

Everything about Perpetual and Periodic Inventory Management Methods



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Introduction

"Inventory in the warehouse is considered an asset, but if you fail to manage it proficiently, it won't take long for your asset to become your liability."

According to waspbarcode's [small business report](#), there are around 46% of small businesses in the United States that don't track their inventory or use a manual method.

Surprisingly, most businesses don't exactly know whether they need to manage their inventory smartly. And once they figure that out, they get stuck in a dilemma of whether they should adopt perpetual inventory management, periodic inventory management, [ABC analysis](#), [Just in time](#), FIFO, LIFO, [EOQ](#), two bin control, [dropshipping](#), cycle counting, fast and slow moving inventory etc.

You can read about inventory management methods by clicking on them and choosing any one of them depending on the nature and scale of your business, the budget of your business and staff and warehouse operations of your business.

If you want to know about Perpetual and Periodic Inventory Management Methods, read on -

Perpetual Inventory Management



It's always about time; time plays a vital role in today's world you lose time, you lose money. To be precise, you lose money on inventory. The business owners and

warehouse managers soon identified this, and therefore they wanted an inventory management method that helped them make instantaneous changes in their inventory levels.

As a result, in the quest to find a more proactive way to manage stocks and register the additions and subtractions in stocks, one of the many methods of Inventory management, Perpetual inventory management - one of the most modern and effective ways of managing your inventory was made possible in the early 1970s with the use of digital computers.

What exactly is Perpetual Inventory Management?

The perpetual inventory method of accounting inventory, as the name suggests, is about tracking inventory 'perpetually' as it moves throughout the supply chain. In this approach, warehouse managers keep a continuous track of inventory balances, which means the stock is updated automatically every time an item is received or sold through every point of sale.

The president of [Max Muller & Associates LLC](#) and Author of "[Essentials of Inventory Management](#)," Max Muller says, "Perpetual inventory management systems keep track in real-time. It uses software to follow the rules, keep the system up-to-date, and it works great. I recommend doing 3D-counting, where you count cross-sections often enough to account for the whole over time. You could consider this perpetual, but it would need to be software-driven and follow the rules or do a variation."

In the perpetual inventory management, purchases and returns are also recorded automatically in the inventory count.

Perpetual inventory management utilizes barcodes scanning, radio frequency identification (RFID) scanners, and inventory management software integrated with POSes, CRMs, MarketPlaces like Amazon FBA, purchase, order, and return management softwares to track inventory in real-time.

This ability of modern cloud-based inventory management softwares to get integrated with all the systems makes perpetual inventory management more practical. It empowers businesses to speed up their financial and accounting matters. Inventory

being an essential asset to the companies, perpetual inventory management also enables the accounting teams to create more accurate tax and regulatory reports.

Perpetual inventory management formula is straightforward -

Beginning inventory (usually from a physical count) + receipts - shipments = Ending inventory.

What types of business should use Perpetual Inventory Management Method

Huge businesses with multiple warehouses and large amounts of inventory generally resort to perpetual inventory management methods. However, SMBs looking to grow fastly also can adopt this method to track inventory.

Physically counting inventory or carrying out cycle count frequently is almost next to impossible for a large scale industry with thousands and lakhs of SKUs. Hence perpetual inventory tracking is the most app inventory management method.

For instance, let's assume you have a business of t-shirts and jackets. You keep your inventory distributed in 8 warehouses. One day you get an order for a woolen coat that has been very rarely asked, and it's a summer season.

What are you going to do? Well, if you are managing your inventory perpetually, all you have to do is just sit and chill because the warehouse having that jacket will get the notification about the order. They would do the rest of the job. It's as simple as that since the systems are connected, and new data is flowing to each warehouse manager through an interlinked system.

But if you have a periodic inventory management system, you will have to call your warehouses and tell them to find that jacket and ship it. It would take more time and cause problems.

Another type of business that requires perpetual inventory management methods is dropshipping companies. Their products move from the manufacturer or supplier to customers all the time, and there are returns and exchanges. Their inventory is always

moving, and to know which product is in stock and which one is not, they need to track the flow of inventory perpetually.

How a Perpetual Inventory Management Method Works

Whenever there is a sale of a product, the inventory management system attached to POS immediately applies the debit to the main inventory across all channels if all the channels are well connected.

Similarly, whenever products are coming into the inventory, the workers can scan those products' barcodes with RFID scanners, and the inventory count gets updated instantaneously.

As soon as the change is applied, the inventory on hand changes, which allows you to be well aware of your stock levels. Unlike the periodic inventory management method, you can calculate the cost of goods sold frequently as the changes in the inventory.

However, even in the perpetual inventory management, you will sometimes need to count stock to make sure that the virtual stock count aligns with the real inventory whenever there are discrepancies in the on-hand stocks in real.

