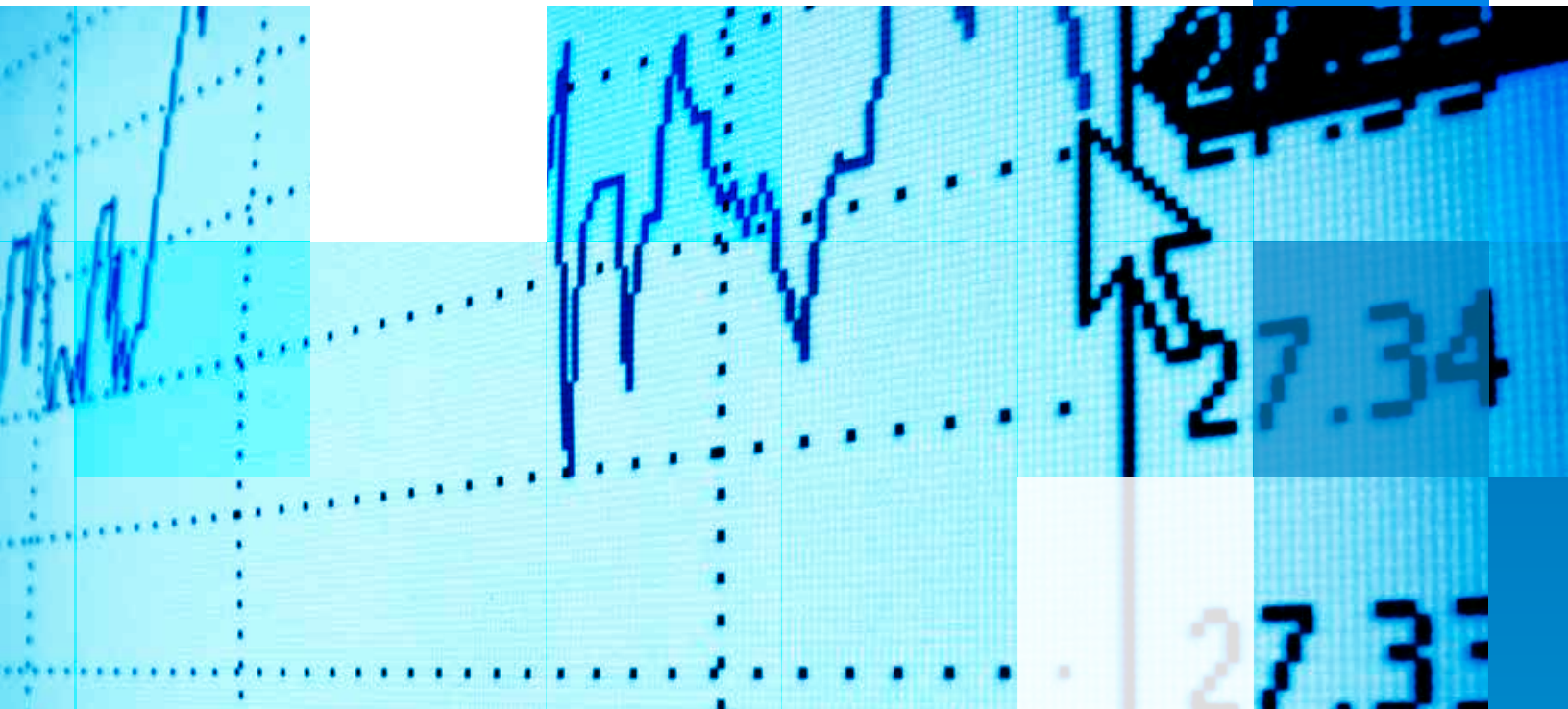


# WHITE PAPER

Count your inventory in the right way  
for right results



– Shantanu Anant Bedekar

## Abstract

ERPs provide many features for cycle count setup and execution. Organizations err by not utilizing any of them or utilizing all of them, thus making it complex. Many allied systems and processes that have a major impact on the effectiveness of the counting program remain under-focused. This article will help organizations setup a sound process for Cycle Counting in their ERP system. The author leverages his extensive experience in setting up successful counting programs in Oracle Applications e-Business Suite to throw light on these areas and suggest best-in-class practices.

## Introduction

Leading ERPs of today provide the capability to set up and execute cycle count program with many inbuilt features. Achieving high inventory accuracy is the ultimate goal of a cycle count program. However, a cutting-edge ERP system by itself does not guarantee good results. A robust cycle count process must be in place to achieve this.

