

# mySAP™ Supply Chain Management at Parbury FHS





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## EXECUTIVE SUMMARY

### Strategic Goals

- Become the most comprehensive one-stop supplier of branded building products and solutions in niche markets
- Excel in customer service and delivery performance and enable premium pricing
- Achieve supply chain excellence and improve responsiveness to fashion cycles
- Increase shareholder value

### Approach

Parbury acquired Furniture Hardware Supplies (FHS) to extend its range of building products and to develop a one-stop supply capability within its market. The two entities were consolidated, redundant warehouses and processes in the supply chain were identified and eliminated, and the information systems were merged. Parbury FHS performed a rigorous market analysis and developed a multidimensional typology of supply and demand patterns, partly based on the Supply Chain Operations Reference (SCOR) model. The company also addressed its manufacturing constraints to improve manufacturing throughput, and it integrated its supply chain planning tools with its execution systems.

The key enablers of this approach were:

- Strong top-management commitment and involvement throughout the project
- Active change management
- Software solutions enabling all these changes: mySAP™ Supply Chain Management (mySAP™ SCM) software, SAP® R/3®, and SAP® Business Intelligence

### Results Achieved over the Period September 2002 to February 2003

- Inventory accuracy advanced from 92% to more than 98%.
- Distribution sites were reduced from 18 to 12, and central locations, from three to one.
- The inventory value was reduced from \$A 27 million to \$A 18 million.
- Stock availability increased from 80% to 90% and overall delivery in full on time (DIFOT) is now at 91%.
- Manufacturing throughput increased by 20%.
- Production lead time was reduced by up to 40%.
- Customer satisfaction increased.

- Freight costs decreased from 5.5% of sales initially to approximately 4%.
- Sales per employee increased by more than 20%.
- For specific product lines, order-to-ship cycle time was reduced by 40%.
- Cross-functional systems and information integration have increased so that they are significantly higher at Parbury FHS than in the average Australian company.
- Comparative supply chain performance as measured by the supply chain performance indicator (SCPI) has increased so that it is 10% higher than in the average Australian company. The SCPI is an aggregate benchmark measure consisting of more than 20 supply chain key performance indicators (KPIs).

## INTRODUCTION

Parbury FHS, based in Sydney, Australia, is a medium-sized supplier of premium products used in the finishing of kitchens, bathrooms, and laundries and in the manufacturing of furniture. The company generated more than \$A 130 million (US\$ 86.33 million) in sales in 2002. It supplies about 7,000 customers in Australia and New Zealand and currently employs approximately 400 people.

Parbury FHS operates in both the decorative products market (for example, laminates, bench tops, and cabinet doors) and the market for functional hardware and storage systems (for example, hinges, high-quality handles, drawers, and a wide range of internal racking systems). The company supplies neither end consumers nor building companies; instead, it operates through transactional customers and cabinetmakers. The latter actually install the products for private households or for businesses (for example, in apartment blocks).

The market is competitive, and the customer base is increasingly demanding and heterogeneous. Large customers order up to 100 kitchens per week, whereas small ones place only one order per week. Because kitchens are high-fashion products, obsolescence is a constant threat to manufacturers.

In its production plant in Sydney, Parbury FHS manufactures low-pressure melamine panels and kitchen cupboard doors, which account for 40% of its sales revenue. Premium decorative panel products and cabinet hardware, which generate 60% of total sales, are imported from various – mainly overseas – suppliers in the United States, Canada, Austria, Italy, and elsewhere. Both factory output and trading goods are distributed through a central warehouse in Wetherhill Park, Sydney; through 10 branches in Australia; and through two branches in New Zealand.

In 1999, Parbury acquired FHS to extend its range of building products and to develop a one-stop supply capability. Parbury's plans to consolidate its activities with FHS's operations soon were viewed differently, because only about a year later, Parbury FHS itself was taken over by Alesco Corp., Ltd., a publicly traded Australian company serving the building, construction, mining, and automotive industries. The takeover marked a new era of management style and corporate governance at Parbury FHS: From then on, the shareholder value paradigm ruled the company, and rigorous targets – inventory reduction by 25%, supply chain cost reduction by 10%, throughput increase by 20%, and so on – were set.

To achieve these targets, a complete review and redesign of the supply chain was inevitable. It was also evident that a software solution was needed to support the changes to be made in business processes. Although Parbury FHS had operated SAP R/3 to support its execution processes since 1997, managers at the company realized that they would need to couple their execution systems with a new class of supply chain planning software to address the company's requirements in the future.

After considering various software solutions, Parbury FHS selected mySAP Supply Chain Management (mySAP SCM) to support its specific supply chain requirements. Today, Neil Freeland, CEO of Parbury FHS, has good reasons for being satisfied: 'Through the process, we really reduced personnel from 500 people to 400 people. We reduced the number of sites from 18 to 12 around Australia and New Zealand. We reduced inventory levels from about \$A 27 million to \$A 18 million, where we are now. Our service level has picked up from the low 80s to 90% ... We have built up our level of inventory accuracy and forecasts to 98%.'



## BUSINESS

Parbury was established in 1834 as an Australian trading company focusing on the import, wholesale, marketing, and distribution of a variety of commodities and manufactured goods. Despite the fact that it was publicly listed in 1960, the company continued to be run in a 'family-business style', in which employees were the gatekeepers of organizational knowledge.

In the 1990s, Parbury started to focus on supplying high-quality products to the building industry. To extend its range of building products, develop a one-stop supply capability within the kitchen cabinet and commercial fit-out market, and position the company for long-term growth, Parbury, as mentioned previously, acquired FHS in 1999. One year later, the company became a member of Alesco Corp., Ltd., a publicly traded Australian company serving the building, construction, mining, and automotive industries. This shift in ownership was accompanied by a sharp increase in pressure on the management of Parbury FHS to generate more shareholder value.

Increasing customer sovereignty in the markets served by Parbury FHS reinforced the need to further increase service levels. However, the only feasible way to significantly increase profitability was to reduce costs along the supply chain. Parbury executives were aware of the potential synergies that the acquisition of FHS had created, and they were determined to exploit those synergies. To achieve this, an ambitious and, to some extent, risky 'supply chain project' was launched in 2000, but top management was confident and determined to achieve the targets, because it simply had to.

Alesco's targets for Parbury FHS were rigorous and not primarily growth oriented. Because competition in the kitchen market had increased steadily, Parbury FHS chose to implement a differentiation strategy. This strategy concentrated on upper-end niche markets, extending its one-stop supply capabilities and even providing nontraditional services such as the supply of software solutions to selected customers. In January 2002, for example, Alesco entered into an exclusive Australian distribution agreement with 20-20 Technologies, of Quebec, Canada, one of the leading Web-based kitchen design software companies. This software solution allows Parbury FHS to create a fully integrated sales tool, linking end consumers to cabinetmakers.

