

Brando vitalis just in in time distribution concept



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The underlying cause that drove Barilla's then Director of Logistics, Brando Vitali, to propose his "Just-in-Time Distribution" (JITD) concept was the extreme fluctuations in demand the company was experiencing at the time. Orders for dry products swung significantly from week to week. For example, as presented in the case, in 1989 orders went from approximately 850 in week 12 to approximately 175 in week 13. That's nearly an 80% decline in one week. The orders continued to fall in week 14 below 100 and below 50 in week 15 then by week 17 orders were near 800 again. This type of pattern, also known as the bullwhip effect (for example, see exhibit 1 and 2), was difficult to predict and was putting a strain on Barilla's manufacturing and logistics operations. With a ten calendar day lead time on the delivery of the dry goods stock-outs were becoming more frequent. It was too costly to hold more inventory in order to meet the demand fluctuation and so Vitali began to push his JITD plan for the company's distribution network.

Although weekly fluctuation in demand spawned the need for change within Barilla's distribution network the JITD proposal implied that Vitali believed the root cause to be arbitrary reordering levels at the distributors. The lack of any meaningful forecasting means that distributors would simply review inventory levels once a week and submit orders when products fell below a certain reorder level. There were no analytics or forecasting systems involved in ordering which gave little confidence to logistics department at Barilla. Vitali thought that if Barilla could analyze the end consumer demand for its products then they could determine the "appropriate" delivery quantities. Due to the complexity of the situation, however, Barilla will need information from its suppliers.

Herein lies the fundamental issue, the lack of information and significant complexity. In addition to the lack of any meaningful supplier forecasting, Barilla faces a number of variables. In Barilla's chain, they face lead time length as well as lead time variability. The sales force has incentives for pushing products at certain times. Furthermore, suppliers receive quantity discounts. Furthermore, the product is perishable. All of these factors (and their accompanying costs) make the problem difficult to solve.

All of these problems contribute to the variability and bullwhip effect wreaking havoc on Barilla. There are four options to minimize the bullwhip effect: reduce uncertainty, reduce variability, reduce lead-time, and through strategic partnerships. Given the lead times necessary to produce additional pasta, a make-to-order model and speedier delivery network is not feasible. The objective, then is to focus on the other three categories. If Barilla centralizes the information within the supply chain (the underlying idea behind the proposed JITD plan) they can reduce the large fluctuations in demand. In other words, since known demand minimizes the need for a buffer, information can serve as a substitute for inventory.

The JITD proposal made forecasting end consumer demand Barilla's responsibility and Vitali presumed that Barilla could do it better than the distributors by taking a more analytical approach based on intelligence gathered from the customers. Of course the distributors blamed Barilla's long lead times for the stock outs. They claimed that if Barilla could turn their orders around in 36 hours that stock outs would not be a problem. This of course was impossible for Barilla considering the heat and humidity

specifications for drying the pasta. Shortening the lead time for delivery was not feasible.

Vatali's JITD program enables the company to ship product when it is needed, rather than building enormous stocks of inventory at both the manufacturing facility and the distribution centers. With the JITD program the delivery decisions are based on the end customers' needs rather than reorder quantities at the distributors. This takes some of the "Bullwhip" effect out of the supply chain because the company is no longer working with end customer demand through the distributor, but is working directly with end customer demand data. This will reduce the effects of the volatile weekly demand such as stock outs and high inventory costs. Furthermore, the JITD program is that it will improve Barilla's demand forecasting. With end customer data in hand Barilla can be proactive to forecasted demand within its supply chain instead of reactive. This will ensure a more even workload throughout its manufacturing and logistics system.

One of the drawbacks to the new program is that it is "sophisticated" relative to the traditional distribution model. Although Vitali describes the program as a "simple approach" it's new and the system is not setup for these types of relationships. For example, the Barilla dealing directly with end customer data and then telling the distributors what they will order from them. There was some reluctance from the distributors to share sales data with Barilla. With the JITD program the distributors become more like another one of Barilla's DC (closer to the end customer) rather than a third party distributor. This novel relationship with Barilla is one that the distributor is not quite ready to accept.

