. In Australia, unlike Asian or European markets, we are forced to specialise the production in each location and support the demand for other products in that area, from other factories. For example, 70 percent of all wine filled in this country happens within about 400 kilometres of Adelaide. So it makes sense to make all of your wine bottles there. However, in Adelaide there’s also demand for other types of packaging. Therefore, in Adelaide all of our assets are exclusively focused on wine, and we freight in all other products to service demand.”

ACI’s Melbourne and Sydney manufacturing facilities, on the other hand, produce both food and beverage packaging, whereas the sites in Brisbane and Perth produce only beverage packaging. It’s important that ACI be able to take production and transportation constraints into consideration to drive down costs within the business and ensure that customer demand is met.

Food and beverage packing is also seasonal, which means that the timing for when the customer’s product is ready to be packaged is determined by weather conditions and other variables. Further, ACI’s customers can also typically consume containers much faster than ACI can make them, so in the off-season ACI has to stockpile in order to meet customers’ various and varying peak demand periods.

ACI identified that it needed a comprehensive decision-support tool to optimise production, inventory levels, transportation, and warehousing in its complex supply chain. This was to play an important role in removing inefficiencies from the business and improving customer service.

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### **Why i2?**

“We needed a sophisticated supply chain tool, and we wanted to partner with a company that not only had the technological expertise, but one whose size and experience matched ours,” Barnett said. “i2 understood our needs and what we needed to do in order to move forward and reduce costs in our supply chain.

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### **i2's Contribution**

ACI uses i2 Supply Chain Management as a day-to-day operational planning tool and for strategic decision support. In particular, i2 SCM is used to help ACI with factory scheduling and supply planning. The products that have been implemented at ACI are i2 Factory Planner™ and i2 Supply Chain Planner.™ i2 solutions are integrated to ACI's SAP enterprise resource planning (ERP) system, using data from this system to generate sophisticated plans.

i2 enables ACI to optimise factory production, taking into consideration constraints such as glass colour limitations, machine type and availability, production processes, and job changes. Weekly factory plans are generated, which go out to 13 weeks. Supply planning is done monthly and provides much greater visibility of overall business operations.

Based on demand and production constraints, plans are generated to optimise the “make” versus “move” decision in each geographic location. The supply plans also provide data used to analyse ACI's colour issues in the production line and to determine whether it should increase or decrease certain colour production periods based on inventory already stockpiled and on projected demand.

The executive team uses the output from the monthly supply plan as a basis for key decision-making regarding capacity adjustment. Team members can perform detailed “what if” analyses.

“The main things we're looking at are: Where's our inventory? What's our stock position? Where's the demand? This information gives us a full set of financial documents on which to base sound business decisions,” Barnett said.

## ACI's Results

ACI has identified that the payback from the i2 implementation, in terms of inventory and freight reduction, was less than 12 months. Forward visibility has meant that stock levels have been significantly reduced.

"i2 helped us identify that, for a number of our high-volumes lines, we had too much stock, and since then we've been progressively reducing the amount of stock to reduce costs," Barnett said.

Demand is anticipated and production at each manufacturing facility is planned accordingly, minimising the need to ship stock from other locations. Freight product around the country if a site was out of stock was proving to be costly. Using i2, ACI has taken a substantial amount of money out of freight redeployment.

"Rather than simply taking out short-term warehousing, or incurring short-term freight costs to solve problems, i2 has added a strategic longer-term focus to managing these issues. The software minimises freighting by determining whether we can do anything between now and when the product is required to avoid moving the stock," Barnett said.

In the past, ACI spent 90 percent of the time expediting and 10 percent of the time planning. Now it spends very little time expediting, and a large amount of time is spent analysing, planning, and then talking through scenarios both internally and with customers.

i2 SCM has given ACI more control over its planning process.

"There's now time to manage the issues rather than reacting at the last minute," Barnett said. "We can adjust our production plans to meet customers' demand. If they suddenly need to increase their demand because they have an export order that was not forecasted, we can easily add that back into the model and do a run to determine whether we can fulfill the order in the customer's time frame."

Since implementing i2, service levels have been defined. ACI now assigns priority categories and service levels across certain customers and plans production and warehousing in a way that makes most sense to the customer's needs. Using i2, ACI has found that it can be more collaborative and add visibility to planning discussions with customers.

"i2 helps to take all variables and constraints into account and guide the decision-making process for production and warehousing. It's adding more focus to the strategic planning of products. i2 has helped to give us reliable knowledge about the most efficient way to meet demand for our products, and the resulting focus has enabled us to remove significant costs from our supply chain," said Rob Barnett.



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