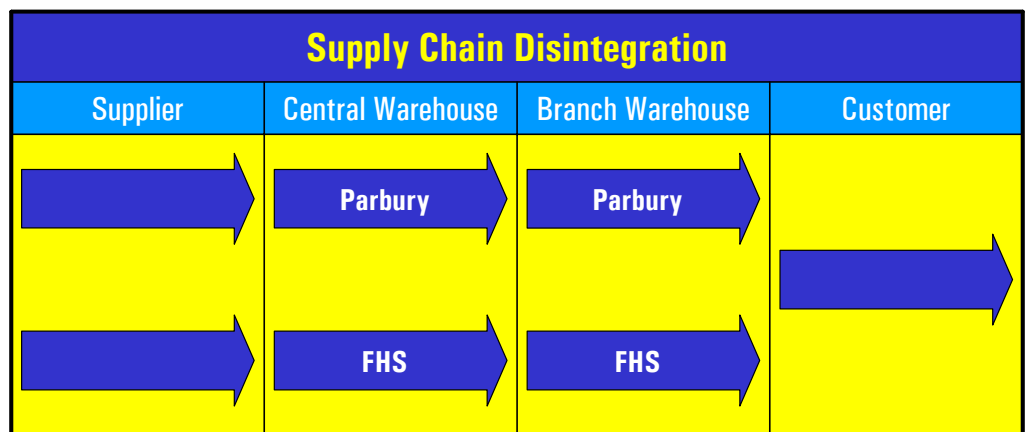


# SUPPLY CHAIN CHALLENGE

## The General Problem

After the acquisition of FHS, it became obvious that Parbury FHS would not be able to exploit the potential benefits of this acquisition without a comprehensive review and redesign of the supply chains of both organizations. Parbury and FHS had organized and managed their supply chains in a very traditional manner, which Parbury FHS CEO Neil Freeland explains 'lacked a forward view.' All stages in the supply chain were planned and controlled independently (see figure 1), and, according to Paul Goddon, former supply chain manager, the overall supply chain management philosophy was as follows: 'To achieve high levels of customer service, the business requires high levels of inventory.'

**Figure 1: Supply Chain after the Acquisition of FHS**



After Parbury FHS had been taken over by Alesco, a new supply chain management paradigm was introduced. Says Paul Goddon, 'High levels of customer service can be achieved through a combination of integrated systems, ... and sound supply chain principles that tailor the supply chain to meet specific demand streams.' The first step to achieve this objective was a detailed analysis of the problems with the old supply chain.

## Integrating the Businesses

Parbury and FHS served the same customer base through two different supply chains. Because of the nature of the products, vendors would continue to be different, but the 'Central Warehouse' and 'Branch Warehouse' stages in the supply chains could obviously be considered for integration (see figure 1).

After the acquisition of FHS, the two companies had three main locations and 18 distribution branches. The geographic dispersion of the sites suggested that some of them could be closed, and thus some of the potential benefits of consolidating the two companies could be realized.

One of the first steps toward integration was merging the three main locations into one. Parbury FHS executives were forced to rethink its inventory management strategies and their warehouse design. 'We had to re-disburse the inventory we had, put that on the branch level', says Glen Egan, former operations manager. The use of SAP R/3 certainly facilitated this process: 'We had excess inventory from the days we did not have the SAP system for controlling the inventory.'

The next challenge was to optimize the distribution network. The 18 branches tied up too much inventory and caused significant overhead cost, but sales staff considered them important for achieving high service levels, as Greg Bywater, director of SMT Consulting, of Sydney, Australia, the company engaged by Parbury FHS, realized: 'Sales people tend to love to be surrounded by products.' Parbury FHS executives had to make sure that the reduction of the number of warehouses had no negative impact on their service levels. In addition, the sales staff had to be educated and reassured that customer service would not be adversely affected.

The consolidation of Parbury and FHS also brought about many technical challenges. Data had to be integrated, all numbering schemes have to be merged, physical storage strategies had to be unified, and – of course – SAP R/3 had to be implemented in FHS.

## **Full-Service Provision in a Competitive Environment**

In early 2000, robust residential renovation activity, low interest rates, and consumer confidence in a strong new-home market underpinned moderately growing demand for building products all across Australia. The acquisition of FHS by Parbury was a response to this healthy demand, as well as to increasing competition and higher levels of sophistication among customers. The acquisition also provided significant opportunities to provide customers with a more comprehensive product range and improved service.

Parbury FHS occupied a unique position in Australia and New Zealand as the only full-service provider in its building industry markets, but the company was facing growing challenges. Rivals were broadening their product lines, and they were achieving cost reductions and customer service improvements through business process reengineering and e-business initiatives. While Parbury FHS was changing from a provider of products to a full-solution provider, other companies were undergoing similar transformations. In particular, key competitors such as Laminex had progressed in their information technology programs, had begun to offer computerized design services, and presented increasingly attractive options to building product customers.

To compete effectively, Parbury FHS needed to improve its supply chain performance and cost; the business processes of the merged company were not performing at the levels necessary to grow profitably in the emerging competitive environment. The time frames necessary to commit to delivery of finished goods to customers were not competitive; customer order handling and service processes were complex; operations were not sufficiently flexible to enable rapid response to shifting demand; market share was not growing rapidly; and inventory carrying costs and other expenses inhibited achievement of adequate financial returns. These challenges

were compounded by the fact that 60% of Parbury FHS products were externally sourced. Lead times for products such as laminate surfaces from Wilsonart in the United States and cabinet hardware from Blum in Austria were usually long. The infrastructure to support any improvements was also inadequate: Forecast accuracy was low, inventory data and related information were inaccurate, and the supply chain planning applications that had existed in Parbury FHS were not integrated with their execution systems.

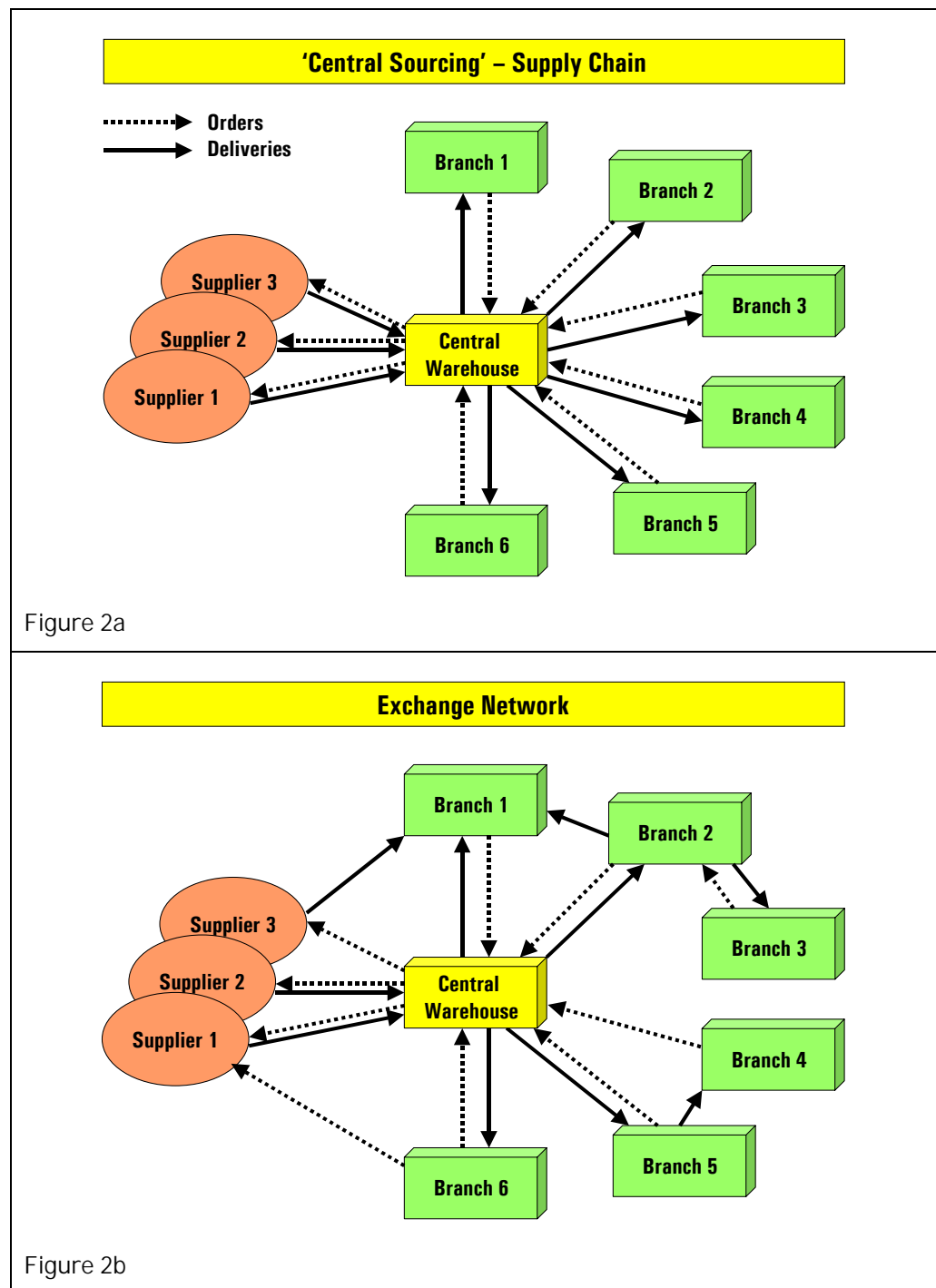
## Long Lead Times and High Inventory Levels