Best-in-class cycle count procedures in a business system consist of the following tenets:

- ABC classification definition
- Cycle count definition
- Cycle count execution



## ABC classification

ABC classification is a common method of ranking parts by their relative importance. Standard ERP packages typically provide several criteria. Some examples of criteria are historical transaction value, historical transaction quantity, item costs, etc. ERPs also provide selection criteria for considering transactions from a specific location or transactions that take place in the entire facility.

Standard ERPs are a fit for all products. However, this may confuse users in finalizing the setup. Often, organizations end up creating undesired setups. It is important to identify appropriate criteria to determine ABC classification before proceeding with ERP setups.

1. **Determine how many classes are required** for effective management of parts. The standard practice is to categorize in three classes: A, B, and C. Some organizations extend it to A+ or A, B, C, and D. Class A items are more important than class B items, which in turn are more important than class C items, and so on. It is necessary to keep these classes manageable as high importance items must be counted more often than low importance items. Defining class D can be beneficial as parts that are of very low value or importance and those that do not need any inventory counting can be grouped under it.
2. **ABC classification should follow a Pareto distribution** with few high impact / importance items and many low impact / importance items. The percentages should be set in a way that only important items fall in class A whereas bulk of the parts fall in class C. Having more items in class A may seem beneficial as more items will be counted more number of times. However, this increases overhead on the warehouse personnel unnecessarily as the number of counts increase substantially. Check Figure A for the impact.

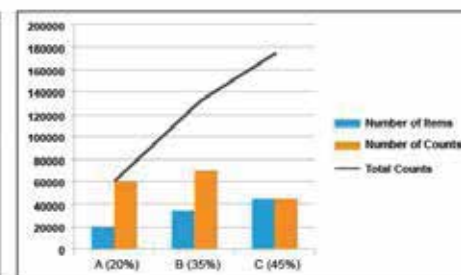
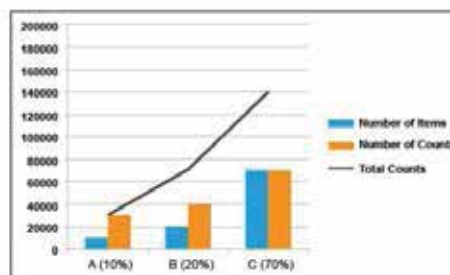
3. As mentioned above, most of the ERP products provide different **criteria for calculating ABC classification**. One of the most widely used practices is to base ABC on historical transactional value of items in the previous year. Many ERPs lack the ability to choose the transaction types to be considered for this calculation. Depending on the warehouse structure and flow of material in a warehouse, some organizations need to consider only those transactions where material is issued to work orders or to sales orders. Complex warehouse structures with a central storage location and many production line side feeder locations should choose transactions that move material from central storage to line

4. A feature that ERPs commonly lack is the ability to **choose the type of items to be included in the ABC calculation**. This problem is typically faced by 'assembled-to-order', 'configured-to-order', and 'engineered-to-order' products. In these manufacturing scenarios, the end product is produced only against firm sales order demand. They are shipped almost as soon as the assembly is over. The cost of such finished products is usually very high. Including them in ABC calculation by 'historical transaction value' skews the results. It is better to not consider such items for calculation.

Total Items	100000
A class	Count 3 times a year
B class	Count 2 times a year
C class	Count 1 time a year

Class	Number of Items	Number of Counts	Total Counts
A (10%)	10000	30000	30000
B (20%)	20000	40000	70000
C (70%)	70000	70000	140000

Class	Number of Items	Number of Counts	Total Counts
A (20%)	20000	60000	60000
B (35%)	35000	70000	130000
C (45%)	45000	45000	175000



### Recommendation:

Accurate and appropriate ABC classification of inventory is the first step to setting up a cycle count program. The next step is to set up the cycle count definition in the ERP system.

#### Some recommendations are:

- Downgrade the ERP suggested ABC item classification
- Match data as per the organization's need
- Re-upto the ERP system as the final ABC classification



## Cycle count definition

ERPs provide various features to define cycle counting. Not all of them will add value to every organization. However, non-utilization of features may impose limitations on the achievement of full potential of the package. Therefore, features should be chosen and set up to suit an organization's need and structure.



1. **Decide locations that should be counted:** A manufacturing plant or distribution warehouse is usually divided into different areas such as receiving dock, main storage warehouse, production line side storage locations, and staging and packaging area. It is not always necessary to count receiving or shipping docks as items move through them at a fast pace and are hardly stored there. Materials are stored for a longer time in the storage locations and line side locations. Such locations have a high potential for inducing inaccuracies and affecting downstream activities such as production, assembly, and shipping.

