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INVENTORY MANAGEMENT AND QUALITY

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Some years ago I worked on a problem related to order fulfillment. Now the mathematics of estimating the safety stock required too meet customer demand with a given level of confidence is well known. However, when I would run projections of the inventory safety stock requirements the numbers were always much larger than the company was willing to hold. This created an interesting and dangerous quality problem. Management would push the planners to hold inventory levels as low as possible and would reward them if they we able to cut inventories. The demand for some of the products was very sparse so planners would gamble that the next month they would not need a unit, so no PO's were placed. If they got lucky and guessed right, they were heroes, but if they guessed wrong, then they suffered humiliation, ostracism, and fear of loosing their job.

This game of Russian roulette went on for years because management had no clue that they were the cause of the problem. When I told them they could improve things by using a sophisticated forecasting program they balked preferring instead to use Excel and linear trend analysis. They had a very weak plan to manage their risk while reducing inventories and this came back to haunt them many times. The things they should have pursued might have made it possible to reduce inventories while still meeting their customer satisfaction goals.

Here are the areas that should have been pursued:

1. For each product agree on a policy as to what fulfillment rate you need for customer satisfaction and the confidence level required.
2. Determine if the product can be built on demand or not. Or if the product can not be built on demand, is the production cycle and delivery time less than the customer satisfaction requirement.

3. Determine safety stock requirements for those items that fall outside the customer satisfaction requirement based on the policy.
4. Work to increase demand forecast accuracy. Sometimes companies have two forecasts one for product and one for revenue. Management should generally try to make production decisions based on projected unit demand. Making decisions on what you want your financials to look like is a program that puts a company in a position of increased risk because they must then be able to control demand. Thus the problem moves from one variable (variance in forecast demand) to two variables (variance in forecast demand plus the variance in the demand adjustment effect).
5. Work with suppliers to have them hold long lead-time items. This will allow you to build more products on demand. However, if the product has a fast ECN change rate, then the issue of who is responsible for obsolete inventory must be addressed.
6. Work internally and with suppliers to reduce cycle times. Have your suppliers work with their suppliers the same way. Again, this will allow you to build more products on demand or at least within the customer satisfaction window.
7. Have your Designers and Engineers use DFX to reduce the distinct part counts and improve production issues.
8. Give rewards and recognition based on statistically significant inventory reductions combined with risk management.

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