

TEST FOR PREVIOUS LEARNING MATERIALS UNDERSTANDING

Answer the questions about production, management and planning:

1. Households are the main examples of producers and are usually what economists have in mind when talking about producers (TRUE/FALSE)
2. Management helps to optimize the use of resources, creates healthy working environment and motivates employees (TRUE/FALSE)
3. Planning is necessary for effective and efficient functioning of every organization irrespective of its size, type and objectives (TRUE/FALSE)

In 5 minutes in one message write your name and answer to the test in Zoom chat personally to the teacher (NOT IN COMMON CHAT!!!), and your attendance would be assessed at 0,5 point

Types of the firms' capital. Capital circle. Fixed capital



Contents

1. Types of firms' capital.
2. Firm fixed assets structure.

1. Types of firms' capital

Firm (manufacture, enterprise, factory,

organization) – producer which combines the factors of production in order to create goods/services and to get profit

In economics, **capital** consists of assets that can enhance one's power to perform economically useful work. For example, in a fundamental sense a stone or an arrow is capital for a hunter-gatherer who can use it as a hunting instrument, while roads are capital for inhabitants of a city.

Capital goods, real capital, or capital assets are already-produced, durable goods or any non-financial asset that is used in production of goods or services.

1. Types of firms' capital

Capital is distinct from land (or non-renewable resources) in that capital can be increased by human labor. At any given moment in time, total physical capital may be referred to as the **capital stock** (which is not to be confused with the capital stock of a business entity).

Capital is an input in the production function. Homes and personal autos are not usually defined as capital but as durable goods if they are not used in a production of saleable goods and services.



1. Types of firms' capital

Every producer have (in ownership or possession):

1. Financial capital – free cash intended for subsequent expenditure on industrial and commercial activities for profit. It consists of own, borrowed and redistributed funds (equity capital, debt capital, and specialty capital).
- **equity capital** - company's assets minus its liabilities. Some businesses are funded entirely with equity capital, which is cash invested by the shareholders or owners into a company that has no offsetting liabilities.

Although it is the favored form of capital for most businesses because they don't have to pay it back, it can be extraordinarily expensive.

In addition, it could require massive amounts of work to grow their enterprises if they are funded this way.

Microsoft is an example of such an operation, and it generates high enough returns to justify a pure equity capital structure.



1. Types of firms' capital

Every producer have (in ownership or possession):

1. Financial capital – free cash intended for subsequent expenditure on industrial and commercial activities for profit. It consists of own, borrowed and redistributed funds (equity capital, debt capital, and specialty capital).
- **debt capital** - money given as a loan to a business with the understanding that it must be paid back by a predetermined date. The owner of the capital (typically a bank, bondholders, or a wealthy individual), agrees to accept interest payments in exchange for you using their money. Think of interest expense as the cost of “renting” the capital to expand your business; it is often known as the cost of capital. For many young businesses, debt can be the easiest way to expand because it is relatively easy to access and is understood by the average American worker thanks to widespread home ownership and the community-based nature of banks.



The profit for a business owner is the difference between the return on capital and the cost of capital. For example, if you borrow \$100,000 and pay 10 percent interest yet earn 15 percent after taxes, the profit of 5 percent, or \$5,000, would not have existed without the debt capital borrowed by the business.

1. Types of firms' capital

Every producer have (in ownership or possession):

1. Financial capital – free cash intended for subsequent expenditure on industrial and commercial activities for profit. It consists of own, borrowed and redistributed funds (equity capital, debt capital, and specialty capital).
- **specialty capital** - the gold standard, and something you would do well to find as a business owner. There are a few sources of capital that have almost no economic cost and can take the limits off of growth. They include things such as a negative cash conversion cycle (vendor financing), insurance float, etc.

Negative Cash Conversion Cycles means that a company doesn't pay for the material resources even after the sale of the product. **Cash conversion cycle** scrutinizes only the production to sale efficiency. AutoZone is a great example; it has convinced its vendors to put their products on its shelves and retain ownership until the moment a customer walks up to the front of one of AutoZone's stores and pays for the goods. At that precise second, the vendor sells it to AutoZone which in turn sells it to the customer.



2. Real capital – are already-produced, durable goods or any non-financial asset that is used in production of goods or services. It includes:

Fixed capital – long-term production factors that do not change their material form during the production process, but are deteriorating and becoming obsolete (buildings, land, slowly obsolete means of production)

Fixed capital refers to the investment made by the business for acquiring long term assets. These long term assets don't directly produce anything, but help the company with long-term benefits.



2. Real capital – are already-produced, durable goods or any non-financial asset that is used in production of goods or services. It includes:

BusinessDictionary.com says the following regarding the term **Fixed capital** :

” that is employed in assets of durable nature for repeated use over a long period. Also called fixed investment.

Fixed assets are tangible assets that we cannot convert into cash easily. Property is an example of a fixed asset. So are plant and equipment.



We do not resell fixed assets as part of our everyday business operations. We use fixed assets in the production of our company’s income or for administrative purposes.

2. Real capital – are already-produced, durable goods or any non-financial asset that is used in production of goods or services. It includes:

Working capital (i.e. circulating capital, current assets) – factors of production, changing their material form within the production process being included into the final good or cheap units necessary for process (the raw materials, fuel, energy, instruments and money available to fund a company's day-to-day operations – essentially, what you have to work with).

For example, equipment and facilities form part of fixed assets. Wood, however, in a furniture factory, is not. We use wood in the production of furniture, i.e., it is a component of an item of furniture.

It is calculated as the difference between a company's current assets, such as cash, accounts receivable (customers' unpaid bills) and inventories of raw materials and finished goods, and its current liabilities, such as accounts payable



2. Capital circle (capital float within the production process)

Capital cycle – investment of funds in production with their subsequent return in excess of the initial investment (in order to receive profit)

Capital cycle should be repeated as the entrepreneurs / shareholders want to receive profit constantly

Technology – the methods and ratio of factors of production' usage to produce market goods/services



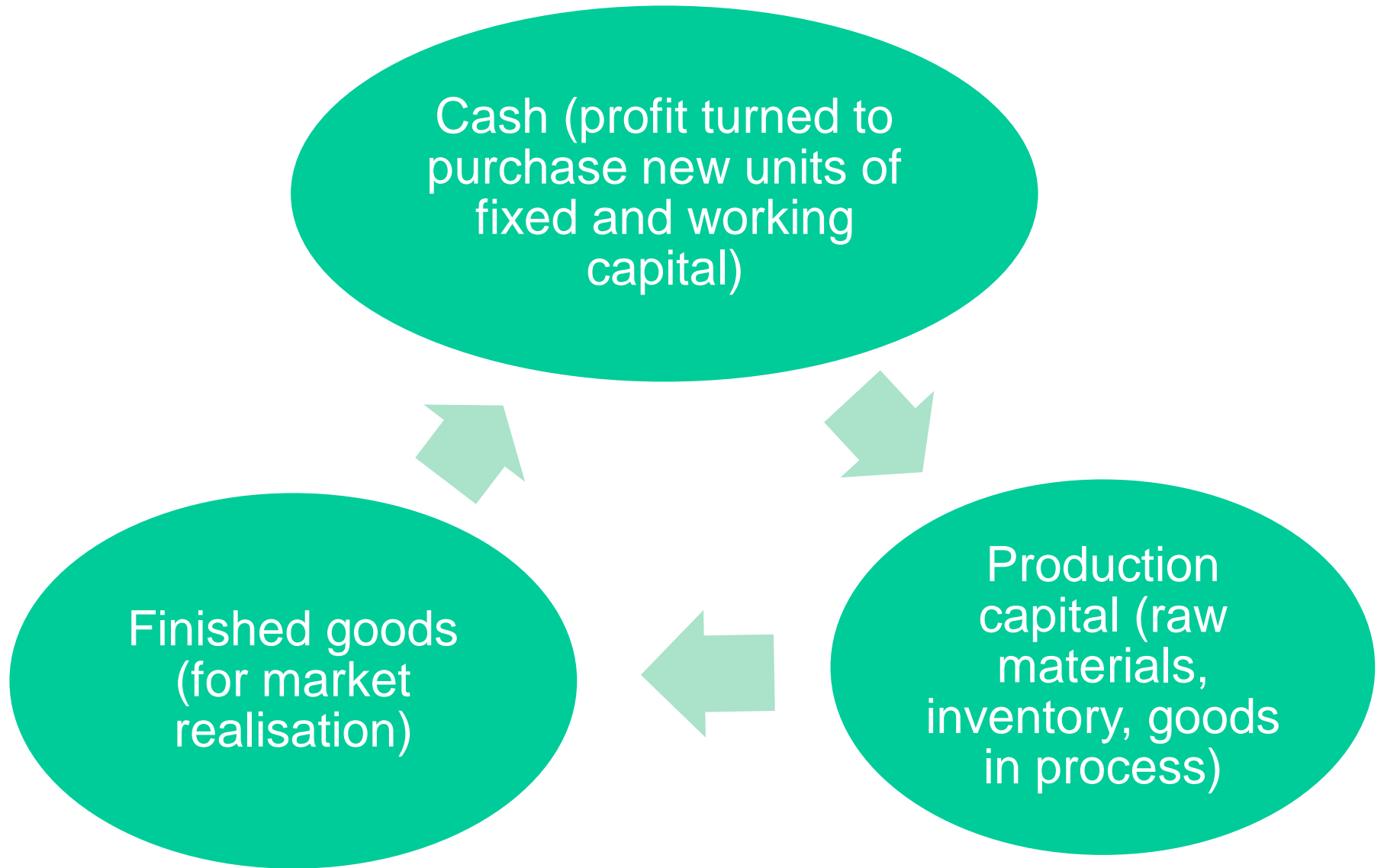
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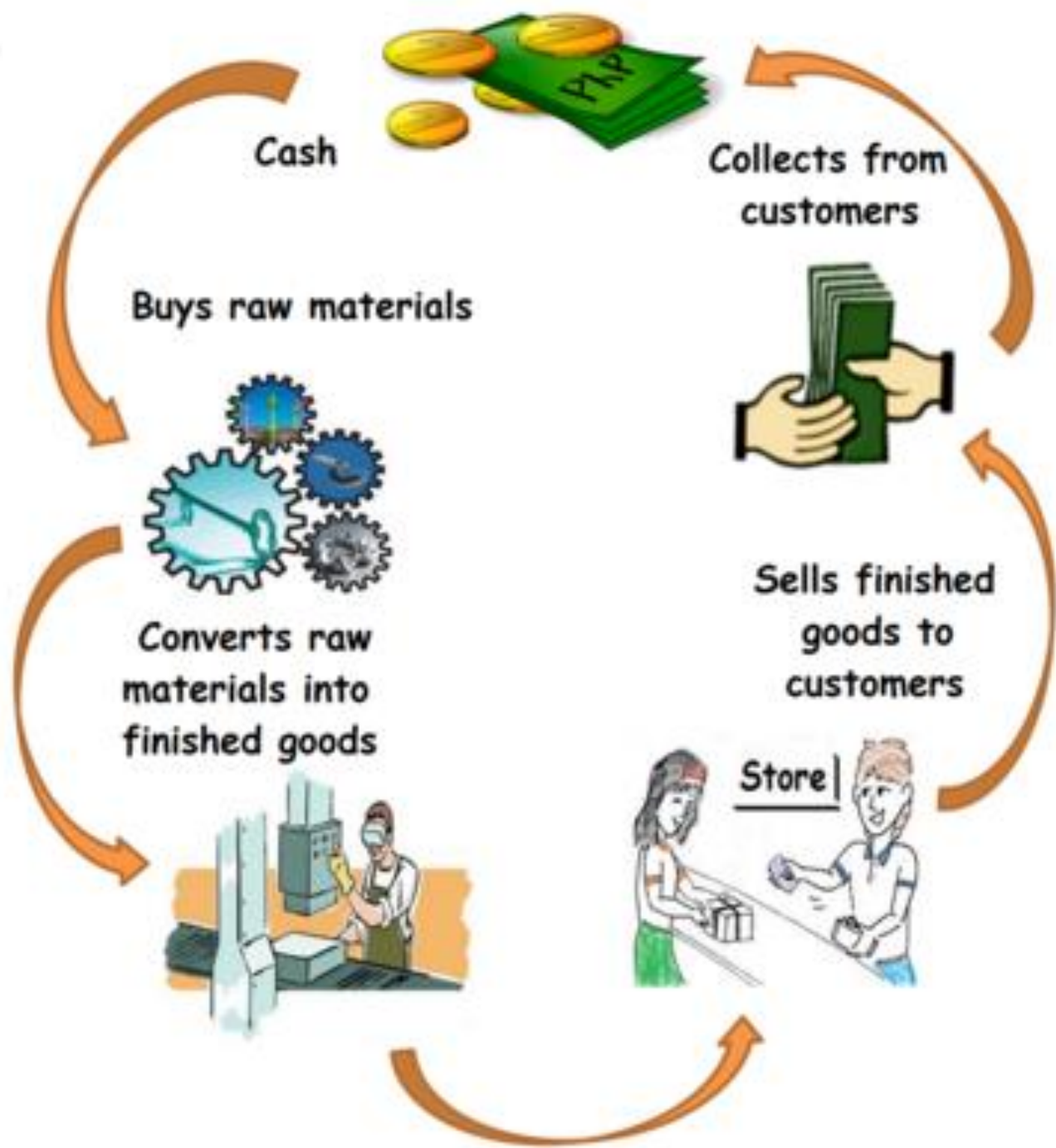