Sixty percent of Parbury FHS's sales are made with products imported from overseas, most of which have very long lead times. The remaining 40% of sales are generated with manufactured products, all of which are make-to-order (MTO). Keeping high service levels in this environment is a challenge, which Parbury FHS addressed by keeping inventory levels high both for raw materials (in the central plant) and for trading goods (in the central warehouse and in the branches). The branch managers were particularly inclined to use large safety stocks, as Neil Freeland notes: 'Everybody had those security blankets of stock', because 'our customers do not keep stock.'

Another reason for high inventory stemmed from the inflexible organization and inadequate management of the supply chain itself. For trading products, there was only a single ordering process: Customer → branch → central warehouse → supplier. Deliveries had to follow the same path in the other direction: supplier → central warehouse → branch → customer. Every product passed the same way through the supply chain (see figure 2a). Branches could source only from the central warehouse and not from other branches or directly from the supplier, which would have given them the opportunity to bridge short-term stock-outs and to reduce the customer lead times.

Parbury FHS's 'central sourcing' system was both inflexible and slow. Each procurement cycle consisted of three orders and three delivery processes along the same path. In dynamic exchange networks (see figure 2b), however, orders and deliveries can follow different channels, stages in the supply chain can be bypassed, and units can source from other units that are at the same stage in the supply chain (for example, branches receive orders from and deliver to other branches).

Figure 2: Alternative Supply Chain Models



Parbury FHS executives were convinced that adopting an exchange network had the potential of reducing lead times, inventory costs, and handling/breakage costs, but the company did not have an application platform in place that could support planning and control of flexible supply chain networks. A well-configured SAP R/3 system can handle the execution part in those networks, but it is not an effective platform for network planning. Parbury FHS had to address this problem, because

the high holding costs of the existing inventory levels were not the only problem. Unexpected fashion changes often left Parbury FHS with high obsolescence costs.

Lead times were also an issue in manufacturing, because Parbury FHS failed to analyze and eliminate critical capacity constraints. In fact, those constraints were completely ignored when the company's network and planned production were designed. The high inventory levels at all stages in the production camouflaged the real dilemma and constituted a problem in itself.

## Lack of Visibility

Forecast accuracy is a key success factor for Parbury FHS because of the long lead times and the short fashion cycles. 'With our colors and other features, we are in a fashion business in which you need information to know whether colors are becoming fashionable or unfashionable', says Neil Freeland. In addition, those fashion trends vary from state to state and from region to region. 'We needed much more visibility on demand.'

Before the launch of the supply chain management project, Parbury FHS achieved an annual average forecast accuracy per product group of about 80%. This value had to be increased to achieve the targets set by Alesco. But with the support tools in place at this time, this seemed to be impossible. The main problem was that the forecasting applications that Parbury FHS used were not integrated with the execution system, which was a reorder-point planning system. High forecast accuracy can directly translate into high service levels only if the forecasting and planning systems are fully integrated with the execution system.

Another problem was lack of transparency of profitability, especially of product variants. Wilsonart laminates, for example, come in 240 colors, three sheet sizes, and three finishes. Tracking the profitability of each of those 2,160 stock-keeping units (SKUs) is not easy, but it is important in order to be able to identify which color-size-surface combinations are profitable and which are not. In total, Parbury FHS had more than 7,000 SKUs – and significant challenges in analyzing their performance.

Parbury FHS did not distinguish between customer segments, customer service-level requirements, and product demand characteristics. Hence, uniform processes had been in place to serve all supply-and-demand streams, and better balancing of resources and service levels could not be achieved.

## Summary of Challenges

Parbury FHS's problems were obvious, and so was the need for significant changes in the supply chain. The key goals associated with the supply chain management project launched in September 2000 included enhancing the ability to respond to customer requirements, improving market share, and reducing costs throughout the operation. This meant reducing order-to-shipment cycle times, improving product availability, and enhancing on-time and in-full delivery performance. With regard to costs, the following changes were paramount: reducing inventory (by 25%); reducing warehouse rental, labor, and freight costs; and improving factory utilization and throughput. All these measures were expected to decrease total supply chain operating costs by 10%. In addition to improving financial performance, reducing inventory would provide operating flexibility to enable better responsiveness to fashion cycles. Improving throughput would allow better utilization of assets, higher return on net assets, and enable deferral of capital expenditures.



# IMPLEMENTATION

## Systems Analysis

The Parbury FHS supply chain management project was launched in 2000, after initial consultations with SMT Consulting, the Sydney-based consulting firm with strong expertise in the supply chain arena and in change management. SMT Consulting was employed as main consultant for the whole project and provided essential expertise in project management and supply chain redesign. PLAUT Australia, in Sydney, was engaged later and focused on the SAP-specific aspects of the project.

Managers at Parbury FHS had a clear idea of what they wanted to achieve in two years and how to achieve it. Because Alesco set the strategic and tactical objectives, there was little room for hesitation. It was also clear that additional software was necessary to support the plans. The strategic roles of this application would be to:

1. Provide the ability to calculate dynamic safety stocks and to tailor inventory to meet its customer service objectives
2. Provide visibility to all stakeholders who manage the forward view through 'planning books' (marketing, branch managers, product managers)
3. Provide visibility to exception events through alerts
4. Incorporate and use market intelligence
5. Manage the constraints of the organization

Parbury FHS selected the SAP supply chain planning tool SAP® Advanced Planning and Optimization (SAP® APO), which is part of the mySAP SCM solution. Neil Freeland remembers: 'We are here now with 18 branches; I want to reduce them to 12. I am here now with \$A 27 million worth of stock; I want to reduce that to 19. I am here with 500 people; I want to reduce the number of employees to 400 people ... I knew that SAP was a good vehicle in what we are using it for ... I knew nothing about SAP APO, but I knew what I wanted to achieve ... and every question I had was being answered favorably by SAP.'

It was decided to only install three components of SAP APO initially: demand planning (DP), supply network planning (SNP), and production planning and detail scheduling (PP/DS). The project also included a separate installation of SAP® Business Intelligence to enable supply chain performance management activities, such as the monitoring of relevant transaction data, KPIs, and financial variances.

