

# Seven Costly Pitfalls of Inventory Management

How to Avoid Issues in Your Facility Immediately





Inventory management is the process of managing the flow of goods through a system. Although deciding where and when to hold goods may seem easy to an outsider, inventory managers know it is not as simple as it seems. These managers face a unique challenge to balance unknown demand and varying supply lead times while trying to meet expected service levels.

This is easily one of the toughest challenges for many companies. The first step to meet this challenge is to understand what is currently being done before attempting to improve inventory management.

Identifying key areas of inventory improvement sometimes takes an expert team, but there are some pitfalls you can avoid in the meantime.

Our System Analytics team has gathered seven costly pitfalls every facility can make the mistake of falling into. In this technical paper, we will examine each pitfall and how you can avoid it.

A recent presentation by Dr. Sean Willems from the University of Tennessee highlighted seven pitfalls of inventory management. With these in mind, you can recognize and identify your company's areas for improvement.

### **1. Using Oversimplified Models**

Inventory management models are analytics-based approaches to calculating the inventory needed to satisfy demand and minimize cost. Companies typically utilize these models to calculate safety stock, optimal order quantities, and inventory reorder points.

Complex models risk over-fitting, or being very good at predicting the past, but not the future. Simple models do not include all the relevant variables and can miss important clues. When developing a model, finding the balance between simple and complex is key.

### **2. Opaque and/or Inconsistent Parameter Definition within the Inventory Management Model**

Parameter definition, or defining characteristics of a system, is the foundation of any model. Definitions must be clear and easily understood. If another person picked up the model, would he or she be able to produce the same results as the creator of the model? If the answer is

no, then the inventory model needs to be reevaluated. Proper parameter definition provides transparency of the model and is an integral component to the quality of results that an inventory management model may produce.

When your team develops a model, they should follow the “no black boxes” principle. The stakeholders are aware of, and can trace, the inner workings of each model. By creating glass box models the parameters are transparent, functionality is clear, and stakeholders buy in to the results.

### **3. Misunderstanding the Role of Safety Stock**

Sometimes safety stock is seen as taboo inventory within a company culture. This type of inventory is used to alleviate variability in the world and mitigate uncertainty in supply and demand. Safety stock is a necessity and your company must understand that it is a critical type of inventory to manage.

“Everything should be made as simple as possible, but not simpler.”

Albert Einstein

## ASK YOURSELF

### Are you improving or avoiding?

It's one thing to avoid your inventory management issues and it's another to improve them.

Once you have read through these common pitfalls, consider what you should do to improve your system to make it more efficient.

When you select a team that frequently sizes and designs new warehouses, they usually consider all of the inventory needed to be stored within that warehouse. Take our team for example; we ensure we optimize levels to satisfy the customer's forecasted demand and meet their desired service levels. Other classes of inventory are also optimized, including cycle stock. Once inventory levels are defined, our team works with customers to size the warehouse.

#### 4. Inventory Planners Ignoring Incentives

Inventory planners receive incentives for keeping inventory low and service levels high. These incentives may include promotions, raises, and of course improving overall company performance. If there are stockouts, or incorrect demand planning, inventory planners may ignore other incentives, focus only on service level, and carry too much inventory. To counter this, company culture should not focus on the stock-out days, but instead the overall service level that the company is able to achieve with a smaller amount of inventory.

Typically during the design process of a new warehouse, you should design for a few stock-out days. Eliminating them entirely would require a very large, impractical warehouse. As a result, a planner should not be punished for an event that the design anticipated.

## 5. Mismanaging the Landslide Effect

The “landslide effect” describes the phenomenon of a drop in service levels as a company transitions from a peak season to a low season of demand. This is typically caused because the high demand season depletes inventory and subsequently cannot fulfill the low demand season. The plan builds stock to get through the peak, but struggles once the high season passes and that inventory build is gone.