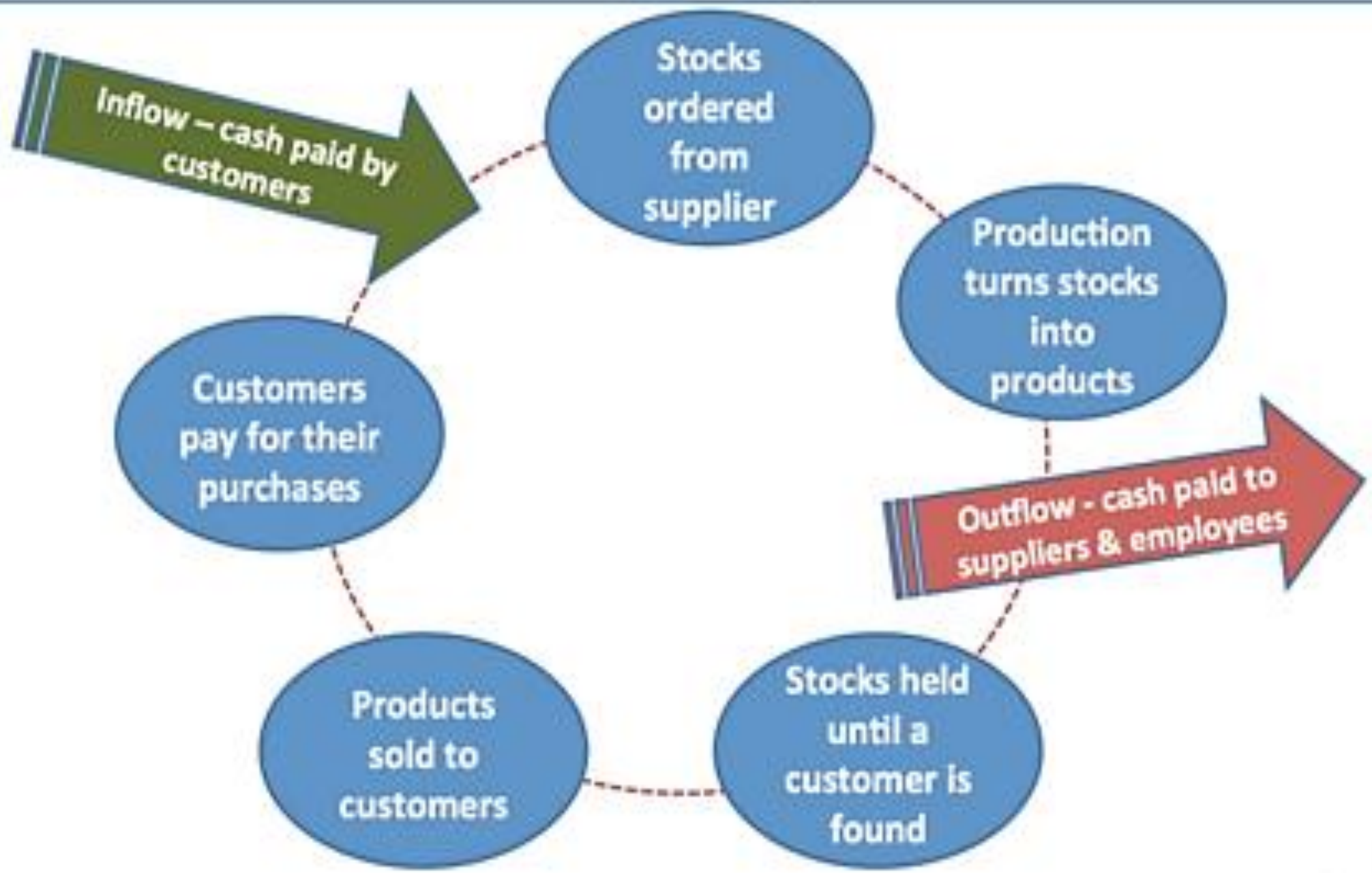
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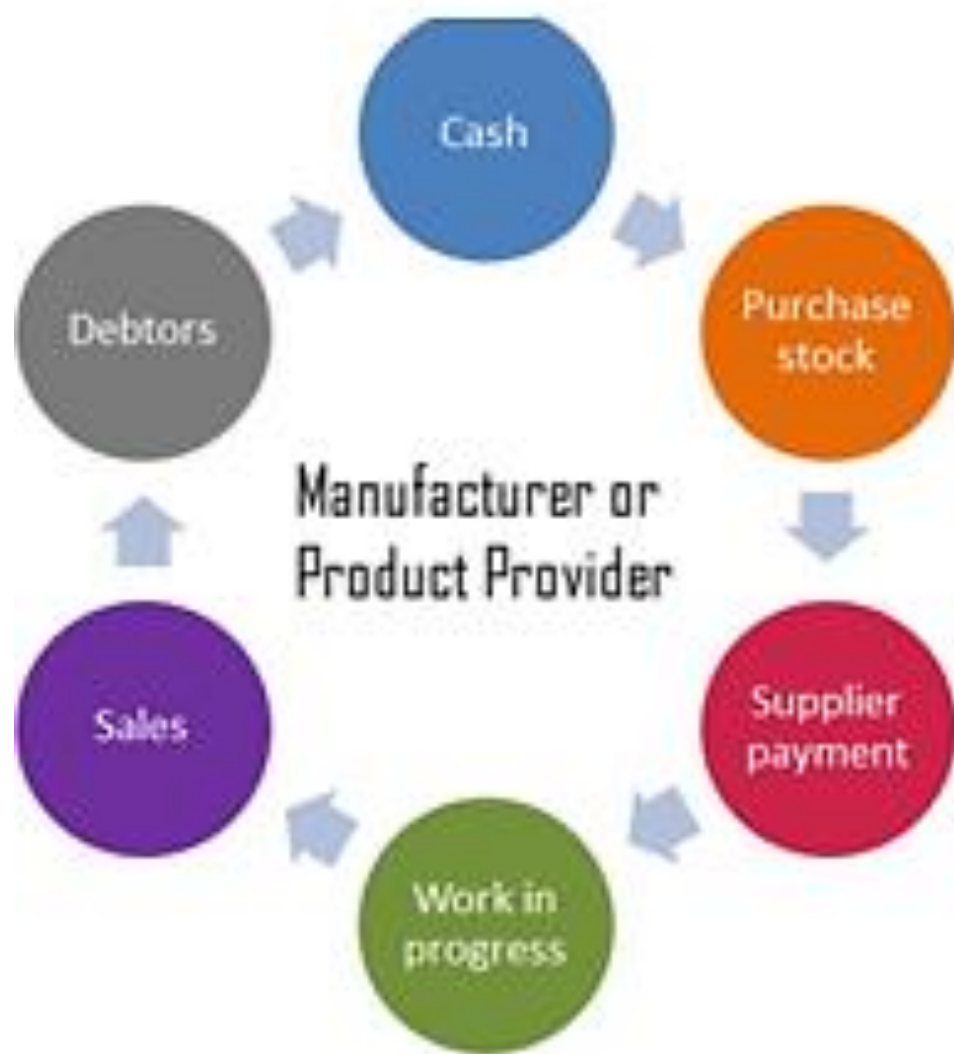