As far as accounting is concerned the perpetual inventory calculations are based on three parameters -

- Real-time changes in the inventory
- Changes due to discards or depreciation in inventory
- Theft or shrinkage in the inventory

Although, real-time data is the most noted parameter in perpetual inventory management method and alterations in the inventory due to discarding, depreciation, and theft or shrinkage are often adjusted manually in the end while accounting.

Formulas in Perpetual Inventory Management Method

Mathematical formulas are always helpful to make accurate decisions related to ordering new inventory like when to order, how much to order, how much lead time is needed, and what amount of stock should be allocated to be kept as safety stock.

EOQ Model

The Economic Order Quantity (EOQ) model is used to determine the amount of inventory to buy to meet the demand and reduce increasing inventory holding costs. Perpetual inventory accounting helps you to know your inventory flow with the help of which you will be able to calculate EOQ easily.

$$EOQ = \sqrt{2ds}/h$$

Where,

d= Demands in unit per year

s= order cost per purchase

h=holding cost per unit per year

The Cost of Goods Sold (COGS)

In the perpetual inventory management method, the COGS is also calculated perpetually. As the product gets sold, it increases the cost of sales, aka Cost of Goods Sold (COGS). It encompasses the money invested in producing goods, along with labor and material costs.

$$COGS = BI + P - EI$$

Where,

BI = Beginning Inventory

P = purchase for the period

EI = Ending inventory

*COGS in perpetual inventory management is calculated after every sale, but you can figure it for a period using this formula as well.

Gross Profit Method

Gross profit is calculated in a bit different way in perpetual inventory management. To calculate gross profit, you might have to make an estimate of the final inventory for a particular period while preparing accounting documents and statements.

Here's how the calculation of the gross profit method would look like when you want to estimate the ending inventory from the current month.

You need to know -

- Gross profit as a percentage of total sales
- Beginning inventory for the period
- Purchases for that period
- The total sales for that period

Using this, you can figure out the estimated ending inventory and the bottom line that you have earned.

Look at the table below to get the understanding of it practically.

	Estimate	Figures
Sales	100%	\$ 1,000,000
COGS	60%	\$ 600,000
Gross Profit	40%	\$ 400,000
Beginning Inventory		\$ 300,000
Purchases		\$ 400,000
Cost of goods available for sale		\$ 700,000
Minus COGS		\$ 600,000
Estimated Ending Inventory		\$100,000

Cost Flow Assumptions to Calculate COGS and End Inventory in Perpetual Inventory Management

An inventory accounting method, cost flow assumption uses the real value of the products from the beginning inventory period and the expenses done in purchasing the new inventory in that period to calculate COGS and the ending inventory value.

There are three cost flow assumptions - FIFO, LIFO, and WAC (Weighted Average Cost).



FIFO Perpetual Inventory Method

FIFO (first in first out) is a method to account for an inventory in a way that the stock purchased first will be sold first so that the leftover inventory is always the recently purchased inventory. For the perpetual FIFO cost flow assumption, the company

records sales as they happen in the ledger. It is a cost flow estimation to evaluate the stocks.

The significant difference in the ledger in a perpetual inventory method compared to a periodic system is that the balance is a running tally of the value of sold units and the total units.

The total unit cost transferred over to the balances happens when the stock sold comes in. The value of the stock the company bought will be consistent throughout its lifecycle in the company.

Below is the example of Inventory card in FIFO perpetual inventory management method -

Date	Purchases	Sales	Balance
Jan.01	Beginning balance		24U×\$1,000=\$24,000
Jan.04		16U×\$1,000=\$16,000	8U×\$1,000=\$8,000
Jan.07	12U×\$1,020=\$12,240		8U×\$1,000=\$8,000 12U×\$1,020=\$12,240
Jan.10	10U×\$1,050=\$10,500		8U×\$1,000=\$8,000 12U×\$1,020=\$12,240 10U×\$1,050=\$10,500
Jan.14		8U×\$1,000=\$8,000 8U×\$1,020=\$8,160	4U×\$1,020=\$4,080 10U×\$1,050=\$10,500
Jan.23		4U×\$1,020=\$4,080 8U×\$1,050=\$8,400	2U×\$1,050=\$2,100
Jan.24	12U×\$1,060=\$12,720		2U×\$1,050=\$2,100 12U×\$1,060=\$12,720
Jan.27	4U×\$1,080=\$4,320		2U×\$1,050=\$2,100 12U×\$1,060=\$12,720 4U×\$1,080=\$4,320
Jan.29		2U×\$1,050=\$2,100 4U×\$1,060=\$4,240	8U×\$1,060=\$8,480 4U×\$1,080=\$4,320
Total	\$39,780	\$50,980	\$12,800

Image courtesy - [Accounting for Management](#)

Fifo method should be used when the company is trying to show its immense potential of earning huge profits. FIFO shows fewer COGS investments and a higher bottom line.

LIFO Perpetual Inventory Method

Last in first out (LIFO) is the cost flow assumption that is used by business to calculate the worth of their inventory. This method also uses the running ledger tally for purchases and sales. The only difference is that here the last-placed stock is sold first, and thus the leftover inventory is the inventory that was purchased first i.e. the oldest one.