When Parbury FHS launched the mySAP SCM project in 2000, it had already three years' experience with SAP R/3, which had been implemented in Parbury in 1997 and in FHS in 2000. The most important reasons for the original adoption of the SAP R/3 system were the Year 2000 problem and the fact that the old systems could not handle the amount of transactions any longer. Parbury FHS could therefore build on existing internal SAP knowledge and could benefit from the close integration of its execution and planning systems SAP R/3 and SAP APO.

## Project Management and Control

During the project preparation stage, a project team and a cross-functional steering committee were formed. The project team consisted of representatives from operations management, supply chain management, information technology (IT), and purchasing.

The steering committee, which was responsible for oversight of the entire implementation, consisted of:

- CEO
- Supply chain manager
- Marketing manager
- Warehouse manager
- Head of IT
- Chief financial officer (CFO)
- One branch manager
- SMT Consulting representatives

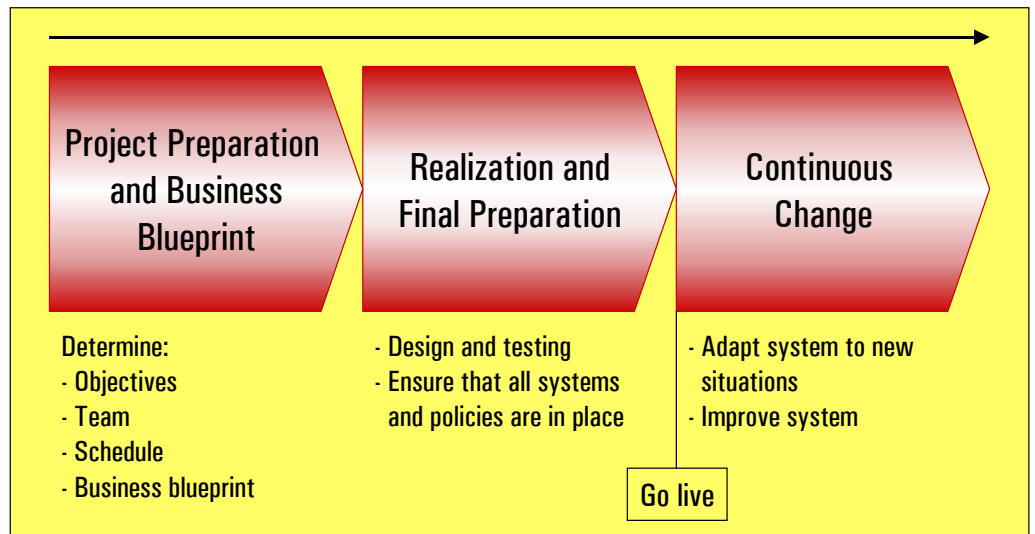
The steering committee established specific milestones and followed strict project reporting and review processes covering the implementation to support achievement of supply chain performance goals. The committee planned to have the project completed within 12 months.

The CEO headed the steering committee and was also actively involved in project and change management. The branch manager was involved to represent those most affected by the changes. The fact that SMT Consulting was represented on the steering committee is a clear indication of the close partnership and trust between Parbury FHS and SMT Consulting.

## Methodologies and Concepts

Parbury FHS decided to adopt the basic framework of the AcceleratedSAP™ (ASAP™) implementation methodology, simplified it, and used the tailored ASAP framework shown in figure 3 for its SAP APO implementation. ASAP is SAP's comprehensive package for supporting the implementation or upgrade of SAP solutions. It provides a roadmap portraying the methodological framework of a project, a query-and-answer database, and other implementation tools.

**Figure 3: Tailored AcceleratedSAP Framework**



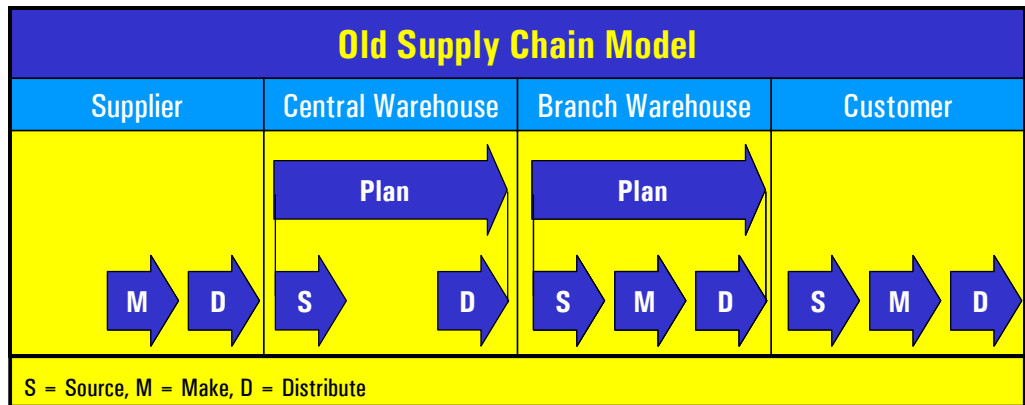
The supply chain management review process was conceptually guided by the SCOR model and SMT Consulting’s constraint management model. SCOR was used mainly to facilitate the alignment of policies and processes between Parbury FHS, its customers, and its suppliers and to identify main supply chain channels (see ‘Business Blueprint’ section). SMT Consulting’s constraint management model guided the review of the manufacturing processes. This model is based on the theory of constraints and focuses on capacity management and the optimization of the flow of products. The key objective is to achieve lower inventory levels, higher throughput, and shorter lead times through the improvement of the production flow by optimizing the utilization of bottlenecks. Advanced operations research optimization models – which are too complex to be applied in all cases – are selectively used to maximize the utilization of constraining resources.

SAP APO provides these operations research models and therefore enabled the implementation of the constraint management model at Parbury FHS. A key aspect of the implementation at Parbury FHS was the use of SAP variant configuration. The company established production process models (PPMs) in SAP R/3, which contained bills of material (BOMs), routings, and stored characteristics-dependent production plan references for similar products. When a sales order is entered, the variant configuration capability is used to select specific materials according to the characteristics identified in the order and the specifications in the BOM of the appropriate production process model. The resultant planned orders are passed on to the PP/DS capability, in which constraints in material and routings are identified and optimized frequently during each working day. Parbury FHS is now in the position to simulate these models in the system, before actually applying the results to production. In certain cases, these simulations enabled reductions of production lead times by 40%, reductions of inventories in production by 25%, and increases in throughput of 20%.

## Business Blueprint

Before Parbury FHS’s supply chain was reviewed, it used a model that did not address the diversity of demand profiles (see figure 4). All customers were supplied only by the branch warehouses, which ordered from the central warehouse, which in turn received all deliveries from the suppliers.

