Safety Stock and Reorder Point

Every business that holds stock faces two risks: running out, and holding too much. Running out loses sales and trust, while holding too much ties up cash and space. Demand and supplier delivery times are never perfectly steady. Supply chain bodies such as ASCM, formerly known as APICS, teach two simple tools for this: safety stock and the reorder point. We can follow four parts: why buffers matter, how to calculate safety stock, how to set the reorder point, and how to review and adjust.

1. Why Buffers Matter

Stock is bought to cover demand during the lead time, which is the time between placing an order and receiving it. If demand and lead time were perfectly steady, an order could arrive just as the last item leaves the shelf. In reality, customers sometimes buy more than expected, and suppliers are sometimes late. A buffer called safety stock covers this uncertainty, so the shelf does not become empty.

Example: A family buys milk every week. Applying Why Buffers Matter, they keep one extra carton, because some weeks guests visit and some shopping trips are late.

At work: Youssef manages a warehouse of printer paper. Applying Why Buffers Matter, he notes that customers sometimes order more than planned and the supplier is sometimes late. He decides that a buffer is needed.

2. Calculate Safety Stock

Safety stock is extra inventory kept to cover uncertainty in demand and in supplier lead time. A simple method takes the highest likely daily demand times the longest likely lead time, and subtracts average demand times average lead time. More advanced methods use statistics and a chosen service level, which is the chance that we do not run out of stock while waiting for a delivery. A higher service level needs more safety stock, so it costs more.

Example: A traveller allows extra time to reach the airport. Applying Calculate Safety Stock, the traveller compares the longest likely journey with the usual journey and keeps the difference as a buffer.

At work: Youssef's paper sells twenty boxes a day on average, and the supplier usually takes five days. Applying Calculate Safety Stock, he multiplies the highest daily demand, twenty-five boxes, by the longest lead time, six days, and subtracts the average of one hundred. The safety stock is fifty boxes.

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3. Set the Reorder Point

The reorder point is the stock level at which we place a new order. The formula is average daily demand times lead time in days, plus safety stock. The first part is the stock we expect to sell while waiting for delivery. When stock falls to this level we order, so that the delivery arrives before the safety stock is needed.

Example: A café uses ten litres of milk a day, and delivery takes two days. Applying Set the Reorder Point, the café orders when twenty litres plus a small buffer remain.

At work: Youssef multiplies twenty boxes a day by five days, which gives one hundred boxes. Applying Set the Reorder Point, he adds the safety stock of fifty. He places a new order whenever stock falls to one hundred fifty boxes.

4. Review and Adjust

The numbers are not fixed, because demand and lead times change. We review them regularly, check how often stock-outs happen and compare the result with the cost of holding stock. The most important or most valuable items deserve the closest attention. If a supplier becomes more reliable, the buffer can shrink, and if sales become uneven, it may need to grow.

Example: A family's weekly guests stop coming. Applying Review and Adjust, they stop buying the extra carton.

At work: After three months, Youssef reviews the numbers. Applying Review and Adjust, he sees that the supplier now always delivers within five days. He lowers the safety stock to twenty-five boxes, which frees space and cash.

Conclusion

In summary, safety stock and the reorder point protect a business from running out without holding too much. Safety stock is a buffer for uncertainty in demand and lead time. The reorder point is demand during the lead time plus that safety stock, and it tells us when to order. Because conditions change, we review the numbers regularly and adjust them.

Sources

- ASCM (Association for Supply Chain Management, formerly APICS): supply chain education and standards – https://www.ascm.org/
- Wikipedia: Safety stock (definition and formulas) – https://en.wikipedia.org/wiki/Safety_stock
- Wikipedia: Reorder point – https://en.wikipedia.org/wiki/Reorder_point
- APICS is a trademark of ASCM.

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