The software debits the closing costs available at the moment of the sale first from the COGS account.

Refer the inventory card for LIFO perpetual inventory management method-

Date	Purchases	Sales	Balance
Aug.01	Beginning inventory		20 units × \$40 = \$800
Aug.07		14 units × \$40 = \$560	6 units × \$40 = \$240
Aug.12	16 units × \$42 = \$672		6 units × \$40 = \$240 16 units × \$42 = \$672
Aug.17		8 units × \$42 = \$336	6 units × \$40 = \$240 8 units × \$42 = \$336
Aug.23		4 units × \$42 = \$168	6 units × \$40 = \$240 4 units × \$42 = \$168
Aug.27	8 units × \$44 = \$352		6 units × \$40 = \$240 4 units × \$42 = \$168 8 units × \$44 = \$352
Aug.30		8 units × \$44 = \$352 2 units × \$42 = \$84	6 units × \$40 = \$240 2 units × \$42 = \$84
Total	\$1,024	\$1,500	\$324

Image courtesy - [Accounting for Management](#)

The LIFO method is a great way to show higher COGS expenses and lower net income. This method can be used in tough times and decrease tax liabilities.

Weighted Average Cost Perpetual Inventory Method

The Weighted Average Cost (WAC) is the average cost of goods sold for the entire inventory. The calculation for the weighted average cost is performed in a different way for perpetual inventory management. In WAC, each inventory item is given a standard average price whenever a sale or purchase happens.

In a perpetual system, the formula that considers a specific period is not found because, in perpetual inventory management, things change in real-time. WAC is generally used to calculate an average unit cost, ending inventory for a period, and COGS for a period.

Date	Purchases	Sales	Balance
Jun. 01	Beginning balance		200units × \$10.150 = \$2,030
Jun. 05	800units × \$10.250 = \$8,200		1,000units × \$10.230 = \$10,230
Jun. 07		400units × \$10.230 = \$4,092	600units × \$10.230 = \$6,138
Jun. 12	600units × \$10.400 = \$6,240		1,200units × \$10.315 = \$12,378
Jun. 14		500units × \$10.315 = \$5,158	700units × \$10.315 = \$7,221
Jun. 20	400units × \$10.500 = \$4,200		1,100units × \$10.383 = \$11,421
Jun. 25	800units × \$10.700 = \$8,560		1,900units × \$10.516 = \$19,981
Jun. 26		1,400units × \$10.516 = \$14,722	500units × \$10.516 = \$5,258
Jun. 28		200units × \$10.516 = \$2,103	300units × \$10.516 = \$3,155
Jun. 30	600units × \$10.850 = \$6,510		900units × \$10.739 = \$9,665

Image Courtesy - [Accounting For Management](#)

When You Should Use Perpetual Inventory Management Method

Experts around the world have agreed that a perpetual inventory management method is the future of inventory management, and all the large establishments who are looking to grow exponentially and understand margins and profitability should use this method.

Muller explains, "The future of this industry is leaning towards more real-time identification of products and improving on everything having to do with transmitters in and on products. Really, these are automatic forms of identification. It doesn't matter where you store it, you can find it."

Each time a sale or purchase happens, the perpetual inventory method records those changes into the sales revenue account. This way, the accounting records show accurate balances in the accounts affected.

Prices charged from the consumers are also reflected in the sheet. In the perpetual inventory management method, you should know the purchase price (costs associated with a product like manufacturing costs and inventory carrying costs), selling price, and all the accounts affected.

When You Want to Become an Omnichannel Business

What is the essential thing required to go omnichannel for an ecommerce business?

It's the information about the changes in inventory levels across all channels in real-time.

For example - You have an online store and a brick and mortar store of shoes. Now, if a customer buys a pair of shoes online and later wants to return those shoes by personally visiting your brick and mortar store because he/she wants to buy another pair of shoes by individually checking them.

What would happen?

Of Course, it's impossible to return a product bought online in a brick & mortar store for your customer if you are not an omnichannel business.

But, if you were an omnichannel business, here's what would happen.

The moment the shoes are ordered online, the centralized inventory would be updated perpetually, and even the brick & mortar store would be aware of that sale. And when the customer would reach the physical store to return that product of that different SKU, the store can efficiently process the return and update it in the POS through which the inventory management system will update the inventory instantaneously.

Thus, a perpetual inventory management method is significantly beneficial in helping businesses go omnichannel and improve the consumer experience.

Let's go through a case study of a company that has used the Perpetual Inventory Management Method to understand.

The Sulfo Case Study

After researching in great depth, I finally found the case study of Sulfo Rwanda Industries. It's an excellent example of the practical applications of the perpetual inventory management method.

First up, a brief introduction about Sulfo Rwanda Industries. As mentioned on their site, they are manufacturers and distributors of FMCG products, based in Kigali, Rwanda.