Figure 4: Parbury FHS Supply Chain Model before Review



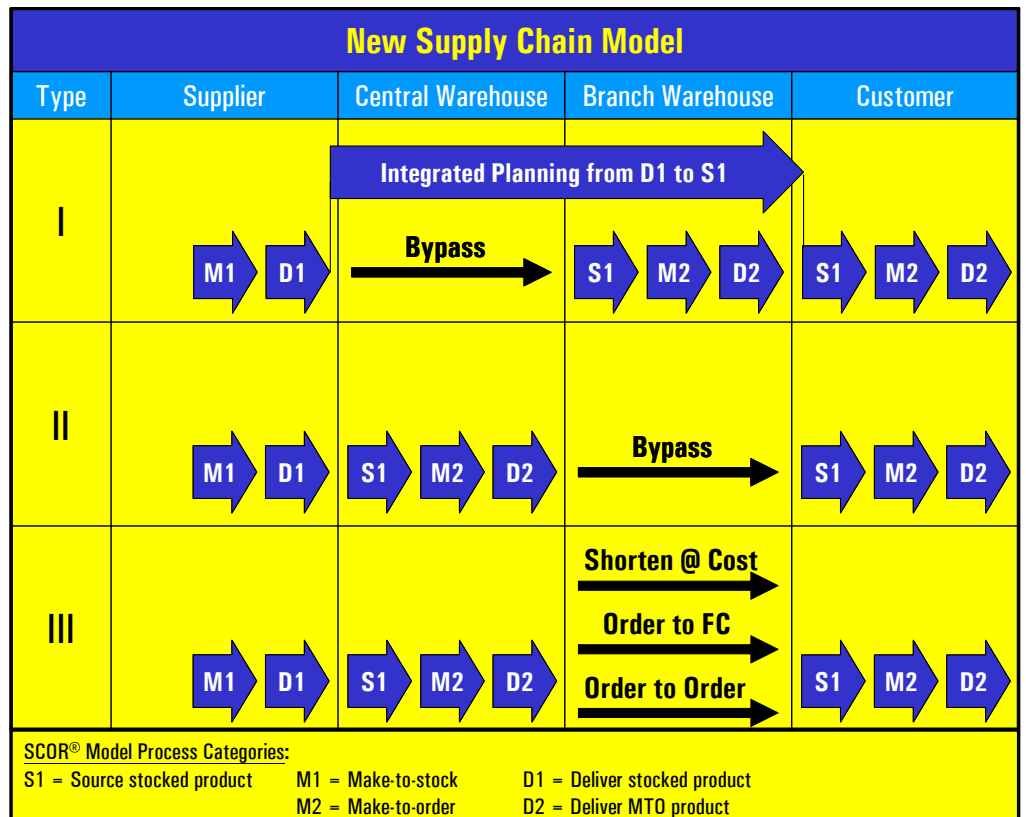
The new business blueprint (see table 1) was based on a multidimensional segmentation of the supply chain according to four criteria: customer segment, service component, products, and demand. The criteria for customer segmentation were **transaction volume** (large, medium, and small) and **purpose** (residential, renovation, and project). The dimensions used to define the service component were **lead time** and **quantity**. For the classification of the products, traditional **Pareto analysis** (ABC analysis) was used, and the main criterion for demand profiling was **variability**. The SCOR model was used to aggregate all four dimensions to a typology of supply chain models ('channels').

Table 1: Typology of Supply Chain Models (Channels)

Product	Demand	Offer	Segment	Type
A or B Class	Low variability (and high volume)	'Order today, deliver tomorrow'; any quantity	Large, medium, small residential or renovation customers	Type 1
B or C Class	High variability, but statistically predictable			Type 2
A, B, or C Class	High variability and statistically unpredictable	'Order today, deliver tomorrow'; potentially restricted quantity	Large or medium project customers (for example, large apartment blocks)	Type 3

The supply change types were tailored to the individual requirements in the different product-demand-offer-segment combinations. This model (see figure 5) allowed the company to establish channel-specific business policies and safety stock levels that varied according to product demand characteristics.

Figure 5: Parbury FHS Supply Chain Model after Review



Demand for A and B class products with low variability is easy to predict; therefore, no central 'buffer' (warehouse) is required. Sales of low-volume items with highly variable demand can be forecast quite accurately at an aggregate level but less accurately at a regional level. Therefore, type 2 items are stored centrally and delivered directly from there to the customer. Large project customers are supplied either by the central warehouse or by the branches, depending on the nature of the product and the order volume.

In the type 1 supply chain, certain branches did not source directly from the suppliers but sourced instead from other, larger branch warehouses.

The sourcing process in the central warehouse is supported by SAP APO (types 2 and 3) and so is the direct sourcing in the branch warehouses in type 1. Only the orders placed by the branches with the central warehouse continue to be planned and controlled with the production planning capabilities of SAP R/3.

Recently, Parbury FHS has actually started to further reduce the stages in the supply chain. 'There are some customers, bigger ones, for which we are actually providing material directly from supplier to customer', says Neil Freeland. 'So we have taken two stages out.'

## Project Governance

The CEO was the key driver of the supply chain management project at Parbury FHS. In fact, the success of the project and the CEO's future with the organization were closely linked, and for SMT Consulting – a 17-year old company, but only a recent SAP APO implementation partner – a failure of the project would have had a significant impact on its reputation. It was therefore imperative for both the CEO and SMT Consulting to make this a success.

The CEO headed the steering committee, which was the decision and control forum of the ongoing project. In regular committee meetings, goals, milestones, targets, and deadlines were fixed, and each committee member was assigned very specific tasks to be performed and reviewed at the following meeting. Steering committee members were actively involved in the whole implementation process. Although there was some resistance to change from time to time, the process ensured the momentum of the project, as Neil Freeland remembers: 'So even if there was resistance, they still had to accomplish certain tasks and deadlines in the system now for the next meeting and we had a definite path of milestones we had to achieve.' The members of the steering committee had the responsibility not only to make decisions but also to transform the decisions into results. They were in charge of managing the impact of the supply chain management project on the functions of which they had ownership.

The project team was clearly driven by business needs and not by IT requirements. The managers of Parbury FHS were aware that SAP implementation projects are not predominantly IT projects but business projects.

Active change management was crucial, because not everyone at Parbury FHS was confident of success. In fact, quite a few people feared that the implementation might fail, they were suspicious about the changes the system might bring about, or they feared that their positions might be eliminated. Some sales staff and some branch managers expected that the reduction of inventory would lead to stock-outs and customer dissatisfaction. Some of those who resisted could be convinced that the project would be successful; others left the company.

Both SMT Consulting and the CEO actively engaged in change management. They met with employees who had doubts and explained the rationale behind the changes and the expected benefits. They did not shy away from sensitive issues in which outcomes may not have been desirable for all employees. They had to address many cultural problems, as Greg Bywater, director of SMT Consulting and head of the SMT Consulting team, remembers: 'The business was originally a family-run business, and it was made up of people and not processes. Processes were what people did ... So it has been a huge migration to where now – to a certain extent – the processes are the business, and SAP played a part of it.'

Alesco was not directly involved in the implementation project – the outcome was all that counted for Alesco.

## Training

One of the big differences between SAP R/3 and SAP APO at Parbury FHS is in size of the user groups. The transactional system SAP R/3 is used by about 180 employees (45%), whereas SAP APO is used by only about 12 key staff members (about 3%). Many of the initial users were actively involved from the early stages of the implementation process and thus gained relevant knowledge during the implementation.

Parbury FHS relied completely on in-house training, because its managers regarded its SAP APO system as a model of its supply chain – its business – and not primarily as a software application. In the initial stage of the project, knowledge was transferred from external consultants to users in Parbury FHS. Knowledge about the system is now deemed to be mainly knowledge about Parbury FHS's business. This knowledge continues to be further developed and managed by advanced users holding leading positions in the company.

