

## Inventory: tangible and intangible object

The objective is to point out that inventory exists within your system as both a physical item and as an item within your records.

There are many reasons for obtaining and holding inventory, and inventory can play a variety of roles within the life of any organisation.

In order to control and manage the items coming into, through, and out of your facility, it is important to understand not only where an item is physically located at any given time, but also how that existence is being acknowledged within the system.

Some of the most important reasons for obtaining and holding inventory are:

*Predictability:* In order to engage in capacity planning and production scheduling, you need to control how much raw material, parts, and subassemblies you process at a given time. Inventory buffers what you need from what you process.

*Fluctuations in demand:* a supply of inventory on hand is protection: You don't always know how much you are likely to need at any given time, but you still need to satisfy customer or production demand on time.

*Unreliability of supply:* Inventory protects you from unreliable suppliers or when an item is scarce and it is difficult to ensure a steady supply.

*Price protection:* buying quantities of inventory at appropriate times helps avoid the impact of cost inflation.

*Quantity discounts:* often bulk discounts are available if you buy in large rather than small quantities.

*Lower ordering costs:* If you buy a larger quantity of an item less frequently, the ordering costs are less than buying smaller quantities over and over again. (The costs of holding the item for a longer period of time, however, will be greater.)

## Tracking the paper life

In order to gain an understanding of the relationship between an item's real life and its paper life within your own system, you should follow a single item on its path through that system.

In other words, track an item's physical movement through your facility while noting what is happening to its paper life during that same time period.

You will be able to discover when one of these lives moves ahead of the other and when there are system errors such as an item is moved but there is no paperwork authorizing that action.

## **Exhibit 1-2. Real Life and Paper Life Leap Frog**

Carr Enterprises operates six days per week, Monday through Saturday. It has an inventory system that is updated at 4:45 P.M. every day. In spite of the daily updating, the record count and the shelf count in Small Stock Room #1 are often out of balance.

Carr's warehouse manager, Nate, has decided to count everything in Small Stock Room #1 every Friday. He does so for two months. At the end of that time he is angry—the numbers still don't match.

Carr hires Shawn, an ace inventory detective, to help track down the source of the problem. Nate is flabbergasted. He believes he is counting very carefully, and if there is a problem, it is with the computer. Nate declares to anyone who will listen that "the computer is always wrong."

On Monday at 5:15 P.M., Shawn suggests that they examine an item that seems to be out of balance from the previous week's count.

Nate declares, "I'll show you one." Thrusting a brand new inventory Stock Status Report in front of Shawn's nose, Nate states, "Look at these widgets. It says there are 12 of them in stock. When we counted them last week there were 12 of them. I looked at this report this morning, and it said there were 13 of them. Now it says there are 12 of them, but I just looked in the stock room and there are actually 15 of them. See, I told you—the computer's always wrong."

Shawn asks if he can see Nate's count sheet with the widgets on it from the previous week. The sheet looks like this:

Stock Status Report					
Location	Part Number	Description	U/M	Quantity	
AB1002	9063	Gidgets	ea	127	
AB1003	2164	Gadgets	ctn	36	
AB1004	1878	Widgets	ea	<del>18</del>	12
AB1005	9201	Doodads	dz	98	
AB1006	5769	Whoohahs	pkg	<del>101</del>	101

Shawn asks what the notations mean.

Nate replies that when the wrong quantity was on the count sheet, he would "X" it out, write in the correct quantity, and turn the sheet into data entry.

Shawn asked when Nate turned his sheets in. Nate replied, "Friday—why?"

Shawn said, "I understand that you turn the sheets in on Friday. I'm asking, what *time* do you turn them in?" Nate says he does it at about 5 P.M. Thinking Shawn is criticizing him, Nate defensively states, "Hey, they're busy in data entry from 4:30 or so. They're doing cut-off and updates and stuff like that. So I wait until they're done."

Shawn asks when Nate's count sheets are keyed into the system. Nate says he doesn't know.

Shawn asks Hillary, the data entry clerk, when Nate's sheets are keyed in. Hillary replies that she doesn't put Nate's work on the front burner, "if you know what I mean." Shawn persists. He asks again, "who keys Nate's count sheets in and when are they done?" Hillary replies that she works on Saturday but leaves the sheets for Carolyn, the other data entry clerk, to input on Monday.

Shawn asks Hillary if she entered any widgets into the system on Saturday. She says she entered three of them into the system on Saturday.