In the study, it is found that Sulfo uses a perpetual inventory system to keep track of their stock and calculate the cost of goods sold (COGS) at the end of the accounting period.

Through the survey conducted, the respondents revealed why Sulfo used the perpetual inventory management method.

The reasons were the following-

1. It keeps the balance of inventories up-to-date every time.
2. It helps the cost of goods sold calculation without taking periodic inventory count. Perpetual inventory system gives continuing information needed to keep maximum and minimum inventory levels by analyzing the appropriate timing of purchase.
3. It gives information about the number of goods on hand at various locations.
4. Perpetual checks provide a basis for measuring the amount of theft.
5. It gives the costs of goods sold needed to record sales at both the selling price and cost price.

The respondents revealed that the perpetual inventory system involves the maintenance of up-to-date inventory records in the inventory management system during the accounting period, for the inventory of all stocked goods. Thus, stocks are maintained at the following level:

- Units and costs of the beginning inventory
- Units and costs of each purchase
- Units and cost of goods sold
- Units and prices of goods on hand at any time

The study finally proved that Sulfo Industries used raw materials such as fuel oil, peat, gypsum, gas-oil. They realized using a perpetual inventory management method is more beneficial so that they recognized the required documents during the accounting period.

To Sum up, listing down the PROs and CONs of the Perpetual Inventory Management Method would be an easy way to understand whether the method would be apt for you or not.

Pros

- **Tighter inventory control**– continuous monitoring enables businesses to have a firm hold over their inventory, knowing what comes in and what goes.
- **Preventing stock-outs or overstocking**– obviously, with higher inventory control, you'll always be aware of the status of your inventory, helping you decide how much or how little you need. This way, the perpetual inventory system enables you to avoid over-stocking as well as stock-outs since you'll be alert when products need restocking.
- **Saving inventory and storage costs**- since you'll always be up-to-date with inventory count, you won't have to stock more than required, assuming sales will be higher. Imagine how much capital and storage costs you can save by maintaining only the necessary amount of inventory! In short, you will be saving on excessive inventory carrying costs.
- **Reduce inventory shrinkage**- According to a study by the National Retail Federation, [inventory shrinkage cost about 1.33% of sales in 2017](#). Now inventory shrinkage happens for several reasons like damage, theft, loss. It is the difference between inventory you THINK you have on-hand and the stock you have on-hand. Perpetual inventory system quickly identifies any discrepancies due to theft or shrinkage and eliminates guesswork when it comes to setting replenishment levels because you always know the exact inventory level.
- **Use of technology**- Perpetual inventory system uses perpetual inventory system software for real-time inventory tracking. Products are scanned with the use of barcode scanning for accurate inventory levels.
- **A better understanding of consumer preferences** - Because you can monitor credits or debits in inventory count in real-time, you can understand the consumer behaviors and accordingly forecast the demand for the coming days.
- **It complements other inventory management methods** like ABC analysis, FIFO (first in first out), LIFO(last in first out), EOQ, etc. by allowing you to have a proper understanding of inventory flow anytime.

- **Centralization of Inventory** - Perpetual inventory management offers an excellent opportunity to businesses who are looking to centralize their inventory and initiate the omnichannel approach.
- **Increases Accuracy** - Since each product's life cycle is recorded on a separate ledger. You get accurate data, and precise data in today's time is more significant than money.
- **Provides valuable information** - Business owners have a wide array of information such as discount patterns and effectiveness of discounts on each product, purchase patterns, and return patterns.
- **Less physical counts** - you don't have to worry about taking a physical count of inventory now and then because you know stock on hand.
- **Equips Salespeople with real-time data** - With data coming in frequently, sales teams can use that to provide legitimate shipping information and set customer expectations elevating the consumer service levels.

Cons

- Time-consuming- the perpetual inventory system cannot be maintained manually since it entails continuous tracking of inventory. Since it is crucial to record each order right away, it keeps managers always on their toes about syncing inventory on the system.
- Discrepancies can always arise- continuous tracking of inventory seems a good strategy in general, but what if there are errors while updating inventory count. Since there is no place for regular physical inventory counting in the perpetual inventory system, there can be a possibility where inventory levels may differ from actual inventory in the warehouse.
- Expensive for small businesses- small businesses may feel that a perpetual inventory system might require investing in [inventory management software](#), IT setup, and other specialized equipment. An additional expense includes training employees on how to operate them.

Periodic Inventory Management Method



One of the most simple and oldest inventory management methods, the periodic inventory system, like its name, calls for 'periodic' inventory counts after a set timeframe. These periods can be decided according to you; it could range from a few hours to monthly to annually. This type of method is generally used by small companies that don't have many stocks to track or slow sales rate.

In the write up ahead, you would understand everything about the Periodic Inventory Management method and whether you should choose this method or not.

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In the write up ahead, you would understand everything about the Periodic Inventory Management method and whether you should choose this method or not.

