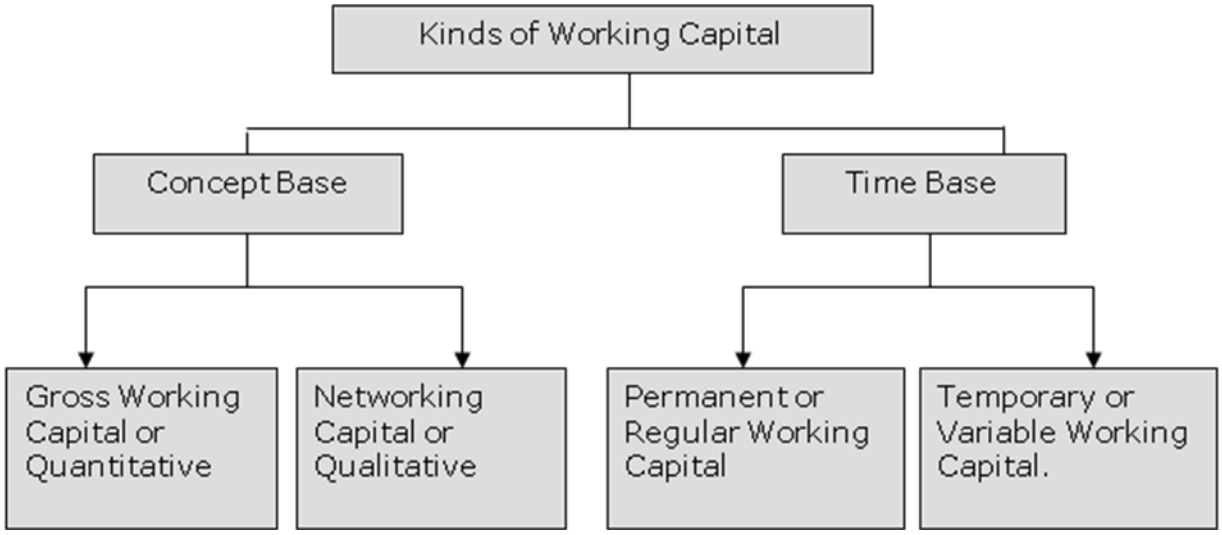
Principles of Working Capital Management

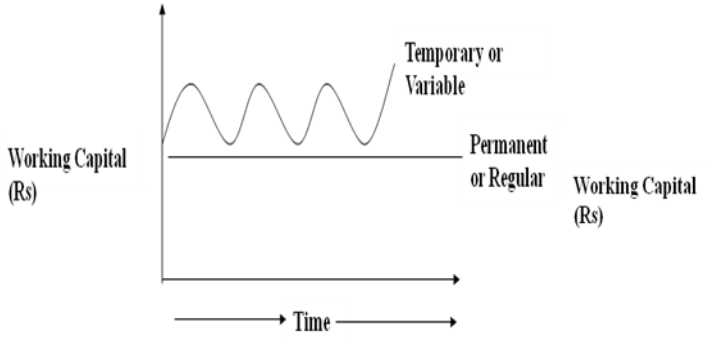
Capital of the business is broadly divided into two types: Fixed Capital and Working Capital. Fixed capital is that part of capital which is invested in fixed or permanent assets such as land, building, machinery etc. and which cannot be converted in cash in a period of one year or less, while Working capital refers to the money locked up in materials, work-in-progress, finished goods, receivables and cash etc. which can be converted into cash in a period of one year. Since these assets are known as current assets, working capital may be known as the capital invested in current assets.