A second drawback to the JITD program is that it could be costly to implement such a plan. Barilla would have to hire a small team within its logistics department to work with the distributors to collect the end customer sales data. These people would have to be relationship oriented to manage the awkward relationships created with the JITD program. This team would then compile the data from all the distributors, analyze it and develop a demand forecast. Even with the new team and the new data it is still a forecast and forecasts are never right. Another drawback is that it reduces the need for shelf space at the distributor. With a more efficient distribution system and the need for fewer products at the distributor Barilla has freed up shelf space at the distributor. Given the awkward relationship created with JITD the distributor may be inclined to push competitors' products to the supermarkets and at the same time give them the shelf space that Barilla freed up. Giving up shelf space at the distributor is something Barilla will have to consider as it may be an unwanted effect of the new program.

Barilla faces a number of conflicts and barriers against JITD distribution, most of which fall under the category of "trust." From the supplier relationship side, (similar to the drawback) the distribution network is not ready for the kind of supply chain relationship JITD requires. The distribution managers feel that Barilla telling them what to order is an insult. They believe that they do not need another company telling them how to do their job. Furthermore, other parties in the chain wonder if they will experience any benefits, or are the increased profits limited to Barilla. Lastly, there is the concern as to whether or not Barilla has the competence to properly implement the program.

These issues are made worse from internal resistance from the sales force.

The sales force is concerned that their incentives will be taken away because order levels would be flat. Furthermore, given that the sales force is in direct contact with the suppliers, the sales team is encouraging the suppliers to not adopt the new program. Fear of job duty changes or, even worse, obsolescence makes a company-wide effort difficult. This visual lack of unity lessens the ability to gain the trust necessary for implementation.

Thus, both internal support and external support (from other participants in the chain) is going to be necessary for JITD's success. Beginning internally, Maggiali needs to make this program a company-wide effort-enlisting support from top management, as well as integrating incentives for JITD implementation success. The sales force will need to understand that while their jobs may be evolving, they will not be made obsolete. At the same time, suppliers will also need to have incentives for signing onto the new program. Through discounts and education, suppliers need to be made aware of the mutual benefits of this program. Thus, the new role of the sales team is educational. They will need to educate the suppliers on how centralized information will lead to higher service levels, lower inventory and lead to a superior ROA. Suppliers need to understand that while it may appear that Barilla is pushing inventory into their warehouses, it is actually a pull system based on actual demand! The result is a global optimization (meaning it is across all the stages of the supply chain), rather than creating "bumpy" demand optimizations at each level.

Understandably, trust may still be an issue. As such, Barilla will need to be prepared to implement a pilot program at one of its 18 depots in order to

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demonstrate data the remaining suppliers. As the suppliers believe they are incurring either additional costs or risk, Barilla will also need to share the additional benefits of the program (in the form of discounts).

If the pilot study yields positive data and the appropriate incentives are provided, Barilla's customers will adopt the program. There will most likely be some hesitation as individuals are resistant to change and even more resistant to giving up control, as evidenced by the retort from the article, " I could improve my inventory and service level myself if you would deliver my orders more quickly." Admittedly, there may be some laggards (as is the case with the adoption of any new product or process). If other suppliers receive discounts and experience success, in order to remain competitive, the remaining laggards will become obligated to join the program.

Since the JITD program centralizes demand information and decision making, thereby lowering costs, it should be a success. The caveat is that JITD must be a complete commitment between Barilla and its distributors, because even if the same demand data is utilized, varying forecasting methods and buying practices will result in a continued bullwhip effect. Thus, the same optimal practices much exist across the distributors. The JITD program also results in a reduction in lead time. Given that the information is networked, the demand data takes less time to travel from the consumer to Barilla. For this to be effective, the necessary technology resources must be in place.

Given that lead time reduction (independent of the proposed plan) is unfeasible, if the JITD program were to fail, few alternatives exist. All of the options are based on the concept of reducing variability. First, Barilla could

lessen the number of product options by eliminating the less popular product lines. This risks losing market share as well as visibility on the grocery shelf. Second, Barilla could reduce all pricing incentives and insist retailers utilize an “ everyday-low-pricing,”(EDLP) strategy. By eliminating price promotions, Barilla can minimize many of the dramatic demand shifts that occur, thereby resulting in more constant consumer demand patterns. This plan unfortunately decreases the effectiveness of one of the primary weapons for capturing market shares, pricing. As such, JITD remains the best option for Barilla.

Exhibit 1: Weekly demand for Barilla Dry Products from Cortese’s Northeast Distribution Center, 1989

Exhibit 2: As demand variability occurs by the consumer (at the hand in the diagram), it is amplified at each stage of the supply chain. As such, small changes in demand equal huge repercussions for Barilla

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