What exactly is the Periodic Inventory Management Method and How it Works

As opposed to the perpetual inventory system, in periodic inventory methods, the inventory is not tracked each time a sale or a purchase is made. Here, inventory is monitored at the beginning and end of the accounting period.

Periodic inventory management is about accounting stock for its valuation after the designated time frame. Warehouse employees take a physical count of their products periodically according to the set period.

The information gathered during the physical count is used for accounting and balance the ledgers. Accountants then add the balance to the beginning inventory in the next new period.

Calculation of the ending inventory, profits, and COGS are done at the end of the year for periodic inventory by performing a count of stock physically. Businesses utilize estimates like monthly, quarterly, and half-yearly reports that were recorded a few times during the year.

General Ledger account Inventory is not updated whenever the purchases of goods to be resold are made. Instead, the temporary account purchases are debited. For this, a temporary account is considered that begins each year with a zero balance. And the ending balance is removed to another account at the end of the year.

Adjustments are made from purchasing goods to general ledger contra accounts. Contra account offsets the balance in their related account and is considered in the final statement.

Contra accounts generally consist of purchase discounts or purchases returns, allowances accounts, etc.. Adding these accounts gives the total amount spent on purchases.

Moreover, the delivery cost is also kept in a separate account from the central inventory account. Companies track delivery costs related to incoming inventory in Transport In accounts Freight In accounts.

All these costs eventually increase the value of the inventory. Refer to the table below to understand how the accounts would look like in the periodic inventory method.

Account	Debit	Credit
Freight In	1500	
Cash		1500
Today	1500	1500

What Types of Industries Should Use Periodic Inventory Management Method

Generally, the industries with less amount of stock and fewer number warehouses or probably only one warehouse should use this because there is a lot of physical work involved in this type of inventory management. Small scale industries who have just started can use this method provided they are aiming for slow growth.

Businesses that don't have a large number of frequent sales or purchases can also adopt periodic inventory management. And, for companies that are willing to adopt periodic inventory management methods, many periodic inventory management softwares help you track your inventory.

You need to first figure out what type of inventory management business you need. Catherine Milner and Geoff Relph, the co-authors of "Inventory Management: Advanced Methods for Managing Inventory within Business Systems," "The Inventory Toolkit: Business Systems Solutions," and the owners of Inventory Matters Ltd. They always

advise their clients to choose software that satisfies their needs and not gets carried away by the fancy features of the software.

Milner beautifully explains: "We see many companies trying to implement inventory management business systems that do not have the features or requirements they need. The most important thing is to know what you need precisely. When someone comes to sell you a system, their measures of success may not be the same as your business's measure of success. Whether it is your business, the sales business, or the hosting business, each has a different focus. So ensure yours is the one that drives the sale." Furthermore,

Relph adds, "For example, when you buy a car, you know what you want. The salesperson may have a vehicle that does not exactly fit your request. His job is to persuade and sell you more than you need. When you drive away, you realize you cannot operate the vehicle effectively. As a buyer, beware. You should buy what you need and not an approximation of what you think you want. Whether this happens as a matter of choice or misunderstanding, it hardly matters. This is not a criticism but is reflective of the industry."

Thus, you need to be very clear about the nature of your business before choosing a type of inventory management method. At the end of this article, we will compare the Perpetual and Periodic Inventory to give you a clearer picture.

Calculation Of Cost Of Sales aka COGS Cost of Goods Sold

As discussed above in the perpetual inventory management method, the formula to calculate the cost of sales i.e., the expenses incurred in the production of a product is -

The total cost of beginning Inventory = Beginning inventory + Purchases.

COGS = The total cost of Beginning inventory- Cost of ending inventory

Let's understand this with an example.

A company ABC has a beginning inventory of \$100,000, has paid \$150,000 for purchases, and its physical inventory count reveals an ending inventory cost of \$90,000. The calculation of the cost of goods sold is:

$$\text{\$160,000 COGS} = \text{100,000 BI} + \text{\$150,000 P} - \text{\$90,000 EI}$$

In the periodic inventory, your COGS is the parameter that will tell you how efficiently you [manage your inventory](#).

Cost Flow Assumptions in Periodic Inventory Management Method

Cost flow assumptions in periodic inventory management are somewhat similar to perpetual inventory methods as far as formulas are concerned. However, the way calculations are carried out is different because, in periodic inventory, there is no continuous record of sales. Hence, the ledger tally accounts for purchases, and transactions are not kept running.

Cost flow assumptions are used to find out the ending inventory and COGS that will ultimately determine the efficiency of your inventory management techniques and skills.

There are again three types of cost flow assumptions in periodic inventory management - FIFO, LIFO, and WAC.

Let's go through them one by one -

FIFO in Periodic Inventory Management

First in First out (FIFO), this cost flow assumption method believes in calculating the value of your ending inventory by presuming the fact that the products purchased first are sold first. Hence, the remaining stock is the latest purchases inventory. In periodic FIFO inventory, the businesses begin by physically counting the inventory.