Capital cycle forms (working capital float)

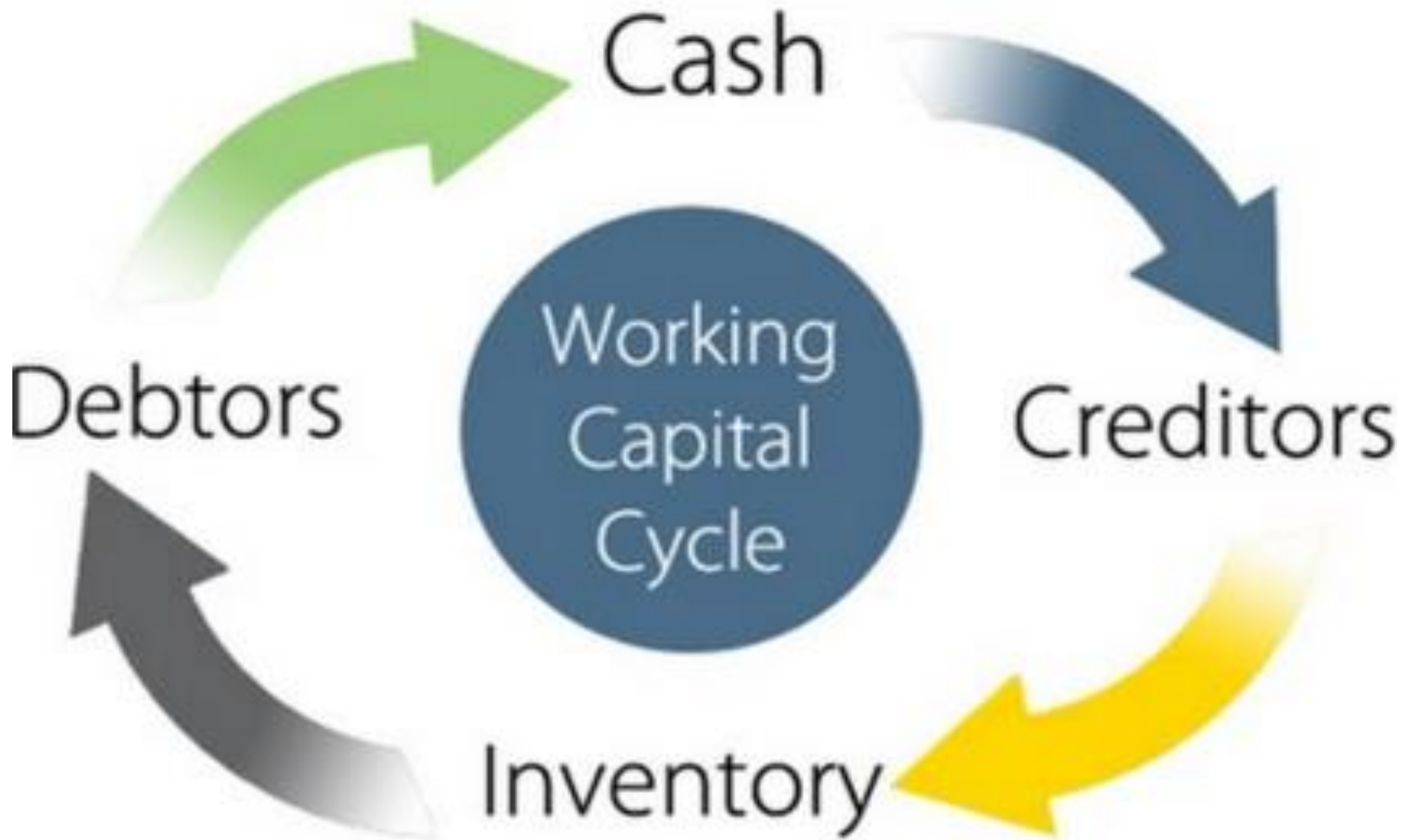








Assets and debts: production process dilemma



3. Fixed capital structure

Fixed Assets can be classified by the following signs

By Property:

- Private,
- Involved (f.e., rented).

By using in Business activity:

1. Active fixed assets,
2. Passive fixed assets.

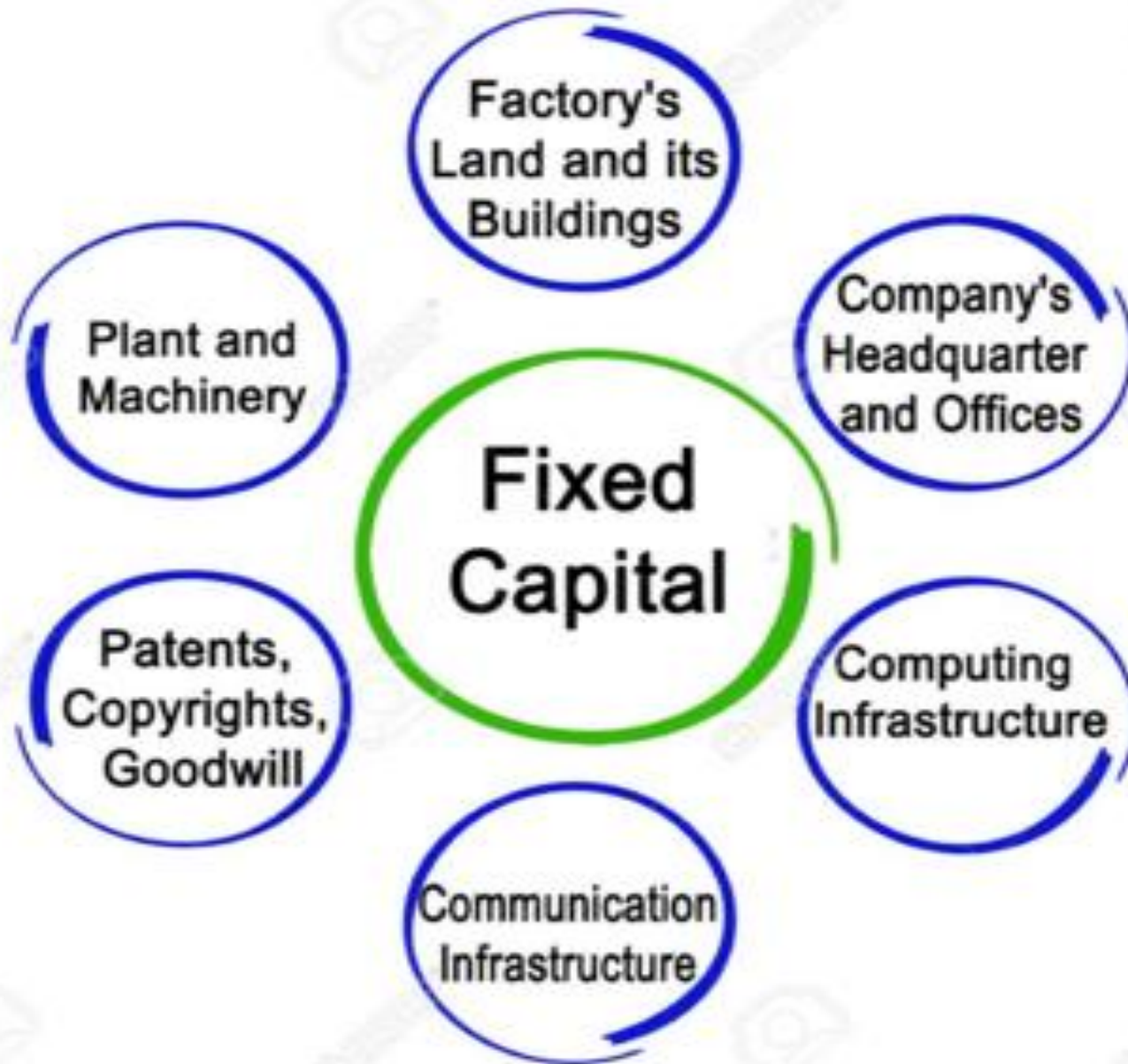
■ By Amortization charge rate for the purpose of Taxation:

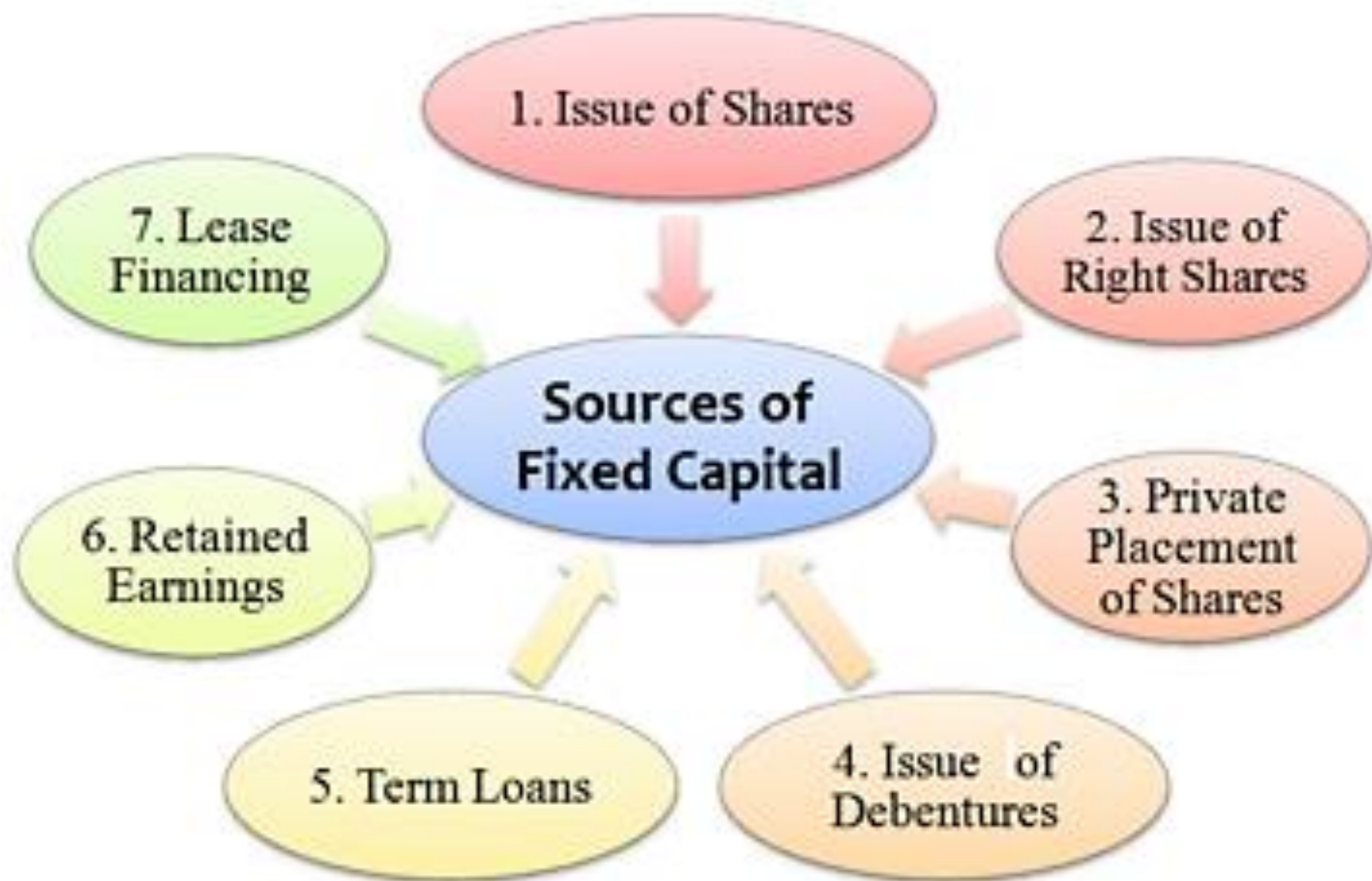
- **1st group:** Buildings and Improvements, Capital costs on improving of land;
- **2nd group:** Machinery and Engineering tools, Vehicles, Furniture, Office equipment and electronics;
- **3d group:** Machinery and Tools, not included in 2nd or 4th group;
- **4th group:** Computers, Software, Telephones, Microphones, Radio stations.

■ Participation in Business Activity:

- √ Production fixed assets – are used in the process of production directly;
- √ Non-Production fixed assets – objects of social, cultural or/and common purposes, domestic houses, dormitories.

3. Fixed capital structure





Fixed capital sources explanation

Source 1. Issue of shares

Issue of shares is the most important source of fixed capital. Most companies collect fixed capital by issuing shares. A firm can issue various types of equity securities to raise capital. Different securities have different ownership claim on the company's net asset. Generally, there are two types of shares, these are depicted below.

- (1) Equity share: Equity share carries ownership rights of the company, and it doesn't carry a fixed rate of dividend. Equity shares are more popular than preference shares. The face value of an equity share is decided by the company. This share is also called ordinary (i.e. common) share. This is because shareholders are the real owners of the company. The share capital is also called risky capital. This is so because there is no guarantee for getting a dividend. Similarly, if the company winds up or shut down, there is no guarantee for getting repayment of capital.
- (2) Preference share: A preference share carries ownership rights of the company, and it carries a fixed rate of dividend. A preference share has two main advantages over equity shares: they get a fixed rate of dividend before the equity shares, and if the company winds up or shut down, they get repayment of capital before the equity shares.

Fixed capital sources explanation

Source 2. Issue of Right shares

Rights issue of shares means the company issues shares to its existing shareholders. According to provisions of law, a company must first issue shares to its existing-shareholders.

If the existing shareholders do not want to buy the shares, then the company can sell its shares to the outsiders.

The existing shareholders are given first preference to buy the company's fresh issue of shares.

In an event of rights issue of shares, the share capital increases but the numbers of shareholders do not increase.

Generally, rights issue is very economical to collect fixed capital.



RIGHTS
ISSUE OF
SHARES

Rights Issue

In simple terms, when a company taps into the existing shareholders for additional capital and issue shares at a discount particularly for these existing shareholders, we call it rights issue.

Fixed capital sources explanation

Source 3. Private placement of shares

Private placement of shares means the company sell its shares directly to a small-group of investors like bank, insurance companies, financial institutions, mutual funds, etc.

Here, the company does not sell the shares to the public.

It is a very simple and economical method as it does not involve issue of a prospectus, no need of brokers and underwriters, etc.

Fixed capital is also collected from private placement of shares.

Source 4. Issue of debentures

Debenture represents the borrowed capital of the company. Fixed capital is also collected from issue of debentures.

Debenture holders get interest for the capital contribution made by them to the company.

Debenture holders are the long-term lenders of the company.

Fixed capital sources explanation

Source 5. Term loans

Term loans are secured or unsecured loans obtained by the company. The company has to pay interest on these term loans.

The company gets term loans from banks and financial institutions like Deutsche, HSBC, YES, ICICI, HDFC, AXIS, and so on, by submitting its project analysis report.

The shareholders do not lose ownership control of the company by obtaining term loans. Fixed capital is also collected from term loans.

Source 6. Retained earnings

Retained earnings is a part of undistributed profits earned by the company. Since, the company does not distribute all of its profits to the shareholders.

Company saves a part of its profits. This saved profit is called retained earnings, self-financing or ploughing back of profits.

It is very economical because no interest payment is to be made.

Retained earnings is the cheapest source of fixed capital.

Fixed capital sources explanation

Source 7. Lease financing

In lease financing, there are two parties:

Lessor, who is the owner of an asset, and

Lessee, who is the user of an asset.

The lessor is the owner of an asset. Lessor gives the asset on a lease-basis to the lessee. The lessee uses the asset and in return, pays rent for using that asset to the lessor.

The lessor and lessee enter into an agreement. This agreement is called lease-agreement.

The lessee need not spends money for purchasing the assets. Lessee hires (takes) the asset on a lease or rent so that he/she can use the available money for working capital requirements.

Lease financing is very simple and economical.

So, these are the sources of fixed capital or long-term finance.

Fixed capital sources (resuming picture)

Fixed Capital

Capital we invest in fixed assets, i.e., assets that are durable in nature.

Fixed Capital
Money we invest in..