## Key Performance Indicators

Alesco carefully monitored the progress of the project and its outcomes by analyzing the KPIs that Parbury FHS had to submit to Alesco's Board of Directors on a monthly basis and by monitoring the financial performance. In addition to those reports, Parbury FHS introduced a comprehensive internal reporting system in which the following supply chain management KPIs were used:

1. Back order reporting
  - Aged back orders (count)
  - Back order levels
  - Back orders (count)
2. Cycle times and other time measures
  - Make cycle time
  - Customer order cycle time
  - Finished goods inventory days of supply
  - Order queue time
  - Order setup time
  - Overtime hours
  - Inventory turnover
  - Resource production time
3. Perfect order measure and inventory accuracy
  - Delivered on time
  - Delivery performance to customer request date
  - Delivery performance to scheduled commit date
  - Forecast accuracy
  - Inventory record accuracy

- On-time delivery
  - Orders not delivered complete (count)
  - Perfect order fulfillment
  - Performance to promise dates
  - Warehouse pick accuracy
  - On-time delivery
4. Transportation
- Distribution costs
  - Inbound freight costs as percentages of purchases
  - Outbound freight costs as percentages of net sales
5. Other costs
- Cost of manufacturing and warehousing
  - Supply chain finance costs
  - Total supply chain costs
  - Inventory carrying costs
  - Product acquisition costs
  - Warranty costs
6. Various additional key performance indicators
- Confirmed orders (count)
  - Delivered orders (count)
  - Orders (count)
  - Inventory levels
  - Resource utilization
  - Head count

Parbury FHS made this data visible to all relevant stakeholders. The new transparency provided by mySAP SCM system ensured that supply and demand are effectively balanced, which favorably supports product management, production management, and general management. The company established monthly sales forecasting and operations planning meetings. In these meetings, the supply-and-demand plans are formally reviewed, performance of locally produced and imported product is considered, exceptions and unique requirements are brought up for discussion, and market intelligence and longer term constraints in material and production are factored into plans.

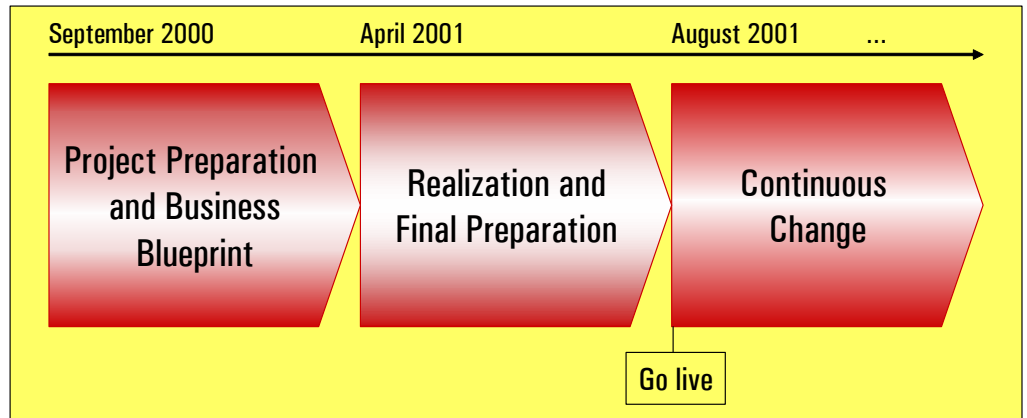
## Milestones and Time Frame

The overall project goals were prescribed by Alesco, but the project milestones were determined by the steering committee. The committee set well-defined tasks for short time periods, so that supervision of the progress of the projects/tasks was

possible without causing too much delay. The members of the project team had to submit project review reports to the committee on a regular basis.

The rigorous control of the project made it possible to install SAP APO within four months as planned (see figure 6).

**Figure 6: Actual Time Frame of mySAP Supply Chain Management Project**



Before Parbury FHS went live with SAP APO, Alesco established a central services group that provides hardware and software support to a number of its business units. This group was also in charge of the technical operation of SAP R/3 and, later, SAP APO.

In August 2001, Parbury FHS completed the main tasks in the implementation of its new supply chain model and went live with SAP APO. SAP APO became the key enabler of the new model, which has been operated successfully since.



## OUTCOME

*“We have built up our level of inventory accuracy and forecasts to 98%.*

*Our service has picked up. Our inventory is down. Our supply chain is under control.”*

*Neil Freeland  
CEO, Parbury FHS*

Parbury FHS set rigorous performance targets and has clearly achieved them through its supply chain project and the implementation of mySAP SCM.

Neil Freeland, CEO of Parbury FHS and the main project champion, confirms his confidence in the outcome of the project: ‘The results speak for themselves in the sense that the implementation has brought a real improvement to the way the business operates. Customer service levels are up, the inventory has been reduced, and significant costs have been stripped out of the business. Above all, sales have increased.’

Kevin Clarke, CEO of Alesco, is also satisfied and looks to the future: ‘We are evaluating the further implementation of SAP solutions in other business units. Alesco’s IT systems were recognized by SAP as the best supply chain management implementation carried out during 2001’ (Alesco, Annual Report 2002).

### Successful Business Consolidation and Full-Service Provision

Parbury and FHS are now one company using mySAP SCM as its fully integrated supply chain management system, built on the integration of their transactional SAP R/3 system and central planning system SAP APO. The three main locations were merged into one, and the number of branches was reduced from 18 to 12. This consolidation enabled Parbury FHS to achieve its rigorous inventory and cost reduction targets and – at the same time – to increase its service level.

Warehouse consolidation was coupled with improved policies associated with material movement, which virtually eliminated the need to transfer material between locations once received. As a result of better tracking of material and a substantial reduction of the need to move material multiple times, costs for damaged and lost material declined from 1.60% to 0.78% of sales.

The consolidations of locations lead to substantial reductions in occupancy costs. In addition, the number of employees was reduced by 20% – from 500 to 400 – within two years. At the same time, output increased slightly, and so labor productivity increased by more than 20%.

The acquisition of FHS and the consolidation of businesses were certainly the most significant steps toward full-service provision in Parbury’s recent history. Parbury FHS is now in the position to provide a one-stop supply for cabinetmakers, providing full access to a wide range of products and being able to provide additional services.

### Operational Benefits

#### Lower Inventory Levels and Increased Stock Availability

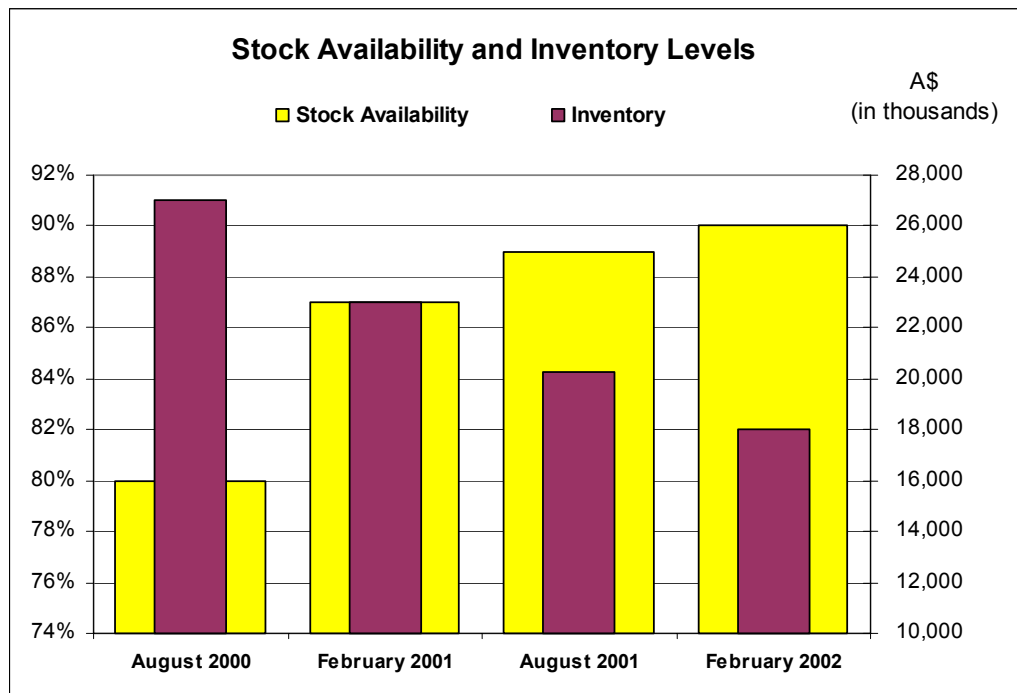
Lower inventory levels, higher availability, and higher service levels were among the core objectives of the supply chain management project. The closure of warehouses certainly contributed to inventory reductions, but it does not completely explain an inventory reduction of 33% within 1.5 years.