The following illustration given below, courtesy: [Accounting for Management](#), very aptly explains the use of the FIFO method in a periodic inventory system:

Example:

The Sunshine company uses a periodic inventory system. The company makes a physical count at the end of each accounting period to find the number of units in

ending inventory. The company then applies a first-in, first-out (FIFO) method to compute the cost of ending inventory.

The information about the inventory balance at the beginning and purchases made during the year 2016 is given below:

- Mar. 01: Beginning balance; 400 units @ \$18 per unit.
- Mar. 12: Purchases; 600 units @ \$20 per unit.
- Oct. 17: Purchases; 800 units @ \$22 per unit.
- Dec. 15: Purchases; 200 units @ \$24 per unit.

On December 31, 2016, 600 units were on hand according to physical count.

Required: Compute the following using the first-in, first-out (FIFO) method:

1. Cost of ending inventory on December 31, 2016.
2. Cost of goods sold during the year 2016.

Solution:

(1). Cost of ending inventory – FIFO method:

If the FIFO method is used, the units remaining in the stock represent the most recent costs incurred to purchase the inventory. The cost of 600 units on December 31 would, therefore, be computed as follows:

Most recent cost; December 15, 2016:	
200 units @ \$24.00 per unit	\$ 4,800
Next most recent cost; October 17, 2016:	
400 units @ \$22.00 per unit	8,800
	<hr/>
Total cost of 600 units in inventory on December 31, 2016 (i.e., ending inventory)	\$ 13,600
	<hr/>

(2). Cost of goods sold – FIFO method

The cost of products sold can be calculated by using either the periodic inventory formula method or the earliest cost method.

a. Formula method: Under the formula method, the cost of goods sold would be computed as follows:

Cost of goods sold = cost of units in beginning inventory + cost of units purchased during the period – Cost of units in ending inventory

Cost of units on January 1, 2016 (beginning inventory):		
400 units @ \$18 per unit		\$ 7,200
Add cost of units purchased during the year:		
600 units purchased @ \$20 per unit	\$ 12,000	
800 units purchased @ \$22 per unit	17,600	
200 units purchased @ \$24 per unit	4,800	34,400
	<hr/>	<hr/>
Total cost of units available for sale		\$ 41,600
Less cost of units in ending inventory		13,600
		<hr/>
Total cost of 1,400 units sold during the year (i.e., COGS for 2016)		\$ 28,000
		<hr/>

b. Earliest cost method: Under the earliest cost method, we would find the total number of units sold during the period, and then we would calculate the cost of these units using the earliest costs.

Number of units sold = Beginning inventory + Purchases – Ending inventory

= 400 units + 1,600* units – 600 units

= 1,400 units

*600 + 800 + 200

The 1,400 units sold during the year would be costed using earliest costs as follows:

According to a physical count, 1,300 units were found in inventory on December 31, 2016. The company uses a periodic inventory system to account for sales and purchases of stock.

Required: Assuming a last-in, first-out (LIFO) cost flow assumption is used, compute:

1. the cost of inventory on December 31, 2016.
2. the cost of goods sold for the year 2016.

Solution :

Cost of ending inventory: Since the company is using the LIFO periodic system, the 1,300 units in ending inventory would be estimated using the earliest purchasing costs. The computations are given below:

Earliest cost; January 1, 2016 (beginning inventory):	
1,000 units @ \$16 per unit	\$ 16,000
Next earliest cost; February 15, 2016:	
300 units @ \$18 per unit	5,400
	<hr/>
Total cost of 1,300 units in inventory on December 31, 2016	\$ 21,400
	<hr/>

Cost of goods sold for 2016

The cost of goods sold is equal to the cost of units sold during the year. It can be computed using one of the two methods given below:

Formula method: Under the formula method, we would calculate the cost of goods sold by deducting the cost of ending inventory (calculated above) from the total cost of units available for sale during the period. The total cost of units available for sale is equal to the cost of beginning inventory plus the cost of all units purchased during the year. It can be expressed in the form of the following formulas or equations.

Cost of goods sold = cost of units available for sale – Cost of units in ending inventory

Or

Cost of goods sold = [cost of units in beginning inventory + cost of units purchased during the period] – Cost of units in ending inventory

Cost of units on January 1, 2016 (beginning inventory):

1,000 units @ \$16.00 per unit \$ 16,000

Add cost of units purchased during the year:

1,800 units purchased @ \$18 per unit \$ 32,400

1,000 unit purchased @ \$20 per unit 20,000

2,000 unit purchased @ \$22 per unit 44,000

1500 unit purchased @ \$24 per unit 36,000 132,400

Total cost of units available for sale \$148,400

Less cost of units in ending inventory 21,400

Cost of 6,000 units sold during the year 2016 \$127,000

Recent cost method: Under the recent cost method, we would compute the total number of units sold during the year, and then we would assign a cost to these units using the most recent costs incurred to purchase units. The computations are given below:

Number of units sold during the year = Units in beginning inventory + Units purchased during the year – Units in ending inventory