Removing unnecessary locations from the counting scope keeps the counting process manageable and efficient.

2. **Decide number of counts per class:** As shown in Figure A, deciding on the number of counts per class will impact the total number of counts to be carried out. Counting every item, multiple times, is likely to increase the accuracy. However, the cost of counting class C items multiple times and the benefit from improved accuracy should be weighed against each other. The widely used practice is to count class A items three times per period, class B items two times per period, and class C items once per period –

here period refers to the cycle count period. Keeping class D items out of cycle counting is a good practice.

3. **Decide duration of count:** Typically, a start date and an end date needs to be provided when cycle count is defined in the ERP system. Based on the duration, the system generates counts for that period. Defining a smaller period will increase the number of counts unnecessarily. The recommended practice is to set the duration to one financial year. Setting up a year's count aids in the final reporting and auditing.

4. **Use recounting feature:** Many ERP packages offer a powerful feature to recount automatically when the count quantity entered is outside tolerance limits. This feature helps in weeding out manual counting errors and improves the total inventory accuracy. Recounting once is a good strategy but doing it more than once may not have any significant impact on the overall accuracy.
5. **Use approvals, if possible an approval hierarchy:** ERP packages provide the functionality to set tolerance levels by class and sending a count for approval in case it falls outside the tolerance. This functionality is useful as it keeps supervisors or managers aware of the count accuracy on a regular basis. If required, a supervisor or manager can include a certain class of items in a control group. These items can be counted every day or every week. If the ERP provides a functionality to set approval hierarchy, the bulk of the approvals should go to supervisors and outliers to managers.
6. **Decide frequency of counting:** ERP packages also provide the feature to generate count list every day, every week, or per financial period. Setting up periodic cycle count is a good idea for small size warehouses or plants having low velocity of material movement.

For a plant / facility with regular material activity, setting up daily or weekly count generation frequency is the recommended approach. This feature helps in identifying problem areas quickly by keeping a tab on overdue counts and analyzing accuracy reports on a weekly basis.

7. **Adding new items to the cycle count definition:** Most ERP packages lack an automatic process in this area. Users are left to set items to be added to the cycle count list. Adherence to the process by users determines whether every new item assigned to the manufacturing / distribution organization is added to ABC and cycle count list. Not adding an item to the cycle count list does not impact the supply chain immediately. This, however, results in the creeping in of non-adherence to the process. Therefore, it is a good practice to develop an automatic process of assigning new items to a cycle count. They can be assigned based on predefined criteria such as assigning every new item to class C, or assigning items based on the item cost, etc. Alternatively, notification can be sent to the appropriate person when an item is activated in the organization.
8. **Use control group feature:** The control group feature is an excellent tool to tackle problem areas in the warehouse.

It aids in continuous improvement of count accuracy. Items in a control group are included in the count list every time the list is generated irrespective of their class and count settings. Inventory managers should include items that appear often in the adjustments or items stored in a specific area of the warehouse that show high level of count inaccuracy. Control group feature can also be used when setting up a new count program including only a small set of items to start with. Managers should analyze count accuracy reports on a weekly basis. They should identify items and / or locations that need attention and should include them in the control group.

9. **Decide number of cycle count definitions:** ERPs provide the feature to define multiple cycle count definitions that may overlap with each other. While defining multiple count definitions it is useful to have different approval tolerances, adjustment accounts, different setting for number of counts per ABC class, etc. Defining a single cycle count definition for the entire organization is the ideal practice. This eases reporting and helps in comparing results from different warehouse locations as they have the same cycle count settings. If there is a need to focus on a specific area, the control group feature should be used instead of defining a cycle count for that area alone.



## Cycle count execution

Setting up a sound execution process for count entry and approval is the final important step in the cycle count program. The following points should be considered and acted on before setting up the counting process.



1. **Setting aside a fixed duration** when there is minimal activity in the plant or warehouse. For plants running only one shift, counters can arrive early in the morning before shift starts. Plants running multiple shifts can choose a time during the night shift or during a change of shifts when fewer transactions are happening in the system. If there is any delay in recording data to the ERP and actual material picking or put-away, material may be picked from a location but might not yet be entered in the system. If the counting happens exactly at this point, it will cause an incorrect adjustment. Therefore, it is recommended that up to an hour be set aside during non-peak hours.

