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Imaginary Simulations and Real-World Situations

Using the theory of constraints to generate true profit

In our last department, we described how theory of constraints (TOC) principles assisted with a supply chain management simulation. One of the key lessons learned was that effective application of the TOC can facilitate supply chain integration and—as was the case with our model—turn a large initial loss into a profit.

But would this simulation work in real life? After all, the real world has many variables outside the normal dispensation of supply chain and operations management professionals. A case in point is the accounting process. External financial reporting for most businesses is tightly regulated, and the internal cost-accounting system is dominated by generally accepted accounting practices. Often, a business's costing system is developed around absorption-based accounting; meaning, all the costs of manufacturing—including fixed, variable, and mixed expenses—are allocated to the produced units. Using this method, costs are absorbed by products as they pass through a predetermined work center. However, it often is challenging to convince a chief financial officer (CFO) to consider other methods of cost accounting, such as the TOC because accountants and operations people often see things differently.

Balanced perspectives

A manufacturer used lean methods to refine products flow. Throughput increased, but money continued to be lost. The supply chain manager, suspecting he lacked the right decision-making data, allocated costs to a product based on the amount of time it was in the manufacturing cycle. Production simplified the flow by creating flow paths that were visible and

easy to maintain. That helped a little, but more adjustments were needed.

A work center was chosen as the balance point. It was deemed to be the work center creating the most value for the company's products. By focusing on its efficiency, this work center would be the pacer for the rest of the plant. That helped further, but problems remained.

Finally, the supply chain manager took the company's financial statements and created a method to allocate costs based on how much time (capacity) was used. Products were classified into categories according to a grouping of similar times used. In an attempt to simplify this further, only raw material costs were subtracted from the sales price of each product. All other costs were grouped and assigned a unit of time; in this case, an hour.

Meanwhile, losses were mounting. The president was beside himself, the plant manager was on the verge of being fired, and nobody liked the supply chain manager. Finally, the supply chain manager approached the CFO with a request: "If I can show you now how much money we're going to lose in the next 90 days, will you support a new costing system?"


The CFO agreed begrudgingly, and the supply chain manager explained that a new method for allocating costs on the basis of time had made it apparent where the problem lay. Several product groupings were draining capacity faster than their contribution margins could pay for. Because these products were popular with customers, they were scheduled frequently. As a result, they often prevented other, more profitable products from being built.

Salespeople, who were incentivized based on revenue growth, had used the extra throughput capability to sell more of these popular products. The sales manager wasn't interested in revising the incentive system, partly because she was incentivized the same way.

Using the new cost-allocation method, the supply chain manager was able to demonstrate that the company could be profitable if changes were made. Mixed-model scheduling helped him prove that profits could be substantial if more higher-margin products and fewer lower-margin products were built. This proved to be

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the revelation company leaders needed to make the necessary changes.

The questions asked in this brief case study should be considered by all supply chain and operations management professionals: Do you know how you make money? Do your control systems provide timely information to help you make that money? Are your functions integrated? Is your supply chain integrated? 

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