**Figure 1** below displays this phenomenon happening with a food product with peak demand during Thanksgiving. Identifying the “landslide effect” is the first step to dealing with the problem, and potentially correcting the issue for the future.

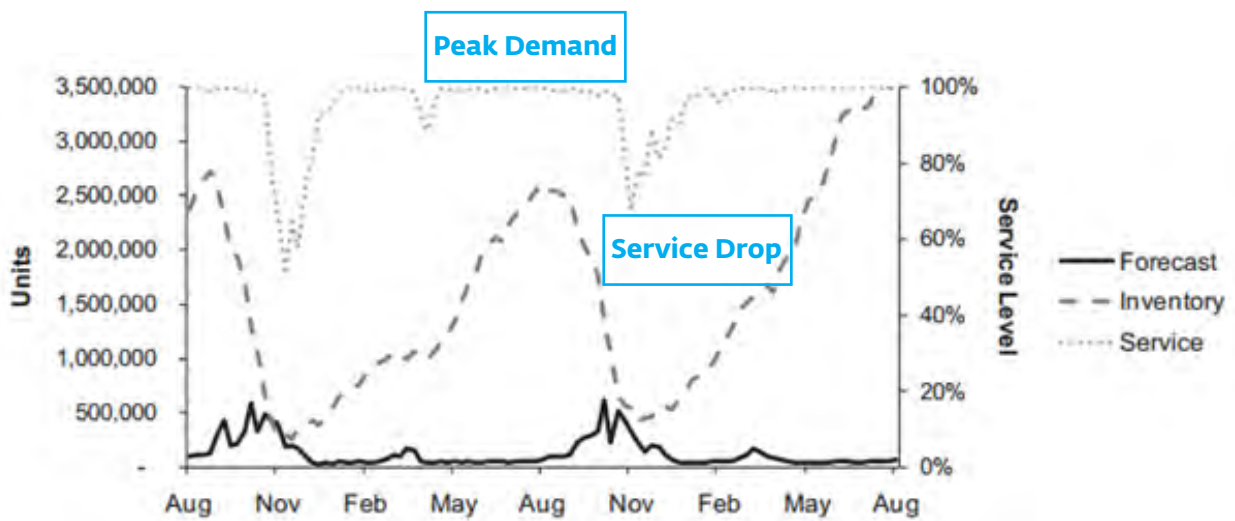


Figure 1 | Source: Neale & Willems

## 6. Forecast Bias

Forecasts are difficult to develop. The world is a complex system; therefore, supply and demand will also have a degree of uncertainty. Many forecasts focus only on the point prediction, or the average value, and appear to disregard uncertainty. In addition, some processes may introduce a systematic forecast bias, meaning they are always a little off target. These factors have negative effects on forecasting demand and determining appropriate safety stock levels.

During a presentation with Dr. Robert Fildes, he discusses some steps to take towards improving forecast quality:

1. Audit the current forecasting activities
2. Establish the current forecasting process
3. Identify areas for improvement

Improved forecast quality translates into better predictions for demand and safety stock levels and, in turn, to a higher service level.

## 7. Multiple Classes of Inventory

A single class of inventory is hard enough to manage, let alone multiple classes. One warehouse may contain numerous inventory classes consisting of, but not limited to, cycle stock, marketing stock, obsolete stock, promotion stock, and strategic stock.

As the number of inventory classes multiplies, the difficulty of managing that inventory increases with it. The goal should be to combine as much stock as possible into a smaller number of inventory classes to decrease the difficulty.

### FINAL THOUGHTS

These seven pitfalls describe some common inventory management mistakes. By no means does this exhaust all of the difficulties that a company may be facing, but these common pitfalls begin to uncover additional inventory management issues.

Once improvement areas are identified, a company can dig deeper and understand how to improve their inventory management strategy to produce desired results.

Dig deeper.