2. **Use handheld radio-frequency devices to record transactions at point-of-use:** Most ERP packages now provide a user interface for count entry on handheld RF or mobile devices. This functionality enables recording transactions in the system immediately after physical picking or placing of material takes place. As RF / mobile devices work mainly by scanning barcodes for various data fields, they help in avoiding data entry errors. This leads to higher system inventory accuracy.
3. **Run interface between external systems at a frequency as high as possible** to keep the real time inventory picture.

Most organizations have multiple systems on the shop floor and in the warehouse that are integrated with the main ERP system. Examples include advanced warehouse management systems, manufacturing execution systems, quality assurance systems, or bolt-on products catering to specific industry needs. Material transactions are recorded in these systems and are interfaced with the organization-wide ERP system. It is necessary to keep data recorded in auxiliary systems as close as possible to the real-time sync with the ERP system. Delay in interfacing data with ERP causes incorrect count adjustments as explained previously.



4. **Error handling of interfaces:** Logical extension to the point above is the handling of transactions that are stuck as errors in the system interface. This area is often overlooked with no user interface / screens to review and re-submit data. Organizations should enable automatic email notifications to concerned users when transactions error out in the interface. Users should have the ability to process and re-submit the data using a document that lists all error codes / cases and their resolutions. It should be noted that people move and only meticulous documentation can assure smooth transition of knowledge. Fixing errors and completing transactions in the ERP assures that multiple systems are in sync with each other and all transactions are recorded in the ERP.

5. **Use barcodes and handheld radio frequency devices for count entry.** The common practice of counting is – counters pick up the count list from designated printers, record counts on the printed list, return to their work stations, and log details in the ERP. This practice induces possible errors by causing a delay in counting and recording. It is also prone to manual data entry error. Instead, handheld or mobile devices can be used to enter counts in the system. Also, a system can be set up where counters scan the location barcode from the shelf and part barcode from the label / receipt-traveler affixed to the part. This ensures that counters are counting the right item at the right locator. It also ensures that no physical transaction takes place between counting and recording of the count in the system.

6. **Overdue counts printing and completion:** A process of automatically printing overdue counts, or a notification process where managers are notified with overdue counts could be set up.



Managers should then follow-up with supervisors and counters regularly to reduce the overdue counts to zero. This ensures that counts do not pile up. When counters count more than they can handle to complete the backlog at the end of the period, they invariably end up with incorrect counts.

7. **Continuous cycle counting:** This must be a high-priority goal of an organization. Continuous cycle counting is a process where no time period is set aside for counting. Warehouse personnel can finish their quota of counts whenever they have time.

However, continuous cycle counting is possible only when ERP system supports it and when the data is really 'real-time'. Continuous cycle counting is possible if organizations focus on points 2, 3, and 4 and achieve 'real time data entry at point-of-use'. This improves the work throughput of the facility by eliminating an unproductive fixed 'count hour'. It also improves the utilization of warehouse personnel by allowing them count when they have time available between feeding the assembly / shipping or clearing away receiving docks.



## Process discipline

Methods to ensure that processes are followed as per set rules, is a topic worthy of a separate article. As is true for any other program in the organization, maintaining process discipline holds great value. Any deviation from the process and indiscipline leads to failure. It wastes efforts of all people involved in the cycle count program. Organizations must apply principles and practices to achieve excellence in process execution in other areas. To achieve a high level of discipline, bottom line of individual tasks must be assigned to appropriate personnel and the result of each task must be continuously reviewed.

## Conclusion

Cycle counting is a continuous improvement process whose goal is to improve inventory accuracy. Accuracy of inventory records is important for several reasons. They range from financial (inventory book value, taxation, financial ratio analysis) to operational

(stock-outs and interruptions to production, waste of people and machine time, employee confidence in the ERP/ MRP system) factors. Cycle counting is a perpetual program as organizations have to keep it functioning to maintain inventory accuracy.

Organizations invest huge sums in initial implementation and even bigger sums in maintaining and supporting ERP systems. Not utilizing cycle counting features in the right way amounts to financial waste. A sound three-pillar foundation can help organizations reap benefits from the ERP system and achieve high inventory accuracy through a robust cycle count program.

## About the Author

**Shantanu Bedekar** is a Lead Consultant with Enterprise Solutions in the Industrial Manufacturing vertical of Infosys. Shantanu has over 9 years of experience in the IT industry as an Oracle Application e-Business Suite (ERP) Consultant. He has provided consulting services to clients in the discrete manufacturing space in Manufacturing, Costing, Planning and Distribution areas. He has worked with clients across geographies located in North America, Europe and India. He has contributed, on an individual capacity, as ERP consultant and has also led teams as Project Manager and Solution Lead. He has been involved in large business system transformation projects.

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