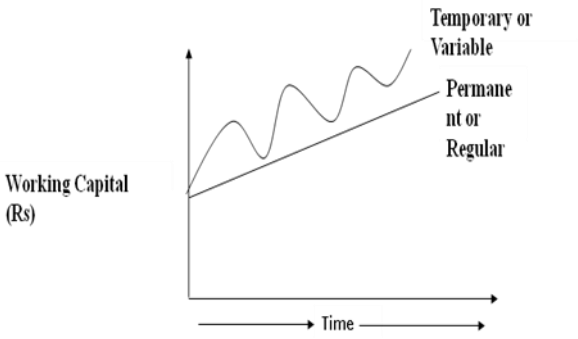
- **Gross working capital (GWC):** GWC refers to the firm's total investment in current assets.
- **GWC focuses on**
    - Optimization of investment in current
    - Financing of current assets
- **Net working capital (NWC):** NWC refers to the difference between current assets and current liabilities.
- **NWC focuses on**
    - Liquidity position of the firm
    - Judicious mix of short-term and long-term financing
    -
- **Net Working Capital (NWC) = Current Assets – Current Liabilities**
- **Current assets (CA)** are the assets which can be converted into cash within an accounting year (or operating cycle) and include cash, short-term securities, debtors, (accounts receivable or book debts) bills receivable and stock (inventory).
- **Current liabilities (CL)** are those claims of outsiders which are expected to mature for payment within an accounting year and include creditors (accounts payable), bills payable, and outstanding expenses.
- NWC can be positive or negative.
    - Positive NWC = CA > CL
    - Negative NWC = CA < CL

Types of Working Capital:



- **Permanent** or **fixed working capital**: A minimum level of current assets, which is continuously required by a firm to carry on its business operations, is referred to as permanent or fixed working capital.
- **Fluctuating** or **variable working capital**: The extra working capital needed to support the changing production and sales activities of the firm is referred to as fluctuating or variable working capital.





Objectives of Working Capital:

- To ensure optimum investment in current assets
- To strike a balance between the twin objectives of liquidity and profitability in the use of funds
- To ensure adequate flow of funds for current operations

- To speed up the flow of funds or to minimize the stagnation of funds

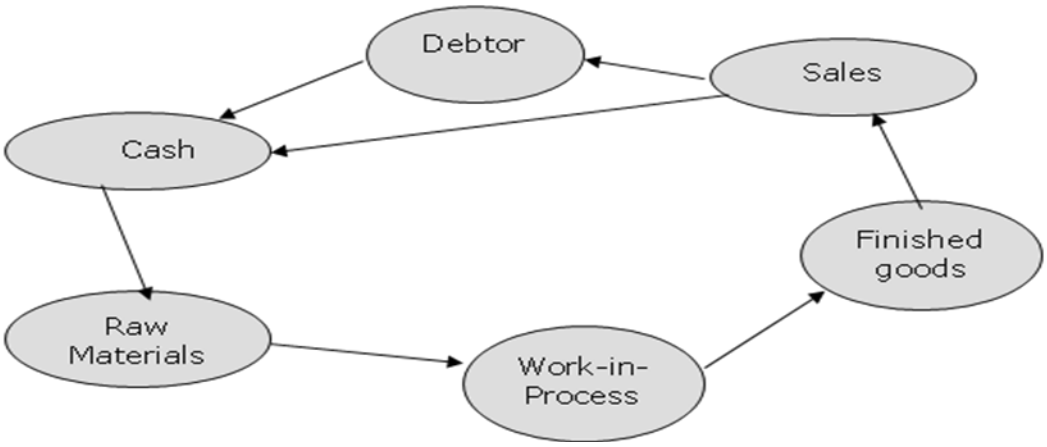
Determinants of Working Capital:

- Nature of business
- Market and demand
- Technology and manufacturing policy
- Credit policy
- Supplies' credit
- Operating efficiency
- Inflation

Operating Cycle:

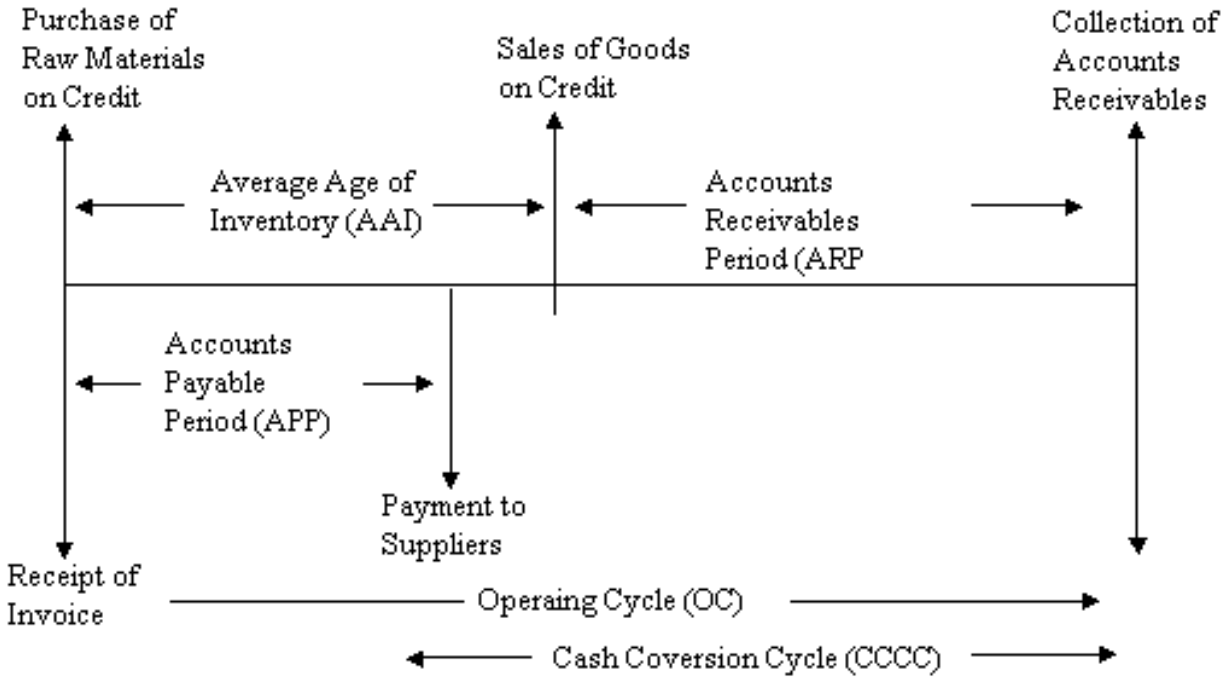
- Operating cycle is the time duration required to convert sales, after the conversion of resources into inventories, into cash. The operating cycle of a manufacturing company involves three phases:
  - ***Acquisition of resources*** such as raw material, labour, power and fuel etc.
  - ***Manufacture of the product*** which includes conversion of raw material into work-in-progress into finished goods.
  - ***Sale of the product*** either for cash or on credit. Credit sales create account receivable for collection.
- The length of the operating cycle of a manufacturing firm is the sum of:
- **inventory conversion period** (ICP).
- **Debtors** (**receivable**) **conversion period** (DCP).
- Inventory conversion period is the total time needed for producing and selling the product. Typically, it includes:
- **raw material conversion period** (RMCP)
- **work-in-process conversion period** (WIPCP)

- **finished goods conversion period** (FGCP)
- **Creditors** or **payables deferral period** (CDP) is the length of time the firm is able to defer payments on various resource purchases.
- The debtors' conversion period is the time required to collect the outstanding amount from the customers.
- **Gross operating cycle** (GOC): The total of inventory conversion period and debtors conversion period is referred to as gross operating cycle (GOC).
- **Net operating cycle** (NOC): NOC is the difference between GOC and CDP.
- Cash conversion cycle (CCC): CCC is the difference between NOP and non-cash items like depreciation.



Cash Conversion Cycle:

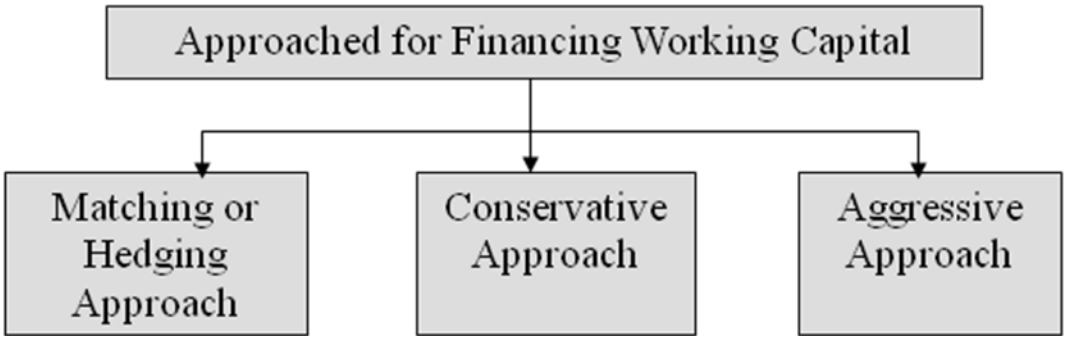
Cash cycle = Operating Cycle - Time take to pay Suppliers