= 1,000 units + 6,300* units – 1,300 units

= 6,000 units

*1800 + 1000 + 2000 + 1500 = 6,300

Most recent cost; October 20, 2016:	
1,500 units @ \$24 per unit	\$ 36,000
Next most recent cost; July 10, 2016:	
2,000 units @ \$22 per unit	44,000
Next most recent cost; April 15, 2016:	
1,000 units @ \$20 per unit	20,000
Next most recent cost; February 15, 2016:	
1,500 units @ \$18 per unit	27,000
	<hr/>
Cost of 6,000 units sold during the year 2016	\$ 127,000
	<hr/>

Weighted Average Cost in Periodic Inventory Management

WAC calculates the value of inventory by taking the average of the newest and oldest stock.

The formula to calculate WAC is

$$\text{WAC} = \frac{\text{BI} + \text{P}}{\text{UNITS FOR SALE}}$$

Below is an example of WAC for calculating the COGS and ending inventory of a Trading company. Courtesy : [Accounting for Management](#)

Example:

The Meta company is a trading company that purchases and sells a single product – product X. The company has the following record of sales and purchases of product X for June 2013.

- June 01: Balance on hand at the beginning of the month; 200 units @ \$10.15.
- June 05: Purchased 800 units @ \$10.25.
- June 07: Sold 400 units.
- June 12: Purchases: 600 units @ \$10.40.

- June 14: Sales: 500 units
- June 20: Purchases: 400 units @ \$10.50
- June 25: Purchases: 800 units @ \$10.70
- June 26: Sales: 1,400 units
- June 28: Sales: 200 units
- June 30: Purchases: 600 units @ \$10.85

Required: Compute inventory cost on June 30, 2013, using the average cost method assuming the Meta company uses a periodic inventory system.

Solution:

Units Available for sale:

Date	No. of units	Cost per unit	Total cost
Jun. 01	200	\$ 10.15	\$ 2,030
Jun. 05	800	10.25	8,200
Jun. 12	600	10.40	6,240
Jun. 20	400	10.50	4,200
Jun. 25	800	10.70	8,560
Jun. 30	600	10.85	6,510
	3,400		\$ 35,740

Weighted average unit cost = $\$35,740 / 3,400$ units
= \$10.51176 per unit

Units in ending inventory = Total units available for sale – Total units sold during the period
= 3,400 units – (400 units + 500 units + 1,400 units + 200 units)
= 3,400 units – 2,500 units
= 900 units

Cost of goods sold: 2,500 units × \$10.51176 = \$26,279.40

Cost of ending inventory: 900 units × \$10.51176 = \$9,460.60

When you Should Use Periodic Inventory Management Method

According to Milner, periodic inventory management is, "a simple approach to inventory management which is useful for those small organizations which have a simple approach to inventory management. These businesses don't necessarily have a defined relationship between the raw materials or purchased items and the final sold product. One example of a business that would use a periodic system is a food bank. They would frequently count the physical inventory to determine the closing inventory quantity."

Typically a business with fewer SKUs, simple supply chain flow to manage, and is not aiming for scalability can use periodic inventory management methods. If you have a seasonal business with an annual inventory periodic management of your inventory can be the cheapest way to calculate the profit.

To put it shortly, you should use periodic inventory management when - you don't have too many products to manage, you want to keep things simple, you are currently looking to only survive in the market, and overnight growth is not on your charts now.

Well, by now, you might have reached the "moment of clarity" as to which inventory management method you should choose and if not read on - the Pros and Cons of Periodic inventory management. And after that, you will get to compare perpetual and periodic inventory head to head to get more clarity.

PROs

- **Hassle-free** - periodic inventory system requires physical inventory counts after a specific interval of time. Considering the periodic inventory system and perpetual inventory system, the latter is more complicated where inventory needs to be tracked with every sale. The periodic inventory system is less time consuming this way.
- **Less expensive** - unlike the perpetual inventory system, businesses do not have to invest in specialized software for inventory counting in the periodic system.
- **No additional training for employees** - since a perpetual inventory software isn't required, businesses with periodic inventory systems don't need to focus on technical employee training.

Cons

- **High probability of discrepancies** - the inventory count is taken only at the end of the accounting period, which means there is no update before that. Since inventory isn't updated regularly, major discrepancies could creep in from the beginning inventory count to the ending count.
- **Weaker inventory control** - inventory is not updated in real-time; therefore, businesses may not know the status of their stocks when they need to. Demand forecasting might not be as accurate as compared with the perpetual inventory system leading to stock-outs or overstocking. While theft, shrinkage could be detected in the perpetual inventory system, it is not so in the periodic inventory system.
- **You have too little information** - Since the inventory is only counted physically, that also after a while, there is limited and lapsed information you are gathering.
- **Errors in estimating COGS** - Assumptions of COGS, products, and availability of the products have to be made between the period when the stocktake is done. These estimations can be deceiving, and you only know the real figures when you carry out a physical inventory count.
- **Costing adjustments** - The significant and costly modifications have to be made to account for the losses incurred due to shrinkage, obsolescence, and depreciation between the periods of physical inventory. Periodic inventory management is current only after the stocktake has been done.
- **Very less potential for Scalability** - A periodic inventory management method is a slow and tasking way to grow your business. When the business grows with more SKUs to manage, it becomes more tiring to track them.

