Preventing Inventory Errors

Introduction

Inventory errors may seem unimportant, something of accounting interest and little more.

Yet, if you do not have the finished goods on hand that you expect, or the materials to make those finished goods, then you can end up delivering products late to customers. This then can end up with payment of penalties, expedited shipping costs or lost customers.

It can also result in personal misfortune. At one company, the President took over while the supply chain manager went on vacation. To his horror, the President discovered they were missing a truckload of expensive raw material. He fired the supply chain manager and went on a witch-hunt to find out who had stolen the materials; only to later discover that this missing material had all been consumed in unreported production scrap over a prolonged period of time.

In this white paper we will examine some common causes of discrepancies between the inventory shown in your ERP system and your actual physical inventory and how to prevent them.

This paper was originally written in 2012 and was re-issued in 2020 when it was just as relevant as when it was originally written.

Causes of Inventory Errors

To understand how to prevent inventory errors, we must first understand the causes. Some of the common causes of error are:

1. Backflushing raw materials inventory based on assumed bills of material for the finished product. This causes errors for the following reasons:

    a. No accounting for scrap or wastage above that accounted for in the BOM.

    b. Delays in recording the withdrawal of raw materials until the finished goods are produced (or even worse – when they are shipped).

    c. Errors in the BOM for making a standard quantity of the part due to variations with length of production run. In many processes there is a certain amount of material that is consumed at the beginning and end of run that does not go into finished product.

2. Errors in recording materials in and out of inventory due to the use of paper forms followed by manual keyboarding of data into a computer. This causes errors for the following reasons:

a. Errors in writing down part numbers, especially in transposition of digits.

b. Errors in keyboarding the data, both part numbers and quantities, due to poor legibility of handwritten paper forms.

c. Delays (often 24 hours) between when the material is consumed or produced and when the transaction is entered into a computer.

3. Errors due to not recording materials as having been received, even though they are sitting on the receiving dock. This is usually caused by:

a. Delays due to using paper forms and manual keyboard data entry.

b. Waiting for QC approval before entering materials into inventory.

4. Errors due to placing materials in overflow locations where they cannot be found.

5. Error in picking raw materials for jobs and in picking finished goods for customer orders.

6. Materials expire before they can be used. This usually occurs when materials are not used in a FIFO order.

7. Errors in cycle counting or inventory auditing due to:

a. Not being able to find all of each item.

b. Not being able to shut down transfers in and out of inventory while cycle counting.

c. Human errors in counting.

8. Errors due to containers not containing the exact amount specified. A 50 gallon drum may not contain exactly 50 gallons when shipped from the supplier or the actual length of a reel of material may differ from its nominal length.

Preventing Inventory Errors

So, can we prevent these problems? Some ways of doing this are:

1. Record material into and out of inventory in real-time rather than use backflushing. This eliminates problems due to delays in data recording and due to BOM inaccuracies.

2. Use barcode scanning to record materials in and out of inventory. This:

a. Eliminates errors in writing down inventory transactions on paper forms

b. Eliminates time delays and errors in keyboarding data into a computer

c. Enables warnings to be given in real-time when picking the wrong materials for jobs or customer orders.

3. Record materials as soon as they are received and track the quality assurance process after receiving. Preferably have suppliers apply tracking barcode to materials and provide electronic data about materials in the form of an Advanced Shipment Notice. Then a simple scan of the tracking barcode will record materials as having been received.

4. Use location barcodes, which are scanned to record where materials are placed. Then a tracking system can enable users to find where materials are stored in age-first order. This can prevent the accidental expiration of materials due to not using them in a FIFO order.

5. Audit inventory one shelf or bin at a time, closing access to that shelf or bin during the count. This reduces human errors by minimizing the amount of materials to be counted and eliminates errors due to transfers in or out during counting.

6. Place tracking barcodes on each drum, reel or other container and record the actual quantity in the container at time of receipt or production. Then the tracking barcode can be scanned to record the specific container (and thus the exact quantity) of material withdrawn from inventory rather than recording an average container quantity as having been withdrawn.

These are simple methods that can provide users of an inventory tracking system with an accurate real-time view of physical inventory.

The resultant physical inventory numbers can then be augmented with the following information:

1. Materials expected to arrive from suppliers

2. Materials expected to be consumed on scheduled production jobs

3. Materials expected to be produced by scheduled production jobs

4. Material expected to be shipped on customer orders

To give a time dependent view of the expected availability of inventory for making additional products and shipping additional customer orders.

Conclusion

Many of the errors in inventory accuracy are not caused by human error. Most are systemic in nature and are fixable by using a barcode tracking system and some simple inventory tracking principles.

Author

Dr. Peter Green is a recognized expert in the use of technology to solve operational problems for organizations such as manufacturers, laboratories, food processors and other industrial and Government organizations. He serves as Technical Director of KnarrTek Inc. and Milramco LLC. Dr Green was educated at Leeds University in England where he earned his BSEE and Ph.D. in Electronics and Computer Science. Prior to founding BellHawk Systems Dr. Green was a Professor at WPI and served on the research staff of MIT.