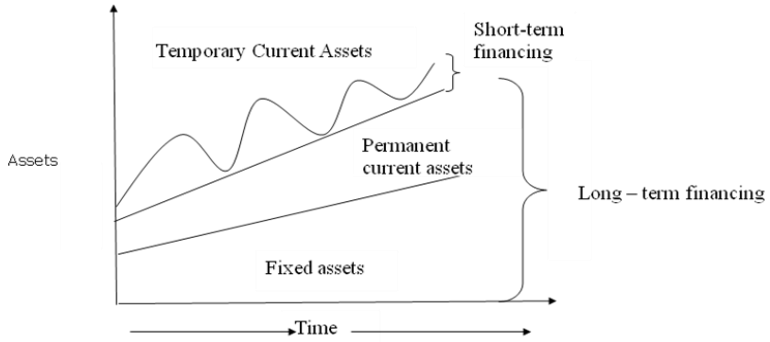
Sources of Working Capital:

- Short-term financing
- Long-term financing
- Spontaneous financing

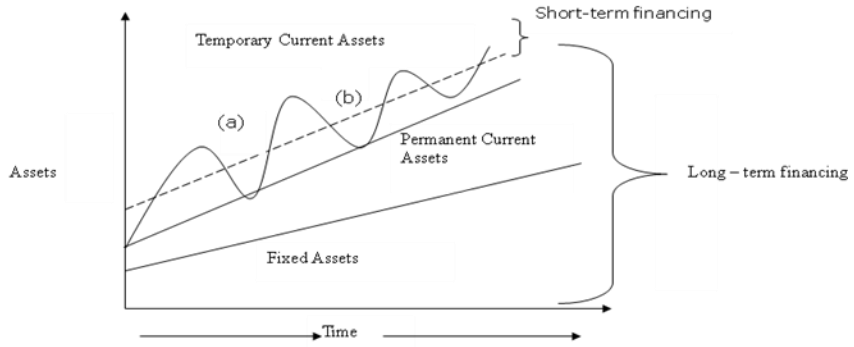
Working Capital Finance Policies:



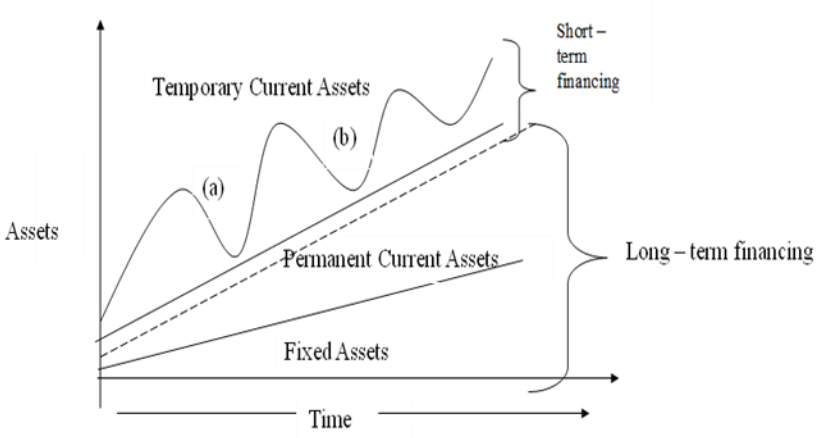
- **Matching or Hedging Approach:** Here funds are raised for a period which is matching with the life of an asset.



- **Conservative Approach:** Use of long-term funds for financing short-term funds to finance a part of temporary current assets.



- **Aggressive Approach:** A firm is aggressive in financing working capital when it uses short-term funds to finance a part of permanent current assets.