Other important reasons are:

- The selective elimination of stages in the supply chain (see figure 5)
- Better forecasting methods and tools, higher forecasting accuracy, and the integration of supply chain planning and execution
- The increase of manufacturing throughput as a result of better management of constraints
- Daily cycle counting, which enabled inventory accuracy to advance from 92% to more than 98%
- The elimination of some low-performing SKUs
- The reduction of the external procurement cycle from four weeks to two weeks or, in many cases, to one week
- Better supplier performance as a result of more accurate information provided by Parbury FHS
- More transparency of inventory movements

Many of the outcomes just mentioned are also reasons for why the ‘textbook tradeoff’ between inventory levels and stock availability did not become evident at Parbury FHS. In fact, the stock availability increased significantly – despite the substantial reductions in inventory levels (see figure 7).

**Figure 7: Service Levels and Inventory Levels (August 2000 to February 2002)**



## Shorter Lead Times and Increased Throughput

Parbury FHS did not manage to significantly reduce external procurement lead times, because it has to import most of its trading goods from overseas suppliers in Europe and North America. However, they were able to achieve minor reductions in lead times because of an increased forecasting capability and the provision of better information for suppliers. The lengthy external procurement lead times still constitute a major challenge, which can be tackled in the next phase of the project.

In contrast to supply lead times, production lead times and customer lead times have improved substantially. The application of the theory of constraints has resulted in better capacity utilization and an increase in manufacturing throughput by 20%. In certain cases, production lead time has been brought down by 40%, and make-to-stock products can usually be delivered one day after the order is taken.

## Increased Forecast Accuracy

Forecast accuracy has improved significantly as the company has gained experience with sales forecasting and operations planning and refined its use of SAP APO demand planning. In September 2000, Parbury FHS achieved a forecast accuracy of about 80%, which improved to 85% by the end of 2001. By that time, Parbury FHS had been using SAP APO for 4 months, but it took longer to fully transform the potential of the demand planning capability. By February 2003, the half-year forecast accuracy for product groups was finally up to 98% – certainly an impressive figure.

## Cost Reductions

Parbury FHS managed to reduce overall supply chain operating cost by 10% within 1.5 years. These savings were due to reductions in property costs, operating labor costs, and transportation costs. Freight costs, for example, decreased from initially 5.5% of sales to approximately 4%.

In addition to the significant supply chain operating cost reductions, Parbury FHS has also achieved significant IT cost savings.

## Enterprise Systems Benchmarks

### Background

In March 2001, the University of Technology, Sydney (UTS), launched a cross-sectional industry survey on 'integrated information systems and e-business'. The main objective of the survey was to investigate the Australian landscape of enterprise systems, their life cycles and benefits, and the levels of integration achieved. A total of 106 Australian organizations participated in the survey, 17% from the mining sector, 32% from manufacturing industries, and 51% from service industries (including public services). Companies that revealed their contact details were provided with a report showing their enterprise systems benchmarks against all firms participating in the project.

Parbury FHS completed the survey in February 2003, and some of the key results are presented as follows.

### Achieved Levels of Integration

High functional integration along the supply chain is a prerequisite of smooth operations. Efficient customer relationship management requires that sales and accounting (accounts receivable) are well integrated and that the supply chain is transparent for sales staff (lead times, stock levels, back order status, and so on). The same applies to the supply side.

In the UTS study, the degree of integration of a firm's information assets was measured along three dimensions:

- Hardware/software integration: for example, common source codes, common protocols, seamless interfaces, and network connectivity
- Data integration: for example, one common database for the applications, integrity, common formats and primary keys, no redundancies, and so on
- Information integration: actual interchange and use of data and information generated by functional areas/applications in the enterprise

In the cross-functional integration index shown in table 2, the levels of integration are compared for each of the three dimensions described previously on a pair wise basis among five functional areas. The data obtained from Parbury FHS is compared with data from the cross-industry sample.

**Table 2: Cross-Functional Integration Levels**

Cross-Functional Integration Matrix		General Information Management		Human Resource Management		Marketing/Sales		Logistics Production						
		Average (Survey)	Parbury FHS	Average (Survey)	Parbury FHS	Average (Survey)	Parbury FHS	Average (Survey)	Parbury FHS					
Financial Management	Hard/Software Integration	5.1	6	3.8	6	4.7	6	4.8	6					
	Data Integration	4.6	5	3.2	5	4.2	5	4.3	5					
	Information Integration	4.9	<b>4</b>	3.5	4	4.3	<b>4</b>	4.4	<b>4</b>					
Logistics/Production	Hard/Software Integration	4.6	6	3.2	6	4.3	6	1 = No integration 7 = Full Integration						
	Data Integration	3.9	5	2.7	5	3.8	5							
	Information Integration	4.1	<b>4</b>	2.9	4	3.9	4							
Marketing/Sales	Hard/Software Integration	4.4	7	3.0	6									
	Data Integration	4.0	6	2.6	5									
	Information Integration	4.0	6	2.8	5									
Human Resource Management	Hard/Software Integration	4.0	6											
	Data Integration	3.5	6											
	Information Integration	3.5	6											

Except for very few areas (see figures in bold), the perceived integration levels achieved by Parbury FHS are clearly higher than those achieved by the benchmark group. The average integration index for Parbury FHS is 5.27, in comparison with 3.90 in the survey sample. The level of hardware and software integration is particularly high: namely, 6.1, which is 1.91 higher than that of the benchmark group. The centralization of Alesco's IT services in the Central Services Group is one of the

reasons for this high score. Another one is the broad use of integrated SAP applications (SAP R/3, SAP APO, and SAP Business Intelligence).

Table 3 shows an overall functional integration score for each of the five functions. Results for Parbury FHS are again compared with the cross-industry sample.

**Table 3: Functional Integration**

Table 3 reveals that – in contrast to the average Australian organization – the human resource management function and marketing and sales are particularly well integrated at Parbury FHS. As far as the integration of financial management is concerned, Parbury FHS is only slightly ahead of the others.

	Average (Survey)	Parbury FHS	Difference
Financial Management	4.32	5.00	0.68
Logistics/ Production	3.91	5.00	1.09
Marketing/Sales	3.83	5.42	1.58
Human Resource Management	3.23	5.33	2.11
General Information Management	4.22	5.58	1.37

### Effectiveness along Various Performance Criteria

The overall performance index is a widely used universal measure containing all most common criteria of firm performance, which are:

- Sales growth rate
- Market share
- Operating profits
- Cash flow
- Return on investment
- New product development
- Market development
- Research and development
- Cost reduction programs
- Personnel development
- Political public affairs

The index is based on the perceptions of respondents about their company's performance on these criteria. In the case of Parbury FHS, the CEO and the supply chain manager answered these questions. Parbury FHS's performance index is 4.77 (out of 7), clearly higher than the average value of 4.05 achieved by the benchmark group.