## Have questions about inventory management? Contact us.



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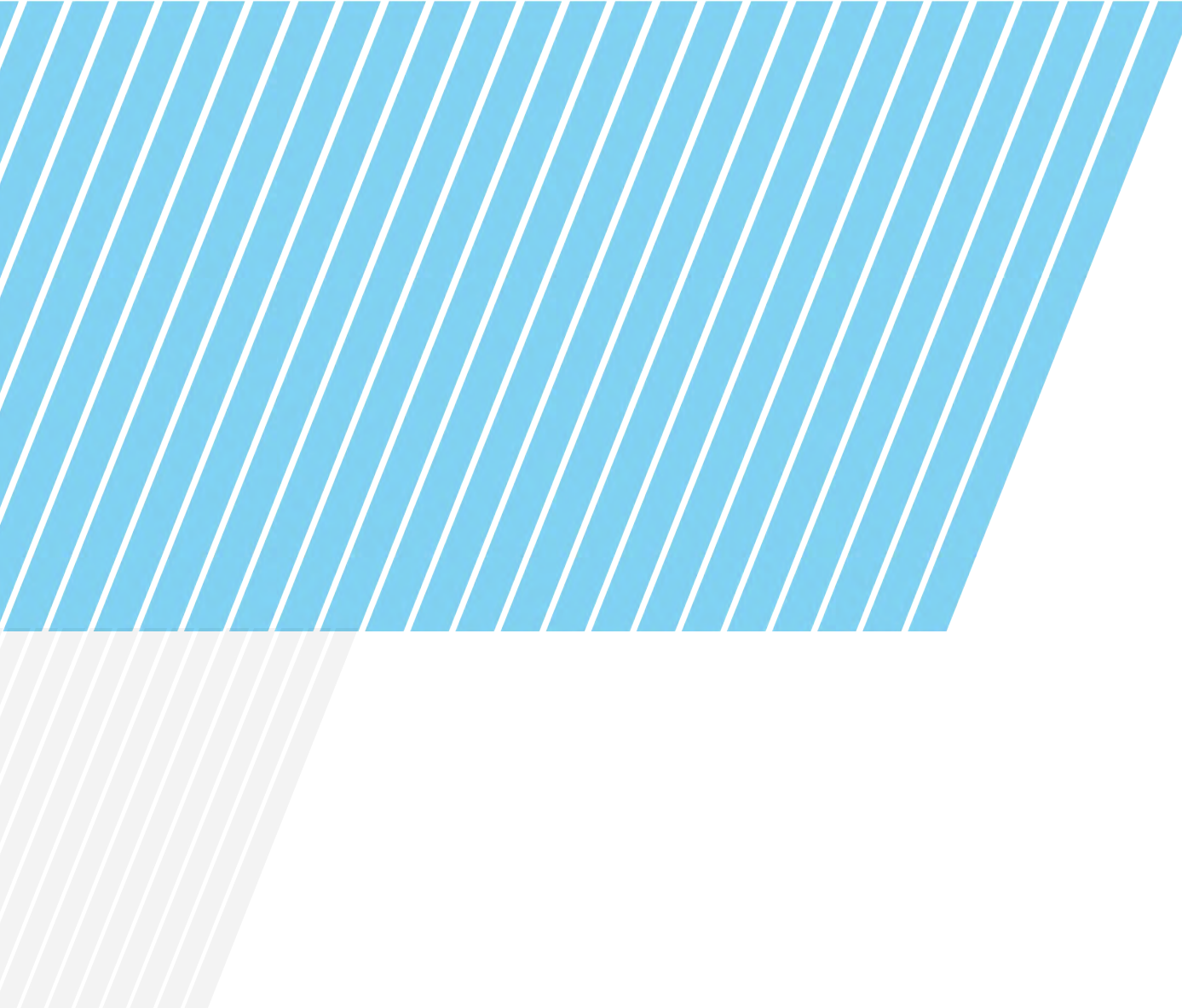
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