Statement of Working Capital Estimation:

Particulars	*Amount (Rs.)*	*Amount (Rs.)*
A. Estimation of Current Assets:	XXX	
i) Raw materials	XXX	
ii) Work-in-process	XXX	
Raw materials (full cost) XX	XXX	
Direct labour (to the extent of completed stage) XX	XXX	
Overheads (to the extent of completed stage) XX		
iii) Finished goods inventory		
iv) Debtors		
v). Cash balance required		
Total Current Assets		**XXX**
B. Estimation of Current Liabilities:	XXX	
i) Creditors		
ii) Expenses	XXX	
Overheads XX		
Labour XX		
Total Current Liabilities		XXX
C. Working Capital (A-B)		XXX
Add: Contingency (Percentage on working capital i.e. C)		XXX
D. Working Capital Required		XXXX

Estimation of Investment in Current Assets:

- RMs = [BP (in units) x RMC permit x ARM HP (days)] ÷ 12 months or 365 days
- WIPs: BP (in units) **x** EWIPC per unit **x** ATSWIP (months/ days) ÷ 12 months / 365 days

- **Investment in Finished Goods Inventory**
  BP (in units) **x** CGS per unit **x** FGHP (months/ days) ÷ 12 months / 365 days

- **Investment in Debtors**
  BCS (in units) **x** CS per unit **x** ADCP (months/ days) ÷ 12 months / 365days

Estimation of Spontaneous Source of WC:

a) Trade Debtors

BP (in units) **x** RMC per unit **x** CPAS (months/ days) ÷ 12 months / 365 days

b) Direct Wages

BP (in units) **x** DWC per unit **x** LPW (months/ days) ÷ 12 months / 365 days

c) Overheads

BP (in units) **x** OHC per unit of production **x** LPH (months/ days) ÷ 12 months / 365 days

Weighted Operating Cycle Analysis:

Steps:

(1) Calculation of the duration of various stages of the operating cycle

(a) Duration of RMs = Average stock of RM inventory / Average RM consumed per day

(b) Duration of WIP process =Average WIP inventory / Average WIP val. committed per day

(c) Duration of Finished goods = Average stock of finished goods / Average cost of products sold per day

(d) Duration of debtors = Average debtors / Average credit sales per day

(e) Duration of creditors = Average creditors / Average credit purchases per day

(2) Determine the weights for the various stages of the operating cycle

Stage of Operating Cycle	**Formula for Weight Calculation**
Raw Materials (RM)	Cost of RM per unit ÷ Selling Price per unit
Work-in-process (WIP)	Cost of WIP per unit ÷ Selling Price per unit
Finished Goods (FG)	Cost of Goods Sols per unit ÷ Selling Price per unit
Sundry Debtors (SD)	Selling Price per unit ÷ Selling Price per unit
Sundry Creditors (CD)	Cost of RM per unit ÷ Selling Price per unit

(3) Calculate weighted operating cycle (WOC)

WOC = (RM weight x RM Duration) + (WIP weight x WIP Duration) + (FG weight x FG Duration) + (SD weight x SD Duration) + (SC weight x SC Duration)

Example – 1

The following information has been extracted from the records of a Company:

Product Cost Sheet	**Rs. / Unit**
Raw Materials	45
Direct Labour	20
Overheads	40
Total Cost	**105**
Profit	15
Selling Price	**120**

1. Raw materials are in stock on an average of two months.
2. The materials are in process on an average for 4 weeks. The degree of completion is 50%.
3. Finished goods stock on an average is for one month.
4. Time lag in payment of wages and overheads is 1½ weeks.
5. Time lag in receipt of proceeds from debtors is 2 months.
6. Credit allowed by suppliers is one month.
7. 20% of the output is sold against cash.
8. The company expects to keep a Cash balance of Rs. 1,00,000.
9. Take 52 weeks per annum.

The Company has planned to manufacture 1,44,000 units in the year.

You are required to prepare a statement showing the Working Capital requirements of the Company.

Example – 2

The following information has been extracted from the records of a Company:

Product Cost Sheet	**Rs. / Unit**
Raw Materials	100
Direct Labour	37.5
Overheads	75
Total Cost	**212.5**
Profit	37.5
Selling Price	**250**

The Company keeps raw material in stock, on an average for one month; work-in-progress, on an average for one week; and finished goods in stock, on an average for two weeks.