Plant & Machinery

Buildings & land

Computers & devices

Patents
copyright
& goodwill

Fixed Capital Sources

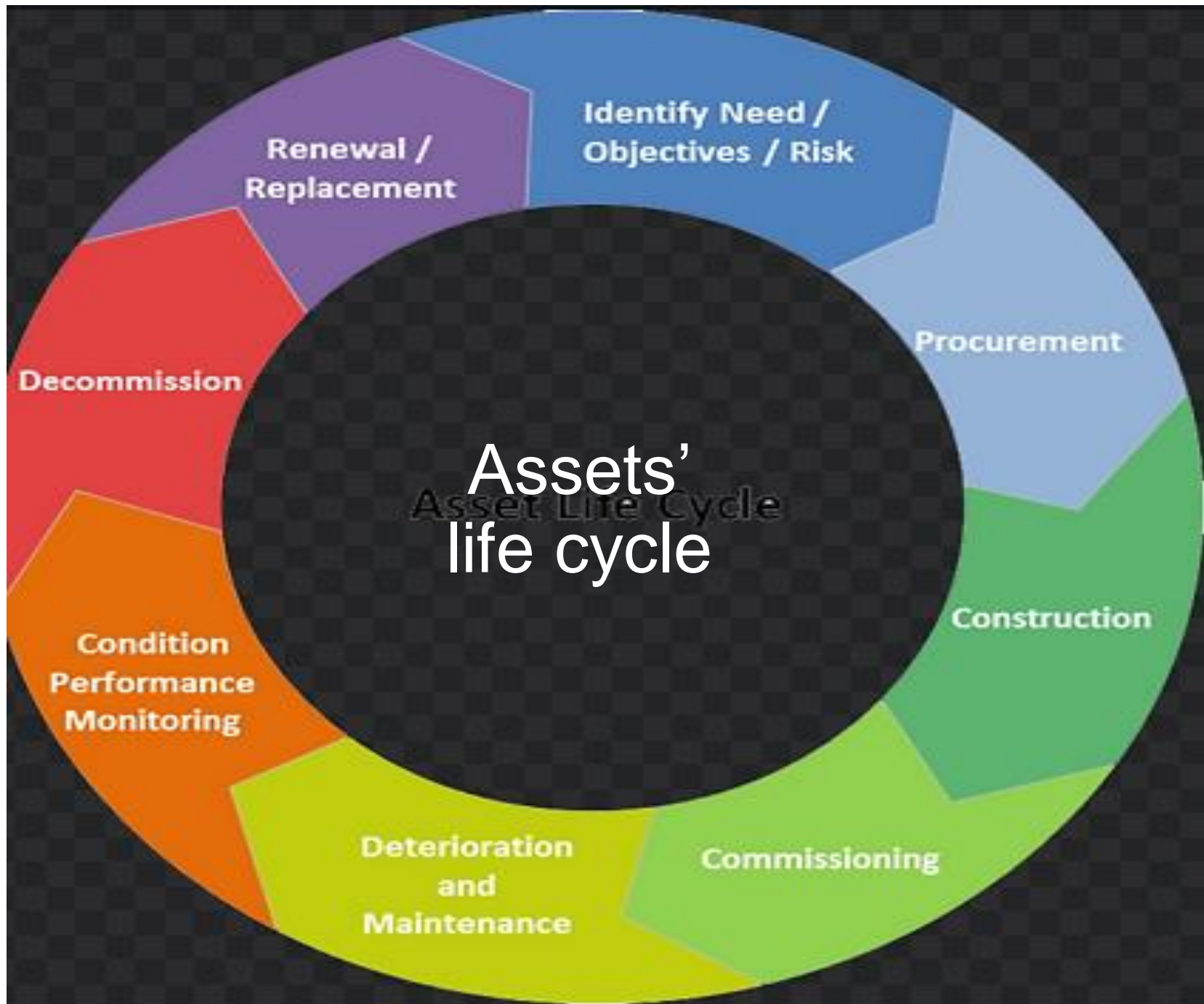
Shares issue

Retained earnings

Term loans

Lease financing

Debentures issue



Terms we need for Fixed capital study

Depreciation (i.e. deterioration) refers to two aspects of the same concept: first, the actual decrease in value of fair value of an asset, such as the decrease in value of factory equipment each year as it is used and wears, and second, the allocation in accounting statements of the original cost of the assets to periods in which the assets are used.

Two types of depreciation:

1. Physical (wear and tear from operations; action of time and other elements)
2. Functional (inadequacy or suppression; obsolescence)

Amortisation (or amortization) is paying off an amount owed over time by making planned, incremental payments to accumulate special fund for renewing the fixed assets.

Terms for Fixed capital study

DEFINITION:

Obsolescence: the state of becoming old-fashioned and no longer useful even it still be in good working order.

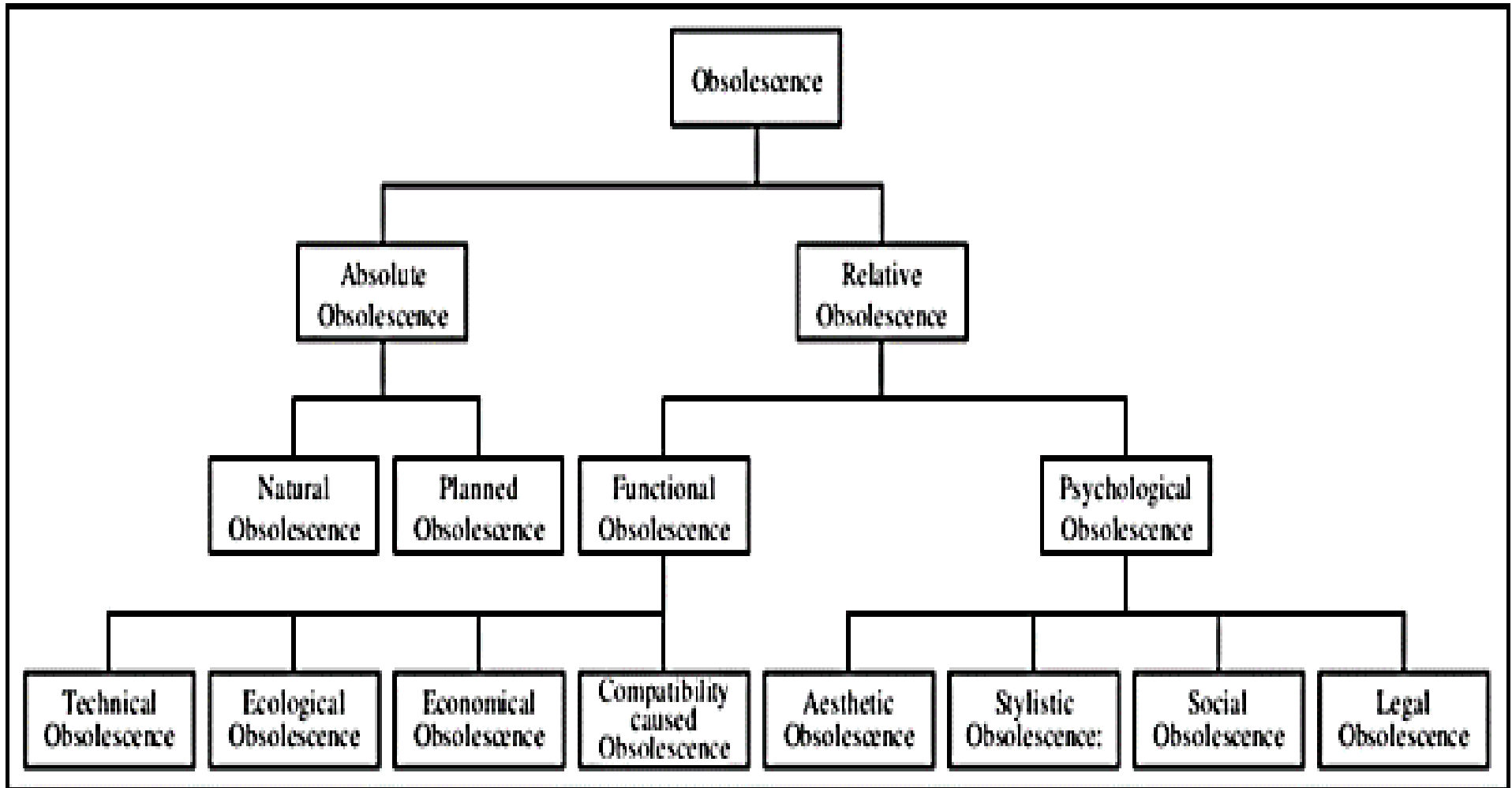
-With technological changes many traditional skills have become Obsolete.



TYPES OF OBSOLESCENCE:

- Technical obsolescence
- Planned obsolescence
- Style obsolescence
- Postponement obsolescence

Terms for Fixed capital study



Terms for Fixed capital study

Technical or functional obsolescence

- New technology replaces old (example: video tape -> DVD). Obsolete products do not have the same functions or capabilities as new ones.

Style or Perceived obsolescence

- Marketers change the styling of products so as to make owners of the old model feel 'out of date' (example: cars, clothing)

A fashion is any style that is popularly accepted by groups of people over a period of time.

Intentional or Programmed physical obsolescence

- A product is designed to last for a specific lifetime (example: home entertainment electronics)

If a product will be technically or stylistically obsolete in five years, many marketers will design the product so it will only last for that time.

Postponed Obsolescence

- Where technological improvements are not introduced even though they could be
- e.g. car manufacturer develops a new feature for its car but does not include the feature in the cheaper version of the car
- e.g. base model Camry does not have electric windows or seats but the capability is there



Accounting for fixed assets

- Significance of fixed assets
- Principles and norms of standard accounting treatments.
 - Identification
 - Measurement
 - Valuation
 - Revaluation
 - Retirements
 - Disposals
 - Disclosure requirements

Fixed assets measurement & accounting

Measurement for fixed assets is obligatory because their share in the total amount of enterprise' funds reaches 70% or more. Therefore, the position of the enterprise and its development depend on the efficiency of fixed assets use. Fixed assets are measured in natural units and in value (cash).

Fixed Assets

***Assets that we cannot
convert into cash easily.
We do not resell them.
We do not add them to
the finished product.***

***Buildings, vehicles,
computers, machinery,
and land are fixed assets.***

Fixed assets measurement & accounting

Tangible Assets

Tangible Assets

Equipment
Machinery
Buildings
Vehicles
Stock
Land
Cash



Intangible Assets

Trademarks
Franchises
Copyrights
Licenses
Goodwill
Patents
Brands



Fixed Assets Identification

Property, plant and equipment (i.e. PPE) are **tangible items** that are held for use in the production or supply of goods or services, for rental to others, or for administrative purposes; and are expected to be used during more than one period. Their accounting is regulated by *International Financial Reporting Standards (IFRS)* in **International Accounting Standards (IAS)**

IAS 16 states that the cost of an item of property, plant and equipment shall be recognized as an asset if, and only if:

it is probable that future economic benefits associated with the item will flow to the entity; and

the cost of the item can be measured reliably.

This recognition principle shall be applied to all costs at the time they are incurred, both ***incurred initially*** to acquire or construct an item of property, plant and equipment and ***incurred subsequently after recognition*** to add to, replace part of or service it.

Fixed Assets (in Russia)

- Are used more than during one operational cycle;
- Are not included into the finished goods physically;
- The expenses for them become the part of goods' price but are compensated for a long time period

NOT Fixed Assets (in Russia):

- The items used less than 1 year;
- The items with the price less than 100 000₽, regardless of term of use



Fixed assets measurement & accounting

Fixed assets are measured in natural units and in value (cash).

Natural indicators are specific for each group of fixed assets.

Group of fixed assets	Types of indicators (examples)
Buildings	1) quantity (units); 2) total space (sq. m.); 3) effective space (sq. m.); etc.
Equipment	1) quantity (units); 2) function; 3) machine age (years); etc.
Transport	1) quantity (units); 2) type (passenger, truck, etc.); 3) age (years); etc.
Patents	1) quantity (units); 2) rights; 3) period (years); etc.

Fixed assets measurement & accounting

Fixed assets are measured in natural units and in value (cash).

Monetary measurements allow to calculate the total



value of fixed assets, their dynamics, structure, depreciation, economic efficiency of capital investments, i.e. to assess the enterprise current position, forecast its future wins and falls and build the preferable strategy of development.

Calculation of fixed assets value

Initial Measurement

An item of property, plant and equipment that qualifies for recognition as an asset shall be measured at its **cost**.