Shawn asks Carolyn how she handles inputting Nate's

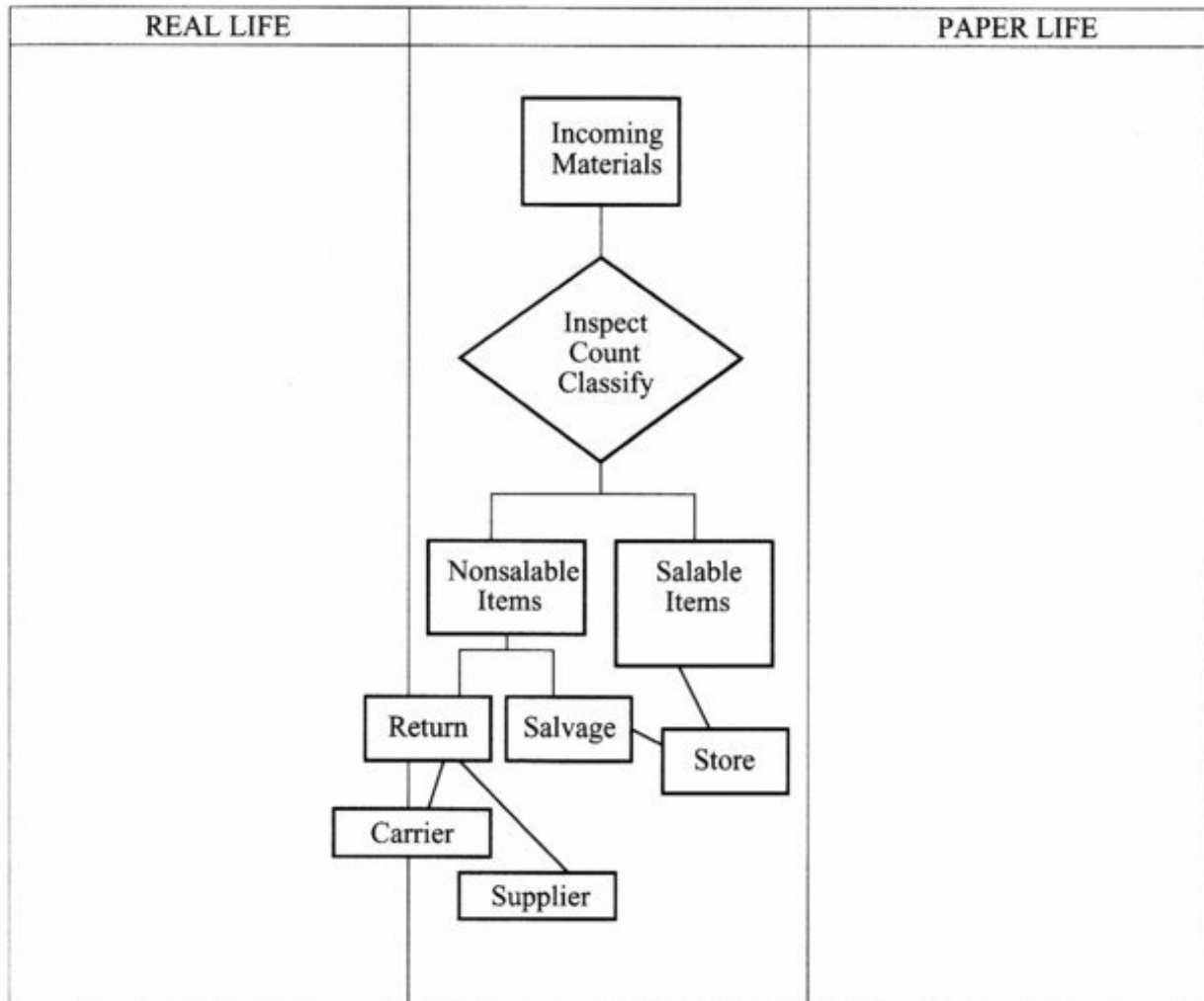
information. She replies that she pulls up the item on her computer screen, checks to see if the total in the computer matches Nate's handwritten amount and if it doesn't, she changes the amount in the system to match Nate's number.

Shawn charts-out the flow of real life and paper life for the widgets, and he comes up with the following:

<b>Day</b>	<b>Record Count</b>	<b>Shelf Count</b>	<b>Notes</b>
<b>Friday @ close of business</b>	<b>10</b>	<b>12</b>	<b>At the start of business on Friday, the system believes there are 10 widgets. There are actually 12. Nate does not note a plus or minus amount on his count sheet. He X's through the 10 and writes in 12. He does not turn in his count sheets until after the system has been updated for that day. At the close of business on Friday, the system still believes there are 10 widgets. There are actually 12.</b>
<b>Saturday @ close of business</b>	<b>13</b>	<b>15</b>	<b>No one enters Nate's information on Saturday. Nate does not know this—he hasn't checked. Three widgets are added into the system on Saturday. At the close of business on Saturday, the system believes there are 13 widgets in stock. There are actually 15.</b>
<b>Monday morning</b>	<b>13</b>	<b>15</b>	<b>Monday morning's Stock Status Report reflects Saturday's numbers. During the day on Monday, Carolyn wipes out the record of 13 and enters the quantity of 12 from Nate's sheets.</b>
<b>Monday @ close of business</b>	<b>12</b>	<b>15</b>	<b>When the system is updated at 4:45 P.M. on Monday, the stock record and new Stock Status Report reflects that there are 12 widgets. There are actually 15. When Nate began counting on Friday the system was off by 2, and when all was said and done, it was off by 3!<sup>2</sup></b>

### Exhibit 1-3. Tracking the Paper Life

Instructions: At each stage of the flow chart below note:



1. Where is the item physically?
2. What pieces of paper(s) authorize that?
3. When is information entered into your computer system?

4. Who is supposed to write something down? What are they supposed to write down? When were they supposed to write it down? Who are they supposed to give the piece of paper to? What is that person supposed to do with it? When are they supposed to pass the piece of paper along?

5. Does any item change its unit of measure within the

system even though it retains the same physical form. For example: Item X is purchased by the master case. When it is entered into the database, a conversion table converts each case into the four cartons within the master case. However, for ease of handling, the cartons remain in the master case for storage. Visually this item appears as a single unit while it will be sold or used as four separate items.

6. After the paper chase, where is the item physically?