The credit allowed by suppliers is three weeks and company allows four weeks credit to its debtors. The lag in payment of wages is one week and lag in payment of overhead expenses is two weeks.

The Company sells one-fifth of the output against cash and maintains cash-in-hand and at bank put together at Rs. 37,500.

Required:

Prepare a statement showing estimate of Working Capital needed to finance an activity level of 1,30,000 units of production. Assume that production is carried on evenly throughout the year, and wages and overheads accrue similarly. Work-in-progress stock is 80% complete in all respects.

Example – 3

From the following information, find out Gross Working Capital Cycle (Operating Cycle) and Net Working Capital Cycle (Cash Cycle)

Cost Sheet of XYZ Ltd. (Rs. in Lakhs)

Sr. No.	Particulars	2015	2016	2017
1	Opening Raw Material	52	68	76
2	Purchase	256	335	456
3	Closing Balance of Raw Material	68	76	92
4	**Raw Material Consumed**	**240**	**327**	**440**
5	Wages and Salaries	81	112	153
6	Manufacturing Overheads	32	44	58
7	Depreciation	18	20	26
8	**Cost of Goods Manufactured**	**371**	**503**	**677**
9	Opening Working in Process	18	20	31
10	Closing Working in Process	20	31	46
11	**Cost of Production**	**369**	**492**	**662**
12	Opening Finished Goods	2	28	36
13	Closing Finished Goods	28	36	29
14	**Cost of Goods Sold**	**343**	**484**	**669**
15	Selling and Administration Expenses	13	19	21
16	**Cost of Sales**	**356**	**503**	**690**

Other Information		2015	2016	2017
	Sales	459	601	827
	EBIT	73	98	137
	Opening Balance of Trade Receivables	83	108	149
	Closing Balance of Trade Receivables	108	149	205
	Opening Balance of Trade Payables	37	46	80
	Closing Balance of Trade Payables	46	80	120

Receivables Management

1. The present sales of Nachiket Industries are Rs.100 million. The firm classifies its customers into 3 credit categories: A, B, and C. The firm extends unlimited credit to customers in category A, limited credit to customers in category B, and no credit to customers in category C. As a result of this credit policy, the firm is foregoing sales to the extent of Rs.10 million to customers in category B and Rs.20 million to customers in category C. The firm is considering the adoption of a more liberal credit policy under which customers in category B would be extended unlimited credit policy and customers in category C would be provided limited credit. Such relaxation would increase the sales by Rs.30 million on which bad debt losses would be 10 percent. The contribution margin ratio for the firm is 20 percent, the average collection period is 45 days, and the cost of capital is 16 percent. The tax rate for the firm is 35 percent. What will be the effect of relaxing the credit policy on the residual income of the firm?

2. Phoenix Limited currently provides 30 days of credit to its customers. Its present level of sales is Rs.150 million. The firm's cost of capital is 14 percent and the ratio of variable costs to sales is 0.70. Phoenix is considering extending its credit period to 60 days. Such an extension is likely to push sales up by Rs.12 million. The bad debt proportion on the additional sales would be 6 percent. The tax rate for Phoenix is 30 percent. What will be the effect of lengthening the credit period on the residual income of Phoenix Limited? Assume 360 days to a year.

3. The present credit terms of Indus Industries are 3/15, net 30. Its sales are Rs.470 million, its average collection period is 45 days, its variable costs to sales ratio, V, is 0.85, and its cost of capital is 12 percent. The proportion of sales on which customers currently take discount, is 0.4. Indus is considering relaxing its credit terms to 5/15, net 30. Such a relaxation is expected to increase sales by Rs.20 million, increase the proportion of discount sales to 0.6, and reduce the ACP to 40 days. Indus's tax rate is 30 percent. What will be the effect of liberalising the cash discount on residual income?

4. Garibdas Limited is considering relaxing its collection efforts. Presently its sales are Rs.70 million, its average collection period 20 days, its variable costs to sales ratio 0.60, its cost of capital 16 percent, and its bad debt ratio 0.05. The relaxation in collection efforts is expected to push sales up by Rs.10 million, increase the average collection period to 30 days, and raise the bad debts ratio to 0.08. The tax rate of the firm is 35 percent. What will be the effect of relaxing the collection effort on the residual income of the firm?