The impact of ABC at Insteel Industries

Insteel Industries, Inc., manufactures and markets concrete reinforcing products, industrial wire, bulk nails, collated fasteners, PC strand and tire bead wire. This paper studies the managerial and organizational issues related to ABC at the Andrews, South Carolina, plant of Insteel Industries. Four product lines are produced at the Andrews plant. In 1996, about 477 individual products were spread across these four product lines.

In 1996, after years of product and customer proliferation, Insteel decided to implement an ABC system. The ABC team took their first ABC snapshot of operations at the Andrews plant in the summer of 1996 with the assistance of a big-six accounting firm. The ABC team analysed Andrews’ operations and identified 12 business processes. Within each business process, a number of activities were identified – a total of 146 activities. Next, 426 employees were surveyed to estimate how they allocated their time to different activities. All overhead resources were then collected in 80 cost pools and assigned to cost objects such as products and customers (some cost pools included multiple activities). This assignment was done by selecting cost drivers that link the performance of activities to demands made by individual products. For example, the cost of the material-handling activity was assigned to products based on the number of moves for that product, on the ground that it is the number of times raw materials and work-in-process is moved that cause material handling resources to be consumed, rather than the weight of materials moved.

A second ABC snapshot was developed in the summer of 1997, by which time Insteel had its own staff group collecting the data.

Insteel managers indicated that the new ABC system influenced operations and also product portfolio, product pricing and customer portfolio decisions. The effect of ABC on operations (process improvements) appears to be its first benefit. Internal reports at Insteel prepared in 1996 and 1997 document the use of ABC information for process improvements. The first ABC study, in 1996, reveals that the 20 most expensive activities accounted for 87% of Andrews’ total physical and people resource cost of $21.4 million. Within the top 20 activities, almost $5 million pertained to quality-related activities such as reactive maintenance, management of by-products and scrap, and preventive maintenance. Analysis of the top 20 activities also revealed that material-handling costs, including freight costs, consumed $4.6 million. Activities were further classified into value-added and non-value-added or resource-draining activities. Nearly $4.9 million was spent on resource-draining activities such as reactive maintenance, management of by-products and scrap, moving materials and resources, processing returns and claims, reworking products, managing customer complaints, and handling warranties, claims and returns. These activities, within the 20 most expensive activities, were targeted for cost reduction and process improvement.

The 1996 ABC reports also list improvement opportunities and identify teams of senior and middle managers responsible for each broad opportunity. For example, separate teams were formed for managing quality costs, material handling and preventive maintenance. As a part of the 1997 study, Insteel followed up on the process improvement opportunities identified in the 1996 study. The company estimates that within a year of the first ABC study, $1.8 million had been saved in quality costs, mainly through a reduction of scrap and reactive maintenance costs. Freight costs were reduced $555,000 in a year in the Andrews plant alone. Resource-draining activities were reduced from 22% of activity costs to 17%. 
Insteel focused on freight because delivering products to customers showed up as the most expensive activity following the 1996 ABC study. It represented 16% of the total people and physical resources cost at the Andrews plant. We believe that prior to the ABC study this cost would not have been apparent, because it would have been billed to the customer. As a part of the ABC study, Insteel started tracking freight cost per pound shipped. This directed attention to ways in which these costs could be reduced. In 1997, by changing the layout of boxes within each truck, the Andrews plant was able to ship 7400 pounds more per truckload than in 1996. This represented a 20% reduction in freight expense, from about $31/ton to about $25/ton. Subsequently, all of Insteel’s other manufacturing facilities also converted to heavier loads, emulating the results achieved at Andrews. The resulting savings were significant in comparison with Insteel’s after-tax income of $4.2 million in 1996.

When Insteel realized after the 1996 ABC study how much they were actually incurring in quality costs, they put in place a team responsible for probing deeper and understanding better what was causing the quality costs to be incurred in the first place and for suggesting steps to reduce them. Insteel realized that certain foreign suppliers of rods were lower in price but supplied poorer-quality rods that caused breakdowns in Insteel’s manufacturing process. The lower price of those suppliers did not compensate for the quality costs. Insteel switched to higher-quality rod suppliers. Insteel also realized that smaller-diameter wire products are more likely to break and disrupt the manufacturing process. Insteel migrated its product mix to more large-diameter wire products. Such initiatives led to a reduction in quality costs from $6.7 million in 1996 to $4.9 million in 1997.

It is hard to estimate how much of these savings would have been realized had Insteel not conducted an ABC analysis. From interviews with Insteel managers and sitting in on senior management meetings, it appears that the activity analysis gave them an appreciation of the scope and quantified the magnitude of the improvement potential, thereby allowing them to prioritize among various process improvement possibilities. In the opinion of the senior management, the ABC system also helped them keep track of the savings and ensure that the promised payback was actually realized. Clearly ABC served as a focusing device at Insteel by providing cost data by activity rather than by department, directing attention to the top 20 activities, and by labeling some of them as resource-draining activities.