The cost of an item of PPE comprises:

its **purchase price** including import duties, non-refundable purchase taxes, after deducting trade discounts and rebates

any **costs directly attributable** to bringing the asset to the location and condition necessary for it to be capable of operating in the manner intended by management. Examples of these costs are: costs of site preparation, professional fees, initial delivery and handling, installation and assembly, etc.,

the initial estimate of **the costs of dismantling and removing the item and restoring the site** on which it is located.

The cost of an item of property, plant and equipment is the **cash price equivalent** at the recognition date.

Value of Fixed Assets



Purchase Price

+

Non recoverable taxes

+

Installation cost

+

Delivery charges

+

Expenses for site preparation

+

Start up & commissioning cost

+

Interest upto installation

+

Administrative overheads directly

Relative to fixed assets

Like salary of engineer



A **tax is non-recoverable** if you have to remit the full amount you've collected regardless of what you may have paid (in the same tax).



Calculation of fixed assets value

Subsequent Measurement

An entity may choose 2 accounting models for its property plant and equipment:

Cost model: An entity shall carry an asset at its ***cost less any accumulated depreciation and any accumulated impairment losses.***

Revaluation model: An entity shall carry an asset at a ***revalued amount.***
Revalued amount is its fair value at the date of the revaluation less any subsequent accumulated depreciation and subsequent accumulated impairment losses.

An entity shall revalue its assets with sufficient regularity so that the carrying amount does not differ materially from its fair value at the end of the reporting period. If an item of PPE is revalued, the entire class of property, plant and equipment to which that asset belongs shall be revalued.

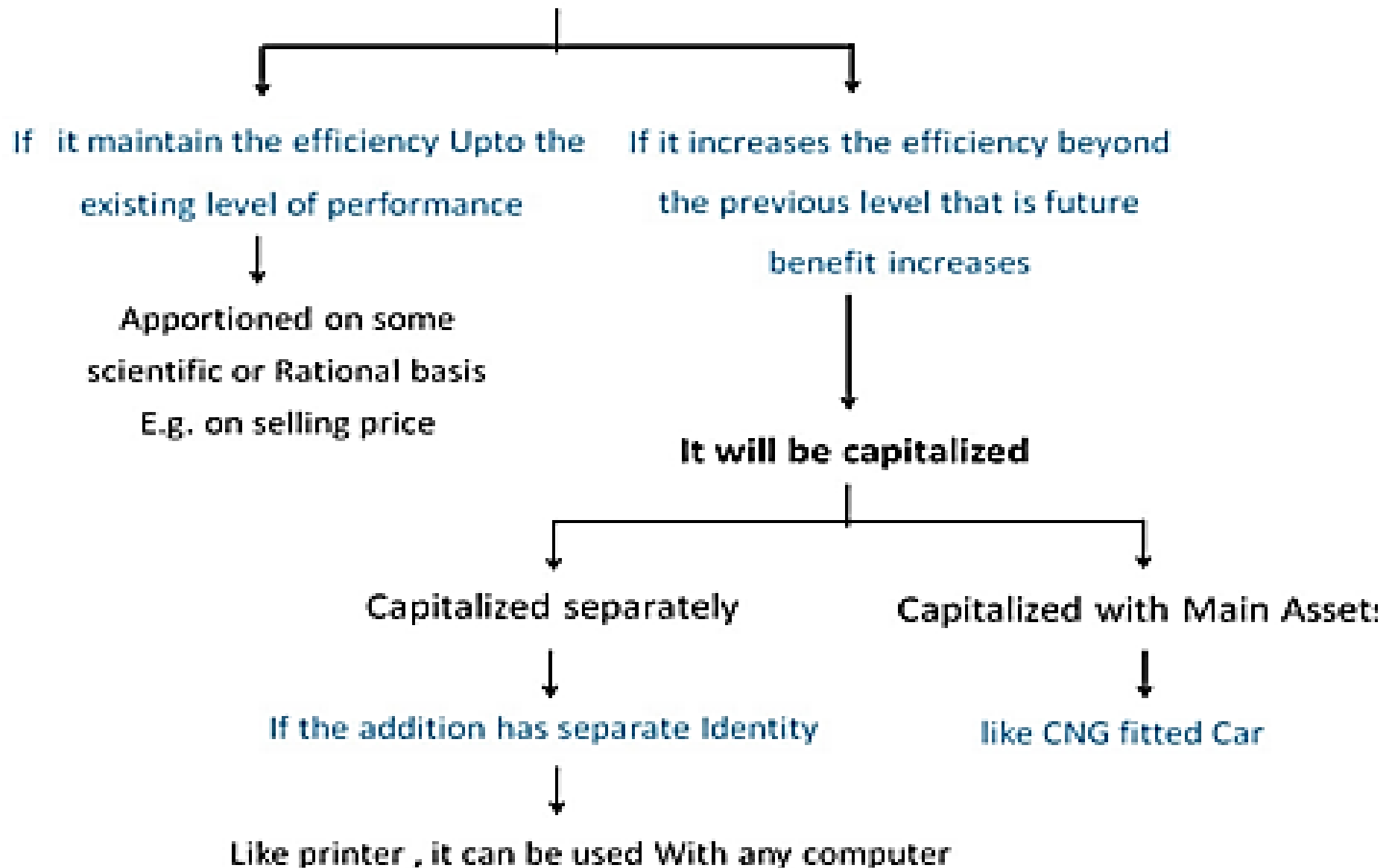
Salvage value

The costs the company needs to pay to obtain the disposals of PPE: for example, to avoid the nature pollution or to recycle the materials from which the item of PPE was made

The change of asset's carrying amount as a result of revaluation shall be treated in the following way:

Change in Carrying Amount	Where	
Increase	Other comprehensive income (heading "Revaluation surplus")	Profit or loss if reverses previous revaluation decrease of the same value
Decrease	Profit or loss	Other comprehensive income if reduces previously recognized revaluation surplus (heading "Revaluation surplus")

Improvement in Fixed Assets



TEST FOR PREVIOUS LEARNING MATERIALS UNDERSTANDING

Answer the questions about the fixed capital of the firm:

1. The terms Firm, Manufacture, Enterprise, Factory, Organization - are the synonyms in economic theory and practice. (TRUE/FALSE)
2. Choose the item which is not included in fixed capital:
 - 2.1 factory building;
 - 2.2 instruments for repairing of the furniture;
 - 2.3 director's office furniture.
3. Amortisation (or amortization) is paying off an amount owed over time by making planned, incremental payments to accumulate special fund for renewing the fixed assets (TRUE/FALSE)

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Impairment

IAS 36 Impairment of Assets that prescribes rules for reviewing the carrying amount of assets, determining their recoverable amount and impairment loss, recognizing and reversing impairment loss and more.

IAS 16 states that compensation from third parties for items of property, plant and equipment that were impaired, lost or given up shall be included in profit or loss when the compensation becomes receivable.

For example, claim for compensation of damage on insured property from insurance company is recognized to profit or loss when insurance company accepts claim, closes the case and agrees to compensate (or after whatever procedure is agreed in the insurance contract).

Derecognition

IAS 16 prescribes that the carrying amount of an item of property, plant and equipment shall be derecognized on disposal; or when no future economic benefits are expected from its use or disposal.

The gain (not classified as revenue!) or loss arising from the derecognition of an item of property, plant and equipment shall be included in profit or loss when the item is derecognized. The gain or loss from the derecognition is calculated as the net disposal proceeds (usually income from sale of item) less the carrying amount of the item.

When to derecognize PPE?

IFRS box

On disposal

No future economic benefits expected

GAIN or LOSS

= Net Disposal Proceeds - Carrying Amount



Depreciation

Depreciation is defined as the systematic allocation of the depreciable amount of an asset over its useful life.

The items of PPE are usually depreciated in order to maintain matching principle – as they are in operation for more than 1 year, they assist in producing the revenues in more than 1 year and therefore, their cost shall be spread among those years in order to match the revenue they help to produce.

When dealing with the depreciation please do have 3 basic things in mind:

Depreciable amount: Depreciable amount is simply HOW MUCH you are going to depreciate. It is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation period: Depreciation period is simply HOW LONG you are going to depreciate, and it is basically asset's useful life.

Useful life is the period over which an asset is expected to be available for use by an entity; or the number of production or similar units expected to be obtained from the asset by an entity.

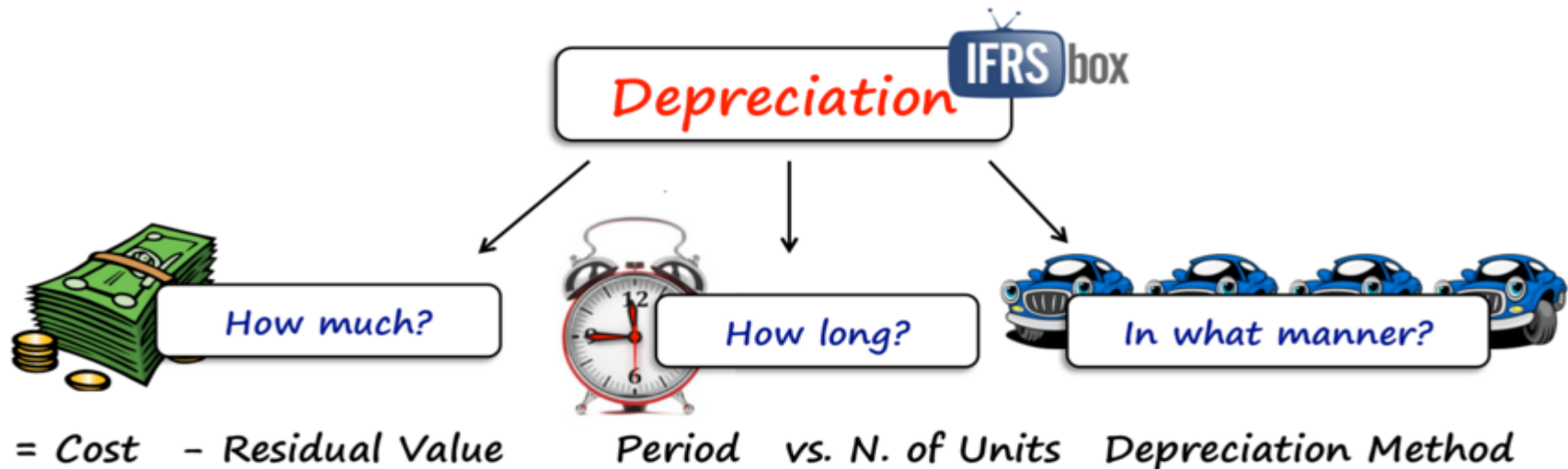
Depreciation

IFRS16 lists several factors that shall be considered when establishing item's useful life:

- expected usage of the item,
- expected physical wear and tear,
- technical or commercial obsolescence of the item, and
- legal or other limits on the use of the asset.