## Comparative Supply Chain Performance

The supply chain performance indicator is an aggregate measure consisting of 23 individual supply chain performance indicators ranging from 'stock-out probability' to 'the ease with which we can introduce and produce new products'. Also, as far as this index is concerned, Parbury FHS scored higher than the benchmark group. Its score of 4.4 is approximately 10% ahead of the cross-industry sample.

## Benchmarks for E-Business with Customers and Suppliers

E-business refers to a firm's exchange of electronic information with suppliers and customers by the use of Internet, electronic data interchange, extranets or value-added networks, and so on. The nature of these exchanges can be:

- Information publishing
- Interactive communications
- Non-collaborative exchange events
- Collaborative exchange events

### *Information Publishing (Passive and Static Business Communications)*

This refers to general company information targeted to customers and suppliers. Examples include all forms of media advertising, catalogs, price lists, annual reports, and static displays of information on a Web page. The key discriminating factor of this dimension of a firm's external communications is the ability of the information receiver to respond to the firm directly through the same communication medium in real time.

### *Interactive Communications*

This refers to all the forms of two-way communications between a firm and its customers and suppliers. The primary function of this interactive communication is to facilitate possible future transactions or respond to customer/supplier inquiries. Examples of interactive communications include sales force activities, trade fairs, and interactive aspects of an on-line medium. This stage differs from information publishing in that the communication medium facilitates real-time interactivity between the firm and the customer/supplier.

### *Non-collaborative Exchange Events*

A non-collaborative exchange event is an offer-acceptance occasion (the buy-order moment) in which the product/service is transferred without the parties entering into any form of non-transaction related cooperation. Non-collaborative relationships are usually of a short-term nature and can be adversarial. The main distinguishing characteristic between non-collaborative and collaborative relationships is whether each party goes out of its way to be part of the other's business development or process streamlining.

Non-collaborative exchange events with customers are simply the product/service in which the firm normally deals. However, for suppliers, the firm's purchases can be categorized as being either core (they become part of the value chain and end up in

the finished product/service) or non-core (inputs used for administration or other support roles to the value chain). In this benchmark study, we measure only core exchange events (and this applies for collaborative exchange events, described as follows).

#### *Collaborative Exchange Events*

A collaborative exchange event is an offer-acceptance occasion (the buy-order moment) within a relationship in which the buyer and seller cooperate or engage in some form of partnering. In a collaborative relationship, the parties join forces with the aim of smoothing their processes or enhancing the value of their combined contribution to the supply chain.

Table 4 shows the extent to which each activity is already carried out electronically, and the extent to which the company plans to carry out each activity electronically in the next 12 months.

**Table 4: Electronic Business with Customers and Suppliers**

Percentage of information exchanged with customers and suppliers through e-business media	Currently		In 12 months	
	Average (Survey) <sup>1</sup>	Parbury FHS	Average (Survey)	Parbury FHS
Information publishing to customers	11%	2%	34%	8%
Information publishing to suppliers	8%	5%	27%	25%
Interactive communications with customers	15%	5%	29%	8%
Interactive communications with suppliers	10%	15%	25%	25%
Non-collaborative exchange events with customers	12%		17%	
Non-collaborative exchange events with suppliers	15%		21%	
Collaborative exchange with customers	11%		34%	
Collaborative exchange with suppliers	8%		27%	

<sup>1</sup> Manufacturing companies only.

The relatively low values in almost all areas can be explained with Parbury FHS's specific customer base: namely, cabinetmakers, many of which are relatively small in terms of business volume. 'Exchange events' would not be expected in this case. Parbury FHS does not maintain a Web site that would allow customers to enter their orders directly into the SAP system, nor does the company give customers direct access to its SAP system.

As far as the electronic integration of suppliers is concerned, Parbury FHS is almost at the average of the Australian manufacturing sector, with regard to both its past and future plans. The big gap between the current state and the plans can be explained by the fact that the electronic integration of suppliers and customers was not among the prime objectives of the first stage of the supply chain management project at Parbury FHS. The company executives were aware that they had to reorganize the company's supply chain and integrate its internal systems before they could actually link them to the systems of customers and suppliers.

Parbury FHS has already launched the second stage of its supply chain management project and is now starting to exploit the potential of electronic integration of business partners. On the supply side, Parbury FHS has established an e-procurement interface with one of its largest suppliers, Blum (Austria). A similar solution is planned for Wilsonart (United States).

The second initiative was the electronic integration of customer orders and production planning and control. Parbury FHS now provides customers of its manufacturing products with a standardized e-mail order form that enables an automatic conversion of customer orders into production orders in both the SAP systems.

## **Customer Satisfaction**

Customer satisfaction is measured on a regular basis, either by Parbury FHS itself or by an external market research institute. The methods used are face-to-face interviews and KPIs such as DIFOT and tracking customer complaints. Results gathered with all methods used indicate that customer satisfaction has increased since the implementation of SAP APO.

## CONCLUSION AND OUTLOOK

Since 2000, Parbury FHS's supply chain and information management have undergone major changes in order to allow the company to compete effectively and to meet the rigorous performance targets set by its new owners. mySAP SCM was deployed to enable these changes and to support the new supply chain. As a result of the success of the project, the SAP APO implementation costs were recovered within six months.

The most important critical success factor of the project at Parbury FHS was probably the active role the CEO took in all stages of the project. The CEO was more than just a sponsor: He headed the steering committee and de facto led the project team, and he actively engaged in change management. The project required many decisions to be made that only a CEO could make, because they had important implications for many – if not all – employees. Also of importance was that the CEO ensured that the decisions were actually implemented and controlled.

Another success factor was the close partnership and the trust that existed between the management of Parbury FHS and SMT Consulting. The consultants took a very active role in the whole project and continued to advise the company even after the completion of the main project. SMT Consulting had particular interest in making this project a success, and so had the top management of Parbury FHS. PLAUT Australia added critical SAP skills to the project. This alliance of internal qualifications (organizational knowledge, leadership, and commitment to change) and external skills (change management, supply chain knowledge, and SAP knowledge) proved to be successful.

Supply chain management is a journey of continuous improvement. New challenges constantly arise, new methods are developed, and new technologies emerge. Parbury FHS is committed to continuously reviewing its supply chain and identifying potential for improvements.

Today, the company sees itself in stage 2 of its journey. The main initiatives now are:

- To further exploit the potentials of electronic interaction with customers and suppliers
- To establish a strong brand name

The alliance with 20-20 Technologies supports both objectives. From August 2003 onward, end consumers will be able to design their individual kitchens online at [www.kitchendesign.bz](http://www.kitchendesign.bz). Not only will the Web site act as a sales tool, but also it is intended to increase brand awareness of the Parbury FHS product range. In addition, Parbury FHS will be able to transfer the design specifications on the Internet into computer-aided design and computer-aided manufacturing specifications for its machines, just as it does already with large customers.

Another objective for the future is a further reduction of distribution costs. Parbury FHS is currently in a national freight tender process to identify more cost-effective suppliers of interstate and intrastate delivery. In a later stage, SAP APO will be used for transport optimization.

Consistent with its aim of establishing strong brand awareness the FHS-tag has recently been dropped from the name and the organization is now trading as 'Parbury'.







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