The quality cost report at Gilroy Foods

Prepared monthly, Gilroy’s Quality Cost Report (QCR) is divided into two parts: a narrative and the data. We consider the narrative to be as important as the data. It is divided into two sections: an Executive Summary and the Monthly Topic. The Executive Summary discusses monthly results in total and highlights major factors contributing to quality costs. The Monthly Topic addresses ideas for improvement, implemented improvements, areas needing attention, explanation of prior events and other areas prime for management focus. Sometimes supplemental schedules are provided to help explain a concern or to highlight a topic. Some recent subjects include onion/garlic slicing thickness, garlic mill capital audit, utilizing packaging drums more efficiently, worker safety and overtime concerns.

The narrative process is the tool we use to involve the entire company. Each month different individuals are interviewed and requested to provide input. Ultimately all functions and departments are represented. The topic and the focus it receives can become an instant way to reduce costs, or it can be used to mobilize a group to attack a specific problem.

For the data part we currently include nearly 40 items in our QCR segregated into the four cost categories, and the list is growing. Month and year-to-date numbers are included and expressed as a percent of sales. Prior year-to-date numbers and a variance column comparing this year vs. last are also shown. The far right of the report displays sources for the data.

It is our opinion that our report understates quality costs in spite of our best efforts. We continually encounter new areas ripe for improvement. Our first report included 33 items; the most recent included 38. Our cost systems are continually being refined to capture costs more clearly, and we expect the number of items to grow.

Nonetheless, we feel the Total Quality Cost Report is superior to traditional accounting information for several reasons:

- It clearly segregates costs and identifies them as non-value added, which allows the organization to focus on the reduction or elimination of those items.
- It is a true barometer for the current health of the company because the cost data are not embedded in cost of sales, which can mask current performance.
- Because of the segregation of costs into prevention, appraisal, internal failure and external failure categories, the impact is magnified, and the focus is improved.
- It provides a target that can be shared with the entire company that really measures progress of the total quality programme in concrete terms.
- It encourages the development of more meaningful measurements, which forces all who participate to learn more about the operation.

Source: Adapted from Brinkman, S.L. and Appelbaum, M.A. (1994), The quality cost report: It is alive and well at Gilroy Foods, Management Accounting (USA), September, pp. 61–65.
Value chain analysis in interfirm relationships

The following presents extracts from a case study on the use of an ABC cost model by a large UK retail firm (Sainsbury's) and a group of suppliers for supporting their supply chain management practices. This cost model was based on the principles of value chain analysis and integrated cost information across the supply chain. It was used to improve supply chain operations by performing benchmark analyses, strategic what-if analyses and cost monitoring. The model was used to identify opportunities to reduce supply chain costs.

To be able to analyse the supply chain costs, cost and cost driver data were required from both Sainsbury and suppliers. Suppliers were free to choose whether or not they would participate in this initiative. When they decided to participate, they were required to deliver cost data and cost driver quantities to Sainsbury for feeding the supplier section of the model.

Benchmarking was used to compare suppliers’ activity costs with the average of their network. In addition, cost comparisons were made between networks, regions and store types. By clustering suppliers into different networks the most important differences between their operations were eliminated, as suppliers within a network performed fairly comparable activities. The most important measure for the benchmark analysis was the cost per cost driver (i.e. the cost driver rate), as this measure could be compared directly with other suppliers. The benchmark analysis revealed the suppliers’ relative performance against the network average. When a supplier deviated significantly from the average, the Logistics Operations department would initiate a discussion with the supplier to find out the cause(s) of the difference, by analysing the underlying activities, and to assess whether and how performance could be improved. In addition, as suppliers in different networks faced no competition, comparing the costs of their activities and analysing the differences in their operations could be used to transfer efficient supply chain practices across networks.

Strategic what-if analyses were performed to analyse the effects of changes in the supply chain on supply chain costs. When, for example, as a result of a benchmark analysis, Sainsbury and a supplier developed ideas or scenarios for improving supply chain processes, the model was used to calculate the expected changes in costs of each scenario. An example of a benchmark and a strategic what-if analysis that were performed relates to the use of plastic crates for chilled products. Before the model was developed, Sainsbury and a large supplier discussed the use of these crates to improve the efficiency of product handling activities. As the cost consequences of adopting the crates were unknown to the supplier, Sainsbury was not able to persuade the firm to adopt them. After developing the model, it was used to calculate the supply chain costs related to suppliers using the crates and the costs of the non-adopting supplier. The differences that came out of this benchmark analysis revealed a clear cost advantage for the adopting suppliers. The next step was to analyse what changes would occur in the supply chain activities, if the supplier were to adopt the plastic crates. For instance, while the adoption of plastic crates was expected to result in a cost reduction for the
supply chain as a whole, it was predicted to result in increasing costs for the supplier, while the benefits of enhanced efficiency would be reaped mainly by Sainsbury. A possible solution in the negotiations with the supplier about adopting the plastic crates was that Sainsbury would invest in the required handling equipment for the supplier. Another solution was that Sainsbury would agree on a price increase for the supplier’s product, which for Sainsbury would be more than offset by the efficiency gains.