Useful life and asset's residual value (input to depreciable amount) shall be reviewed **at least at the end of each financial year**.

If there is a change in the expectations comparing to previous estimates, then change shall be accounted for as a change in an accounting estimate in line with IAS 8 (no restatement of previous periods).



Depreciation

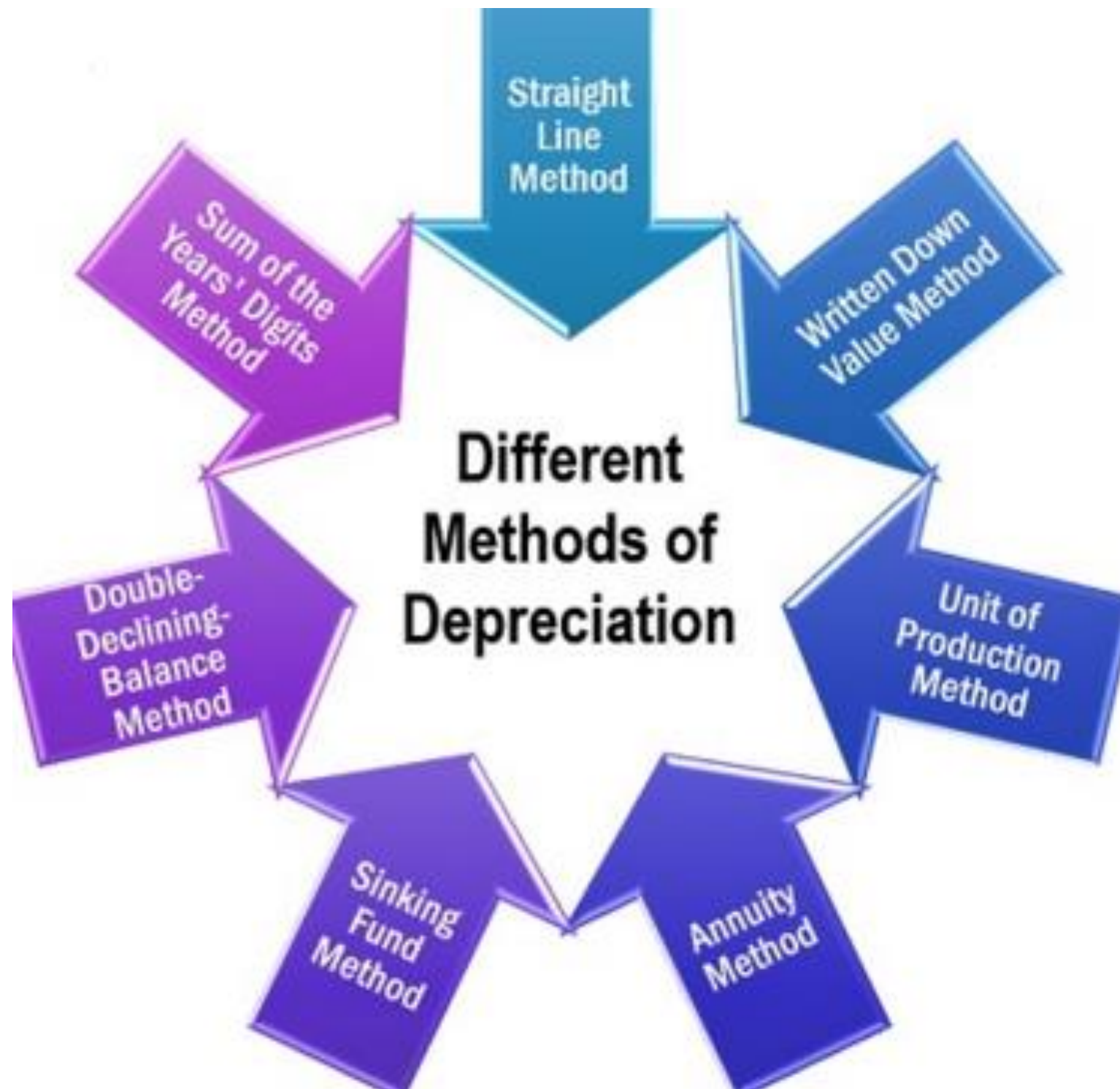
Depreciation method: Depreciation method is simply HOW, IN WHAT MANNER you are going to depreciate. The depreciation method used shall reflect the **pattern** in which the asset's future economic benefits are expected to be consumed by the entity.

An entity may select from variety of depreciation methods, such as straight-line method, diminishing balance method and the units of production methods.

Selected method shall be reviewed at least at the end of each financial year. If there is a change in the expected pattern of asset's usage, then the depreciation method shall be changed and be accounted for as a change in an accounting estimate in line with IAS8 (no restatement of previous periods).

Depreciation shall be recognized in profit or loss unless it is capitalized into the carrying amount of another asset (for example, inventories, or another item of property, plant and equipment).

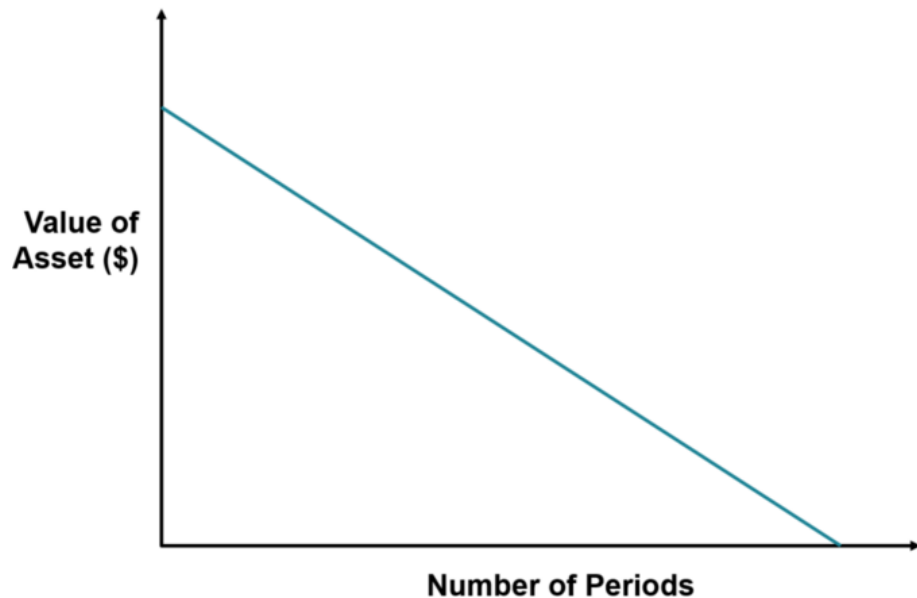
Each part of an item of property, plant and equipment with a cost that is significant in relation to the total cost of the item shall be depreciated separately. For example, aircraft interior cost might be depreciated separately from the remaining airplane cost.



What is Straight Line Depreciation?

With the straight-line depreciation method, the value of an asset is reduced uniformly over each period until it reaches its salvage value. Straight line depreciation is the most commonly used and straightforward depreciation method for allocating the cost of a capital asset. It is calculated by simply dividing the cost of an asset, less its salvage value, by the useful life of the asset.

Straight Line Depreciation



Straight Line Depreciation Formula

The straight line depreciation formula for an asset is as follows:

$$\text{Annual Depreciation Expense} = \frac{(\text{Cost of the Asset} - \text{Salvage Value})}{\text{Useful Life of the Asset}}$$

Where .

Cost of the asset is the purchase price of the asset

Salvage value is the value of the asset at the end of its useful life

Useful life of asset represents the number of periods/years in which the asset is expected to be used by the company

Additionally, the straight line depreciation rate can be calculated as follows:

$$\text{Straight Line Depreciation Rate} = \frac{\text{Annual Depreciation Expense}}{(\text{Cost of the Asset} - \text{Salvage Value})}$$

Straight Line Method

Advantages

- **It is easy to understand and the calculations are simple.**
- **The valuation of the asset appearing on the balance sheet each year is reasonably fair,**
- **Complies with the Income Tax Act in the vast majority of the cases.**

Disadvantage

- **The charge to the Profit and Loss account increases over the years;**
 - **for in the first year or two repairs will be uncommon, but as the machine gets older it will require more frequent attention.**

Written Down Value Method (WDV) of Depreciation

It is also known as Reducing Balance or Reducing Installment Method or Diminishing Balance Method. Under this method, the depreciation is calculated at a certain fixed percentage each year on the decreasing book value commonly known as WDV of the asset (book value less depreciation).

The use of book value (the balance brought forward from the previous year) and fixed rate of depreciation result in decreasing depreciation charges over the life span of the asset.

While applying the depreciation rate both salvage or scrap value and removal costs are ignored. It is not possible to reduce the book value to zero; but it can be reduced close to its salvage value at the end of its useful life.