Which One Should You Choose?

In the battle between the periodic inventory system vs. perpetual inventory system, which one you should opt for, depends on your situation. As discussed above, both perpetual and periodic inventory systems have their pros and cons, and selecting between the two is contingent upon your business.

However, the underlying fact is that it is not possible to maintain accurate inventory levels without a physical inventory count. 40% of large businesses will work with a

perpetual inventory system at separate outlets, but they will use the periodic system at their core.

Another factor is scalability. If your business has been expanding gradually and regular inventory counts seem confusing, then you can opt for the perpetual inventory system for smooth inventory management.

For e-commerce sellers, selling on multiple channels, maintaining different warehouses, and looking to go omnichannel, a perpetual inventory system might make life easier.

However, regardless of the magnitude of your business, you will, at some point, have to carry out a physical inventory count.

Periodic vs. Perpetual Inventory Management Methods - Infographic

Refer to the below infographic to read the differences between the Perpetual and Periodic Inventory Management Method.

INVENTORY MANAGEMENT METHODS

PERPETUAL

VERSUS

PERIODIC

PERPETUAL	PERIODIC
 <p>Changes in the Inventory due to Product sales, returns or replacements and Purchase of new stocks are documented instantaneously</p>	 <p>Changes in the inventory due to sales and purchases are not documented in real-time. Instead, the inventory is tracked through a periodic physical counting of inventory</p>
<p>COGS is calculated as soon as a sale or purchase is done</p>	<p>COGS is not calculated instantaneously, instead it is calculated at the end of the designated period</p>
<p>Perpetual inventory is for both SMEs and Large scale industries. This method can reduce stock-outs or overstocking scenarios. As it is easy to forecast demands.</p>	<p>Practically, speaking periodic inventory method is only feasible for small scale industries with less number of SKUs and Warehouses. And, it does very little to reduce stock-outs or overstocking scenarios.</p>
<p>Requires investments in training employees, and acquiring efficient perpetual inventory management software. However, it helps businesses grow faster with accurate and swift inventory tracking</p>	<p>Helps small businesses to save money while keeping things simple. If your aim is to survive and not exponential growth, this method should be your choice</p>
<p>One of the biggest advantages of Perpetual inventory method is that it helps your business to go omnichannel so that you can compete industry leaders.</p>	<p>Not recommended for the businesses that want to go omnichannel. This method can still be used as a sidekick because no business can completely rely on the data provided by software. Physical count is necessary.</p>
<p>Equips the businesses with real-time data so that they can build their forecasting and customer relationship strategies keeping the instantaneous data in mind</p>	<p>This system runs on assumptions during the period between the physical inventory. Only purchases and other expenses are recorded so that they can be added later to find actual COGS</p>
<p>Less possibilities of losses through shrinkage, depreciation and obsolescence because everything is tracked</p>	<p>High chances of unaccountable losses through shrinkage, depreciation and obsolescence. Because physical count is done once in a while.</p>

Summing Up - What You Should Do?

The above article has put in front of you a detailed explanation of both perpetual and periodic inventory methods. Right from "what they are" to "how to calculate COGS and to end inventory using cost flow assumptions in perpetual and periodic inventory management." Now, it's up to you to choose the inventory management method that suits your business.

Your selection should depend on these parameters - the nature of your business, your requirements as a seller, and your plans. You might be happy with a simple periodic physical inventory count, and that's perfectly fine, but if you want your profit vs. time graph to shoot up exponentially along with earning customer satisfaction Perpetual + Periodic Inventory management method is for you.

You might ask why I am advising you to use both of them together?

Well, the truth is discrepancies are present in both; only amount and frequency are different.

It ultimately boils down to whether a specific method will streamline operations or you prefer a hybrid approach.

"A pinch of human effort, a pinch of technology, and a pinch of top-level business sensibilities, if carefully mixed and garnished with the will to serve customers and make their lives easy, can make a dish called Evergrowing Business Empire."

Essential Sources -

1. [Choosing a Periodic or a Perpetual Inventory System](#)
2. [Basics of LIFO & FIFO Accounting Methods](#)
3. [Average Costing Method of Inventory Valuation](#)
4. [Understanding Periodic vs Perpetual Inventory](#)
5. [Perpetual Inventory Definition](#)
6. [Periodic Inventory Definition](#)
7. [Perpetual Inventory System - Corporate Finance Institute](#)
8. [Perpetual Inventory Explained - Accounting for Management](#)
9. [Periodic Inventory Explained - Accounting for Management](#)

10. Exercise to understand Periodic and Perpetual Inventory Management