The rate of depreciation may be determined using the following formula:

$$\text{Depreciation Rate} = 100 \left(1 - n \sqrt{\frac{S}{C}} \right) \text{ where } n = \text{number of years}$$

S = Salvage value

C = Cost of asset

Written Down Value Method

Advantages

- As this method equalizes the total charges of using the asset (i.e., the amount of depreciation plus repair charges) from year to year, it is considered more equitable than straight-line method. This is because depreciation charges decline each year whereas repair charges increase year by year.
- It matches the service of the asset with the depreciation charge. When asset is more efficient in the initial years, higher depreciation is charged compared to later years. It is true about fixed assets such as motor vehicles.
- It recognizes the risk of obsolescence by charging the major part of depreciation in the early years of the life of the asset.
- It results in a better cash flow through tax deferral as under this method, the net income to be taxed is lower in the initial years and higher in subsequent years.
- As and when additions are made to the asset, fresh calculations of depreciation are not necessary.
- Income-tax authorities recognize this method.

Written Down Value Method

Disadvantages

- In subsequent years the original cost of the asset is completely lost sight of.
- The asset can never be reduced to zero.
- This method does not take into consideration the interest on capital invested in the asset.
- This method requires elaborate book-keeping. The determination of correct rate of depreciation is a complex task.

This method is most suitable to those assets that have more efficiency in the beginning and late on decreases year after year.

This method is usually adopted for plant and machinery, fixtures and fittings, motor vehicles, etc.

Units of Production Method

The units of production method is based on an asset's usage, activity, or units of goods produced during the year. Therefore, depreciation would be higher in periods of high usage and lower in periods of low usage. This method can be used to depreciate assets where variation in usage is an important factor, such as cars based on miles driven or photocopiers on copies made.

The formula for the units of production method:

Depreciation Expense = (Number of units produced / Life in number of units) x (Cost – Salvage value)

Units of Production Method

Advantages

- Reflect more closely actual depreciation of assets with different levels of activity.
- Matches more accurately cost with revenue.
- Relates depreciation to activity of an depreciable asset.

Disadvantages

- If a depreciable asset has no activity, there won't be any depreciation expensed regardless that machinery losing value making this accounting method unacceptable.
- Cannot be applied to all depreciable assets equally (items such as building or furniture which depreciation depends on passage of time).
- Calculations can be complex if perform them manually.

Annuity Method

Under this method, it is assumed that the amount spent in the purchase of the asset is an investment which should yield interest. The amount spent in acquiring an asset assumed as an investment and interest is charged at a certain rate on the diminishing balance of the asset and is debited to Asset Account and credited to Interest Account which is transferred to Profit and Loss Account.

The asset is credited every year with a fixed amount of depreciation. The amount of depreciation to be charged every year is such that in spite of asset being debited with interest every year, the asset is reduced to zero or its residual value.

The amount of depreciation is calculated from the ready Annuity Tables. The amount of depreciation will be different according to the rate of interest and the life-time of the asset.

The net burden on the Profit and Loss Account goes on increasing year after year. This is because depreciation that is debited to Profit and Loss Account is constant, and the interest being credited goes on decreasing year after year.

When additions are made to the asset account, calculations have to be revised. This method is used in the case of leases having large amounts spread over a number of years.

Annuity Method

Advantages

- The amount of depreciation to be charged is ascertained from Annuity Tables. Therefore, this method is scientific.
- This method provides for recovery of invested capital along with interest. This is a great advantage.

Disadvantages

- Calculation of depreciation becomes very difficult when additions are made to assets.
- Calculation of interest is arbitrary.
- This system is not at all suitable for those assets which are of small value.

Sinking Fund Method

The methods discussed in the previous posts do not help in accumulating the **amount of depreciation** which can be readily available for the replacement of the asset when it is completely unusable. Sinking fund method is designed in such a way that it incorporates the advantages of depreciating the assets as well as accumulating the necessary amount for its replacement.

Under this method, a fixed amount is debited every year to depreciation amount and credited to depreciation fund account instead of asset account. The asset is shown at its original cost, in the books, in every year. The amount which is credited in the sinking fund, is invested in gilt-edged securities. The interest on such investment is also invested in similar securities. The securities are readily convertible into cash. Investments are purchased every year. When the assets become useless, the investments are sold away and thus new assets can be purchased without disturbing the financial position of the firm. The sinking fund method is adopted specially when it is desired not merely to write off an asset but also to provide enough funds to replace the asset at the end of its working life. The amount set aside as depreciation is such that this, with compound interests, will be sufficient to meet the cost of new asset, less scrap value, if any, for replacement. The depreciation under this method can be calculated with the help of sinking fund table for a particular period at a given rate of interest.

Sinking fund Method

Advantages

- Makes available a sum of money for the replacement of asset by maintaining separate provision.
- Helps to strengthen financial position of a company.

Disadvantages

- The burden on profit and loss account goes on increasing as years pass by since the amount of depreciation every year remains same, but the amount spent on repairs goes on increasing as the asset become old.
- Sinking fund method creates complication due to frequent investment.
- Prices of securities may fall at the time when they are to be realized as a result of which loss may have to be suffered.

Double-Declining-Balance Method

Is also called an accelerated depreciation method. In this method, companies take maximum depreciation charges in the initial years of useful life of the asset to lower profits in the income statements, instead of the later years when the asset loses its value. The lowering of profits in the initial years enables lower income taxes during that time.

Formula:

Depreciation = 2 X Straight Line Depreciation % X *Book Value (beginning of the accounting period)**

The 200% declining balance method is the most commonly used, but other less than double methods are acceptable.

This method is recommended for those assets that have higher maintenance cost in later years of its service life.

Double-Declining-Balance Method

Advantages

- Declining balance depreciation methods better match costs to revenues because it takes more depreciation in the early years of an assets' useful life compare to the straight-line depreciation method (according to what the matching rule says that expenses must be matched up against the revenues that those expenses helped to generate).
- Reflect better the difference in usage of an asset from one period to the other compare to the straight-line depreciation method.

Disadvantages

- Might be harder to compute compare to the straight-line depreciation method
- They have declining amounts of depreciation expense which creates greater disparity between the costs.
- Decreasing depreciation expense and increasing maintenance of an asset might smooth the income.

Sum of the Years' Digits Method

The sum-of-the-years-digits method is one of the accelerated depreciation methods. A higher expense is incurred in the early years and a lower expense in the latter years of the asset's useful life.

In the sum-of-the-years digits depreciation method, the remaining life of an asset is divided by the sum of the years and then multiplied by the depreciating base to determine the depreciation expense.

The depreciation formula for the sum-of-the-years-digits method:

Depreciation Expense = (Remaining life / Sum of the years digits) x (Cost – Salvage value)

Sum of the Years' Digits Method

Advantages

- The sum of the years' digits depreciation method is allowed under many accounting standards, including U.S. GAAP and IFRS, and is accepted for tax reporting.
- The higher up-front deduction allows for a reduction in income tax expense in the early years of an asset's useful life.
- It can be applied to the assets subject to rapid obsolescence, such as computers.

Disadvantages

- The sum of the years' digits depreciation method does not create larger tax deductions. The higher up-front deductions during the early years will be followed by lower deductions in later years and accordingly higher income tax expense.
- Using accelerated methods of depreciation raises the risk of recaptured depreciation. If an asset will be sold at a higher price than its current book value, the difference will be recognized as taxable income by tax authorities.

Fixed capital provision, structure and efficiency indicators

Indicators of provision with the Fixed Assets:

- Capital intensity indicator :

$$CI = FA_{va} / Q$$

FA_{va} – average value of the fixed assets during the certain period (quarter, year);

Q – Volume of production during the same period.

Fixed capital provision, structure and efficiency indicators

-

Average annual Production Fixed Assets Value

$$FAPVaa = V_{beg.} + (V_{po.} * k/12) - (V_{p\ out\ o.} * m/12),$$

meaning:

$V_{beg.}$ – FAp original value in the beginning of the year;

$V_{po.}$ – Value of the fixed assets, put in operation during the year;

k – number of months from the date of placing in operation to the end of the year;

$V_{p\ out\ o.}$ – Value of the fixed assets, placed out of operation during the year;

m – number of months till the end of the year from the date the fixed assets were out of operation.

Indicators of provision with the Fixed Assets:

- Level of labor mechanization Indicator:

$$LM = FA_{va} / E,$$

E – Number of Employees, during the certain period.

Indicators of provision with the Fixed Assets:

- Real value of the fixed productive assets is reflected in capital business value Ratio:

$$RVr = Vb / CVb$$

Vb – Book value of the fixed productive assets;

CVb – Capital value of the Business.

Indicators of the fixed assets' condition estimation:

- Deterioration Ratio:

$$Dr = Da / Vo$$

Da – Amount of Deterioration;

Vo – Original value of the Fixed Assets.

Indicators of the fixed assets` condition estimation:

- Fixed assets` Adaptability Ratio:

$$Ar = Da / Vo = 1 - Dr;$$

Indicators of the fixed assets` condition estimation:

- **Fixed assets Renewal Ratio:**

$$Rr = V \text{ rep.per.} / Vo \text{ by end of rep.per.}$$

V rep.per. – Value of the fixed assets, bought during the reporting period;

Vo by end of rep.per. - Original value of the fixed assets by the end of the reporting period.

Indicators of the fixed assets` condition estimation:

- **Fixed assets Dropout Ratio:**

$$Dr = V \text{ d-o} / Vo \text{ beg.rep.per.}$$

V d-o – Value of the dropped-out fixed assets;

Vo beg.rep.per. - Original value of the fixed assets at the beginning of the reporting period.

Fixed Assets` Efficiency estimation Indicators:

- Capital productivity of the fixed assets:

$$CP = Q / FAva$$

Q – Volume of production during the same period;

FAva – average value of the fixed assets during the certain period (quarter, year).

Fixed Assets` Efficiency estimation Indicators:

- Fixed Assets Profitability:

$$Pfa = Profit / FAva * 100\%$$

FAva – average value of the fixed assets during the certain period (quarter, year).

Business operation effectiveness is provided by:

- High level of the Fixed Assets' renewing;
- Adaptability Ratio increasing;
- Level of labor mechanization Indicator rising;
- Fixed Assets Profitability increasing;
- Capital intensity Indicator decrease.